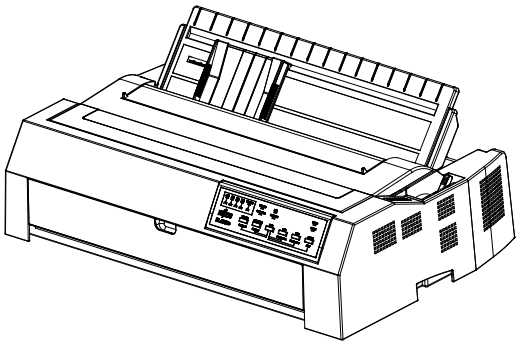
FUJITSU DL4850+
DOT MATRIX PRINTER
USER'S MANUAL



FUJITSU

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READ THE ENTIRE MANUAL CAREFULLY BEFORE USING THIS PRODUCT.
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Federal Communications Commission
Radio Frequency Interference Statement
for United States Users

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction mamual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTES

1. Testing of this equipment was performed on model number M33335E.
2. The use of an unshielded a non-shielded interface cable with the referenced device is prohibited. The length of the parallel interface cable should not exceed 3 meters (10 feet). The length of the optional serial interface cable must be 15 meters (50 feet) or less. The length of the LAN cable must be 20 meters (66 feet) or less. The length of the USB cable must be 5 meters (16.5 feet) or less.
3. The length of the power cord must be 2.4 meters (7.8 feet) or less.

Für den Anwender in Deutschland

Das Gerät ist nicht für die Benutzung im unmittelbaren Gesichtsfeld am Bildschirmarbeitsplatz vorgesehen.
Um störende Reflexionen am Bildschirmarbeitsplatz zu vermeiden, darf dieses Produkt nicht im unmittelbaren Gesichtsfeld platziert werden.

Maschinenlärminformations-Verordnung -3. GPSGV,
der höchste Schalldruckpegel beträgt 70 dB (A) oder weniger gemäß EN ISO 7779

Notice for European Users

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

The contents of this manual may be revised without prior notice and without obligation to incorporate changes and improvements into units already shipped.

Every effort has been made to ensure that the information included here is complete and accurate at the time of publication; however, Fujitsu Isotec Limited cannot be held responsible for errors and omissions.

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ABOUT THIS MANUAL

Thank you for buying the FUJITSU DL4850+ dot matrix printer. You can expect years of reliable service with very little maintenance. This manual explains how to use your printer to full advantage. It is written for both new and experienced printer users.

This manual describes how to install, set up, and use your printer and printer options. It also explains how to keep the printer in good working condition and what to do should something go wrong. Detailed procedures are provided for first-time users. Experienced users can skip some of the details, using the table of contents and chapter introductions to locate information.

This manual has several chapters, a glossary, and an index. CHAPTER A lists supplies and additional documentation and information available from your dealer or authorized Fujitsu representative. Fujitsu offices are listed at the end of the manual.

PRINTER MODELS AND OPTION

This manual covers type name DL4850+ (Model: M33335E),
a 136-column printer.
A RS-232C serial interface is a factory option. A LAN interface is also a factory option. You must specify these when purchasing the printer.

DL4850+ (Model: M33335E)

- Basic specifications
  - Print line at 10 cpi: 136 columns (DL4850+)
    - cpi: characters per inch
- Interface: Centronics parallel + USB
  - Factory Option Parallel,
    - Centronics parallel + USB+ RS-232C serial
    - Centronics parallel + USB+ LAN
    - Centronics parallel + USB+ RS-232C serial + LAN
- Power supply: AC100V-240V

ORGANIZATION

This manual is organized as follows:

Chapter 1, Unpacking Guide, introduces the good location for place printer, unpacking the printer, the printer components, the explanation of symbols on the printer.

Chapter 2, Setting Up Printer, gives step-by-step procedures for setting up the printer for immediate use and identifies the main parts of the printer. If this is your first printer, you should read the entire chapter before attempting to use the printer.

Chapter 3, Paper Installation Guide, explains how to load and use paper with your printer.

Chapter 4, Control Panel Operation, covers basic printing operations. This chapter describes everyday operations from the printer's control panel, such as loading paper and selecting print features, in detail.

Chapter 5, Printer Setting Changes, describes how to change the printer's optional settings, such as print features, hardware options, and top-of-form. Most settings only affect print features such as the typestyle and page format. Note that certain settings directly affect hardware and software compatibility.

Chapter 6, PRINTING, describes the everyday printing operations.

Chapter 7, Maintenance, explains basic maintenance procedures for this printer.

Chapter 8, Trouble-Shooting, describes problem-solving techniques. Before you contact your dealer for help, check the list of problems and solutions provided in this chapter.

At the end of this manual, you will find several chapters, a glossary. Chapter A gives order numbers for printer supplies.
Other chapters provide additional technical information about the printer.

CONVENTIONS

Special information, such as warnings, cautions, and notes, are indicated as follows:

WARNING

A WARNING indicates that personal injury may result if you do not follow a procedure correctly.

CAUTION

A CAUTION indicates that damage to the printer may result if you do notfollow a procedure correctly.

NOTE

A NOTE provides "how-to" tips or suggestions to help you perform a procedure correctly. NOTEs are particularly useful for first-time users.

