Panasonic

Operating Instructions

Impact Dot Matrix Printer

KX-P2023

Quiet Printing

Before operating this unit, please read these instructions completely.

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.

FOR USERS IN CANADA

L'interférence radioélectrique générée par cet appareil numérique de type B ne dépasse pas les limites énoncées le Règlement sur les perturbations radioélectriques, section appareil numérique, du Ministère des Communications.

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

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. **KX-P2023**   NAME OF DEALER _____

SERIAL NO. _____   DATE OF PURCHASE _____

Any details given in these Operating Instructions are subject to change without notice.

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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.

Features

Printer Emulation:	Epson LQ-850 and IBM Proprinter X24E
Setup Disk:	A Printer-Driver for Windows Ver. 3.1, Initial Setup program and Command Reference program
Super Quiet Mode:	Reduces printing noise
Fonts:	3 Draft (Pica, Elite, Micron) 4 LQ (Courier, Bold PS, Prestige, Script)
Printing Speed:	Draft — 192 characters per second (12 cpi) LQ — 64 characters per second (12 cpi)
Paper Handling:	Friction and Push Tractor
Tear Off:	Advances fanfold paper's perforation to tear position
Paper Parking:	Allows single sheets/envelopes to be used without removing/wasting fanfold paper
Cut Sheet Feeder Option (KX-PT12):	Provides fast and automatic feeding of single sheets
Buffer Chip Option (KX-P44):	A 32K chip is available to expand your unit's memory capacity from 14K to 46K

Cautions

Operating Environment

This printer can be installed in any normal office environment.
No special wiring or cooling is required.

- Do not use the printer under the following conditions:

    — Extremely high or low temperature
      [temperature range: 10~35°C (50~95°F)]

    — Extremely high or low humidity
      (humidity range: 30~80% RH)

    — Areas of poor ventilation
      [a minimum of 4" (10 cm) clearance on all sides is necessary to insure proper ventilation]

    — Areas of high dust concentration

    — Areas with chemical fume concentration

    — Areas with extreme vibration or when placed on an unstable or unlevel surface

    — Power Consumption:
      (MAX—150 W, Stand by—5.66 W, Selftest—35.4 W)

Precautions

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

- Keep all liquids away from the printer.

- Do not place books, paper, or other items on top of the printer.

- Do not operate the printer without paper and a ribbon cassette installed.

- Avoid prolonged use without allowing the printhead time to cool.

- Do not obstruct the movement of the printhead while in operation.

- If the printer is not going to be used for an extended period, unplug the power cord.

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.
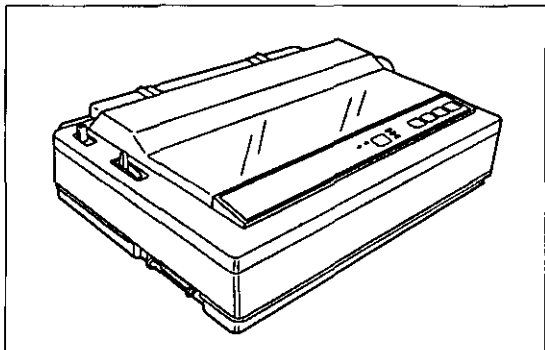
Printer (KX-P2023)
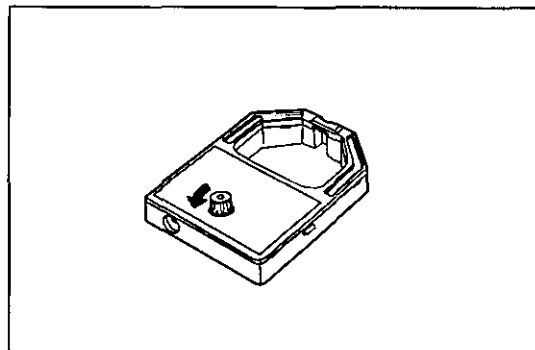
Ribbon cassette (KX-P145)
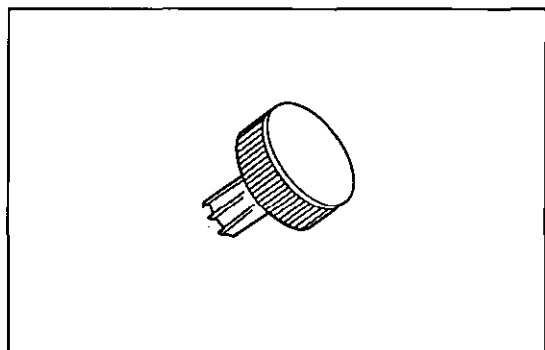
Platen knob
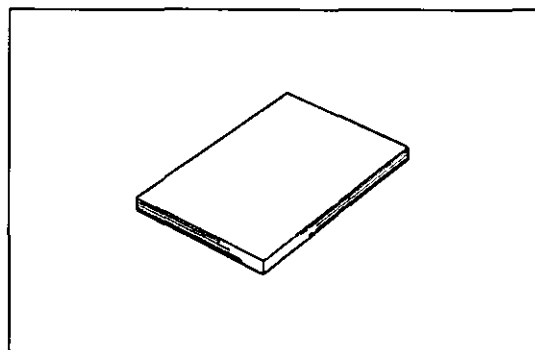
Operating manual
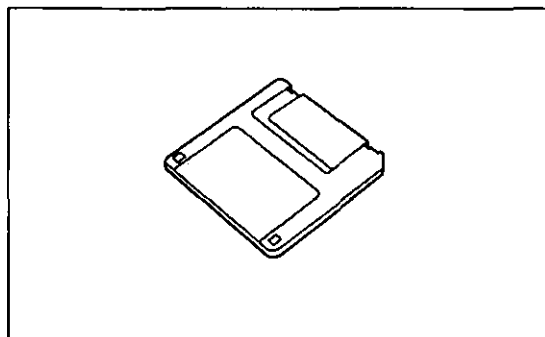
Setup Disk

- This Setup Disk contains a Printer-Driver for Windows Ver. 3.1 (☞ P. 25), an Initial Setup program (☞ P. 28) and a Command Reference program (☞ P. 54).
- To use this Setup Disk you need to have an IBM-PC or a Compatible computer.

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

Assembling the parts

❶ Fold the smoked plastic cover, and remove the protective paper.

Protective paper

Tab

Smoked plastic cover
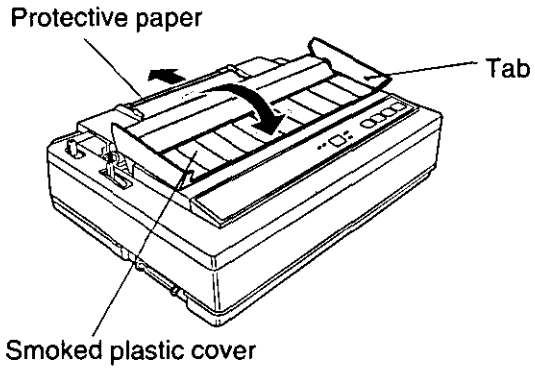
❷ Return the smoked plastic cover to its original position.
Insert the platen knob into the hole on the right side of the printer and rotate it slowly until it slips onto the shaft. Push the platen knob onto the platen shaft to secure.

Parts of the Printer

Smoked plastic cover

Paper guides (☞ P. 23)

Top cover

Platen knob (☞ P. 9)

Power switch (☞ P. 13)

Control Panel

O O	PROGRAM
● O	Courier
O ●	Prestige
● ●	Bold PS
● O	Script
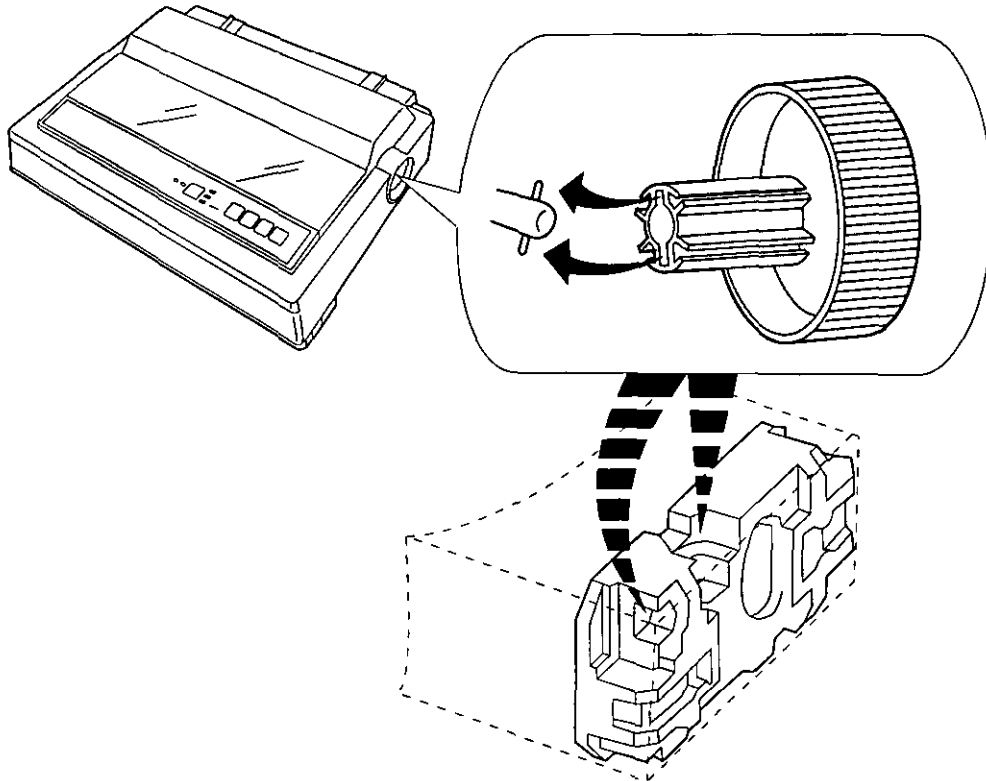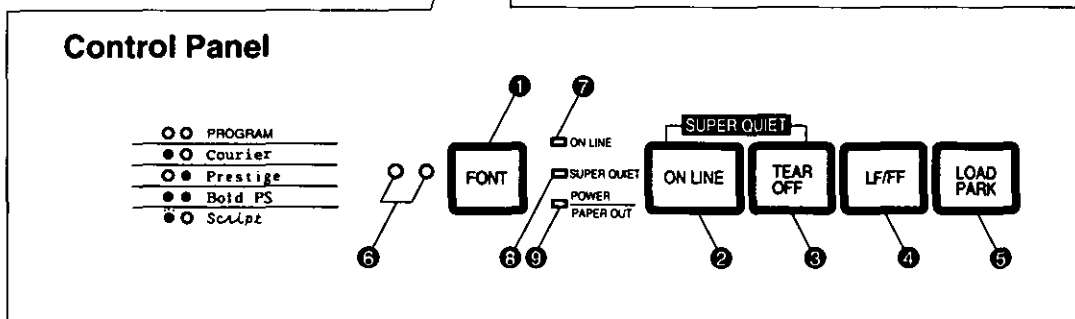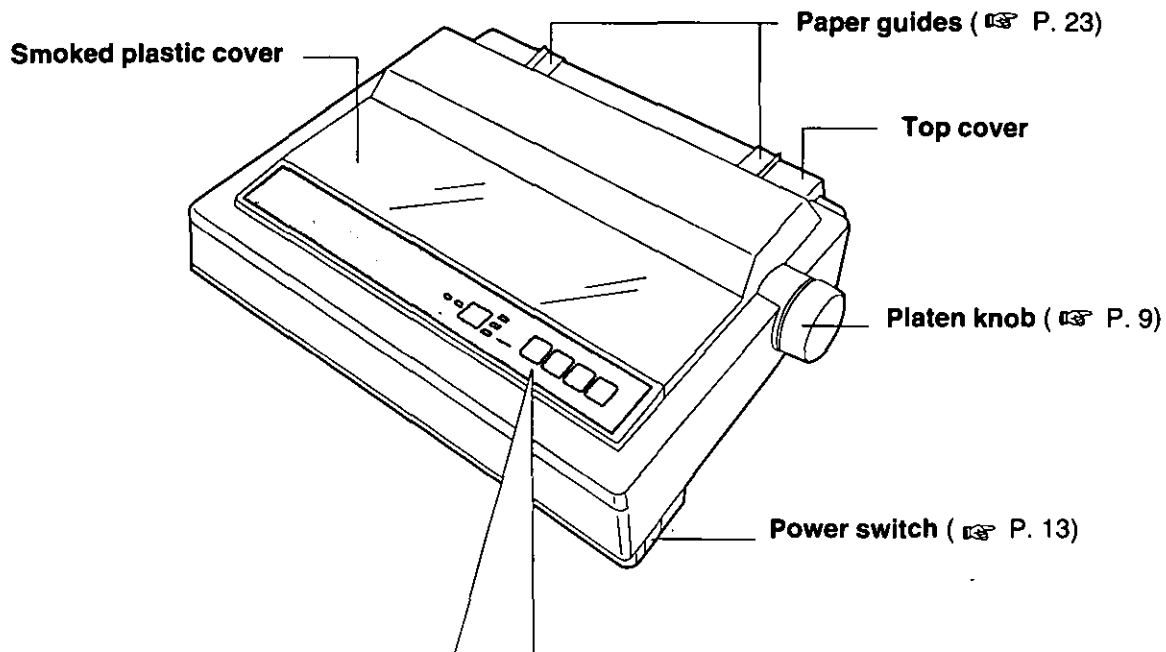
❶ FONT switch
Pressing this switch will select the font style.
(☞ P. 37)

❷ ON LINE switch
This switch opens and closes the communication line with the computer.

❸ TEAR OFF switch
Pressing this switch will advance or reverse the paper for tearing off. (☞ P. 39)

❹ 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. 39)

❺ LOAD/PARK switch
Pressing this switch will load or park the paper. (☞ P. 40)

❻ FONT indicators
These indicators identify which Font has been selected. (☞ P. 37)

❼ ON LINE indicator
This indicator is lit when the printer is in the ON LINE mode, and is out in the OFF LINE mode.

❽ 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. 38)

❾ POWER/PAPER OUT indicator
This indicator is lit when the power is on and paper is installed. It blinks when paper is not installed.

10
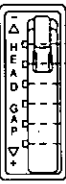
Paper Feed Selector

" ⌐ " (Friction) Single sheets and envelopes

" ⋮⋮ " (Tractor) Fanfold paper

Paper support (☞ P. 23)

Top cover

Frame ground terminal (☞ P. 12)

Centronics parallel interface connector (☞ P. 12)
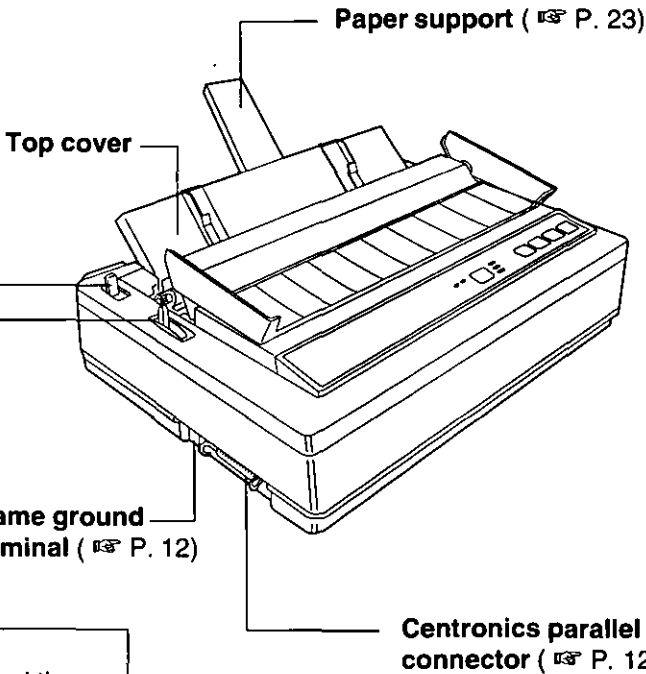
Head Gap Lever

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

Position	Used for
1 or 2	Thinner sheets
3, 4, 5 and 6	Thick or multiple sheets, envelopes

Tractors

Nameplate

Serial No. Label

Power switch (☞ P. 13)

AC power cord (☞ P. 13)

11
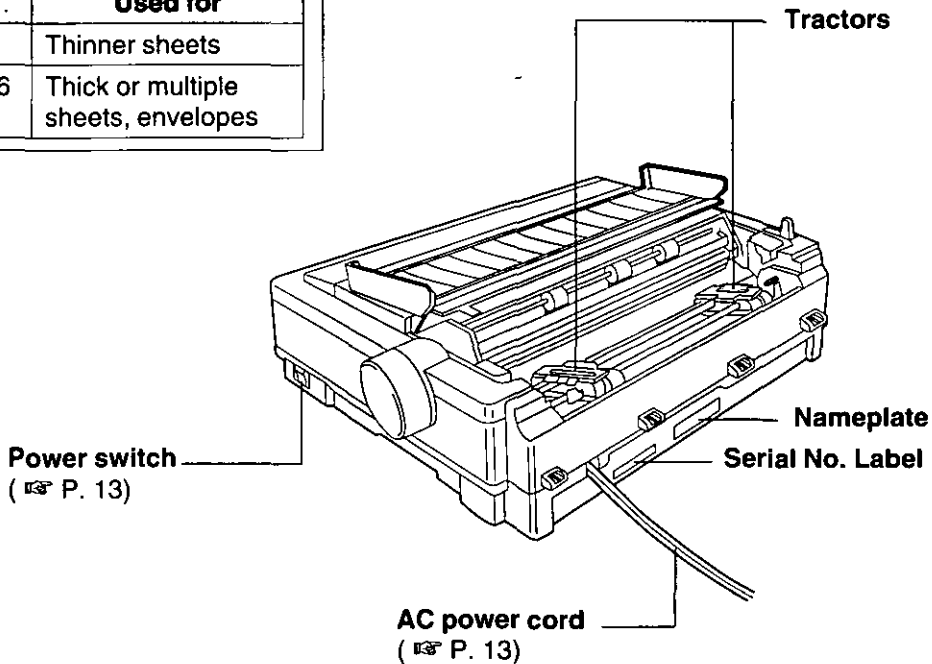
Connecting to a Computer

1a

(Left Side View)

Connector

Clips

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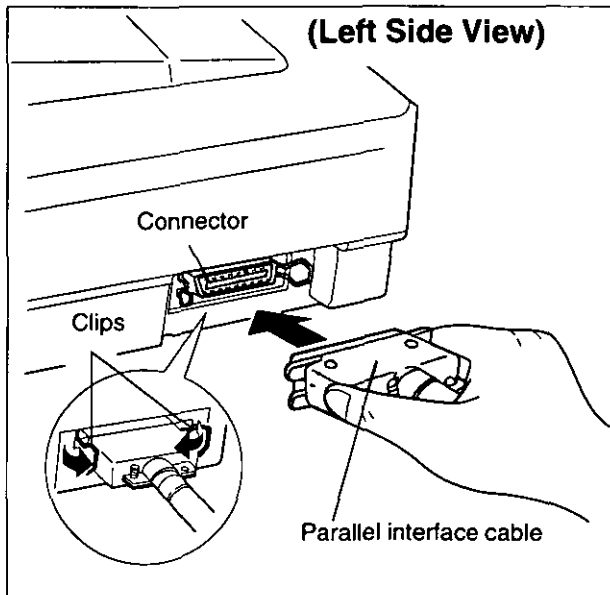
Attach the parallel interface cable from your computer and secure the printer clips.

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

1b

Frame ground terminal
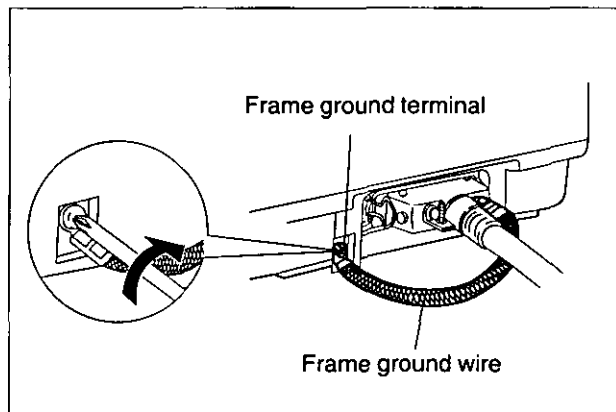
Frame ground wire

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

2

POWER
ON
OFF

AC
Socket

(Left side)

Cable support

(Front)

(Bottom)
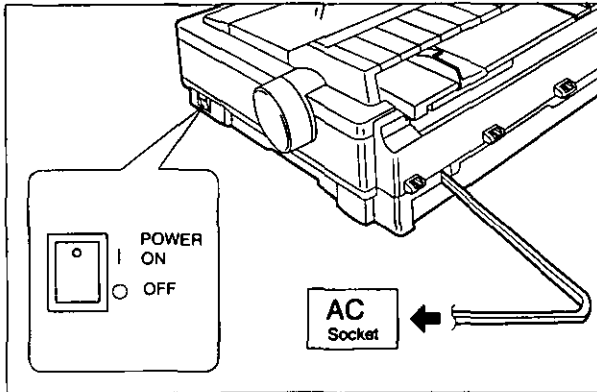
Plug printer into a grounded 3 prong AC socket.