For Experienced Users

If you are familiar with this printer or with dot matrix printers in general this information will help you use the manual effectively.

Warning symbols

Various graphic symbols are used in this manual. They serve as signs to help users of this product use the product safely and correctly as well as prevent damage and personal injury to the users or bystanders. The following tables show and explain each symbol. Be sure that you understand the meaning of each symbol before reading the manual.

⚠ WARNING	⚠ CAUTION
A WARNING indicates that death or serious personal injury may result if you do not follow a procedure correctly	A CAUTION indicates that personal injury or property damage may result if you do not follow a procedure correctly

Examples and explanations of graphic symbols	
 Caution: Electric shock	△ Indicates a warning or caution item. By itself, the image in this symbol suggests the meaning of the warning or caution (the example on the left is a caution of possible electric shock).
 Do not disassemble	⃠ Indicates that explode is prohibited. This indicates that there is a risk of personal injury, such as electric shock, by disassembling the device.
 Plug	● Indicates a direction that must be observed. The image in this symbol shows the direction (the example on the left shows the direction in which a power plug is disconnected from an outlet).
 Caution: Hot	This symbol and accompanying statement indicate a risk of injury from a hot object.
 Caution: Flammable	This symbol and accompanying statement indicate a risk of fire.
 Do not touch	This symbol and accompanying statement indicate a risk of injury from touching part of the equipment.
 General prohibited action	This symbol and accompanying statement indicate a general prohibited action.
 General caution	This symbol and accompanying statement indicate a general caution.
 Caution: Moving parts	This symbol and accompanying statement indicate a risk of rolling your hands into the equipment.
 Consult instructions for use	This symbol indicates use with reference to the owner's manual.

Notes on Safety

WARNING

⚠ WARNING

Do not place a container containing water, such as a vase, potted plant, and drinking glass, or a metal object on or near the printer.

Otherwise, electric shock or fire may result.

Do not place the printer in a humid or dusty area, in an area with explosive fumes, an area with poor ventilation or close to a fire.

Otherwise, electric shock or fire may result.

Use only one of the power cords included with this product, for this product. Do not use any other power cord for this product.

Otherwise, electric shock or fire may result.

Do not use this product in an area exposed to a high level of moisture, such as a bathroom and shower room.

Otherwise, electric shock or fire may result.

⚠ WARNING

When mounting or removing ribbon, turn off the power to the printer and personal computer and disconnect their power plugs from the outlets beforeperforming the work.
Otherwise, electric shock may result.

Otherwise, electric shock or fire may result.

⚠ CAUTION

Do not block openings in the printer (e.g., ventilation openings)

If ventilation openings are blocked, heat accumulates inside the printer, possibly resulting in a fire.

Do not place a heavy object on the printer. Also, do not subject the printer to shocks.

Otherwise, the printer may become unbalanced, causing it to fall, and possibly resulting in personal injury.

Do not place the printer in an area exposed to strong vibration or an unstable area such as on a slope.

Otherwise, the printer may fall or topple, possibly resulting in personal injury.

Do not leave the printer in an area exposed to direct sunlight for a long time, such as inside a car under the sun or any other area subjected to high temperatures.

Otherwise, the printer surface heats up, possibly melting covers or resulting in other deformities, or the inside of the printer may become extremely hot, possibly resulting in fire.

Before moving the printer, be sure to disconnect the power plug from the outlet and disconnect all connected cables from the printer.

Otherwise, the power cord may be damaged, possibly resulting in electric shock or fire, or the printer may fall or topple, possibly resulting in personal injury.

Before connecting or disconnecting a printer cable, be sure to turn off the power to the printer and personal computer.

Performing that and related work without the power turned off may result in a personal computer or printer failure.

Notes about the printer in operation

WARNING

If the printer is making a strange noise, which indicates a problem, discontinue printer operation. Request your printer dealer to fix the problem.

Continued operation of the printer without repairs may result in electric shock or fire.

Do not use a power source whose voltage is other than that indicated. Also, an excessive number of plugged-in power cords must not be connected to a single outlet.

Otherwise, electric shock or fire may result.

Do not spill any liquid, such as water, on the printer.
Otherwise, electric shock or fire may result.

Do not damage or modify the power cord.

The power cord may be damaged by placing a heavy object on it, stretching it excessively, forcibly bending it, twisting it, or heating it, and this may result in electric shock or fire.

Do not use the power cord if it or the power plug is damaged or the plug does not fit securely in the outlet receptacle.

Using the power cord in that condition may result in electric shock or fire.

Do not insert the power cord into an outlet or turn on the power to the printer when any of its covers has been removed.

Otherwise, electric shock or fire may result.

Prevent foreign objects, such as metal shards and inflammable materials, from being inserted or dropped into any openings in the printer (e.g., ventilation openings).

Otherwise, electric shock or fire may result.

Do not disconnect the power plug from the outlet while the power to the printer is turned on.

Otherwise, the plug becomes deformed, possibly resulting in fire

Do not remove the main printer cover or the cover for the cable connectors except as necessary. To check and repair internal components, request your printer dealer to do so.

Some internal components use high voltage, and touching them may result in electric shock.

Do not modify the printer by yourself.

Otherwise, electric shock or fire may result.

Do not connect or disconnect the power plug with wet hands.

Otherwise, electric shock may result.

⚠ WARNING

If excessive heat, smoke, a strange odor, or a strange noise is coming the printer or any other abnormality is observed, immediately turn off the power to the printer by using the power switch, and be sure to disconnect the power plug from the outlet.

Then, after verifying the end of the abnormality (e.g., no more smoke is coming from the printer), request your printer dealer to make repairs. Do not repair the printer by yourself as doing so is dangerous.

Continued use of the printer when it is operating abnormally may result in electric shock or fire.

If a foreign object (e.g., water or other liquid, metal shard) has entered the printer, immediately turn off the power to the printer by using the power switch, and disconnect the power plug from the outlet. Then, contact your printer dealer.

Continued use of the printer in that condition may result in electric shock or fire.
Customers who use the printer near children should take especial care regarding this point.

If the printer is dropped or a cover is damaged, turn off the power to the printer by using the power switch, and disconnect the power plug from the outlet. Then, contact your printer dealer.

Continued use of printer in that condition may result in electric shock or fire.

Before performing cleaning, maintenance, or troubleshooting work on the printer, switch off the power switch, and be sure to disconnect the power plug from the outlet.

Performing that work on the printer without the power turned off may result in burns or electric shock.

If dust accumulates on or near the metal parts of the power plug, so wipe away that dust with a dry cloth.

Continued use of printer in that condition may result in fire.

Do not drop or strike the printer, such as by hitting it against something.

Otherwise, a failure may result

⚠ CAUTION

Insert the power plug completely into an outlet so that it is securely connected.

Otherwise, electric shock or fire may result.

Exercise caution to keep loose clothing, hair, neckties, etc. away from paper feed- or ejection openings, and tractors while the printer is operating.

Otherwise, personal injury may result.

When disconnecting the power plug from the outlet, pull it out while grasping the plug, not the cord.

If you pull it out while grasping the cord, the insulation may be damaged or the cable core may be exposed or damaged, possibly resulting in electric shock or fire.

Do not cover or wrap the printer with a cloth or anything else while it is operating.

Otherwise, heat accumulates, possibly resulting in fire.

Do not use the power cord with it bunched together.

Otherwise, heat accumulates, possibly resulting in fire.

If the printer is not to be used for a long time, disconnect the power plug from the outlet for safety reasons.

Otherwise, electric shock or fire may result.

If a lightning storm is in nearby, disconnect the power plug from the outlet.

Leaving the plug connected to the outlet may result in damage to the printer or other property damage.

⚠ CAUTION

The print head and internal frames become extremely hot during printer operation and remain so immediately afterwards. Do not touch these parts until sufficient time has passed to allow them to cool.

Otherwise, burns or personal injury may result.

Do not touch the paper feed- or ejection openings while the printer is operating.

Otherwise, personal injury may be result.

Do not touch the printer cable connectors or the metal part of the print head.

Otherwise, personal injury or a printer failure may result.

Do not touch the print head while it is moving.

Otherwise, burns or personal injury may result.

Note that continuous forms that are fed in the reverse direction continuously may come off the paper feed tractors.

Operate the printer with the paper thickness set to the appropriate paper thickness.

We recommend a genuine ribbon cartridge.
The genuine product is developed together with the product, and the specifications are optimized to demonstrate the performance and quality of the product.

Textile fibers accumulate on components inside the printer and parts of the roller, so clean these parts regularly.

Do not turn the ribbon feed knob in the reverse direction.

Otherwise, the ribbon may become jammed and stuck.

If printing is started with a slack ribbon, the ribbon may become tangled, or the ribbon feed mechanism may become locked.

The print head is extremely hot immediately after printing. When replacing the ribbon, verify that the print head is sufficiently cool before setting the print head to the ribbon replacement position.

If you open the cover while this product is in operation, your body may be caught in the drive section. Therefore, be sure to attach the cover before use. Be sure to turn the power off before opening the cover.

Refer to the instruction manual and use.

TABLE OF CONTENTS

(Reserve)

1

UNPACKING GUIDE

If this is your first printer, you should read the entire chapter before attempting to use the printer.

In this chapter, you will learn how to:

- Select a good location for the printer
- Unpacking the Printer
- Printer components
- The explanation of symbols on the printer

SELECTING A GOOD LOCATION

This printer is suitable for most business, office, and home environments.
To obtain peak performance from the printer, select a location that meets the following guidelines:

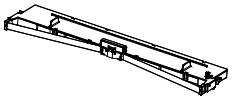
- Place the printer on a sturdy, level surface.
- Place the printer near a well-grounded AC power outlet.
- Ensure easy access to the front and rear of the printer by leaving several inches of space around the printer.
  Do not block the air vents on either side of the printer and on the front and back.
- Do not place the printer in direct sunlight or near heaters.
- Make sure that the room is well-ventilated and free from excessive dust.
- Do not expose the printer to extremes of temperature and humidity.
- Use only the power cord supplied with the printer or recommended by your dealer. Do not use an extension cord.
- Do not plug the printer into a power outlet that is hared with heavy industrial equipment, such as motors, or appliances, or such as copiers or coffee makers. Such equipment often emits electrical noise or causes power degradation.