When the power is supplied to the printer, the power indicator on the control panel will light.
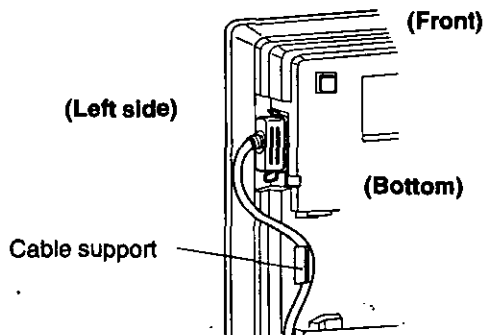
- To prevent the cable from possibly disconnecting from the printer, route the cable through the cable support which is located on the bottom of the unit

Chap. 2   Setup

Ribbon Cassette

Installing the Ribbon Cassette
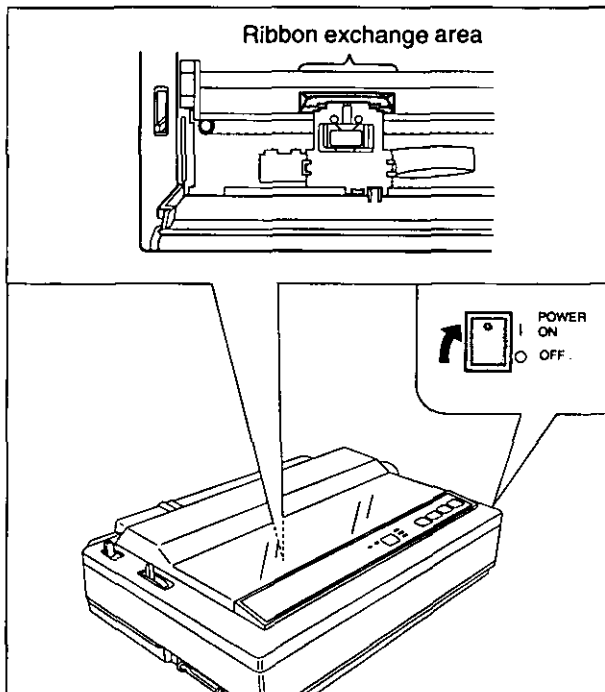
1

Ribbon exchange area

POWER
I ON
O OFF

Turn the power on.

The carriage will automatically move to the ribbon exchange area.

Note:
- The printer allows the ribbon cassette to be installed only in this area.

2

Tab

Fold the smoked plastic cover forward.

3

Tab
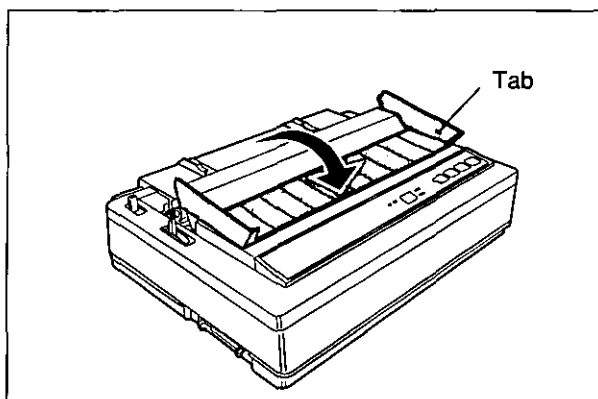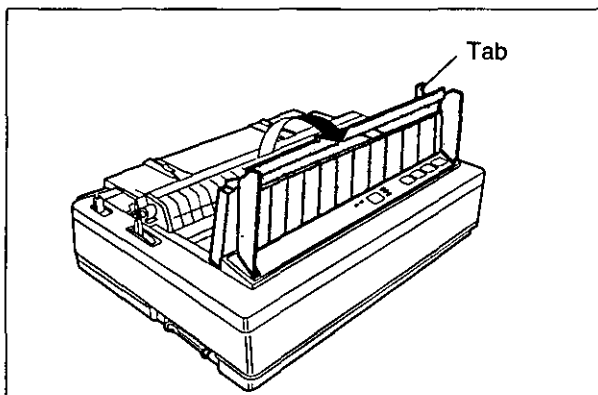
Raise the smoked plastic cover.

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

4
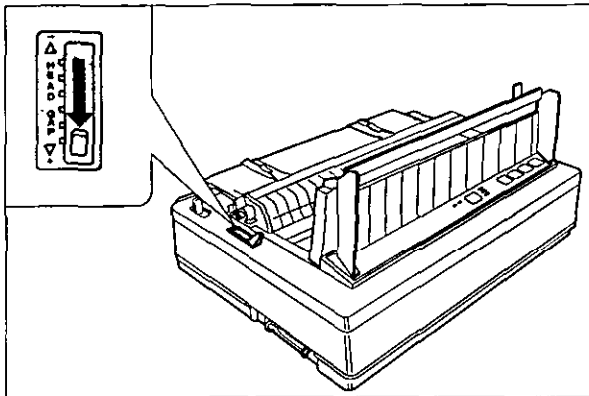
Move the head gap lever to the (+) position.

5
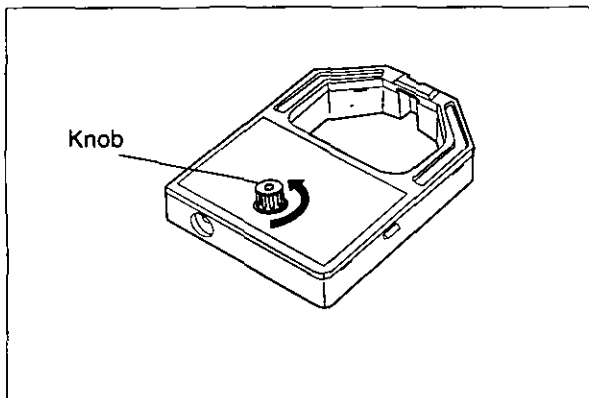
Rotate the knob on the ribbon cassette to remove any slack.

Knob

6
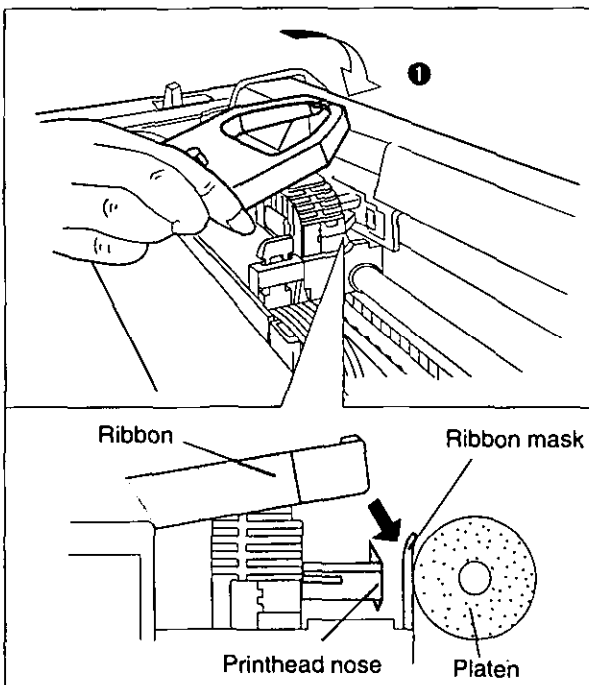
❶ Slip the ribbon between the ribbon mask and the printhead nose.

❶

Ribbon

Ribbon mask

Printhead nose   Platen

Chap. 2

Setup
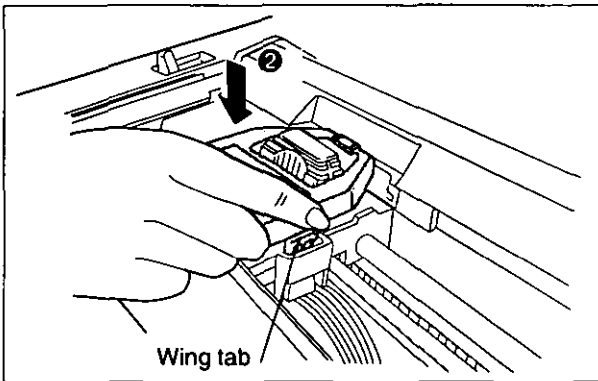
❷ **Press down on rear of the cassette until the wing tab snaps into place.**

Wing tab

7 **Replace the smoked plastic cover.**
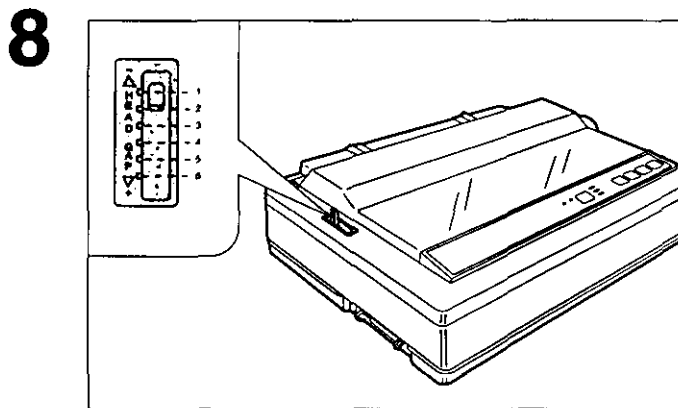
8

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

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

Removing the Ribbon Cassette
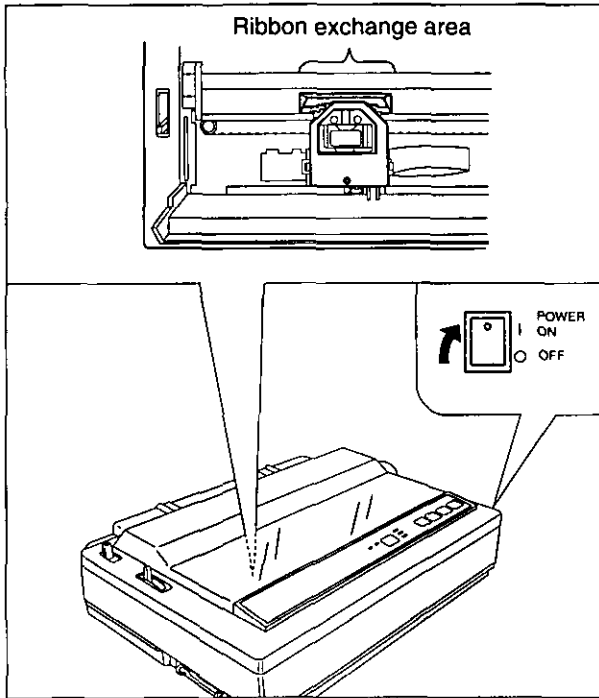
1

Ribbon exchange area

POWER
I ON
O OFF

Turn the power on.

The carriage will automatically move to the ribbon exchange area.

Note:

• The printer allows the ribbon cassette to be installed only in this area.

Chap. 2 Setup

2

Tab

Fold the smoked plastic cover forward.

3

Tab

Raise the smoked plastic cover.

Caution:

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

Chap. 2

Setup

4

Move the head gap lever to the (+) position.

5
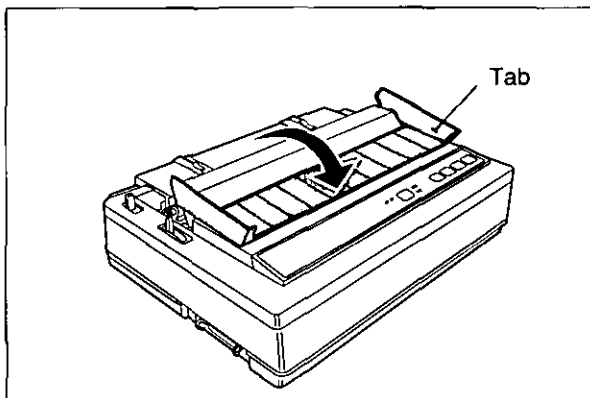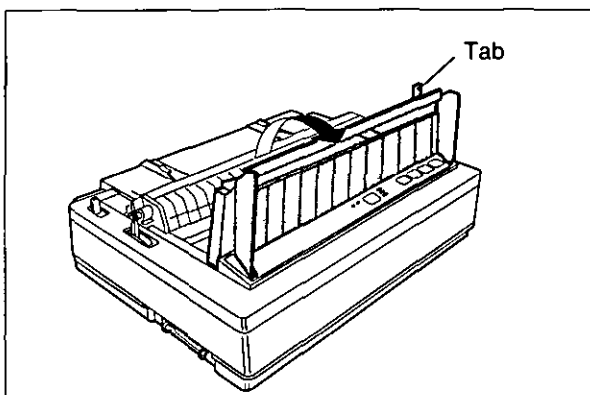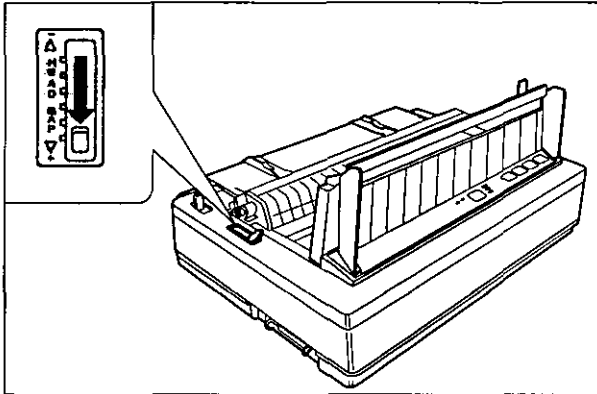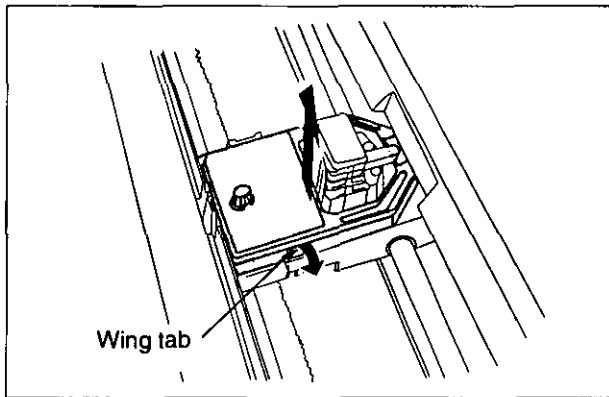
Wing tab

Spread the wing tab and lift up the cassette.

Installing Paper

Your Panasonic printer offers two paper handling choices:
— Fanfold paper (Tractor push mode)
— Single sheets and envelopes (Friction mode)

Fanfold Paper (Tractor Push Mode)

1
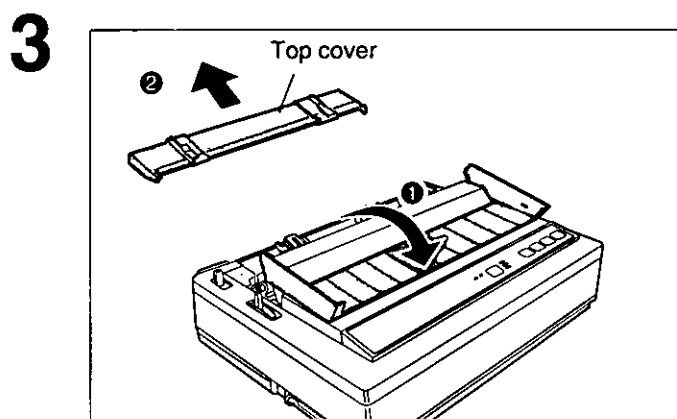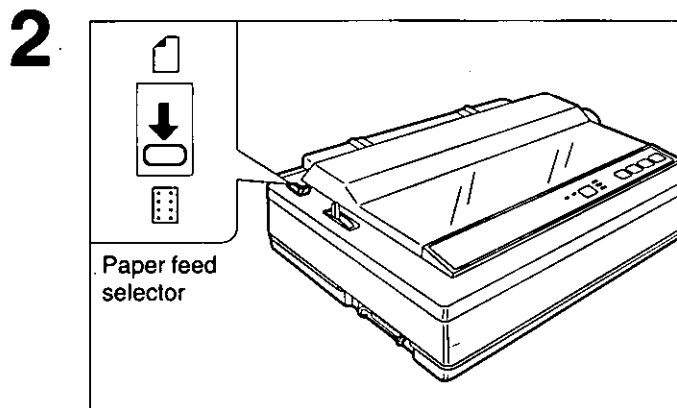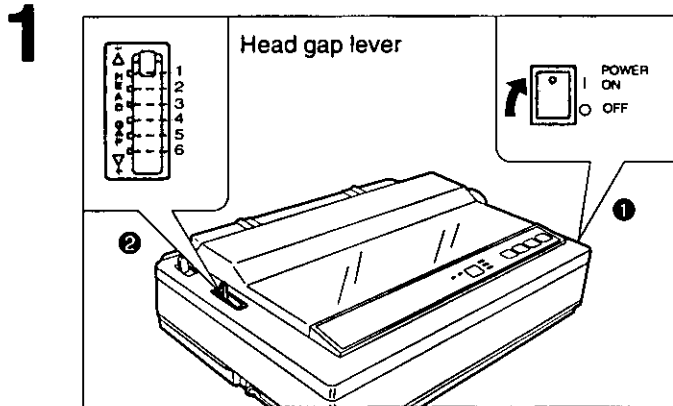
❶ Turn the power on.

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

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

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

2

Set the paper feed selector to the " ⊞ " position.

3

❶ Fold the smoked plastic cover forward.

❷ Remove the top cover.

4

Tractor clamping levers
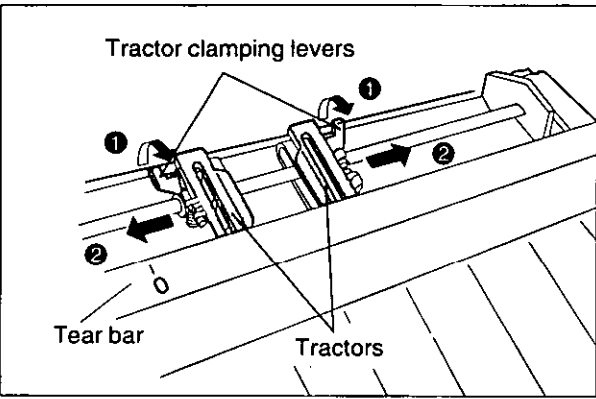
Tear bar

Tractors

❶ **Unlock the tractors by pulling the tractor clamping levers forward.**

❷ **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.

5
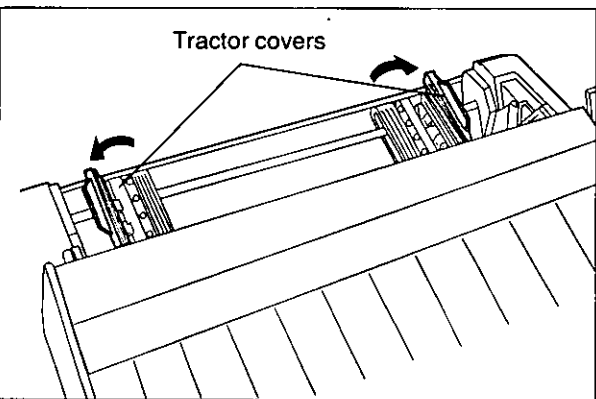
Tractor covers

Open the tractor covers.

6
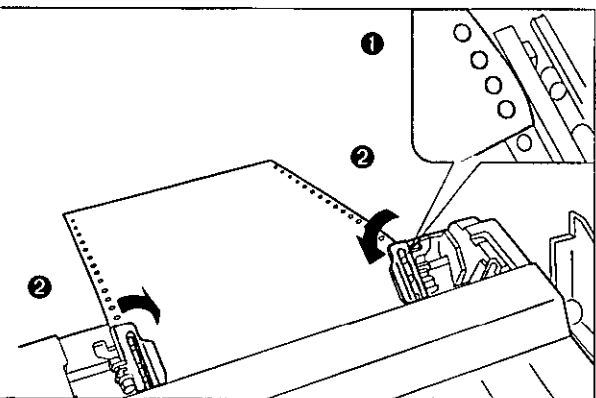
❶ **Align the paper sprocket holes with the tractor pins making sure the paper is straight.**

❷ **Close the tractor covers.**

7
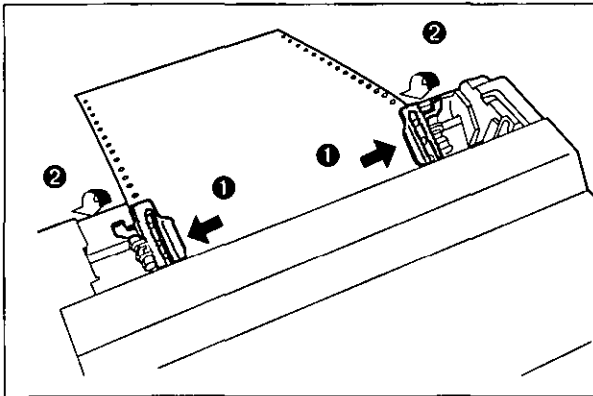
❶ Adjust the tractors to remove any slack.

❷ Lock the tractor clamping levers.