UNPACKING THE PRINTER

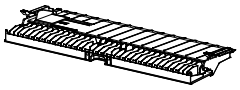
Unpack the printer as follows:

1. Place your packaged printer on a solid base.
2. Make sure that the “Up” symbols point in the correct direction.
3. Open the packaging, lift the printer out of the cardboard box and remove the remaining packaging material.
4. Check the printer for any visible transport damage and missing items. If you find any transport damage or if any accessories are missing, please contact your dealer. The following items are included:

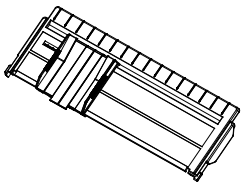
- Printer	- Front cover
- Power cord	- Rear paper guide
- Ribbon cartridge	- USB cable
- CD-ROM	- Quick Start Guide



Ribbon cartridge



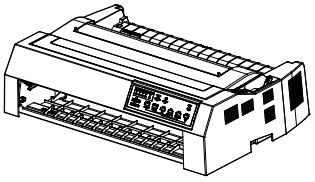
Front cover



Rear paper guide

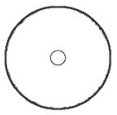
Quick Start Guide

USB cable



Printer

Power cord *

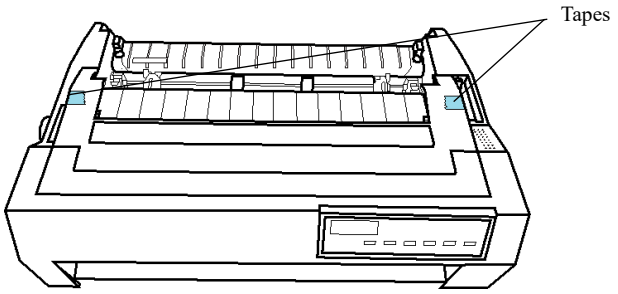


CD-ROM

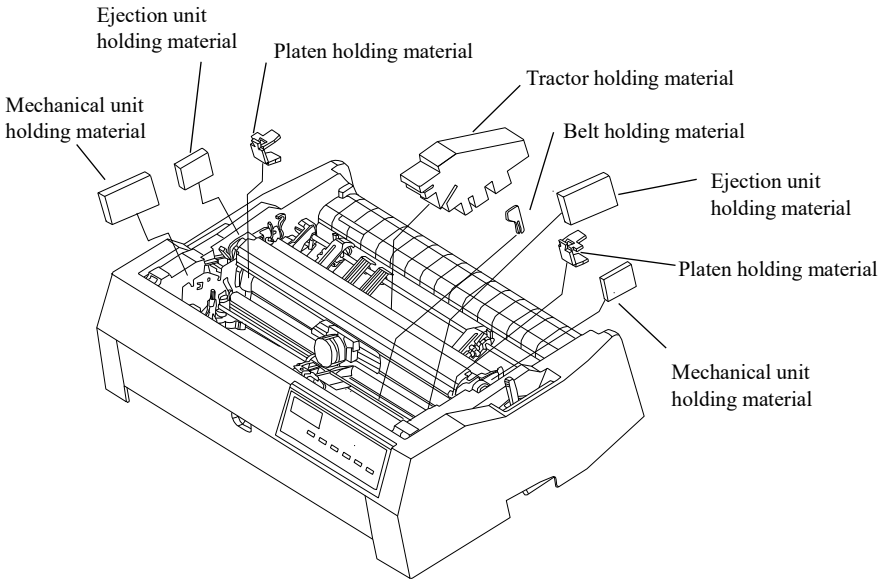
* Using different cable according to the different country.

Remove the packaging materials from the printer as follows.

1. Remove the tapes securing the top cover, control panel.

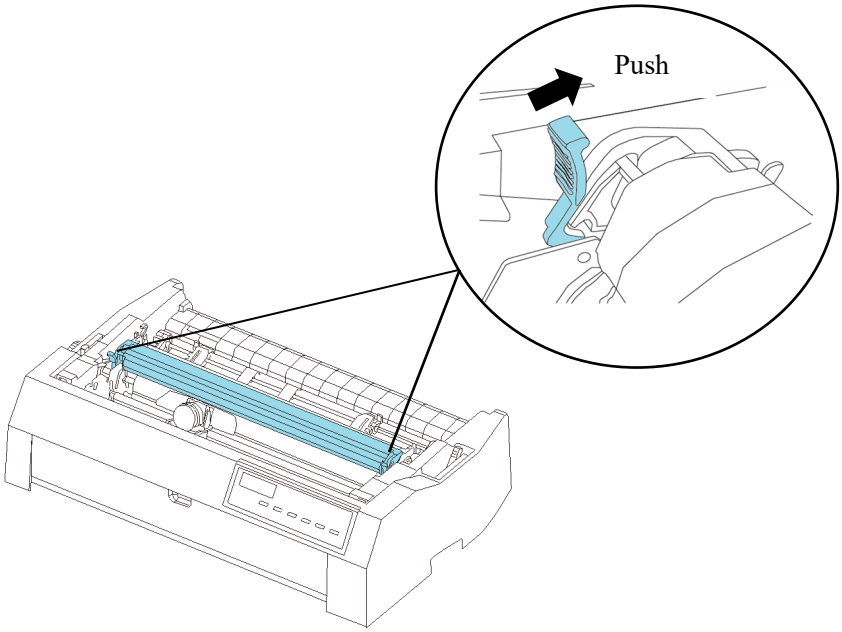


2. Open the top cover and remove the shipping restraint securing that holds the print head carriage in place (shown below).
   1) Tractor holding material
   2) Mechanical unit holding material (2 pieces)
   3) Belt holding material
   4) Platen holding material (2 pieces) *
   5) Ejection unit holding material (2 pieces) *



* Please remove “Ejection unit” before removing “Platen holding material” and “Ejection unit holding material”.

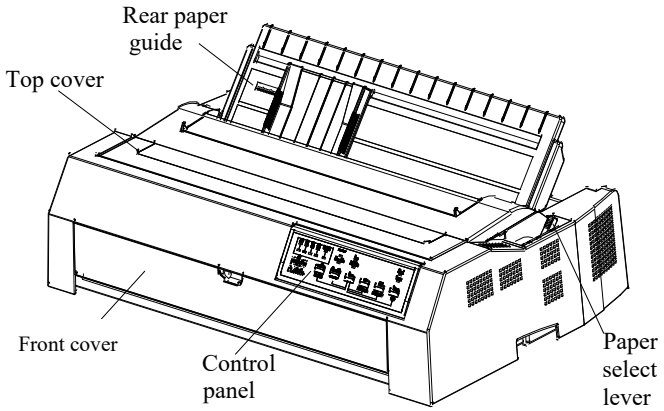
Remove the ejection unit
Push the handles on the left and right sides of “Ejection unit” with your finger.



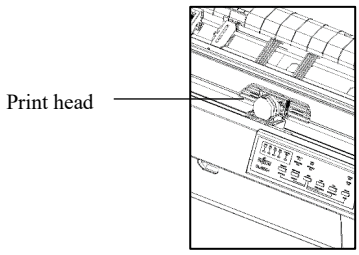
** Store the original shipping carton and packaging materials for future use. For example, the original packaging is ideal for use when you move or ship your printer to another location.

PRINTER COMPONENTS

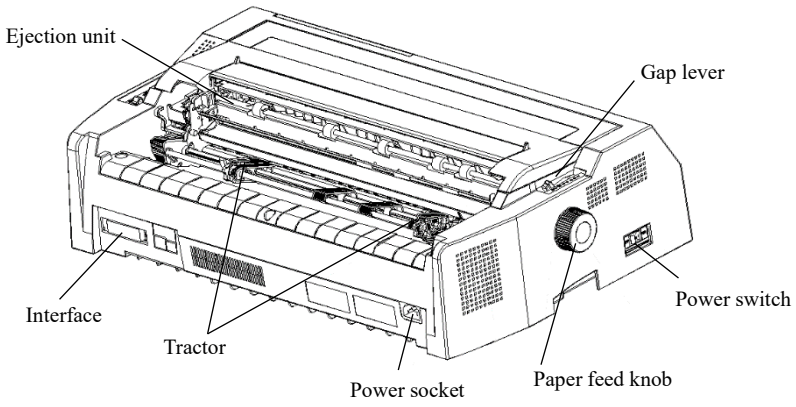
Take a moment to become familiar with its major parts. Looking at the printer from the front right side, you can see the parts of the printer shown in the figure below.



The illustration below shows the top cover opened.



Looking at the printer from the back with the Rear paper guide removed, you can see the following parts of the printer:



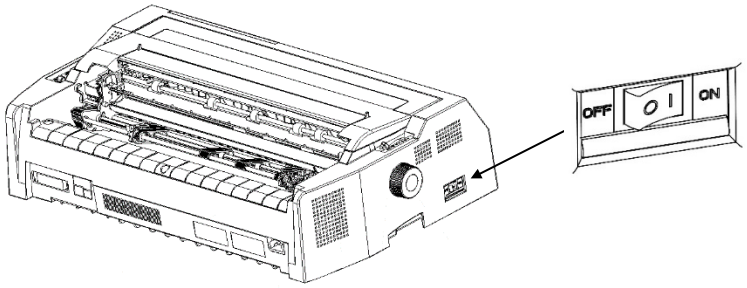
Please for the explanation of each parts, see the table of next page.

Component	Functions of Parts
Paper select lever	This lever is used to switch between continuous forms and single forms.
Rear paper guide	Adjusts positioning of single sheet paper. It can also be used as a guide to support paper.
Print head	24-pin printing mechanism
Front cover	When you open the cover, it becomes a front paper guide. Adjusts positioning of single sheet paper. It can also be used as a guide to support paper.
Top cover	When printer is in operation, ensure the printer's cover is closed to keep the noise level to a minimum, to ensure the user security when the printer is operated.
Control panel	Shows printer status, for printer setup, Each key on the control panel has different function, of course you also can get many new functions by pressing different keys at the same time or performing different combinations of keys.
Ejection unit	Stably ejects paper.
Gap lever	Adjusts the print gap lever according to the thickness of paper
Paper feed knob	Manual feed or vertical positioning of paper
Power switch	Power printer ON or OFF
Ribbon cartridge	Install ribbon in the printer
Tractor	For feeding and adjustment of continuous forms
Power socket	Connects power cord to the printer
Interface	Connects interface cables from the host