8
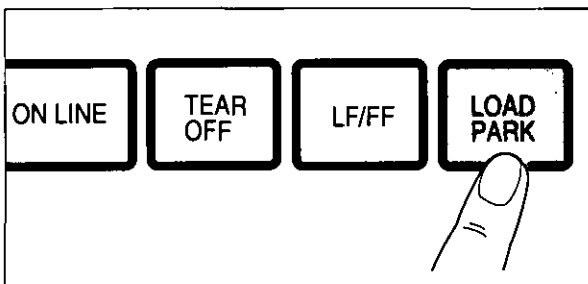
Press (LOAD/PARK).

This will load the paper to the first print line.

Note:
• Do not use (LF/FF) to load paper.

9

Top cover

Smoked plastic cover
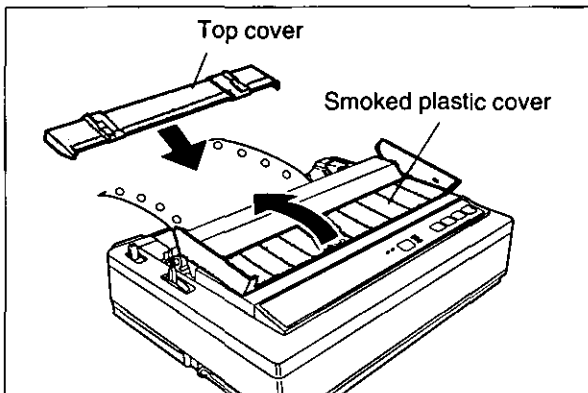
Replace the top cover and the smoked plastic cover.

10

ON LINE indicator

■ ON LINE
☐ SUPER QUIET
☐ POWER / PAPER OUT
ON LINE
TEAR OFF

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

Chap. 2

Setup

Single Sheets and Envelopes (Friction Mode)

1

Head gap lever
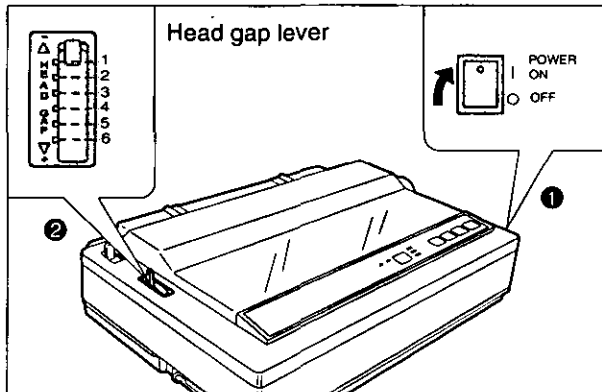
POWER
ON
OFF

❶ **Turn the power on.**

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

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

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

2

Paper feed
selector

Set the paper feed selector to the "◻" position.

3

Top cover

❶ **Fold the smoked plastic cover forward.**

❷ **Raise the top cover to the single sheet feed position.**

This is done by inserting the side pins of the top cover into the slots on the upper cabinet.

4

Paper support
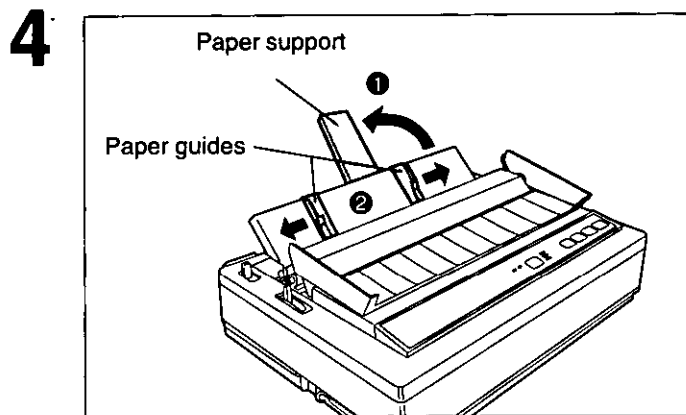
Paper guides

❶ **Rotate the paper support.**

❷ **Separate the paper guides to the approximate width of your paper or envelope.**

5
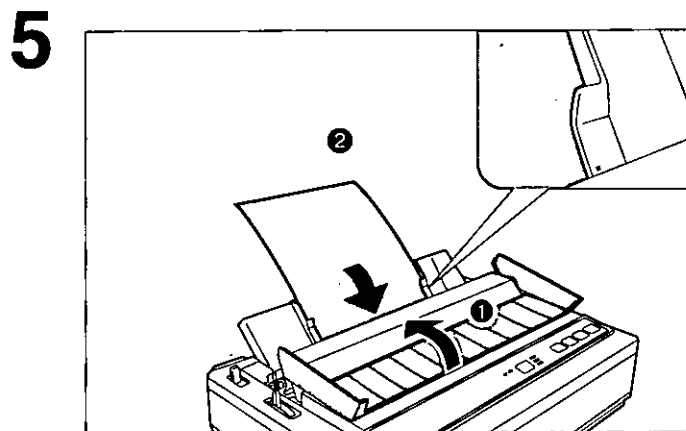
❶ **Replace the smoked plastic cover.**

❷ **Insert a sheet of paper through the paper guides and behind the platen.**

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

Note:

- To disable Auto Load, turn Auto Load OFF in the Initial Setup Mode on disk. (☞ P. 28)

- If Auto Load is disabled, press (LOAD/PARK) to automatically load paper to the first print line.

6

ON LINE indicator
ON LINE
SUPER QUIET
POWER
PAPER OUT
ONT
ON LINE
TEAR
OFF
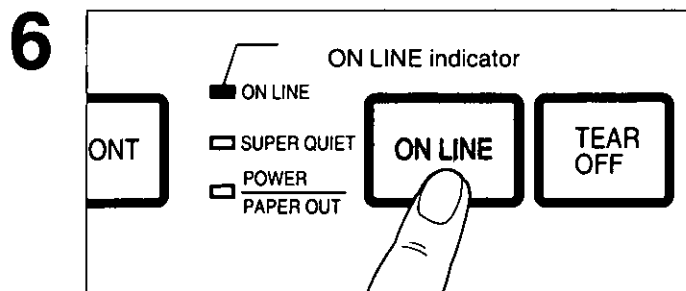
If the ON LINE indicator is not lit, press (ON LINE) to get ready to print.

Printer-Driver Selection

This procedure 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-P2023 will be your first choice. However, if the Panasonic KX-P2023 printer is not listed in your software, you must select an alternative from the following table.

Printer-Driver Selections (in order of priority)

Panasonic KX-P2023
Panasonic KX-P1123
Panasonic KX-P1124
Epson LQ-850
Epson LQ series
IBM Proprinter X24E *
IBM Proprinter X24 *

* If selecting the IBM Proprinter X24E or IBM Proprinter X24 in your software, printer emulation must also be changed in the initial setup mode. (☞ P. 28~36)

Installing a Printer-Driver (Windows Ver. 3.1)

If you are using Windows Ver. 3.1, please use a Printer-Driver for Windows Ver. 3.1 of the attached Setup Disk.

Before you use 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.
- Type A:\INSTALL ↵ to copy the programs from your Setup Disk onto your hard drive. This procedure automatically creates a directory called 2023 and copies all of the programs from your Setup Disk onto your hard drive.

---

1 In "Main Group", select "Print Manager".

2 In "Options", select "Printer Setup".

3 Click [**Add >>**] .

```
┌─────────────────────────────────────────┐
│ [□]            Printers                  │
│ ┌ Default Printer ──────────┐  [ Cancel ]│
│   XXXXXXXXXXXXXX              [ Connect...]│
│ ┌ Installed Printer: ──────┐  [ Setup... ]│
│ │XXXXXXXXXXX             ⇧│  [ Remove  ]│
│ │                        │  [ Add >>  ]│
│ │                       ⇩│             │
│ │  [ Set As Default Printer ]  [ Help ]│
└─────────────────────────────────────────┘
```

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

5 Click [**Install...**] .

```
┌─────────────────────────────────────────┐
│ [□]            Printers                  │
│ ┌ Default Printer ──────────┐  [ Cancel ]│
│   XXXXXXXXXXXXXX              [ Connect...]│
│ ┌ Installed Printer: ──────┐  [ Setup... ]│
│ │XXXXXXXXXXX             ⇧│  [ Remove  ]│
│ │                        │  [ Add >>  ]│
│ │                       ⇩│             │
│ │  [ Set As Default Printer ]  [ Help ]│
│                                          │
│ List of Printers:                        │
│ │Install Unlisted or Updated Printer ⇧│ │
│ │                                      │ [ Install... ]│
│ │                                   ⇩│ │
└─────────────────────────────────────────┘
```

6 Insert the disk.

7 Click OK .

The printer diriver of KX-P2023 is shown in a dialog box.

8 Click OK .

Add Unlisted or Updated Printer

List of Printers:

Panasonic KX-P2023

OK

Cancel

Help
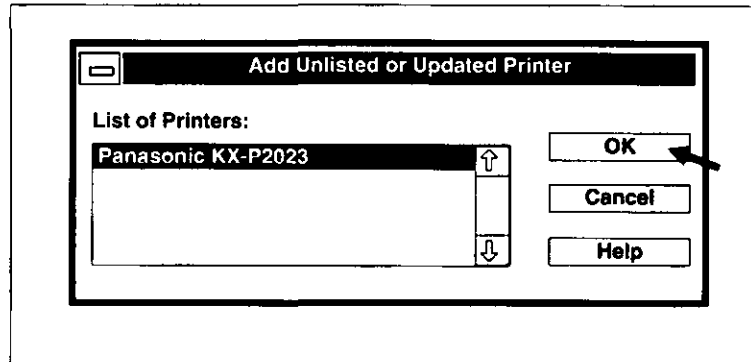
9 Click Set As Default Printer .

10 Click Close .

11 Exit the "Print Manager".

Chap. 2 Setup

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Self Test

The printer has a self test feature which allows you to test the printer.

1 **Load a sheet of paper** (fanfold or single sheet), **then turn the power off.**
(☞ P. 19~23)

2
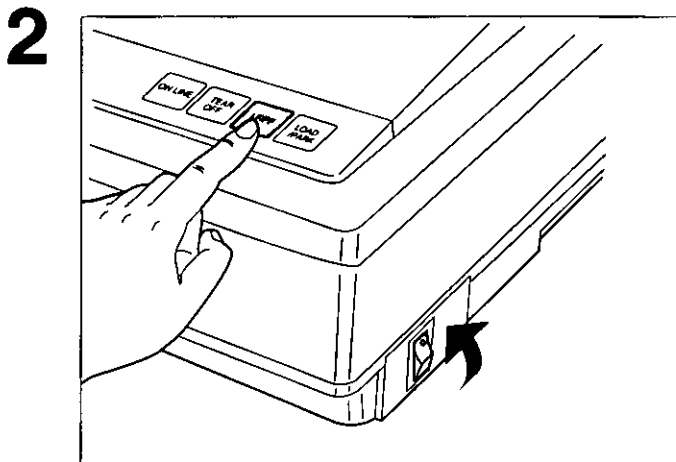
While pressing `LF/FF` **, turn the power on, then release.**

```
Draft
 !"#$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOP
!"#$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQ
"#$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQR
#$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRS
$%&'( )*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRST
Courier
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOP
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQ
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQR
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRS
$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRST
Prestige
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOP
!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQ
"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQR
#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRS
$%&'          <=>?@ABCDEFGHIJKLMNOPQRST
```

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.)

Using Setup Disk

The printer allows you to select 17 Initial Setup items shown in the table below. You can select all these items by using the Setup Disk.

①	**Emulation**
	Epson* . . . . .Epson LQ-850 IBM . . . . .IBM Proprinter X24E

②	**Character set** (☞ P. 68)
	Italic* (Epson only) Graphic character set 1 Graphic character set 2

③	**Code page** (☞ P. 68)
	PC-437 (USA)* PC-850 (Multilingual) PC-860 (Portugal) PC-863 (Canada-French) PC-865 (Norway) PC-857 (Turkey)

④	**International character set** (☞ P. 73)
	USA* Sweden Denmark 2 France Italy Spain 2 Germany Spain 1 Latin America U.K. Japan Korea Denmark 1 Norway LEGAL

⑤	**Font**
	Draft* Bold PS Courier Script Prestige

⑥	**Pitch**
	10 cpi* 17 cpi 12 cpi 20 cpi 15 cpi P.S

⑦	**Zero font**
	0* (Normal zero) Ø (Slashed zero)

⑧	**Page length**
	11 inches* 12 inches 14 inches 8 inches 11 ⅔ inches 8 ½ inches

* denotes setting when shipped from factory.

⑨	**Auto LF**
	ON . . . . CR+LF OFF* . . . . CR only

⑩	**Auto CR**
	ON . . . . LF, VT, ESC+"J"+CR OFF* . . . . LF, VT, ESC+"J" only (This setting is effective only in the IBM mode.)

⑪	**Skip perforation**
	ON . . . . 1 inch skip OFF* . . . . No skip

⑫	**Alternate Graphic Mode (A.G.M.)**
	ON . . . . AGM is ON OFF* . . . . AGM is OFF (This setting is effective only in the IBM mode.)

⑬	**Cut Sheet Feeder (C.S.F.)**
	Enable Disable* [C.S.F. option (KX-PT12) is installed.]

⑭	**Graphic direction**
	Uni* . . . . Uni-directional printing Bi . . . . Bi-directional printing (Uni-directional printing will provide precise vertical alignment when printing graphics such as tables.)

⑮	**Super quiet**
	ON . . . . Super Quiet is ON OFF* . . . . Super Quiet is OFF

⑯	**Download**
	Enable Disable* [Buffer Chip option (KX-P44) is installed.]

⑰	**Auto load**
	ON* . . . . Enabled OFF . . . . Disabled (This setting is effective only when using the single sheets and envelopes.)

This Setup Disk can only be used in an IBM-PC or a compatible computer.

Before you use 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 page 28 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.

- Type A:\INSTALL ⏎ to copy the programs from your Setup Disk onto your hard drive. This procedure automatically creates a directory called 2023 and copies all of the programs from your Setup Disk onto your hard drive.

Running the Initial Setup program

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 **SETUP**	**3** Type **A:\SETUP** (or **B:\SETUP**)
4 Press (Enter) .	**4** Click [OK] (or Press (Enter)).

5 Screen 1 [SELECT COUNTRY] will be displayed (for first time installation).

The screen default to a USA setting. If you do not have to change this setting, touch Enter to confirm your country and advance to screen 2. If you must select a country other than USA, refer to page 30, step1.

Note:

- If you have previously saved your initial setup settings to disk, screen 1 [SELECT COUNTRY] will not be displayed. If you need to select another country, press F4 and screen 1 will be displayed.

Screen 1

```
 < <     Panasonic KX-P2023 Setup Utility (xxxxxxxxxx)     > >
[SELECT COUNTRY] – for appropriate FACTORY settings
===================================================
        USA
        BELGIUM
        CHILE
        DENMARK
        FINLAND
        FRANCE
        GERMANY
        ITALY
        NORWAY
        PORTUGAL
        SPAIN
        SWEDEN
        TURKEY
        UK
        OTHER COUNTRY
- - - - - - - - - - - - - - - - - - - - - - - - - - -
[↑], [↓]    - -> Select country
[Enter]     - -> Confirm country
[ESC]       - -> Exit to DOS
```

Chap. 3

Initial Setup Mode

29

Setting and saving the Initial Setup items

1 Press ⬆ or ⬇ .

Select the desired country.

Note:
If the name of your country does not exist on the screen, select OTHER COUNTRY.

Screen 1

```
<<       Panasonic KX-P2023 Setup Utility (xxxxxxxxxx)    >>
[SELECT COUNTRY] – for appropriate FACTORY settings
===================================================
        USA
        BELGIUM
        CHILE
        DENMARK
        FINLAND
        FRANCE
        GERMANY
        ITALY
        NORWAY
        PORTUGAL
        SPAIN
        SWEDEN
        TURKEY
        UK
        OTHER COUNTRY

===================================================
[ ↑ ], [ ↓ ]   - -> Select country
[Enter]        - -> Confirm country
[ESC]          - -> Exit to DOS
```
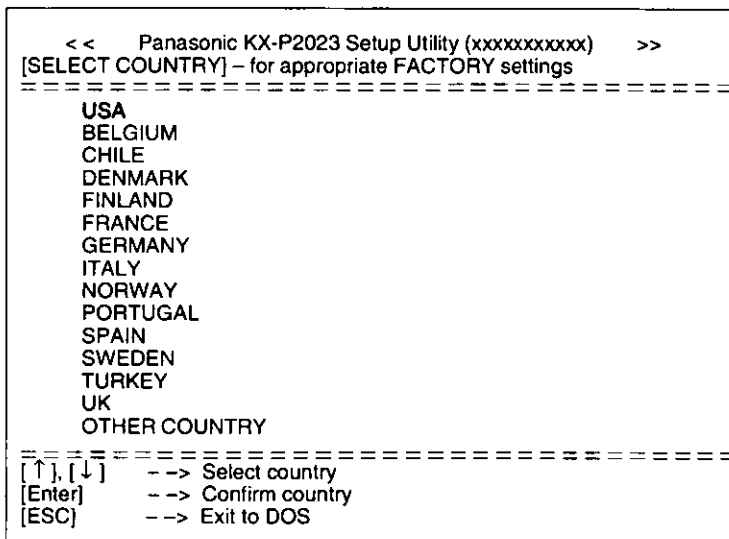
2 Press Enter .

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

3 Press ⬆ or ⬇ .

Select the desired item. A brief description accompanies each item.

4 Press ➡ or ⬅ .

Select the desired setting.

If you want to change the settings of more items, perform steps 3 and 4.

Screen 2

```
<<       Panasonic KX-P2023 Setup Utility (xxxxxxxxxx)    >>
===================================================
Item                Setting     Item                Setting
Emulation         : EPSON       Auto CR           : OFF
Character set     : ITALIC      Skip perforation  : OFF
Code page         : USA         A.G.M             : OFF
International char.: USA         C.S.F mode        : DISABLE
Font              : DRAFT       Graphic direction : UNI
Pitch             : 10 CPI      Super quiet       : OFF
Zero font         : NORMAL      Download          : DISABLE
Page length       : 11 INCH     Auto load         : ON
Auto LF           : OFF

===================================================
Select emulation
     EPSON              IBM
Allows KX-P2023 to operate like another printer. Be sure to select a printer
driver in your application software that supports the emulation selected.
===================================================
<<  KEY OPERATION >>
  [ ↑ ], [ ↓ ]   - -> Select item        [F1]  - -> Reset to FACTORY settings
  [ ← ], [ → ]   - -> Select setting     [F4]  - -> SELECT COUNTRY mode
  [Enter]        - -> Confirm all settings [ESC] - -> Exit to DOS
```

[↑] / [↓]	Moves the cursor one line up/down
[←] / [→]	Changes the setting
[Enter]	Displays a message which confirms settings
[F1]	Resets the current settings to FACTORY settings
[F4]	Returns to screen 1
[ESC]	Exits to DOS

5 Press (Enter).

Screen 3 will be displayed.

6 Press (Y) or (N).

Screen 3

"Y": All the items will be set and screen 4 will be displayed.

"N": The display will return to screen 2.

```
=================================
 Are you sure  ?  (Y/N)
=================================
```

7 Press (Y) or (N).

Screen 4

"Y": All the settings will be sent to the printer and screen 5 will be displayed.

"N": The current settings won't be sent to the printer and screen 2 will be displayed.

```
=================================
 Do you want to save your settings to the printer ? (Y/N)
=================================
```

8 Press (Y) or (N).

Screen 5

"Y": All the settings will be saved on the disk and screen 6 will be displayed.

"N": The settings won't be saved on the disk and screen 6 will be displayed.

```
=================================
 Do you want to save to disk ? (Y/N)
=================================
```

Chap. 3

Initial Setup Mode

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Screen 6

9 Press (Y) or (N) .

"Y": All the settings will be printout and screen 7 will be displayed.

"N": The current settings won't be printout and screen 7 will be displayed.

```
========================================
Do you want a printout of the printer settings  ?  (Y/N)
Paper must be installed.
========================================
```

Screen 7

10 Press (Y) or (N) .

"Y": You have exited the Initial Setup program.

"N": The display will return to screen 2.

```
========================================
Exit to DOS  ?  (Y/N)
========================================
```

Using the Control Panel

The Control Panel allows you to set only Emulation, Auto Line Feed, Cut Sheet Feeder, Graphic direction and Page length. (☞ P. 35)

1
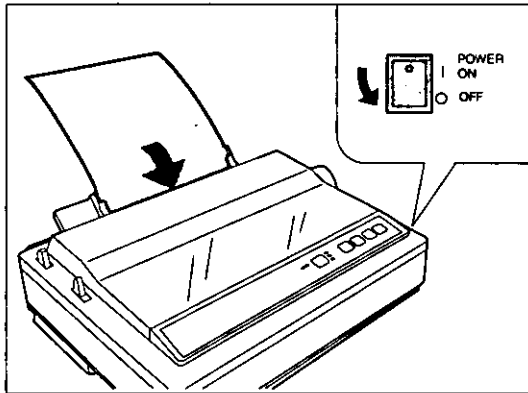
Load a sheet of paper (☞ P. 19~23), **and turn the power off.**

2
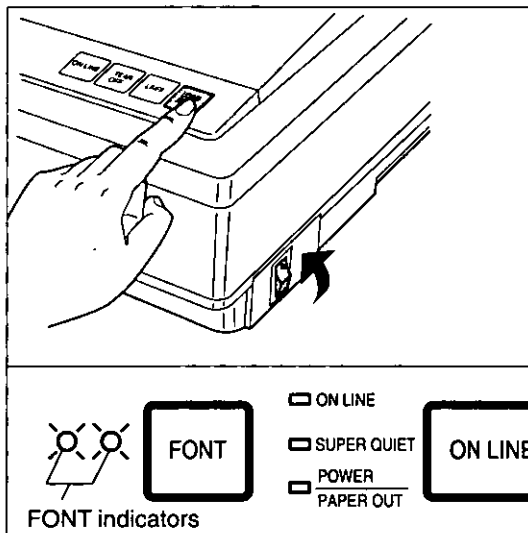
▶ **Entering Initial Setup Mode**

While pressing (LOAD/PARK) , turn the power on.

> Both font indicators and Super Quiet indicator will be blinking.
> The current settings will be printed automatically.

3
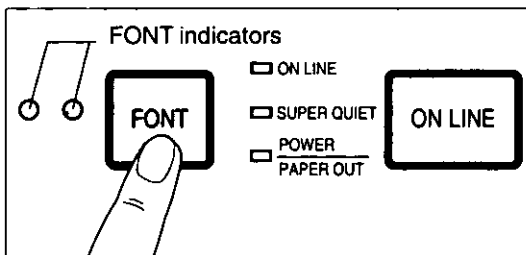
▶ **Selecting the Item (Ex; Emulation)**

Press and release (FONT).

> Select the desired item according to the status of the FONT indicators (on, off, blinking). Each time you press FONT, you will advance to the next item. (☞ P. 35)

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4

ON LINE indicator
☐ ON LINE
☐ SUPER QUIET
☐ POWER / PAPER OUT
ON LINE
TEAR OFF
ONT
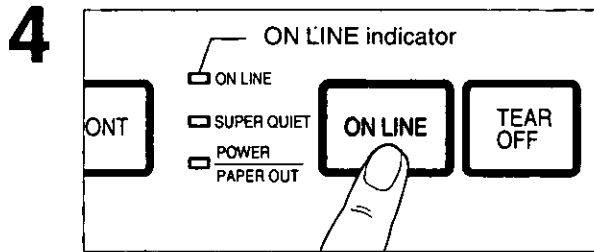
▶ **Setting the Item's Status (Ex; Epson/IBM)**
Press and release (ON LINE).

To change the item's status, press ON LINE. The item's status will change each time you press ON LINE. (☞ P. 35)

If you want to change the settings of some more items, perform steps 2 and 3.

5

ON LINE | TEAR OFF | LF/FF | LOAD PARK
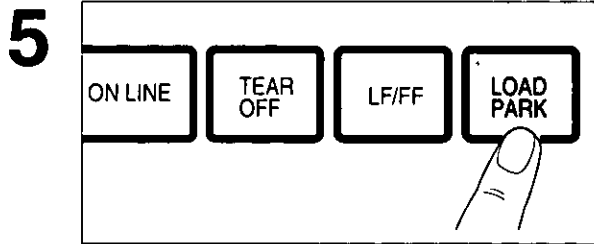
▶ **Exiting Initial Setup Mode**
Press (LOAD/PARK).

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

EXAMPLES

1. While pressing (**LOAD/PARK**), turn the power on.

2. Press (**FONT**) until font indicators reflect the item you wish to change.

3. Press (**ON LINE**) if you wish to make a change to that item's status.

Emulation: Press (**FONT**) once.

Epson Mode ⟶ Press (**ON LINE**) ⟶ **IBM Mode**

○ ● | FONT | □ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT   ○ ● | FONT | ■ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT

Auto LF: Press (**FONT**) twice.

Off ⟶ Press (**ON LINE**) ⟶ **On**

● ○ | FONT | □ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT   ● ○ | FONT | ■ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT

C.S.F.: Press (**FONT**) 3 times.

Disable ⟶ Press (**ON LINE**) ⟶ **Enable**

● ● | FONT | □ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT   ● ● | FONT | ■ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT
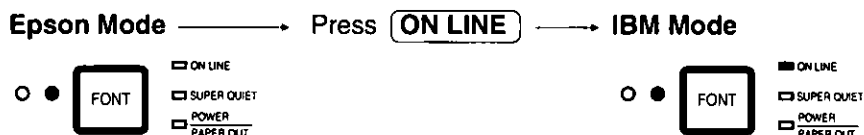
G. direction: Press (**FONT**) 4 times.

Uni-directional ⟶ Press (**ON LINE**) ⟶ **Bi-directional**

○ ◐ | FONT | □ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT   ○ ◐ | FONT | ■ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT

Page length: Press (**FONT**) 5 times.

11″ ⟶ Press (**ON LINE**) ⟶ **14″**

◐ ○ | FONT | □ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT   ◐ ○ | FONT | ■ ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT

Press (**ON LINE**) ⟶ $11^2/3''$

◐ ○ | FONT | ⟩ON LINE / □ SUPER QUIET / □ POWER/PAPER OUT
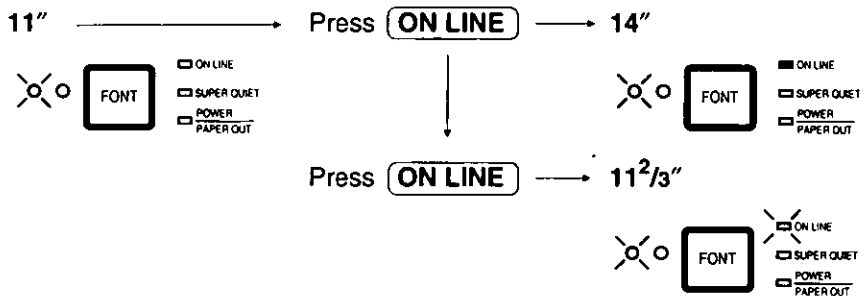
FONT indicators condition:

● =light is lit   ○ =light is out   ◐ =light is blinking

ON LINE indicator condition:

■ =light is lit   □ =light is out   ⟩□⟨ =light is blinking

Resetting All Current Settings to the Factory Settings

Follow the instructions below:
If there is paper loaded, you will automatically get a printout of the current settings.

1
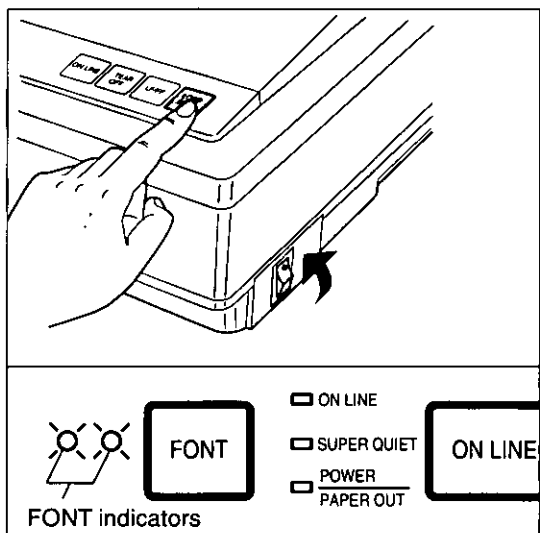
FONT indicators

While pressing (LOAD/PARK), turn the power on, then release.

Make sure that both FONT indicators are blinking.

2
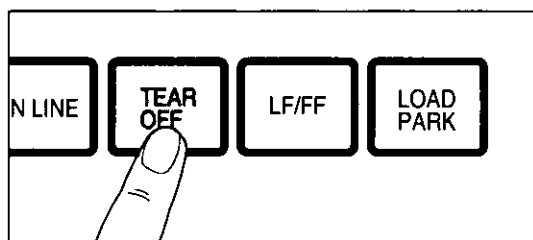
Press (TEAR OFF).

All the current settings will be reset to the Factory settings.

3
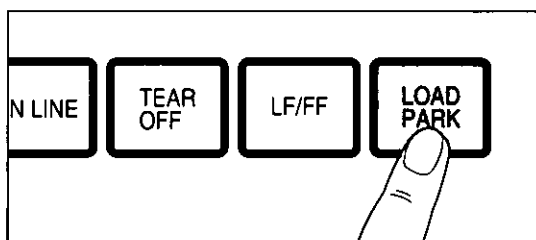
Press (LOAD/PARK).

A printout will verify the current setting.
You have exited the Initial Setup Mode.

Selecting a Character Font

• Press and release [FONT]

You can select any one of the character fonts by pressing the FONT switch on the Control Panel. The combination of FONT indicators show the current character font status, as shown below.

EXAMPLES

O O [FONT] ☐ ON LINE
            ☐ SUPER QUIET   =PROGRAM
            ☐ POWER / PAPER OUT

● O [FONT] ☐ ON LINE
            ☐ SUPER QUIET   =Courier
            ☐ POWER / PAPER OUT

O ● [FONT] ☐ ON LINE
            ☐ SUPER QUIET   =Prestige
            ☐ POWER / PAPER OUT

● ● [FONT] ■ ON LINE
            ☐ SUPER QUIET   =Bold PS
            ☐ POWER / PAPER OUT

☼ O [FONT] ☐ ON LINE
            ☐ SUPER QUIET   =Script
            ☐ POWER / PAPER OUT
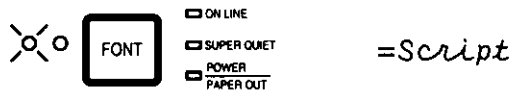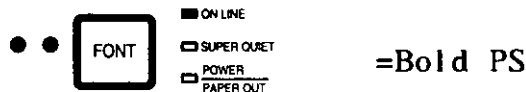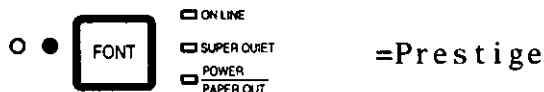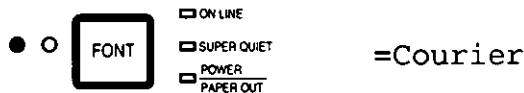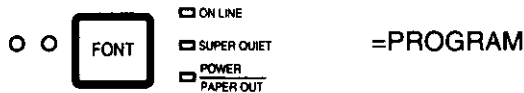
● =light is lit.   O =light is out   ☼ =light is blinking.

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 Initial Setup disk. (☞ P. 30)

• 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 Initial Setup disk. (☞ P. 28~32)

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.

Feeding Paper

You can adjust the paper position by using the control 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/Form Feed LF/FF

With paper installed, pressing (LF/FF) once advances the paper one line.
Holding (LF/FF) will move the printhead to the center of the printer and advance the paper.

Note:

- Fanfold paper will advance to the top of the next page. When using a cut sheet feeder or single sheets, the current sheet of paper will be ejected.

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 printing line.

1
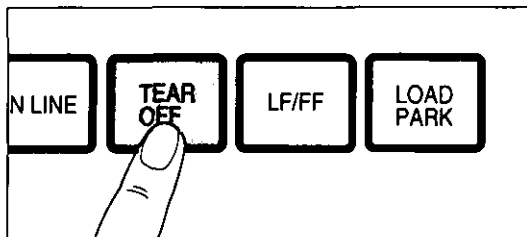
Press (TEAR OFF) to advance the paper to the tear bar.

2
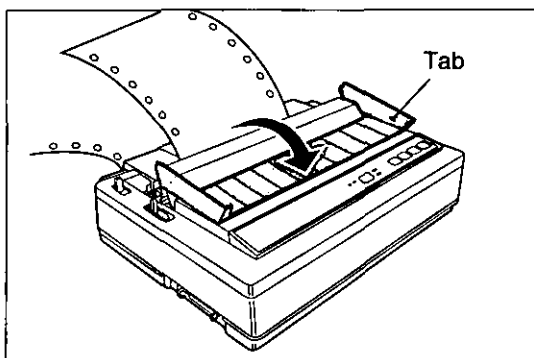
Fold the rear part of the smoked plastic cover forward.

3

Tear bar

Tear off the page.

4

N LINE | TEAR OFF | LF/FF | LOAD PARK
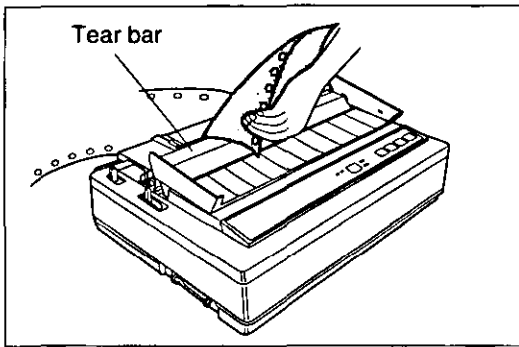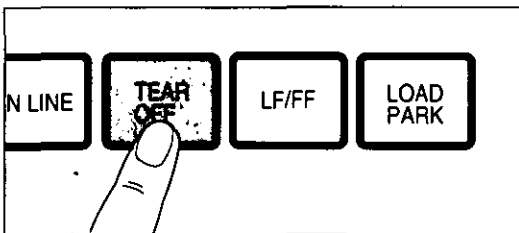
Press (TEAR OFF) to reverse the paper back to the first print line.

5 Replace the smoked plastic cover.

Note:

• 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.

Paper Parking   LOAD/PARK

This function allows 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.

2

N LINE | TEAR OFF | LF/FF | LOAD PARK
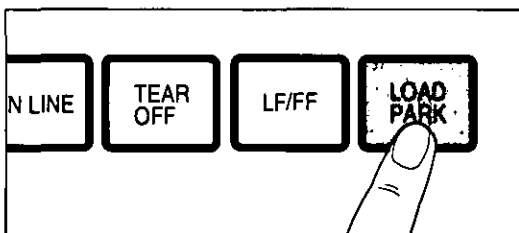
Press (LOAD/PARK) to reverse the fanfold paper to the park position.

3

Paper feed
selector
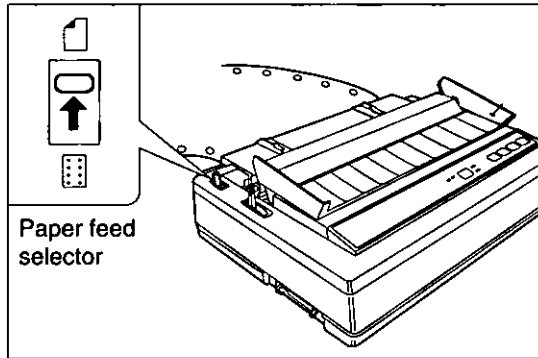
Move the paper feed selector to " ▯ "
(Friction mode).

4
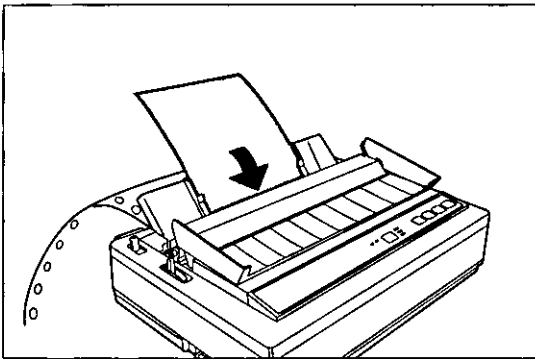
Load a single sheet or an envelope.

(☞ P. 22 "Single Sheets and Envelopes")
When you are finished printing, remove the sheet (or
envelope) from the printer.

5
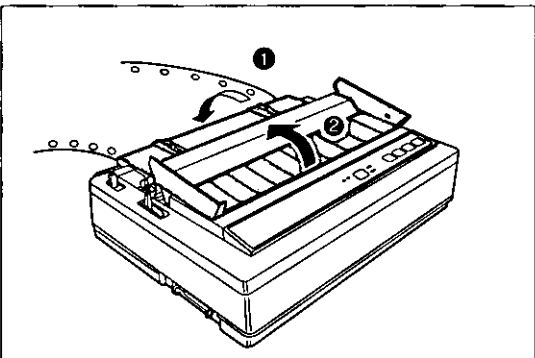
❶ **Lower the top cover for fanfold paper.**

❷ **Replace the smoked plastic cover.**

Chap. 4   Using the Printer

6

Paper feed
selector
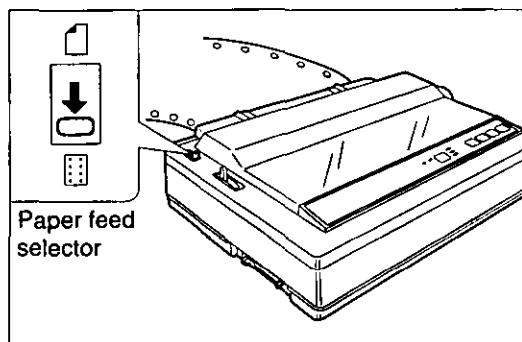
Move the paper feed selector to " ⊞ "
(Tractor Push mode).

7

N LINE   TEAR
OFF   LF/FF   LOAD
PARK
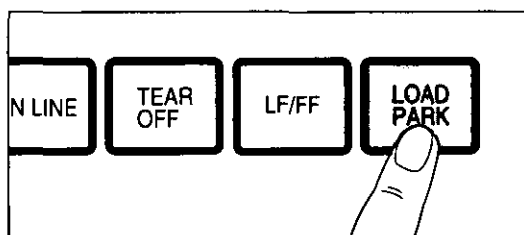
Press (LOAD/PARK) to reload the fanfold
paper to the first print line.

Epson LQ-850 Mode

This printer has the software commands of Epson LQ-850 mode. More detailed information has been stored in the Command Reference program on the Setup Disk. (☞ P. 54)

Font Selection

Function	Name	Parameter
Selects print quality	ESC "x" n	n=0: Draft font n=1: LQ font
Selects print typeface	ESC "k" n	n=0: Courier font n=2: Courier font n=3: Prestige font n=4: Script n=6: Bold PS font
Selects sub/superscript printing	ESC "S" n	n=0: Superscript n=1: Subscript
Releases sub/superscript printing	ESC "T"	

Character Pitch Selection

Function	Name	Parameter
Sets pica pitch (10 cpi) printing	ESC "P"	
Sets elite pitch (12 cpi) printing*	ESC "M"	
Sets micron (15 cpi) printing	ESC "g"	
Sets compressed (17 cpi) printing*	SI or ESC SI	
Releases compressed printing	DC2	
Sets/Releases proportional spacing	ESC "p" n	n=0: Release n=1: Set
Sets programmable pitch/ highlighting based on the value of n	ESC "!" n	$(0 \leq n \leq 255)_{DEC}$

For the ESC "!" n command:

Bit		ON	OFF
0:	Pitch	Elite	Pica
1:	PS	ON	OFF
2:	Compressed	ON	OFF
3:	Emphasized	ON	OFF
4:	Double printing	ON	OFF
5:	Double width	ON	OFF
6:	Italic	ON	OFF
7:	Underlining	ON	OFF

* When elite and compressed pitches are set simultaneously, subsequent output is printed in 20 cpi (up to 160 cpl).