THE EXPLANATION OF SYMBOLS ON THE PRINTER

- Power switch

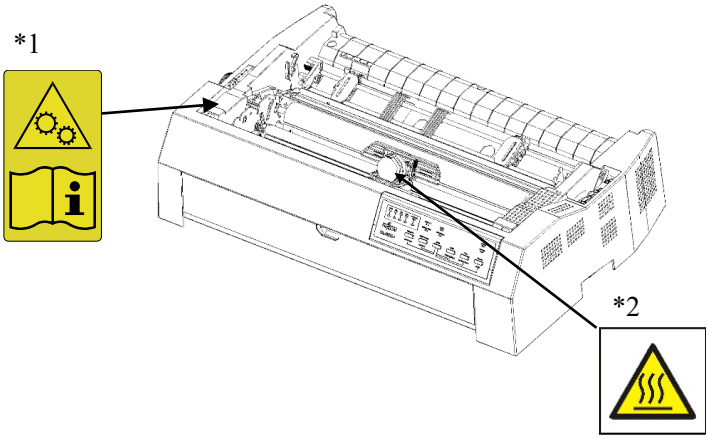
  Press the " | " side to turn on the printer and the "○" side to turn it off.



- Print Head

  The print head become extremely hot during printer operation and remain so immediately afterwards. Do not touch these parts until sufficient time has passed to allow them to cool.

  Otherwise, burns or personal injury may result.



*1 CAUTION OF MOVING PARTS

Do not open the cover while the printer is in operation as it may cause your body to get caught in the drive section. Be sure to turn the power off before opening the cover.

*2 CAUTION OF HIGH TEMPERATURE

There is a risk of burns. Do not touch immediately after operation.

2

SETTING UP PRINTER

Your new printer is easy to install and set up.
This chapter tells you how to set up the printer and start printing right away.

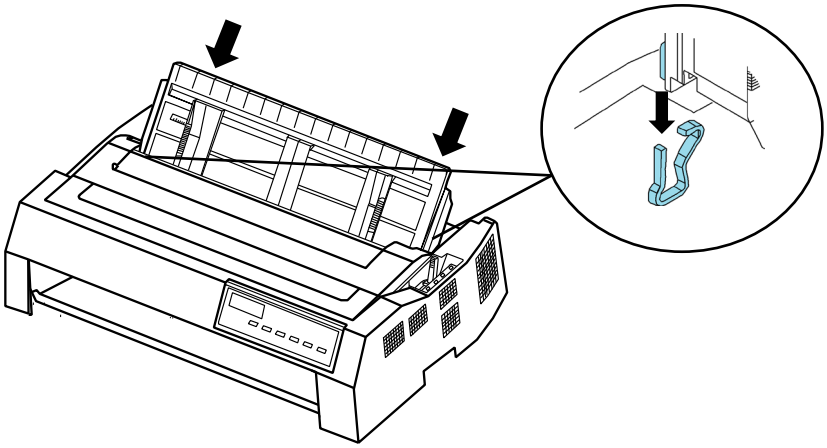
In this chapter, you will learn how to:

- Installing the Paper Guide
- Install Ribbon CARTRIDGE
- Connecting the Interface Cable
- Connecting the Power Supply
- Installing the Printer Driver

INSTALLING THE PAPER GUIDE

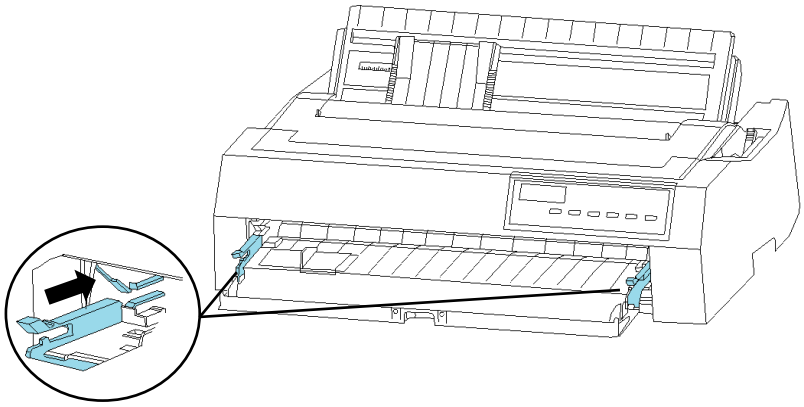
Installing the Rear Paper Guide

Insert the protrusions of the paper guide into the grooves of the printer then let down the paper guide, as shown in the following illustration.

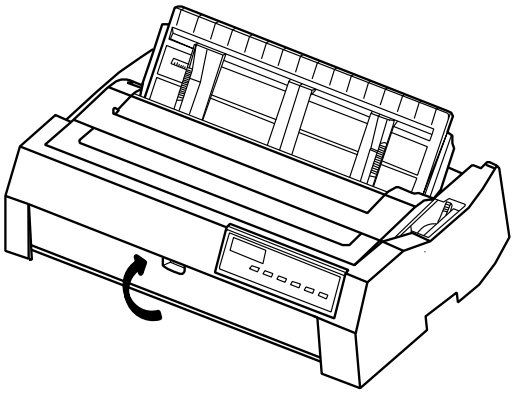


Installing the Front Cover

As shown in the below, Push the both sides of the front cover along the slot until it clicks into place.