Character Highlight Selection

Function	Name	Parameter
Sets emphasized printing	ESC "E"	
Releases emphasized printing	ESC "F"	
Sets/Releases double high printing	ESC "w" n	n=0: Release n=1: Set
Sets single-line double wide printing	SO or ESC SO	
Releases single-line double wide printing	DC4	
Sets/Releases double wide printing	ESC "W" n	n=0: Release n=1: Set
Sets outline and shadow printing	ESC "q" n	n=0: Release n=1: Outline n=2: Shadow n=3: Outline with Shadow
Sets double strike printing	ESC "G"	
Releases double strike printing	ESC "H"	
Sets/Release underlining	ESC "-" n	n=0: Release n=1: Set
Sets/Releases score	ESC "(" "-" 3 0 1 d1 d2	d1=1: Underline d1=2: Strikethrough d1=3: Overscore d2=0: Cancel the score line selected by d1 d2=1: Single continuous line d2=2: Double continuous line d2=5: Single broken line d2=6: Double broken line

Word Processing Mode Selection

Function	Name	Parameter
Sets Word Processing mode	ESC "a" n	n=0: Selects left alignment mode. n=1: Selects centering mode. n=2: Selects right alignment mode. n=3: Selects justification mode
Sets character dots spacing	ESC SP n	$(0 \le n \le 127)$DEC

Character Set Selection

Function	Name	Parameter
Sets Italic printing	ESC "4"	
Releases Italic printing	ESC "5"	
Sets international character set	ESC "R" n	n=0: USA n=8: Japan n=1: France n=9: Norway n=2: Germany n=10: Denmark 2 n=3: England n=11: Spain 2 n=4: Denmark 1 n=12: Latin n=5: Sweden America n=6: Italy n=13: Korea n=7: Spain 1 n=64: Legal
Selects graphic Character Set 1	ESC "7"	
Selects graphic Character Set 2	ESC "6"	
Selects alternate character set	ESC "t" n	n=0: Italic n=1: Graphic character set n=2: User-defined characters

Bit Image (Graphics) Mode Selection

Function	Name	Parameter
Sets 8-pin image standard density (60 dpi)	ESC "K" n1 n2 Data	
Sets 8-pin image double density (120 dpi)	ESC "L" n1 n2 Data	
Sets 8-pin image double density/ double speed (120 cpi)	ESC "Y" n1 n2 Data	
Sets 8-pin bit image quadruple density (240 dpi)	ESC "Z" n1 n2 Data	
Sets bit image mode selection	ESC "*" m n1 n2 Data	**8-pin Dots/Inch** **24-pin Dots/Inch** m=0: 60 m=32: 60 m=1: 120 m=33: 120 m=2: 120D m=38: 90 m=3: 240 m=39: 180 m=4: 80 m=40: 360 m=6: 90
Reassigns graphics mode density	ESC "?" n m	n=75: Reassign (ESC "K" n1 n2) n=76: Reassign (ESC "L" n1 n2) n=89: Reassign (ESC "Y" n1 n2) n=90: Reassign (ESC "Z" n1 n2) m is same as m of "Sets bit image mode selection"

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Paper Feed Selection—Amount

Function	Name	Parameter
Sets paper feed to $1/8$ inch (3.2 mm)	ESC "0"	
Sets paper feed to $1/6$ inch (4.2 mm)	ESC "2"	
Sets paper feed to $n/60$ inch	ESC "A" n	$(0 \leq n \leq 127)$DEC
Sets paper feed to $n/180$ inch	ESC "3" n	$(0 \leq n \leq 255)$DEC
Sets paper feed to $n/360$ inch	ESC "+" n	$(0 \leq n \leq 255)$DEC

Paper Feed Selection

Function	Name	Parameter
Feeds paper one line	LF	
Feeds paper to next top of form	FF	
Executes paper feed of $n/180$ inch for one line	ESC "J" n	$(0 \leq n \leq 255)$DEC
Executes reverse paper feed of $n/180$ inch for one line	ESC "j" n	$(0 \leq n \leq 255)$DEC

Page Format Selection

Function	Name	Parameter
Sets page length in inches	ESC "C" 0 n	$(0 \leq n \leq 22)$DEC
Sets page length in lines	ESC "C" n	$(1 \leq n \leq 127)$DEC
Sets left margin	ESC "l" n	$0 \leq n \leq 78$: Pica $0 \leq n \leq 93$: Elite $0 \leq n \leq 117$: Micron $0 \leq n \leq 133$: Compressed
Sets right margin	ESC "Q" n	$2 \leq n \leq 80$: Pica $3 \leq n \leq 96$: Elite $3 \leq n \leq 120$: Micron $4 \leq n \leq 137$: Compressed
Sets skip perforation	ESC "N" n	$(1 \leq n \leq 127)$DEC
Releases skip perforation	ESC "O"	

Tabulation—Horizontal

Function	Name	Parameter
Sets horizontal tab	ESC "D" n1 ... nx 0	$(1 \leq x \leq 32)$
Releases horizontal tab	ESC "D" 0	
Executes horizontal tab	HT	

Tabulation—Vertical

Function	Name	Parameter
Sets vertical tab	ESC "B" n1 ... nx 0	$(1 \leq x \leq 16)$
Releases vertical tab	ESC "B" 0	
Executes vertical tab	VT	
Sets VFU channel	ESC "/" n	$(0 \leq n \leq 7)$DEC
Sets VFU tabulation	ESC "b" m n1 n2 ... nx 0	$(0 \leq m \leq 7)$ $(1 \leq x \leq 16)$
Releases VFU tabulation	ESC "b" m 0	$(0 \leq m \leq 7)$

Carriage Control

Function	Name	Parameter
Prints, then backspaces one character	BS	
Prints a line, then returns carriage	CR	
Unidirection mode (single line)	ESC "<"	
Sets/Releases single direction printing	ESC "U" n	n=0: Release n=1: Set
Sets/Releases half speed printing	ESC "s" n	n=0: Release n=1: Set
Moves the print position to an absolute horizontal position	ESC "$" n1 n2	
Moves the print position to a relative horizontal position	ESC "\" n1 n2	

Data Control

Function	Name	Parameter
Clears data in line buffer	CAN	
Selects printer remotely	DC1	
Deselects printer remotely	DC3	
Deletes last printable character	DEL	
Sets MSB on	ESC ">"	
Sets MSB off	ESC "="	
Cancels MSB setting	ESC "#"	

Download Character Selection

Function	Name	Parameter
Defines download font	ESC "&" 0 n m d_0 d_1 d_2 Data	
Selects ROM CG	ESC "%" n	n=0: Select ROM Character Generator
Selects download CG		n=1: Select download CG
Copies internal ROM CG font into download CG	ESC ":" 0 n 0	n=0: Courier font n=2: Courier font n=3: Prestige font n=4: Script n=6: Bold PS font

Miscellaneous

Function	Name	Parameter
Initializes the printer	ESC "@"	
Cut Sheet Feeder control	ESC EM n	n="R": Eject a sheet n="0": Cut Sheet Feeder mode is OFF n="4": Cut Sheet Feeder mode is ON

IBM Proprinter X24E Mode

This printer has the software commands of IBM Proprinter X24E mode. More detailed information has been stored in the Command Reference program on the Setup Disk. (☞ P. 54)

Font Selection

Function	Name	Parameter
Selects print quality	ESC "I" n	n=0: Internal Draft 10 cpi font n=2: Internal LQ 10 cpi font n=3: Internal Proportional LQ font n=4: Download Draft 10 cpi font n=6: Download LQ 10 font n=7: Download Proportional LQ font n=8: Internal Draft 12 cpi font n=10: Internal LQ 12 cpi font n=12: Download Draft 12 cpi font n=14: Download LQ 12 cpi font n=16: Internal Draft 17 cpi font n=18: Internal LQ 17 cpi font n=20: Download Draft 17 cpi font n=22: Download LQ 17 cpi font
Selects print typeface	ESC "k" n	n=0: Courier font n=2: Courier font n=3: Prestige font n=4: Script n=6: Bold PS font
Selects subscript printing Selects superscript printing	ESC "S" n	n=0: Superscript n=1: Subscript
Releases sub/superscript printing	ESC "T"	

Character Pitch Selection

Function	Name	Parameter
Sets elite pitch (12 cpi) printing	ESC ":"	
Sets compressed (17 cpi) printing	SI or ESC SI	
Releases elite and compressed printing	DC2	
Sets/Releases proportional spacing	ESC "P" n	n=0: Release n=1: Set

Character Highlight Selection

Function	Name	Parameter
Sets emphasized printing	ESC "E"	
Releases emphasized printing	ESC "F"	
Sets double strike printing	ESC "G"	
Releases double strike printing	ESC "H"	
Sets single-line double wide printing	SO or ESC SO	
Releases single-line double wide printing	DC4	
Sets/Releases double wide printing	ESC "W" n	n=0: Release n=1: Set
Sets double high & double wide printing	ESC "[" "@" 4 0 0 0 m3 m4	**m3 Line feed Character height** 0: Unchanged Unchanged 1: Unchanged Single-line 2: Unchanged Double-high 16: Single Unchanged 17: Single Single-high 18: Single Double-high 32: Double Unchanged 33: Double Single-high 34: Double Double-high m4=0: No change m4=1: Single-wide m4=2: Double-wide
Sets/Releases underlining	ESC "-" n	n=0: Release n=1: Set
Sets/Releases overlining	ESC "_" n	n=0: Release n=1: Set

Character Set Selection

Function	Name	Parameter
Selects alternate Character Set 1	ESC "7"	
Selects alternate Character Set 2	ESC "6"	
Changes the current code page	ESC "[" "T" 4 0 0 0 n1 n2	n1=00H and n2=00H: Current n1=01H and n2=B5H: USA n1=03H and n2=52H: Multilingual n1=03H and n2=5CH: Portugal n1=03H and n2=5FH: Canada French n1=03H and n2=61H: Norway n1=03H and n2=59H: Turkey Except the above: Download font

Bit Image (Graphics) Mode Selection

Function	Name	Parameter	
Sets 8-pin image standard density (60 dpi)	ESC "K" n1 n2 Data		
Sets 8-pin image double density (120 dpi)	ESC "L" n1 n2 Data		
Sets 8-pin image double density/ double speed (120 dpi)	ESC "Y" n1 n2 Data		
Sets 8-pin image quadruple density (240 dpi)	ESC "Z" n1 n2 Data		
Sets bit image mode selection (A.G.M. mode only)	ESC "*" m n1 n2 Data	**8-pin Dots/Inch** m=0: 60 m=1: 120 m=2: 120D m=3: 240 m=4: 80 m=6: 90	**24-pin Dots/Inch** m=32: 60 m=33: 120 m=38: 90 m=39: 180 m=40: 360
Sets bit image mode selection	ESC "[" "g" n1 n2 m Data	**8-pin Dots/Inch** m=0: 60 m=1: 120 m=2: 120D m=3: 240	**24-pin Dots/Inch** m=8: 60 m=9: 120 m=11: 180 m=12: 360

Paper Feed Selection—Amount

Function	Name	Parameter
Sets paper feed to $1/8$ inch (3.2 mm)	ESC "0"	
Sets paper feed to $7/72$ inch (2.5 mm)	ESC "1"	
Executes line spacing set by ESC "A" n	ESC "2"	
Sets paper feed to $n/72$ inch (or $n/60$ inch in A.G.M. mode)	ESC "A" n	$(0 \leqq n \leqq 255)$DEC
Sets paper feed to $n/216$ inch (or $n/180$ inch in A.G.M. mode)	ESC "3" n	$(0 \leqq n \leqq 255)$DEC
Selects the base line feed unit for ESC "3" and ESC "J"	ESC "[" "\" 4 0 0 0 n	n=180: $1/180$ inch base unit n=216: $1/216$ inch base unit
Sets/Release automatic line feed	ESC "5" n	n=0: Release n=1: Set

Paper Feed Selection

Function	Name	Parameter
Feeds paper one line	LF	
Feeds paper to next top of form	FF	
Executes one-line paper feed of $^n/_{216}$ inch (or $^n/_{180}$ inch in A.G.M. mode)	ESC "J" n	$(0 \leq n \leq 255)_{DEC}$

Page Format Control

Function	Name	Parameter
Sets page length in inches	ESC "C" 0 n	$(1 \leq n \leq 255)_{DEC}$
Sets page length in lines	ESC "C" n	$(1 \leq n \leq 255)_{DEC}$
Sets left and right margins	ESC "X" n1 n2	Pica: $1 \leq n_1 \leq 78$ $3 \leq n_2 \leq 80$ Elite: $1 \leq n_1 \leq 93$ $4 \leq n_2 \leq 96$ Comp.: $1 \leq n_1 \leq 133$ $5 \leq n_2 \leq 137$
Sets skip perforation	ESC "N" n	$(0 \leq n \leq 255)_{DEC}$
Releases skip perforation	ESC "O"	
Sets top of form	ESC "4"	

Tabulation—Horizontal

Function	Name	Parameter
Sets horizontal tab	ESC "D" n1 n2 ...n_x 0	$(1 \leq x \leq 32)$
Releases horizontal tab	ESC "D" 0	
Executes horizontal tab	HT	

Tabulation—Vertical

Function	Name	Parameter
Sets vertical tab	ESC "B" n1 n2 ... n_x 0	$(1 \leq x \leq 64)$
Releases vertical tab	ESC "B" 0	
Executes vertical tab	VT	
Returns to default tabs	ESC "R"	

Carriage Control

Function	Name	Parameter
Prints, then backspaces on character	BS	
Prints a line, then returns carriage	CR	
Sets/Release single direction printing	ESC "U" n	n=0: Release n=1: Set
Moves the print position to a relative horizontal position ($\frac{1}{120}$ inch)	ESC "d" n1 n2	Position: n1+(256×n2)

Data Control

Function	Name	Parameter
Clears data in line buffer	CAN	
Selects printer remotely	DC1	
Deselects printer remotely	ESC "Q" 36	

Down Load Character Selection

Function	Name	Parameter
Defines download font	ESC "=" n1 n2 35 A1 A2 Data	

Miscellaneous

Function	Name	Parameter
Prints continuously from All Character Chart	ESC "\" n1 n2	Total count: n2×256+n1
Prints one character from All Character Chart	ESC "^"	
Sets OFF LINE mode	ESC "j"	
Resets to initial state	ESC "[" "K" n1 0 m 36 p1 p2	

Command Reference Program

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

Before you use 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.
> * Type A:\INSTALL ↵ to copy the programs from your Setup Disk onto your hard drive. This procedure automatically creates a directory called 2023 and copies all of the programs from your Setup Disk onto your hard drive.

1 **Insert your setup disk into either drive A or B.**

\<For DOS\>

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

3 Type CMDREF

4 Press Enter.

\<For WINDOWS\>

2 Select Run from the File menu.

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

4 Click OK (or Press Enter).

5 **Screen 1 will be displayed.**

Screen 1

```
<<   Panasonic KX-P2023 command reference utility (xxxxxxxxxx)   >>

- - SELECT EMULATION - -
=======================================================

        EPSON
        IBM






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

6 Press ⬆ or ⬇ .

Select an emulation.

7 Press Enter .

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

8 Press Pg.Up / Pg.Down or ⬆ / ⬇ .

Select a command.

Screen 2

```
<<  Panasonic KX-P2023 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) prining
   ESC+'g'                      Sets micron (15 cpi) printing
   SI                           Sets compressed (17 cpi) printing
   ESC+SI                       Sets compressed (17 cpi) printing
   DC2                          Releases compressed printing
   ESC+'p'+1                    Sets proportional spacing
= = = = = = = = = = = = = = = = = = = = = = = = = = = = = = =
      [ ↑ ]/[ ↓ ]        : Select command
   [Pg.Up]/[Pg.Down]     : Go to previous/next category
   [Enter]               : View command description
   [Esc]                 : SELECT EMULATION mode
   [E]                   : Exit to DOS
```

[↑]/[↓]	Moves the cursor one line up/down
[Pg.Up] / [Pg.Down]	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

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9 Press [Enter].

The screen will show the detailed explanation of the command.

If you want to print out this explanation, press Enter key again.

If you want to exit this program, go to step 10.

Screen 3

```
<<  Panasonic KX-P2023 command reference utility (xxxxxxxxxxx)  >>
                                                              [EPSON]
ESC+'x'+n                       Selects print quality
=====================================================
<PRINT QUALITY>
Selects print quality

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

        Comment:
        *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.Down]**	Displays the explanation of previous/next command
[Esc]	Returns to screen 2
[Enter]	Prints the detailed explanation of the command
[E]	Exits to DOS

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.

  — 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 top and the smoked plastic covers. 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 single 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.

Re-ink Hole
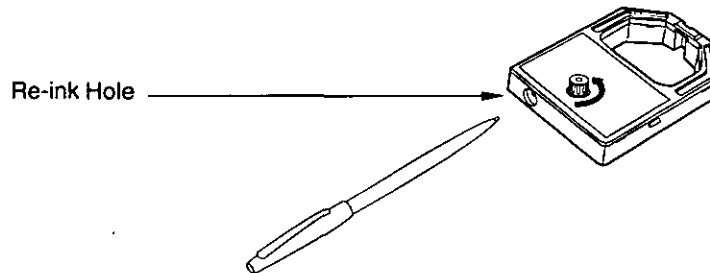
Note:
- Do not re-ink the ribbon until printing starts to fade. If the ribbon has too much ink, the characters may smear when printed.
- If the ribbon begins to catch, snag, or tear from the printhead, your printer requires servicing.

Self Test

After re-inking the ribbon, to make sure that the characters are no longer smearing you may perform steps 1~3 of "Self Test". (☞ P. 27)

Chap. 6 Maintenance & Troubleshooting

Troubleshooting

Most problems associated with the printer can be traced to improper setup, installation, or cabling. The following table 5.1 will assist the user in identifying and correcting some of the more common problems. If you need additional help, contact the store from which the unit was purchased.

Symptom	Possible Cause	Probable Solution
Ink smears	Head gap lever is not in the proper position	Move the lever toward the lower position (+) until ink doesn't smear (☞ P. 11)
Printout is faint	Head gap lever is not in proper position	Set the lever to the proper position (☞ P. 11)
Head moves but does not print	Ribbon is not installed correctly	Re-insert ribbon (☞ P. 14~16)
	Head gap lever is not in proper position	Set the lever to the proper position (☞ P. 11)
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. 13)
	Out of paper	Install new paper (☞ P. 19~23)
	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	Cut Sheet Feeder is Enable	Set Cut Sheet Feeder to Disable when not using the Cut Sheet Feeder (☞ P. 28~35)
Cut Sheet Feeder does not work	Cut Sheet Feeder is Disable	Set Cut Sheet Feeder to Enable (☞ P. 28~35)
Unexpected characters appear in printing	Emulation is set incorrectly	Check printer driver of your software package and set emulation accordingly (☞ P. 28~35)
KX-P44 (buffer chip) is installed but cannot download	Download is Disable	Set Download to Enable (☞ P. 28~32)
Printout is double-spaced	Auto LF is ON	Set Auto LF to OFF (☞ P. 28~35)
Keeps printing on the same line	Computer is not sending a LF command	Set Auto LF to ON (☞ P. 28~35)
Wrong character set printed	Wrong character set selected	Set the character set as required (☞ P. 28~32)

Table 5.1   Troubleshooting

Printer Specifications

Power requirements:	Refer to the nameplate located on the rear of the printer.
Frequency:	
Current:	
Interface:	Centronics parallel
Print fonts:	3 Draft (Pica, Elite, Micron) 4 Letter Quality (Courier, Bold PS, Prestige, Script)
Software emulation:	Epson LQ-850 IBM Proprinter X24E
Buffer:	14K (standard), additional 32K (optional KX-P44)
Character sets:	96 ASCII characters, 96 Italic ASCII characters, 38 International characters — 14 countries, 158 IBM-PC special characters
Dot configuration:	$1/127$ inch (0.2 mm) dot diameter **Matrix** (Hor. × Ver): Draft 9×24, LQ 30×24 **Dot pitch** (Hor.): Draft $1/120''$ (0.21 mm), LQ $1/360''$ (0.07 mm) (Ver.): Draft $1/180''$ (0.14 mm), LQ $1/180''$ (0.14 mm)

Dot configuration detail

	Draft	**LQ**
Matrix (Hor. × Ver)	9×24	30×24
Dot pitch (Hor.)	$1/120''$ (0.21 mm)	$1/360''$ (0.07 mm)
(Ver.)	$1/180''$ (0.14 mm)	$1/180''$ (0.14 mm)

Maximum number of characters per line (cpl):

Pica [10 cpi (characters 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

Printing speed [characters per second (cps)]:

	Micron	**Elite**	**Pica**
Draft	240 cps	192 cps	160 cps
Letter Quality	80 cps	64 cps	53 cps

Printing direction:	Text printing: Bi-Directional Bit Image printing: Uni-Directional & Bi-Directional
Line feed time:	Approx. 100 msec [with $1/6$ inch (4.2 mm) line feeding)]
Paper Feed:	Push Tractor feed (with fanfold paper) Friction feed (with single sheets or envelopes)
Operating environment:	Temperature: 10°C~35°C {50°F~95°F} Humidity: 30~80% RH (Please allow the printer to stabilize at room temperature within the operating temperature range before operation)
Storage environment:	Temperature: −20°C~60°C {−4°F~140°F} Humidity: 10~90% RH

(Continued)

Appendix

Head service life:	Approx. 200 million strokes in draft mode

Ribbon:	Cassette seamless fabric ribbon
	    Black ribbon cassette KX-P145:
	    Life expectancy (in Draft mode) (rolling ASCII)
	    Approx. 3 million

Detectors:	Paper out detector Overheat detector
Dimensions:	434 (W) × 314 (D) × 134.5 (H) mm {17.1″ × 12.4″ × 5.3″}
Mass {Weight}:	Approx. 4.8 kg {10.6 lbs}

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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	
		In lbs	In g/m^2
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 (423×559 mm)] sheets.

- The printer will handle multipart papers up to 0.013 inch (0.32 mm). Up to 4 copies of 14 lb. chemical release paper can be used.

Single Sheets

Width: 4 ~ 11.7 inches (102 ~ 297 mm)
Height: 5 ~ 14.3 inches (127 ~ 363 mm)
Weight in pounds (g/m^2):   14 ~ 24 lbs (53 ~ 90 g/m^2)

Note:

- Paper should be within operating temperature and humidity ranges at least 24 hours prior to use.

Envelopes

#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.

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Printing Area

Fanfold paper
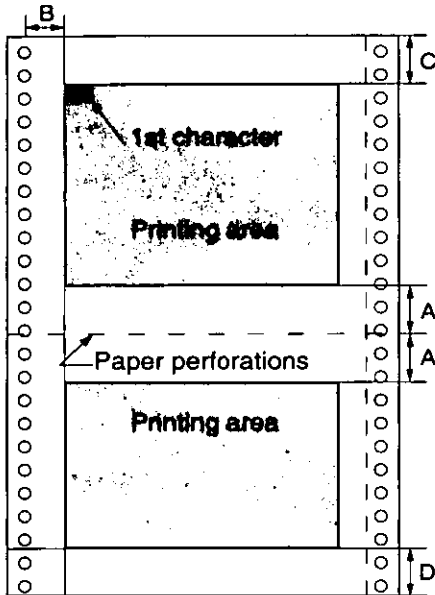
	Fanfold Paper
A	1" (25.4 mm)
B	0.7" (17.8 mm)
C	0.33" (8.38 mm)
D	1" (25.4 mm)

A: Value A indicates the area near the paper perforations where the quality may not be optimum.

B: Value B indicates the maximum 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 Sheets and Envelopes
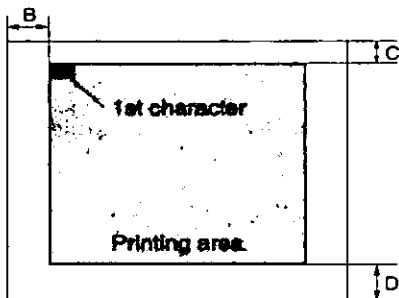
	Single Sheets and Envelopes
B	1.5" (38 mm)
C	0.33" (8.38 mm)
D	1" (25.4 mm)

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

Communication with a computer is accomplished 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 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 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	ERROR
ON LINE	LOW	HIGH	LOW	HIGH
OFF LINE	HIGH	LOW	LOW	LOW
PAPER OUT	HIGH	LOW	HIGH	LOW

Printer Status signals
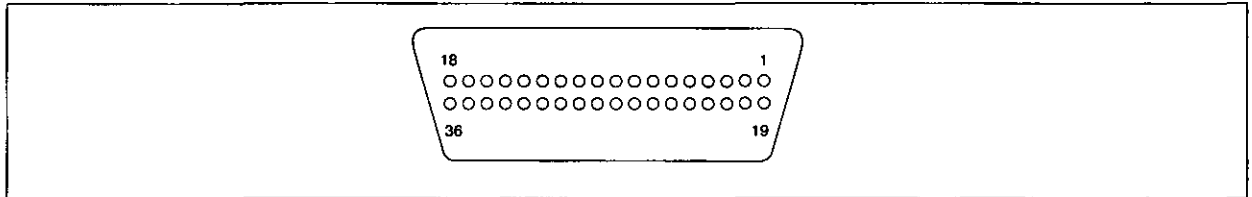
Parallel Interface Connector (Printer side)

Signal pin	Return side pin	Signal	Direction	Singal pin	Return side pin	Signal	Direction
1	19	STB	Input	13		SLCT	Output
2	20	DATA 1		14		AUTO FEED XT	Input
3	21	DATA 2		15			
4	22	DATA 3		16		SG	
5	23	DATA 4		17		FG	
6	24	DATA 5		18		+5 V	Output
7	25	DATA 6		31	30	PRIME	Input
8	26	DATA 7		32		ERROR	Output
9	27	DATA 8		33		SG	
10	28	ACK	Output	34			
11	29	BUSY		35			
12		PO		36			

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.

DATA1-DATA8

• 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 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, automatic action is disabled.

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.

+5V

• 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

Timing Chart (When normal printing code is received)
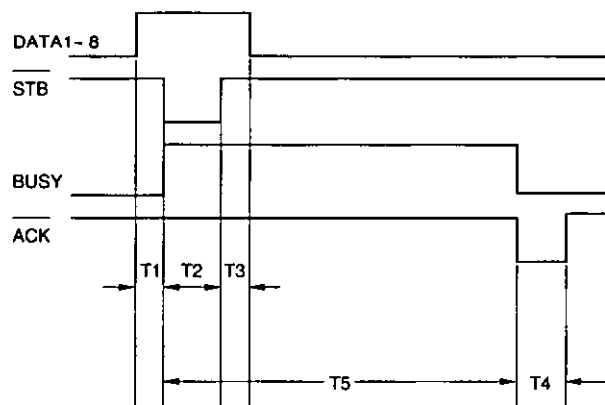
T1...0.5 μs (Min)
T2...1μs (Min)
T3...0.5 μs (Men)
T4...5 μs (Max)
T5...1 ms or less when buffer is not full
      1 s or less when buffer is full

Timing Diagram

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.

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.

Epson Italic Character Set (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	@	P	`	p			SP	0	@	P	`	p
1	1		DC1	!	1	A	Q	a	q		DC1	!	1	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	BEL		'	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	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	┴	╤	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	3		DC3	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	4		DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	5			%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	6			&	6	F	V	f	v	å	û	ª	╢	╞	╓	µ	÷
7	7			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	┘	θ	•
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
12	C	FF		,	<	L	\	l	|	î	£	¼	╝	╠	█	∞	ⁿ
13	D	CR		-	=	M	]	m	}	ì	¥	¡	╜	═	█	φ	²
14	E	SO		.	>	N	^	n	~	Ä	₧	<<	╛	╬	█	ε	■
15	F	SI		/	?	O	_	o	DEL	Å	ƒ	>>	┐	╧		∩	SP

Note:

- Set 1 is the same one which 80H~9FH is switched to 00H~1FH.

Epson 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	@	P	`	p	Ç	É	á	░	└	ð	ó	-
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	┴	Đ	ß	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	═
3	3		DC3	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	4		DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	5			%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
6	6			&	6	F	V	f	v	å	û	ª	Â	ã	Í	µ	÷
7	7			'	7	G	W	g	w	ç	ù	º	À	Ã	Ï	Þ	¸
8	8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	©	└	Î	þ	°
9	9	HT	EM	)	9	I	Y	i	y	ë	Ö	®	╣	╔	┘	Ú	¨
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Û	·
11	B	VT	ESC	+	;	K	[	k	{	ï	ø	½	╗	╦	█	Ù	¹
12	C	FF		,	<	L	\	l	|	î	£	¼	┘	╠	█	ý	³
13	D	CR		-	=	M	]	m	}	ì	Ø	¡	¢	=	█	Ý	²
14	E	SO		.	>	N	^	n	~	Ä	×	<<	¥	╬	█	¯	■
15	F	SI		/	?	O	_	o	DEL	Å	ƒ	>>	┐	╧	█	´	SP

Epson 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	@	P	`	p	Ç	É	á	░	└	╨	α	≡
1	1		DC1	!	1	A	Q	a	q	ü	À	í	▓	┴	╤	β	±
2	2		DC2	"	2	B	R	b	r	é	È	ó	▓	┬	Ê	Ô	≥
3	3		DC3	#	3	C	S	c	s	â	ô	ú	│	├	└	π	≤
4	4		DC4	$	4	D	T	d	t	ã	õ	ñ	┤	─	Ë	Σ	⌠
5	5			%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	6			&	6	F	V	f	v	Á	Ú	ª	╢	╞	╓	µ	÷
7	7			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	8	BS	CAN	(	8	H	X	h	x	ê	Ì	¿	╕	╚	╪	Φ	°
9	9	HT	EM	)	9	I	Y	i	y	Ê	Ô	Ó	╣	╔	┘	θ	•
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	┌	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	Í	¢	½	╗	╦	█	δ	√
12	C	FF		,	<	L	\	l	|	Ô	£	¼	╝	╠	█	∞	ⁿ
13	D	CR		-	=	M	]	m	}	ì	Ù	¡	╜	═	█	ø	²
14	E	SO		.	>	N	^	n	~	Ã	₧	<<	╛	╬	█	ε	■
15	F	SI		/	?	O	_	o	DEL	Ã	Ó	>>	┐	╧		∩	SP

Note:

- Set 1 is the same one which 80H~9FH is switched to 00H~1FH.

Epson 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	@	P	`	p	Ç	É	I	▓	L	⊥	α	■
1	1		DC1	!	1	A	Q	a	q	ü	È	'	▓	⊥	⊤	β	±
2	2		DC2	"	2	B	R	b	r	é	Ê	ó	▓	T	⊤	Γ	≥
3	3		DC3	#	3	C	S	c	s	â	ô	ú	┤	⊢	⊔	π	≤
4	4		DC4	$	4	D	T	d	t	À	Ë	¨	┤	—	⊢	Σ	⌠
5	5			%	5	E	U	e	u	à	Ï	·	╡	┼	┝	σ	⌡
6	6			&	6	F	V	f	v	¶	û	3	╢	┝	┌	μ	÷
7	7			'	7	G	W	g	w	ç	ù	¯	┐	┝	┼	τ	−
8	8	BS	CAN	(	8	H	X	h	x	ê	¤	¡	╕	└	╪	Φ	·
9	9	HT	EM	)	9	I	Y	i	y	ë	Ô	⌐	┤	┌	┘	θ	·
10	A	LF		*	:	J	Z	j	z	è	Û	¬	║	┴	┌	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	┐	┬	■	δ	√
12	C	FF		,	<	L	\	l	|	î	£	¼	┘	┝	■	∞	"
13	D	CR		-	=	M	]	m	}	_	Ù	¾	┘	=	■	ø	²
14	E	SO		.	>	N	^	n	~	À	Û	«	┘	┼	■	ε	■
15	F	SI		/	?	O	_	o		§	ƒ	»	┐	=	■	∩	SP

Epson 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	@	P	`	p	Ç	É	á	▓	L	⊥	α	■
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	⊥	⊤	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	T	⊤	Γ	≥
3	3		DC3	#	3	C	S	c	s	â	ô	ú	┤	┝	⊔	π	≤
4	4		DC4	$	4	D	T	d	t	ä	ö	ñ	┤	—	┝	Σ	⌠
5	5			%	5	E	U	e	u	à	ò	Ñ	╡	┼	┝	σ	⌡
6	6			&	6	F	V	f	v	å	û	ª	┤	┝	┌	μ	÷
7	7			'	7	G	W	g	w	ç	ù	º	┐	┝	┼	τ	−
8	8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	╕	└	╪	Φ	·
9	9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	┤	┌	┘	θ	·
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	ø	½	┐	┬	■	δ	√
12	C	FF		,	<	L	\	l	|	î	£	¼	┘	┝	■	∞	"
13	D	CR		-	=	M	]	m	}	ì	Ø	¡	┘	=	■	ø	²
14	E	SO		.	>	N	^	n	~	Ä	Pt	«	┘	┼	■	ε	■
15	F	SI		/	?	O	_	o		Å	ƒ	»	┐	=	■	∩	SP

Note:

- Set 1 is the same one which 80H~9FH is switched to 00H~1FH.

Epson 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	@	P	`	p	Ç	É	á	▓	L	⊥	α	■
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	⊥	⊤	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	T	⊤	Γ	≥
3	3		DC3	#	3	C	S	c	s	â	ô	ú	┤	┝	⊔	π	≤
4	4		DC4	$	4	D	T	d	t	ä	ö	ñ	┤	—	┝	Σ	⌠
5	5			%	5	E	U	e	u	à	ò	Ñ	╡	┼	┝	σ	⌡
6	6			&	6	F	V	f	v	å	ü	Ğ	┤	┝	┌	μ	÷
7	7			'	7	G	W	g	w	ç	ù	ğ	┐	┝	┼	τ	−
8	8	BS	CAN	(	8	H	X	h	x	ê	ı	¿	╕	└	╪	Φ	·
9	9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	┤	┌	┘	θ	·
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	┐	┬	■	δ	√
12	C	FF		,	<	L	\	l	|	î	£	¼	┘	┝	■	∞	"
13	D	CR		-	=	M	]	m	}	ı	¥	¡	┘	=	■	ø	²
14	E	SO		.	>	N	^	n	~	Ä	Ş	«	┘	┼	■	ε	■
15	F	SI		/	?	O	_	o	DEL	Å	ş	»	┐	=	■	∩	SP

Note:

- Set 1 is the same one which 80H~9FH is switched to 00H~1FH.

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	@	P	`	p	Ç	É	á	▓	└	⊥	α	≡
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	⊥	⊤	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	3	♥		#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	6	♠		&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7	7			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	8	BS		(	8	H	X	h	x	ê	ÿ	¿	╕	└	╪	Φ	°
9	9	HT		)	9	I	Y	i	y	ë	Ö	⌐	╣	┌	┘	θ	•
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	┬	■	δ	√
12	C	FF		,	<	L	\	l			î	£	¼	╝	├	■	∞	ⁿ
13	D	CR		-	=	M	]	m	}	ì	¥	¡	╜	═	■	ø	²
14	E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	■	ε	■
15	F	SI		/	?	O	_	o		Å	ƒ	»	┐	╧	■	∩	SP

Note:
- Set 1 is the same one which 03H~06H and 15H are 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	ø	►	SP	0	@	P	`	p	Ç	É	á	▓	└	⊥	α	≡
1	1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▓	⊥	⊤	β	±
2	2	●	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	╙	π	≤
4	4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	╒	σ	⌡
6	6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╞	╓	μ	÷
7	7	•	↨	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	└	╪	Φ	°
9	9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	┌	┘	θ	•
10	A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Ω	·
11	B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	┬	■	δ	√
12	C	♀	L	,	<	L	\	l			î	£	¼	╝	├	■	∞	ⁿ
13	D	♪	↔	-	=	M	]	m	}	ì	¥	¡	╜	═	■	ø	²
14	E	♫	▲	.	>	N	^	n	~	Ä	₧	«	╛	╬	■	ε	■
15	F	☼	▼	/	?	O	_	o		Å	ƒ	»	┐	╧	■	∩	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	@	P	`	p	Ç	É	á	▓	└	ð	Ó	-
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	⊥	Đ	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	▬
3	3	♥		#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
6	6	♠		&	6	F	V	f	v	å	û	ª	Â	ã	Í	μ	÷
7	7			'	7	G	W	g	w	ç	ù	º	À	Ã	Î	Þ	,
8	8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	©	└	Ï	þ	°
9	9	HT		)	9	I	Y	i	y	ë	Ö	®	╣	┌	Ú	•
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Û	·
11	B	VT	ESC	+	;	K	[	k	{	ï	ø	½	╗	┬	■	Ù	¹
12	C	FF		,	<	L	\	l			î	£	¼	╝	├	■	ý	³
13	D	CR		-	=	M	]	m	}	ì	Ø	¡	¢	═	¦	Ý	²
14	E	SO		.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
15	F	SI		/	?	O	_	o		Å	ƒ	»	┐	╧	■	´	SP

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

IBM All Character (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	ø	►	SP	0	@	P	`	p	Ç	É	á	▓	└	ð	Ó	-
1	1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▓	⊥	Đ	β	±
2	2	●	↕	"	2	B	R	b	r	é	Æ	ó	▓	┬	Ê	Ô	▬
3	3	♥	‼	#	3	C	S	c	s	â	ô	ú	│	├	Ë	Ò	¾
4	4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	┤	─	È	õ	¶
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	┼	ı	Õ	§
6	6	♠	▬	&	6	F	V	f	v	å	û	ª	Â	ã	Í	μ	÷
7	7	•	↨	'	7	G	W	g	w	ç	ù	º	À	Ã	Î	Þ	,
8	8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	©	└	Ï	þ	°
9	9	○	↓	)	9	I	Y	i	y	ë	Ö	®	╣	┌	Ú	•
10	A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	┴	┌	Û	·
11	B	♂	←	+	;	K	[	k	{	ï	ø	½	╗	┬	■	Ù	¹
12	C	♀	L	,	<	L	\	l			î	£	¼	╝	├	■	ý	³
13	D	♪	↔	-	=	M	]	m	}	ì	Ø	¡	¢	═	¦	Ý	²
14	E	♫	▲	.	>	N	^	n	~	Ä	×	«	¥	╬	Ì	¯	■
15	F	☼	▼	/	?	O	_	o		Å	ƒ	»	┐	╧	■	´	SP

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

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	@	P	`	p	Ç	É	á	▓	└	⊥	α	▬
1	1		DC1	!	1	A	Q	a	q	ü	À	í	▓	┴	┬	β	±
2	2		DC2	"	2	B	R	b	r	é	È	ó	▓	┬	╥	Γ	≥
3	3	♥		#	3	C	S	c	s	â	ô	ú	├	╟	π	≤
4	4	♦	DC4	$	4	D	T	d	t	ã	õ	ñ	┤	─	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	F	σ	⌡
6	6	♠		&	6	F	V	f	v	Á	Ù	ª	╢	╞	┌	μ	÷
7	7			'	7	G	W	g	w	ç	ù	º	┐	╫	τ	≈
8	8	BS		(	8	H	X	h	x	ê	ì	¿	┐	└	╪	Φ	°
9	9	HT		)	9	I	Y	i	y	Ê	Õ	Ò	╣	┌	Θ	∙
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	┐	╨	Γ	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	í	¢	½	╕	╤	▐	δ	√
12	C	FF		,	<	L	\	l			Ó	£	¼	╛	╞	▐	∞	ⁿ
13	D	CR		-	=	M	]	m	}	ì	Ù	¡	╜	═	▐	ø	²
14	E	SO		.	>	N	^	n	~	Ã	Pt	«	╛	╪	▐	ε	■
15	F	SI		/	?	O	_	o		À	Ó	»	┐	╧	▐	∩	SP

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

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	ø	►	SP	0	@	P	`	p	Ç	É	á	▓	└	⊥	α	▬
1	1	☺	◄	!	1	A	Q	a	q	ü	À	í	▓	┴	╥	β	±
2	2	●	↕	"	2	B	R	b	r	é	È	ó	▓	┬	╥	Γ	≥
3	3	♥	‼	#	3	C	S	c	s	â	ô	ú	├	╟	π	≤
4	4	♦	¶	$	4	D	T	d	t	ã	õ	ñ	┤	─	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	┼	F	σ	⌡
6	6	♠	▬	&	6	F	V	f	v	Á	Ù	ª	╢	╞	┌	μ	÷
7	7	●	↨	'	7	G	W	g	w	ç	ù	º	┐	╫	τ	≈
8	8	◘	↑	(	8	H	X	h	x	ê	ì	¿	┐	└	╪	Φ	°
9	9	○	↓	)	9	I	Y	i	y	Ê	Õ	Ò	╣	┌	Θ	∙
10	A	◙	→	*	:	J	Z	j	z	è	Ü	¬	┐	╨	Γ	Ω	·
11	B	♂	←	+	;	K	[	k	{	í	¢	½	╕	╤	▐	δ	√
12	C	♀	L	,	<	L	\	l			Ó	£	¼	╛	╞	▐	∞	ⁿ
13	D	♪	↔	-	=	M	]	m	}	ì	Ù	¡	╜	═	▐	ø	²
14	E	♫	▲	.	>	N	^	n	~	Ã	Pt	«	╛	╪	▐	ε	■
15	F	○	▼	/	?	O	_	o		Ô	À	Ó	»	┐	╧	▐	∩	SP

IBM Character Set 2 (Canada-French)

Dec.	0	16	32	48	64	80	96	112	128		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	É		▓	└	⊥	α	▬
1	1		DC1	!	1	A	Q	a	q	ü	È	'	▓	┴	╥	β	±
2	2		DC2	"	2	B	R	b	r	é	Ê	ó	▓	┬	╥	Γ	≥
3	3	♥		#	3	C	S	c	s	â	ô	ú	├	╟	π	≤
4	4	♦	DC4	$	4	D	T	d	t	Â	Ë	"	┤	─	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	Ï	·	╡	┼	F	σ	⌡
6	6	♠		&	6	F	V	f	v	¶	û	3	╢	╞	┌	μ	÷
7	7			'	7	G	W	g	w	ç	ù	⁻	┐	╫	τ	≈
8	8	BS		(	8	H	X	h	x	ê	¤	┐	└	╪	Φ	°
9	9	HT		)	9	I	Y	i	y	ë	Ô	┌	┌	Θ	∙
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	┐	╨	Γ	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╕	╤	▐	δ	√
12	C	FF		,	<	L	\	l			î	£	¼	╜	╞	▐	∞	ⁿ
13	D	CR		-	=	M	]	m	}		Ù	¾	╜	═	▐	ø	²
14	E	SO		.	>	N	^	n	~	À	Û	«	╛	╪	▐	ε	■
15	F	SI		/	?	O	_	o		§	ƒ	»	┐	╧	▐	∩	SP

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

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	ø	►	SP	0	@	P	`	p	Ç	É	í	▓	└	─	α	▬
1	1	○	◄	!	1	A	Q	a	q	ü	È	'	▓	┴	╥	β	±
2	2	●	↕	"	2	B	R	b	r	é	Ê	ó	▓	┬	╥	Γ	≥
3	3	♥	‼	#	3	C	S	c	s	â	ô	ú	├	╟	π	≤
4	4	♦	¶	$	4	D	T	d	t	Â	Ë	"	┤	─	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	Ï	·	╡	┼	F	σ	⌡
6	6	♠	▬	&	6	F	V	f	v	¶	û	3	╢	╞	┌	μ	÷
7	7	●	↨	'	7	G	W	g	w	ç	ù	⁻	┐	╫	τ	≈
8	8	◘	↑	(	8	H	X	h	x	ê	¤	┐	└	╪	Φ	°
9	9	○	↓	)	9	I	Y	i	y	ë	Ô	┌	┌	Θ	∙
10	A	◙	→	*	:	J	Z	j	z	è	Ü	¬	┐	╨	Γ	Ω	·
11	B	♂	←	+	;	K	[	k	{	ï	¢	½	╕	╤	▐	δ	√
12	C	♀	L	,	<	L	\	l			î	¦	¼	╜	╞	▐	∞	ⁿ
13	D	♪	↔	-	=	M	]	m	}		· Ù	¾	╜	═	▐	ø	²
14	E	♫	▲	.	>	N	^	n	~	À	Û	«	╛	╪	▐	ε	■
15	F	○	▼	/	?	O	_	o		Ô	§	ƒ	»	┐	╧	▐	∩	SP