Then close the front cover as shown below.



INSTALLING THE RIBBON CARTRIDGE

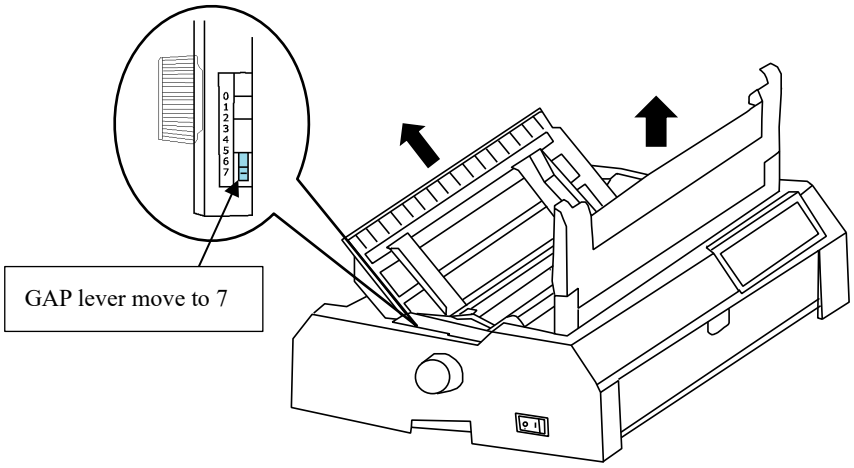
Installing the Ribbon Cartridge

	**< CAUTION OF HIGH TEMPERATURE >** **The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.**

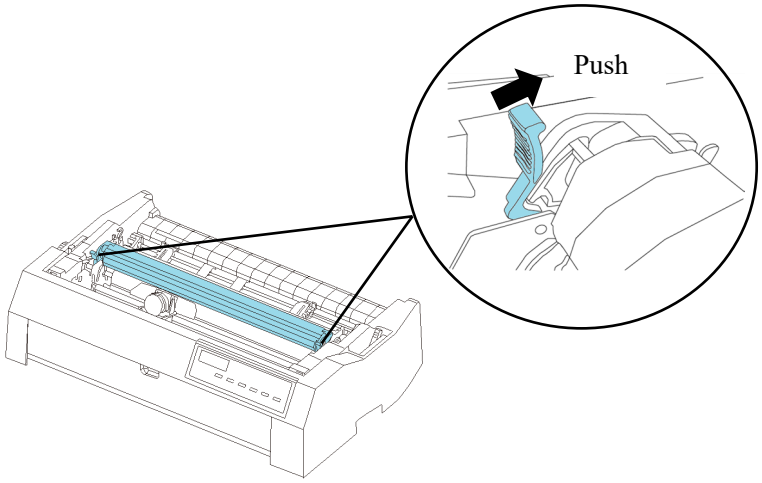
The printer uses a black ribbon cartridge.
To install the ribbon cartridge:

Note
If you touch the Ribbon base, the ink will stick to your hands, so be careful not to touch it.

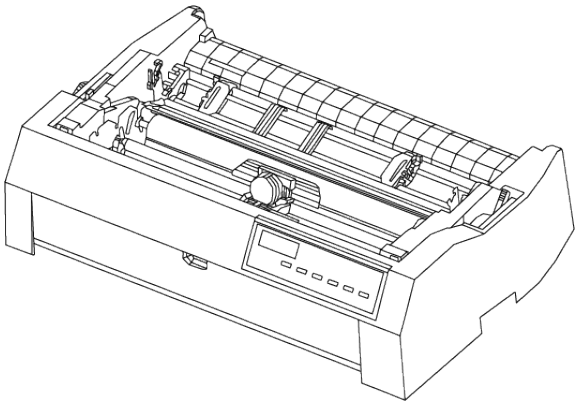
1. Turn the printer off. Before you install the ribbon cartridge, move the GAP lever to 7. Then, Take out the top cover and rear paper guide.



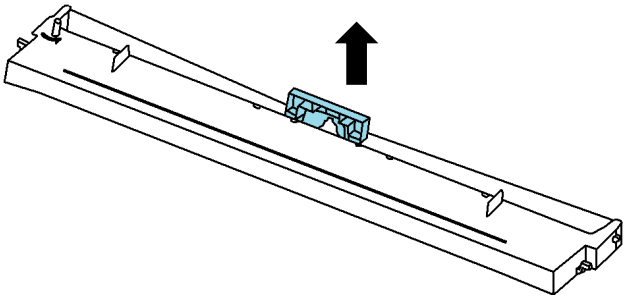
2. Remove the ejection unit pinch the tabs on each side of the ejection unit then lift the unit up and off the printer.