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IBM Character Set 2 (Norway)

Dec	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	@	P	`	p	Ç	É	á	▓	L	⊥	α	≡
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	⊥	╤	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	T	╥	Γ	≥
3	3	♥		#	3	C	S	c	s	â	ô	ú		⊢	╙	π	≤
4	4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	⊣	—	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	╋	╒	σ	⌡
6	6	♠		&	6	F	V	f	v	å	û	ª	╢	╟	╓	μ	÷
7	7			'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	8	BS		(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	9	HT		)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	╯	θ	∙
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	╭	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
12	C	FF		,	<	L	\	l	|	î	£	¼	╝	╠	█	∞	ⁿ
13	D	CR		-	=	M	]	m	}	ì	¥	¡	╜	=	█	ø	²
14	E	SO		.	>	N	^	n	~	Ä	₧	«	╛	╬	█	ε	■
15	F	SI		/	?	O	_	o		Å	ƒ	»	┐	╧	█	∩	SP

Note:

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

IBM All Character (Norway)

Dec	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	Ø	►	SP	0	@	P	`	p	Ç	É	á	▓	L	⊥	α	≡
1	1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▓	⊥	╤	β	±
2	2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	T	╥	Γ	≥
3	3	♥	‼	#	3	C	S	c	s	â	ô	ú		⊢	╙	π	≤
4	4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	⊣	—	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	╋	╒	σ	⌡
6	6	♠	▬	&	6	F	V	f	v	å	û	ª	╢	╟	╓	μ	÷
7	7	•	↕	'	7	G	W	g	w	ç	ù	º	╖	╟	╫	τ	≈
8	8	◘	↑	(	8	H	X	h	x	ê	ÿ	¿	╕	╚	╪	Φ	°
9	9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	╯	θ	∙
10	A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	╭	Ω	·
11	B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
12	C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	█	∞	ⁿ
13	D	♪	↔	-	=	M	]	m	}	ì	¥	¡	╜	=	█	ø	²
14	E	♫	▲	.	>	N	Ô	n	Õ	Ä	₧	«	╛	╬	█	ε	■
15	F	☼	▼	/	?	O	_	o		Å	ƒ	»	┐	╧	█	∩	DEL

IBM Character Set 2 (Turkey)

Dec	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	NUL		SP	0	@	P	`	p	Ç	É	á	▓	L	⊥	α	≡
1	1		DC1	!	1	A	Q	a	q	ü	æ	í	▓	⊥	╤	β	±
2	2		DC2	"	2	B	R	b	r	é	Æ	ó	▓	T	╥	Γ	≥
3	3	♥		#	3	C	S	c	s	â	ô	ú		⊢	╙	π	≤
4	4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	⊣	—	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	╋	╒	σ	⌡
6	6	♠		&	6	F	V	f	v	å	û	Ğ	╢	╟	╓	μ	÷
7	7			'	7	G	W	g	w	ç	ù	ğ	╖	╟	╫	τ	≈
8	8	BS		(	8	H	X	h	x	ê	İ	¿	╕	╚	╪	Φ	°
9	9	HT		)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	╯	θ	∙
10	A	LF		*	:	J	Z	j	z	è	Ü	¬	║	╩	╭	Ω	·
11	B	VT	ESC	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
12	C	FF		,	<	L	\	l	|	î	£	¼	╝	╠	█	∞	ⁿ
13	D	CR		-	=	M	]	m	}	ı	¥	¡	╜	=	█	ø	²
14	E	SO		.	>	N	˙	n	~	Ä	Ş	«	╛	╬	█	ε	■
15	F	SI		/	?	O	_	o		Å	ş	»	┐	╧	█	∩	SP

Note:

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

IBM All Character (Turkey)

Dec	Hex	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
		0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0	Ø	►	SP	0	@	P	`	p	Ç	É	á	▓	L	⊥	α	≡
1	1	☺	◄	!	1	A	Q	a	q	ü	æ	í	▓	⊥	╤	β	±
2	2	☻	↕	"	2	B	R	b	r	é	Æ	ó	▓	T	╥	Γ	≥
3	3	♥	‼	#	3	C	S	c	s	â	ô	ú		⊢	╙	π	≤
4	4	♦	¶	$	4	D	T	d	t	ä	ö	ñ	⊣	—	╘	Σ	⌠
5	5	♣	§	%	5	E	U	e	u	à	ò	Ñ	╡	╋	╒	σ	⌡
6	6	♠	▬	&	6	F	V	f	v	å	û	Ğ	╢	╟	╓	μ	÷
7	7	•	↕	'	7	G	W	g	w	ç	ù	ğ	╖	╟	╫	τ	≈
8	8	◘	↑	(	8	H	X	h	x	ê	İ	¿	╕	╚	╪	Φ	°
9	9	○	↓	)	9	I	Y	i	y	ë	Ö	⌐	╣	╔	╯	θ	∙
10	A	◙	→	*	:	J	Z	j	z	è	Ü	¬	║	╩	╭	Ω	·
11	B	♂	←	+	;	K	[	k	{	ï	¢	½	╗	╦	█	δ	√
12	C	♀	∟	,	<	L	\	l	|	î	£	¼	╝	╠	█	∞	ⁿ
13	D	♪	↔	-	=	M	]	m	}	ı	¥	¡	╜	=	█	ø	²
14	E	♫	▲	.	>	N	˙	n	~	Ä	Ş	«	╛	╬	█	ε	■
15	F	☼	▼	/	?	O	_	o		Å	ş	»	┐	╧	█	∩	SP

International Character Set

	n	35o 23H	36o 24H	64o 40H	91o 5BH	92o 5CH	93o 5DH	94o 5EH	96o 60H	123o 7BH	124o 7CH	125o 7DH	126o 7EH	155o 9BH	157o 9DH
USA	0	#	$	@	[	\	]	^	`	{	|	}	~	¢	¥
FRANCE	1	#	$	à	°	ç	§	^	`	é	ù	è	¨	¢	¥
GERMANY	2	#	$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß	¢	¥
U.K.	3	£	$	@	[	\	]	^	`	{	|	}	~	¢	¥
DENMARK I	4	#	$	@	Æ	Ø	Å	^	`	æ	ø	å	~	o	Ø
SWEDEN	5	#	¤	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü	¢	¥
ITALY	6	#	$	@	°	\	é	^	ù	à	ò	è	ì	¢	¥
SPAIN I	7	Pt	$	@	¡	Ñ	¿	^	`	¨	ñ	}	~	¢	¥
JAPAN	8	#	$	@	[	¥	]	^	`	{	|	}	~	¢	¥
NORWAY	9	#	¤	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	o	Ø
DENMARK II	10	#	$	É	Æ	Ø	Å	Ü	é	æ	ø	å	ü	o	Ø
SPAIN II	11	#	$	á	¡	Ñ	¿	é	`	í	ñ	ó	ú	¢	¥
LATIN AMERICA	12	#	$	á	¡	Ñ	¿	é	ü	í	ñ	ó	ú	¢	¥
KOREA	13	#	$	@	[	₩	]	^	`	{	|	}	~	¢	¥
LEGAL	64	#	$	§	°	´	"	¶	`	©	®	†	™	¢	¥

*1 *2

Note:
*1 These characters can be changed only in the Epson LQ-850 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-850 and IBM Proprinter X24E modes.

Proportional Spacing Tables

ASCII Character

Epson Mode Characters

ASCII code	Char.	Width Normal	Width Script
32	SPACE	30	20
33	!	18	12
34	"	30	20
35	#	30	20
36	$	30	20
37	%	36	24
38	&	36	24
39	'	18	12
40	(	24	16
41	)	24	16
42	*	30	20
43	+	30	20
44	,	18	12
45	-	30	20
46	.	18	12
47	/	30	20
48	0	30	20
49	1	30	20
50	2	30	20
51	3	30	20
52	4	30	20
53	5	30	20
54	6	30	20
55	7	30	20
56	8	30	20
57	9	30	20
58	:	18	12
59	;	18	12
60	<	30	20
61	=	30	20
62	>	30	20
63	?	30	20
64	@	36	24

ASCII code	Char.	Width Normal	Width Script
65	A	36	24
66	B	36	24
67	C	36	24
68	D	36	24
69	E	36	24
70	F	36	24
71	G	36	24
72	H	36	24
73	I	24	16
74	J	30	20
75	K	36	24
76	L	36	24
77	M	42	28
78	N	36	24
79	O	36	24
80	P	36	24
81	Q	36	24
82	R	36	24
83	S	36	24
84	T	36	24
85	U	42	28
86	V	36	24
87	W	42	28
88	X	36	24
89	Y	36	24
90	Z	30	20
91	[	24	16
92	\	30	20
93	]	24	16
94	^	30	20
95	_	30	24
96	`	18	12
97	a	30	20

ASCII code	Char.	Width Normal	Width Script
98	b	36	24
99	c	30	20
100	d	36	24
101	e	30	20
102	f	24	16
103	g	36	24
104	h	36	24
105	i	18	12
106	j	24	16
107	k	36	24
108	l	18	12
109	m	42	28
110	n	36	24
111	o	30	20
112	p	36	24
113	q	36	24
114	r	30	20
115	s	30	20
116	t	24	16
117	u	36	24
118	v	36	24
119	w	42	28
120	x	30	20
121	y	36	24
122	z	30	20
123	{	24	16
124			18	12
125	}	24	16
126	~	30	20
127	⌂	30	20

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

IBM Mode Characters

ASCII code	Char.	Width Normal	Width Script
32	SPACE	30	
33	!	30	
34	"	30	
35	#	30	
36	$	30	
37	%	30	
38	&	36	
39	'	18	
40	(	30	
41	)	30	
42	*	30	
43	+	30	
44	,	30	
45	-	30	
46	.	30	
47	/	30	
48	0	30	
49	1	30	
50	2	30	
51	3	30	
52	4	30	
53	5	30	
54	6	30	
55	7	30	
56	8	30	
57	9	30	

ASCII code	Char.	Width Normal	Width Script
58	:	30	
59	;	30	
60	<	30	
61	=	30	
62	>	30	
63	?	30	
64	@	30	
65	A	42	
66	B	42	
67	C	42	
68	D	42	
69	E	36	
70	F	36	
71	G	42	
72	H	42	
73	I	24	
74	J	30	
75	K	42	
76	L	36	
77	M	42	
78	N	42	
79	O	42	
80	P	36	
81	Q	42	
82	R	42	
83	S	36	

ASCII code	Char.	Width Normal	Width Script
84	T	42	
85	U	42	
86	V	42	
87	W	42	
88	X	42	
89	Y	42	
90	Z	36	
91	[	30	
92	\	30	
93	]	30	
94	^	30	
95	_	30	
96	`	30	
97	a	30	
98	b	36	
99	c	30	
100	d	36	
101	e	30	
102	f	24	
103	g	36	
104	h	36	
105	i	18	
106	j	18	
107	k	36	
108	l	18	
109	m	42	

ASCII code	Char.	Width Normal	Width Script
110	n	36	
111	o	30	
112	p	36	
113	q	36	
114	r	30	
115	s	30	
116	t	24	
117	u	36	
118	v	36	
119	w	42	
120	x	36	
121	y	36	
122	z	30	
123	{	30	
124			30	
125	}	30	
126	~	30	

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

Special Characters

Epson Mode Characters

ASCII code	Char.	Width Normal	Width Script
36	o	30	20
48	0	30	20
64	§	30	20
91	*	24	16
92	Ø	36	24
92	.	18	12
92	w	42	28
93	"	30	20
94	¶	30	20
123	©	36	24
124	®	36	24
124	o	30	20
125	†	30	20
126	~	30	20
126	™	36	24
128	Ç	36	24
129	ü	36	24
130	é	30	20
131	â	30	20
132	ä	30	20
133	à	30	20
134	å	30	20
135	ç	30	20
136	ê	30	20
137	ë	30	20
138	è	30	20

ASCII code	Char.	Width Normal	Width Script
139	ï	18	12
140	î	18	12
141	ì	18	12
142	Ä	36	24
143	Å	36	24
144	É	36	24
145	æ	42	28
146	Æ	42	28
147	ô	30	20
148	ö	30	20
149	ò	30	20
150	û	36	24
151	ù	36	24
152	ÿ	36	24
153	Ö	36	24
154	Ü	42	28
155	¢	30	20
156	£	30	20
157	¥	36	24
158	Pt	42	18
159	ƒ	30	20
160	á	30	20
161	í	18	12
162	ó	30	20
163	ú	36	24
164	ñ	36	24

ASCII code	Char.	Width Normal	Width Script
165	Ñ	36	24
166	ª	30	20
167	º	30	20
168	¿	30	20
169	⌐	30	20
170	¬	30	20
171	½	30	20
172	¼	30	20
173	¡	30	20
174	«	30	20
175	»	30	20
224	α	30	20
225	β	30	20
226	Γ	30	20
227	π	30	20
228	Σ	30	20
229	σ	30	20
230	µ	30	20
231	τ	30	20
232	Φ	30	20
233	θ	30	20
234	Ω	30	20
235	δ	36	20
236	∞	30	24
237	φ	30	20
238	ε	30	20

ASCII code	Char.	Width Normal	Width Script
239	∩	30	20
240	≡	30	20
241	±	30	20
242	≥	30	20
243	≤	30	20
246	÷	30	20
247	≈	30	20
248	°	30	20
249	•	30	20
250	·	30	20
251	√	30	20
252	ⁿ	30	20
253	²	30	20
254	■	30	20
255	SP	30	20

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

Epson Mode Characters (Multilingual)

ASCII code	Char.	Width Normal	Width Script
35	Pt	42	28
48	0	30	20
92	w	42	28
93	"	30	20
125	†	30	20
126	™	36	24
128	Ç	36	24
129	ü	36	24
130	é	30	20
131	â	30	20
132	ä	30	20
133	à	30	20
134	å	30	20
135	ç	30	20
136	ê	30	20
137	ë	30	20
138	è	30	20
139	ï	18	12
140	î	18	12
141	ì	18	12
142	Ä	36	24
143	Å	36	24
144	É	36	24
145	æ	42	28
146	Æ	42	28
147	ô	30	20
148	ö	30	20
149	ò	30	20
150	û	36	24
151	ù	36	24

ASCII code	Char.	Width Normal	Width Script
152	ÿ	36	24
153	Ö	36	24
154	Ü	42	28
155	ø	30	20
156	£	30	20
157	Ø	36	24
158	×	30	20
159	ƒ	30	20
160	á	30	20
161	í	18	12
162	ó	30	20
163	ú	36	24
164	ñ	36	24
165	Ñ	36	24
166	ª	30	20
167	º	30	20
168	¿	30	20
169	®	36	24
170	¬	30	20
171	½	30	20
172	¼	30	20
173	¡	30	20
174	«	30	20
175	»	30	20
181	Á	36	24
182	Â	36	24
183	À	36	24
184	©	36	24
189	¢	30	20
190	¥	36	24

ASCII code	Char.	Width Normal	Width Script
198	ã	30	20
199	Ã	36	24
207	¤	30	20
208	ð	36	24
209	Ð	36	24
210	Ê	36	24
211	Ë	36	24
212	È	36	24
213	ı	18	12
214	Í	24	16
215	Î	24	16
216	Ï	24	16
221	¦	18	12
222	Ì	24	16
224	Ó	36	24
225	ß	30	20
226	Ô	36	24
227	Ò	36	24
228	õ	30	20
229	Õ	36	24
230	µ	30	20
231	þ	36	24
232	Þ	36	24
233	Ú	42	28
234	Û	42	28
235	Ù	42	28
236	ý	36	24
237	Ý	36	24
238	¯	30	20
239	´	18	12

ASCII code	Char.	Width Normal	Width Script
240	-	30	20
241	±	30	20
242	=	30	20
243	¾	30	20
244	¶	30	20
245	§	30	20
246	÷	30	20
247	¸	30	20
248	°	30	20
249	¨	30	20
250	•	30	20
251	¹	24	16
252	³	24	16
253	²	30	20
254	■	30	20
255	SP	30	20

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

Proportional Spacing Tables

Epson Mode Characters (Portugal)

ASCII code	Char.	Width Normal	Width Script
36	o	30	20
48	0	30	20
64	§	30	20
91	Æ	42	28
91	Å	36	24
92	¥	36	24
92	Ò	36	24
92	Ø	36	24
92	·	18	12
92	₩	42	28
93	Å	36	24
93	"	30	20
94	¶	30	20
123	©	36	24
123	å	30	20
123	œ	42	28
124	ô	30	20
124	ø	30	20
124	℗	36	24
125	à	30	20
125	†	30	20
126	™	36	24
128	Ç	36	24
129	ü	36	24
130	é	30	20
131	â	30	20
132	ã	30	20
133	à	30	20
134	Á	36	24
135	ç	30	20

ASCII code	Char.	Width Normal	Width Script
136	ê	30	20
137	Ê	36	24
138	è	30	20
139	Í	24	16
140	Ô	36	24
141	í	18	12
142	Ã	36	24
143	Â	36	24
144	É	36	24
145	À	36	24
146	È	36	24
147	ô	30	20
148	õ	30	20
149	ò	30	20
150	Ú	42	28
151	ù	36	24
152	ì	24	16
153	Ô	36	24
154	Ü	42	28
155	¢	30	20
156	£	30	20
157	Ù	42	28
158	Pt	42	28
159	Ó	36	24
160	á	30	20
161	í	18	12
162	ó	30	20
163	ú	36	24
164	ñ	36	24
165	Ñ	36	24

ASCII code	Char.	Width Normal	Width Script
166	ª	30	20
167	º	30	20
168	¿	30	20
169	Ò	36	24
170	¬	30	20
171	½	30	20
172	¼	30	20
173	¡	30	20
174	«	30	20
175	»	30	20
224	α	30	20
225	β	30	20
226	Γ	30	20
227	π	30	20
228	Σ	30	20
229	σ	30	20
230	µ	30	20
231	τ	30	20
232	Φ	30	20
233	θ	30	20
234	Ω	30	20
235	δ	30	20
236	∞	30	20
237	φ	30	20
238	ε	30	20
239	∩	30	20
240	≡	30	20
241	±	30	20
242	≥	30	20
243	≤	30	20

ASCII code	Char.	Width Normal	Width Script
246	÷	30	20
247	≈	30	20
248	°	30	20
249	•	30	20
250	·	30	20
251	√	30	20
252	ⁿ	30	20
253	²	30	20
254	■	30	20
255	SP	30	20

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

Epson Mode Characters (Canada-French)

ASCII code	Char.	Width Normal	Width Script
35	Pt	42	28
48	0	30	20
64	à	30	20
91	·	24	16
91	Â	36	24
91	Æ	42	28
91	í	18	12
92	Ô	36	24
92	Ñ	36	24
92	Ø	36	24
92	¥	36	24
92	·	18	12
92	₩	42	28
93	Å	36	24
93	¿	30	20
93	"	30	20
123	©	36	24
123	å	30	20
123	œ	42	28
123	í	18	12
124	ô	30	20
124	ø	30	20
124	ñ	36	24
124	o	30	20
124	℗	36	24
125	†	30	20
126	™	36	24
128	Ç	36	24
129	ü	36	24
130	é	30	20

ASCII code	Char.	Width Normal	Width Script
132	â	30	20
132	Â	36	24
133	à	30	20
134	¶	30	20
135	ç	30	20
136	ê	30	20
137	ë	30	20
138	è	30	20
139	ï	18	12
140	î	18	12
141	—	30	20
142	À	36	24
143	§	30	20
144	É	36	24
145	È	36	24
146	Ê	36	24
147	ô	30	20
148	Ë	36	24
149	Ï	24	16
150	û	36	24
151	ù	36	24
152	¤	30	20
153	ô	36	24
154	Ü	42	28
155	¢	30	20
156	£	30	20
157	Ù	42	28
158	Û	42	28
159	ƒ	30	20
160	¦	18	12

ASCII code	Char.	Width Normal	Width Script
161	·	18	12
162	ó	30	20
163	ú	36	24
164	¯	30	20
165	'	30	20
166	³	24	16
167	⁻	30	20
168	¡	24	16
169	⌐	30	20
170	¬	30	20
171	½	30	20
172	¼	30	20
173	¡	30	20
174	«	30	20
175	»	30	20
224	α	30	20
225	β	30	20
226	Γ	30	20
227	π	30	20
228	Σ	30	20
229	σ	30	20
230	µ	30	20
231	τ	30	20
232	Φ	30	20
233	θ	30	20
234	Ω	30	20
235	δ	30	20
236	∞	30	20
237	φ	30	20
238	ε	30	20

ASCII code	Char.	Width Normal	Width Script
239	∩	30	20
240	≡	30	20
241	±	30	20
242	≥	30	20
243	≤	30	20
246	÷	30	20
247	≈	30	20
248	°	30	20
249	•	30	20
250	·	30	20
251	√	30	20
252	ⁿ	30	20
253	²	30	20
254	■	30	20
255	SP	30	20

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

Epson Mode Characters (Norway)

ASCII code	Char.	Width Normal	Width Script
48	0	30	20
64	§	30	20
91	°	24	16
92	¥	36	24
92	'	36	24
92	₩	42	28
93	"	36	24
94	¶	30	20
123	◦	36	24
124	®	36	24
125	†	30	20
126	ˉ	30	20
126	™	36	24
128	Ç	36	24
129	ü	36	24
130	é	30	20
131	â	30	20
132	ä	30	20
133	à	30	20
134	å	30	20
135	ç	30	20
136	ê	30	20
137	ë	30	20
138	è	30	20
139	ï	18	12
140	î	18	12
141	ì	18	12
142	Ä	36	24
143	Å	36	24
144	É	36	24
145	æ	42	28

ASCII code	Char.	Width Normal	Width Script
146	Æ	42	28
147	ô	30	20
148	ö	30	20
149	ò	30	20
150	û	36	24
151	ù	36	24
152	ÿ	36	24
153	Ö	36	24
154	Ü	42	28
155	ø	30	20
156	£	30	20
157	Ø	36	24
158	Pt	42	28
159	ƒ	30	20
160	á	30	20
161	í	18	12
162	ó	30	20
163	ú	36	24
164	ñ	36	24
165	Ñ	36	24
166	ª	30	20
167	º	30	20
168	¿	30	20
169	⌐	30	20
170	¬	30	20
171	½	30	20
172	¼	30	20
173	¡	30	20
174	«	30	20
175	»	30	20
224	α	30	20

ASCII code	Char.	Width Normal	Width Script
225	β	30	20
226	Γ	30	20
227	π	30	20
228	Σ	30	20
229	σ	30	20
230	µ	30	20
231	τ	30	20
232	Φ	30	20
233	θ	30	20
234	Ω	30	20
235	δ	30	20
236	∞	30	20
237	φ	30	20
238	ε	30	20
239	∩	30	20
240	≡	30	20
241	±	30	20
242	≥	30	20
243	≤	30	20
246	÷	30	20
247	≈	30	20
248	°	30	20
249	•	30	20
250	·	30	20
251	√	30	20
252	ⁿ	30	20
253	²	30	20
254	■	30	20
255	SP	30	20

Compressed PS width is ½ of Normal PS.

Unit: ⅟₃₆₀ inch (0.07 mm)

Epson Mode Characters (Turkey)

ASCII code	Char.	Width Normal	Width Script
36	¤	30	20
48	0	30	20
64	§	30	20
91	°	24	16
92	ơ	36	24
92	.	18	12
92	₩	42	28
93	"	30	20
94	ŋ	30	20
123	◦	36	24
124	ơ	30	20
124	®	36	24
125	†	30	20
126	ˉ	30	20
126	™	36	24
128	Ç	36	24
129	ü	36	24
130	é	30	20
131	â	30	20
132	ä	30	20
133	à	30	20
134	å	30	20
135	ç	30	20
136	ê	30	20
137	ë	30	20
138	è	30	20
139	ï	18	12

ASCII code	Char.	Width Normal	Width Script
140	î	18	12
141	ì	18	12
142	Ä	36	24
143	Å	36	24
144	É	36	24
145	æ	42	28
146	Æ	42	28
147	ô	30	20
148	ö	30	20
149	ò	30	20
150	û	36	24
151	ù	36	24
152	İ	24	16
153	Ö	36	24
154	Ü	42	28
155	¢	30	20
156	£	30	20
157	¥	36	24
158	Ş	36	24
159	ş	30	20
160	á	30	20
161	í	18	12
162	ó	30	20
163	ú	36	24
164	ñ	36	24
165	Ñ	36	24
166	Ğ	36	24

ASCII code	Char.	Width Normal	Width Script
167	ğ	36	24
168	¿	30	20
169	⌐	30	20
170	¬	30	20
171	½	30	20
172	¼	30	20
173	¡	30	20
174	«	30	20
175	»	30	20
224	α	30	20
225	β	30	20
226	Γ	30	20
227	π	30	20
228	Σ	30	20
229	σ	30	20
230	µ	30	20
231	τ	30	20
232	Φ	30	20
233	θ	30	20
234	Ω	30	20
235	δ	36	20
236	∞	30	24
237	φ	30	20
238	ε	30	20
239	∩	30	20
240	≡	30	20
241	±	30	20

ASCII code	Char.	Width Normal	Width Script
242	≥	30	20
243	≤	30	20
246	÷	30	20
247	≈	30	20
248	°	30	20
249	•	30	20
250	·	30	20
251	√	30	20
252	.	30	20
253	,	30	20
254	■	30	20
255	SP	30	20

Compressed PS width is ½ of Normal PS.

Unit: ⅟₃₆₀ inch (0.07 mm)

Appendix

IBM Mode Characters

ASCII code	Char.	Width Normal	Width Script
0	ø	30	
1	☺	30	
2	●	30	
3	♥	30	
4	♦	30	
5	♠	30	
6	♠	30	
7	•	30	
8	◘	30	
9	○	30	
10	◙	30	
11	♂	30	
12	♀	30	
13	♪	30	
14	♫	30	
15	☼	30	
16	►	30	
17	◄	30	
18	↕	30	
19	‼	30	
20	¶	30	
21	§	30	
22	▬	30	
23	↨	30	
24	↑	30	
25	↓	30	
26	→	30	
27	←	30	
28	∟	30	
29	↔	30	
30	▲	30	
31	▼	30	
127	⌂	30	

ASCII code	Char.	Width Normal	Width Script
128	Ç	42	
129	ü	36	
130	é	30	
131	â	30	
132	ä	30	
133	à	30	
134	å	30	
135	ç	30	
136	ê	30	
137	ë	30	
138	è	30	
139	ï	18	
140	î	18	
141	ì	18	
142	Ä	42	
143	Å	42	
144	É	36	
145	æ	42	
146	Æ	42	
147	ô	30	
148	ö	30	
149	ò	30	
150	û	36	
151	ù	36	
152	ÿ	36	
153	Ö	42	
154	Ü	42	
155	¢	30	
156	£	30	
157	¥	30	
158	Pts	42	
159	ƒ	30	
160	á	30	

ASCII code	Char.	Width Normal	Width Script
161	í	18	
162	ó	30	
163	ú	36	
164	ñ	36	
165	Ñ	42	
166	ª	30	
167	º	30	
168	¿	30	
169	⌐	30	
170	¬	30	
171	½	30	
172	¼	30	
173	¡	30	
174	«	42	
175	»	42	
224	α	30	
225	β	36	
226	Γ	36	
227	π	36	
228	Σ	42	
229	σ	36	
230	μ	36	
231	τ	30	
232	Φ	42	
233	θ	42	
234	Ω	42	
235	δ	30	
236	∞	30	
237	φ	42	
238	ε	30	
239	∩	30	
240	≡	30	
241	±	30	

ASCII code	Char.	Width Normal	Width Script
242	≥	30	
243	≤	30	
246	÷	30	
247	≈	30	
248	°	30	
249	•	30	
250	·	30	
251	√	30	
252	ⁿ	30	
253	²	30	
254	■	30	
255	SP	30	

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

IBM Mode Characters (Multilingual)

ASCII code	Char.	Width Normal	Width Script
0	ø	30	
1	·	30	
2	●	30	
3	♥	30	
4	♦	30	
5	♣	30	
6	♠	30	
7	•	30	
8	◘	30	
9	○	30	
10	◙	30	
11	♂	30	
12	♀	30	
13	♪	30	
14	♫	30	
15	☼	30	
16	►	30	
17	◄	30	
18	↕	30	
19	‼	30	
20	¶	30	
21	§	30	
22	▬	30	
23	↨	30	
24	↑	30	
25	↓	30	
26	→	30	
27	←	30	
28	∟	30	
29	↔	30	
30	▲	30	
31	▼	30	
127	⌂	30	
128	Ç	42	

ASCII code	Char.	Width Normal	Width Script
129	ü	36	
130	é	30	
131	â	30	
132	ä	30	
133	à	30	
134	å	30	
135	ç	30	
136	ê	30	
137	ë	30	
138	è	30	
139	ï	18	
140	î	18	
141	ì	18	
142	Ä	42	
143	Å	42	
144	É	36	
145	æ	42	
146	Æ	42	
147	ô	30	
148	ö	30	
149	ò	30	
150	û	36	
151	ù	36	
152	ÿ	36	
153	Ö	42	
154	Ü	42	
155	ø	30	
156	£	30	
157	Ø	42	
158	×	30	
159	ƒ	30	
160	á	30	
161	í	18	
162	ó	30	

ASCII code	Char.	Width Normal	Width Script
163	ú	36	
164	ñ	36	
165	Ñ	42	
166	ª	30	
167	º	30	
168	¿	30	
169	®	30	
170	¬	30	
171	½	30	
172	¼	30	
173	¡	30	
174	«	42	
175	»	42	
181	Á	42	
182	Â	42	
183	À	42	
184	©	30	
189	¢	30	
190	¥	30	
198	ã	30	
199	Ã	42	
207	¤	30	
208	ð	36	
209	Ð	42	
210	Ê	36	
211	Ë	36	
212	È	36	
213	ı	18	
214	Í	24	
215	Î	24	
216	Ï	24	
221	¦	30	
222	Ì	24	
224	Ó	42	

ASCII code	Char.	Width Normal	Width Script
225	ß	36	
226	Ô	42	
227	Ò	42	
228	õ	30	
229	Õ	42	
230	µ	30	
231	þ	36	
232	Þ	42	
233	Ú	42	
234	Û	42	
235	Ù	42	
236	ý	36	
237	Ý	42	
238	¯	30	
239	´	30	
240		30	
241	±	30	
242	‗	30	
243	¾	30	
244	¶	30	
245	§	30	
246	÷	30	
247	¸	30	
248	°	30	
249	¨	30	
250	·	30	
251	¹	30	
252	³	30	
253	²	30	
254	■	30	
255	SP	30	

Compressed PS width is ½ of Normal PS.

Unit: 1/360 inch (0.07 mm)

Appendix

IBM Mode Characters (Portugal)

ASCII code	Char.	Width Normal	Width Script
0	ø	30	
1	☺	30	
2	•	30	
3	♥	30	
4	♦	30	
5	♣	30	
6	♠	30	
7	•	30	
8	◘	30	
9	○	30	
10	◙	30	
11	♂	30	
12	♀	30	
13	♪	30	
14	♫	30	
15	○	30	
16	►	30	
17	◄	30	
18	↕	30	
19	‼	30	
20	¶	30	
21	§	30	
22	▬	30	
23	↨	30	
24	↑	30	
25	↓	30	
26	→	30	
27	←	30	
28	∟	30	
29	↔	30	
30	▲	30	
31	▼	30	

ASCII code	Char.	Width Normal	Width Script
127	⌂	30	
128	Ç	42	
129	ü	36	
130	é	30	
131	â	30	
132	ä	30	
133	à	30	
134	Á	36	
135	ç	30	
136	ê	30	
137	Ê	36	
138	è	30	
139	í	24	
140	Ô	42	
141	ì	18	
142	Ã	42	
143	Â	42	
144	É	36	
145	À	42	
146	È	36	
147	ô	30	
148	ö	30	
149	ò	30	
150	Ú	42	
151	ù	36	
152	ì	24	
153	Õ	42	
154	Ü	42	
155	¢	30	
156	£	30	
157	Ù	42	
158	Pts	42	

ASCII code	Char.	Width Normal	Width Script
159	Ó	42	
160	á	30	
161	í	18	
162	ó	30	
163	ú	36	
164	ñ	36	
165	Ñ	42	
166	ª	30	
167	º	30	
168	¿	30	
169	Ò	42	
170	¬	30	
171	½	30	
172	¼	30	
173	¡	30	
174	«	42	
175	»	42	
224	α	30	
225	β	36	
226	Γ	36	
227	π	36	
228	Σ	42	
229	σ	36	
230	µ	36	
231	τ	30	
232	Φ	42	
233	θ	42	
234	Ω	42	
235	δ	30	
236	∞	30	
237	φ	42	
238	ε	30	

ASCII code	Char.	Width Normal	Width Script
239	∩	30	
240	≡	30	
241	±	30	
242	≥	30	
243	≤	30	
246	÷	30	
247	≈	30	
248	°	30	
249	•	30	
250	·	30	
251	√	30	
252	ⁿ	30	
253	²	30	
254	■	30	
255	SP	30	

Compressed PS width is ½ of Normal PS.   Unit: ⅟₃₆₀ inch (0.07 mm)

IBM Mode Characters (Canada-French)

ASCII code	Char.	Width Normal	Width Script
0	ø	30	
1	☺	30	
2	•	30	
3	♥	30	
4	♦	30	
5	♣	30	
6	♠	30	
7	•	30	
8	◘	30	
9	○	30	
10	◙	30	
11	♂	30	
12	♀	30	
13	♪	30	
14	♫	30	
15	○	30	
16	►	30	
17	◄	30	
18	↕	30	
19	‼	30	
20	¶	30	
21	§	30	
22	▬	30	
23	↨	30	
24	↑	30	
25	↓	30	
26	→	30	
27	←	30	
28	∟	30	
29	↔	30	
30	▲	30	

ASCII code	Char.	Width Normal	Width Script
31	▼	30	
127	⌂	30	
128	Ç	42	
129	ü	36	
130	é	30	
131	â	30	
132	Â	42	
133	à	30	
134	¶	30	
135	ç	30	
136	ê	30	
137	ë	30	
138	è	30	
139	ï	18	
140	î	18	
141	=	30	
142	À	42	
143	§	30	
144	É	36	
145	È	36	
146	Ê	36	
147	ô	30	
148	Ë	36	
149	Ï	24	
150	û	36	
151	ù	36	
152	¤	30	
153	Ô	42	
154	Ü	42	
155	¢	30	
156	£	30	
157	Ù	30	

ASCII code	Char.	Width Normal	Width Script
158	Û	42	
159	ƒ	30	
160	¦	30	
161	'	30	
162	ó	30	
163	ú	36	
164	¯	30	
165	'	30	
166	³	30	
167	¯	30	
168	¯	24	
169	⌐	30	
170	¬	30	
171	½	30	
172	¼	30	
173	¾	30	
174	«	42	
175	»	42	
224	α	30	
225	β	36	
226	Γ	36	
227	π	36	
228	Σ	42	
229	σ	36	
230	µ	36	
231	τ	30	
232	Φ	42	
233	θ	42	
234	Ω	42	
235	δ	30	
236	∞	30	

ASCII code	Char.	Width Normal	Width Script
237	φ	42	
238	ε	30	
239	∩	30	
240	≡	30	
241	±	30	
242	≥	30	
243	≤	30	
246	÷	30	
247	≈	30	
248	°	30	
249	•	30	
250	·	30	
251	√	30	
252	ⁿ	30	
253	²	30	
254	■	30	
255	SP	30	

Compressed PS width is ½ of Normal PS.   Unit: ⅟₃₆₀ inch (0.07 mm)

Appendix

Proportional Spacing Tables

IBM Mode Characters (Norway)

ASCII code	Char.	Width Normal	Width Script		ASCII code	Char.	Width Normal	Width Script		ASCII code	Char.	Width Normal	Width Script		ASCII code	Char.	Width Normal	Width Script
0	ø	30			127	⌂	30			159	ƒ	30			239	∩	30	
1	☺	30			128	Ç	42			160	á	30			240	≡	30	
2	●	30			129	ü	36			161	í	18			241	±	30	
3	♥	30			130	é	30			162	ó	30			242	≥	30	
4	♦	30			131	â	30			163	ú	36			243	≤	30	
5	♣	30			132	ä	30			164	ñ	36			246	÷	30	
6	♠	30			134	à	30			165	Ñ	42			247	≈	30	
7	•	30			135	Å	30			166	ª	30			248	°	30	
8	◘	30			136	ç	30			167	º	30			249	•	30	
9	○	30			137	ê	30			168	¿	30			250	·	30	
10	◙	30			138	ë	30			169	⌐	30			251	√	30	
11	♂	30			139	è	30			170	¬	30			252	ⁿ	30	
12	♀	30			140	ï	18			171	½	30			253	²	30	
13	♪	30			140	î	18			172	¼	30			254	■	30	
14	♫	30			141	ì	18			173	¡	30			255	SP	30	
15	☼	30			142	Ä	42			174	«	42						
16	►	30			143	Å	42			175	»	30						
17	◄	30			144	É	36			224	α	30						
18	‡	30			145	æ	42			225	β	36						
19	‼	30			146	Æ	42			226	Γ	36						
20	¶	30			147	ô	30			227	π	36						
21	§	30			148	ö	30			228	Σ	42						
22	▬	30			149	ò	30			229	σ	36						
23	↨	30			150	û	36			230	µ	36						
24	↑	30			151	ù	36			231	τ	30						
25	↓	30			152	ÿ	36			232	Φ	42						
26	→	30			153	Ö	42			233	θ	42						
27	←	30			154	Ü	42			234	Ω	42						
28	∟	30			155	ø	30			235	δ	30						
29	↔	30			156	£	30			236	∞	30						
30	▲	30			157	Ø	42			237	φ	42						
31	▼	30			158	Pts	42			238	ε	30						

Compressed PS width is ½ of Normal PS.

Unit: ⅟₃₆₀ inch (0.07 mm)

IBM Mode Characters (Turkey)

ASCII code	Char.	Width Normal	Width Script		ASCII code	Char.	Width Normal	Width Script		ASCII code	Char.	Width Normal	Width Script		ASCII code	Char.	Width Normal	Width Script
0	ø	30			128	Ç	42			161	í	18			242	≥	30	
1	☺	30			129	ü	36			162	ó	30			243	≤	30	
2	●	30			130	é	30			163	ú	36			246	÷	30	
3	♥	30			131	â	30			164	ñ	36			247	≈	30	
4	♦	30			132	ä	30			165	Ñ	42			248	°	30	
5	♣	30			134	à	30			166	Ğ	42			249	•	30	
6	♠	30			135	Å	30			167	ğ	36			250	·	30	
7	•	30			136	ç	30			168	¿	30			251	√	30	
8	◘	30			137	ê	30			169	⌐	30			252	ⁿ	30	
9	○	30			138	ë	30			170	¬	30			253	²	30	
10	◙	30			139	è	30			171	½	30			254	■	30	
11	♂	30			140	ï	18			172	¼	30			255	SP	30	
12	♀	30			140	î	18			173	¡	30						
13	♪	30			141	ı	18			174	«	42						
14	♫	30			142	Ä	42			175	»	42						
15	☼	30			143	Å	42			224	α	30						
16	►	30			144	É	36			225	β	36						
17	◄	30			145	æ	42			226	Γ	36						
18	‡	30			146	Æ	42			227	π	36						
19	‼	30			147	ô	30			228	Σ	42						
20	¶	30			148	ö	30			229	σ	36						
21	§	30			149	ò	30			230	µ	36						
22	▬	30			150	û	36			231	τ	30						
23	↨	30			151	ù	36			232	Φ	42						
24	↑	30			152	İ	24			233	θ	42						
25	↓	30			153	Ö	42			234	Ω	42						
26	→	30			154	Ü	42			235	δ	30						
27	←	30			155	¢	30			236	∞	30						
28	∟	30			156	£	30			237	φ	42						
29	↔	30			157	¥	30			238	ε	30						
30	▲	30			158	Ş	36			239	∩	30						
31	▼	30			159	ş	30			240	≡	30						
127	⌂	30			160	á	30			241	±	30						

Compressed PS width is ½ of Normal PS.

Unit: ⅟₃₆₀ inch (0.07 mm)

Glossary

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

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.

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.

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.

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 condition or settings executed when the power is turned on, reset or initialized; and the other indicates the original settings when shipped from the factory.

Appendix

Double strike printing: Double printing is a print quality enhancing mode which uses a double strike with two passes of the printhead, feeding the paper 1/180" (0.14 mm) between the first and second pass (in Epson mode only).

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 two print qualities available on this printer. Draft mode uses a minimum number of dots per character to maximize printing speed.

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. KX-P2023 can emulate the Epson LQ-850 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 the command, rather than characters to print.

Fanfold paper: Fanfold paper has regularly 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.

Font: Font is a style and size of type designated by a family name.

FORTRAN: FORTRAN is one of many computer programming languages, which is used primarily in scientific applications.

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.

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.

Appendix

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

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

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

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

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.

Parallel interface: Synchronized 8 bit transmission of data from the computer to the printer. (☞ P. 82 "Interface".)

Parity: Parity is a method for a computer and printer to check the accuracy of data transfer.

PASCAL: PASCAL is a commonly used microcomputer programming language.

Perforation: Perforation indicates the tear position on the fanfold paper. (☞ P. 62)

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.

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 KX-P2023 commands.

Proportional spacing (PS): Proportional spacing is a printing method of adjusting the space in which a character is printed.

Appendix

Glossary

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.

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.

Self test: Self test is a method for testing the operation of the printer. (☞ P. 27)

Shielded Cable: Shielded cable is a cable wrapped with a special metal around its wires. This guards against radio interference.

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

Super Quiet mode: Super Quiet mode is a helpful feature which reduces printing noise.

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

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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

This option allows you to download custom-designed characters, or can be used to expand the printer's receive buffer.

KX-P145   Ribbon Cassette (Black)

This ribbon is useful for 3 million characters.

✳ Each of the above options has its own Installation and instruction Manuals.

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 5:00 PM).

The technical support number is: 1-800-222-0584
(Options and supplies: 1-800-346-4768)

Appendix