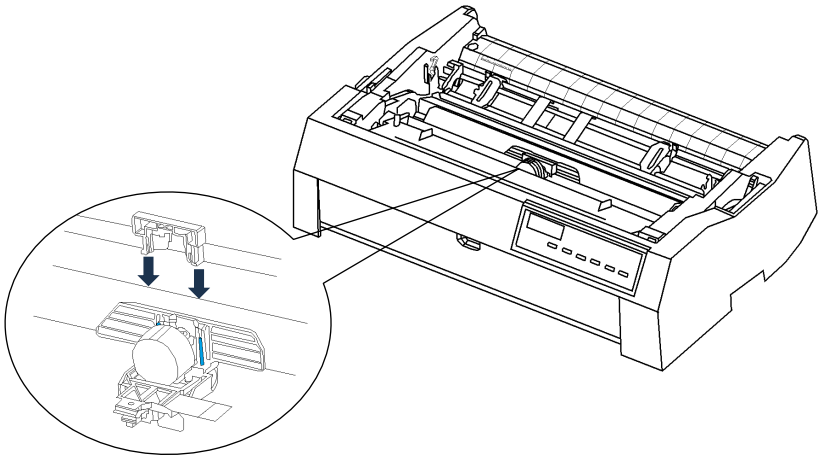
3. Slide the print head to the middle position.



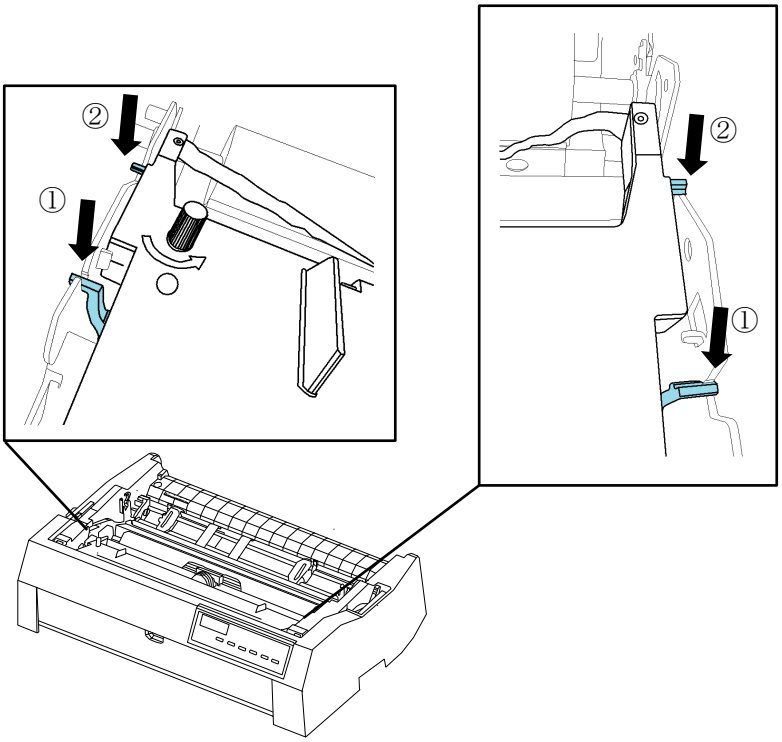
4. Separate the Ribbon Guide from Ribbon Cartridge.



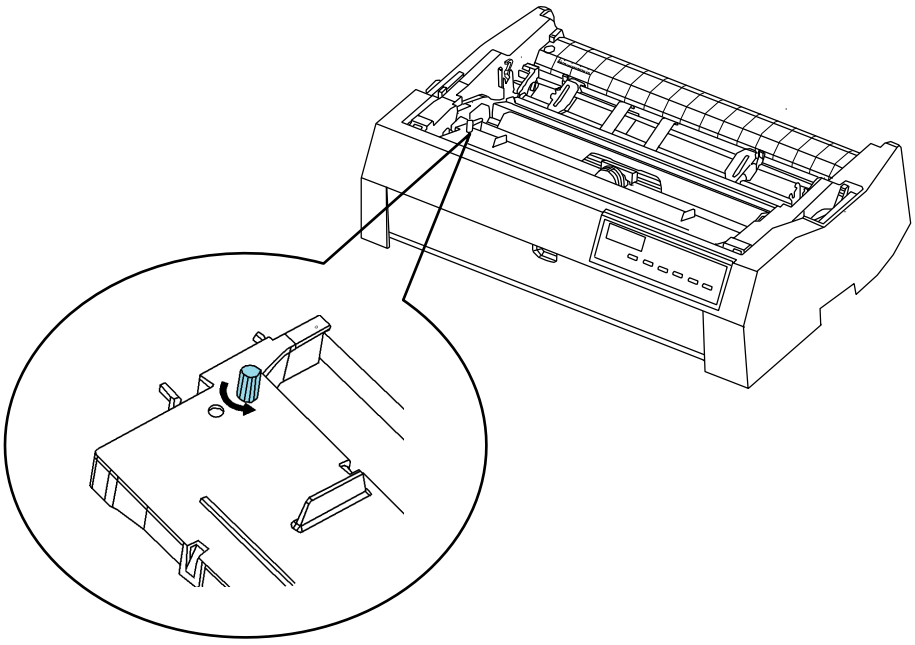
5. Place the Ribbon guide and Ribbon cartridge as shown below. Press down the ribbon guide gently against the printer until it clicks into place.



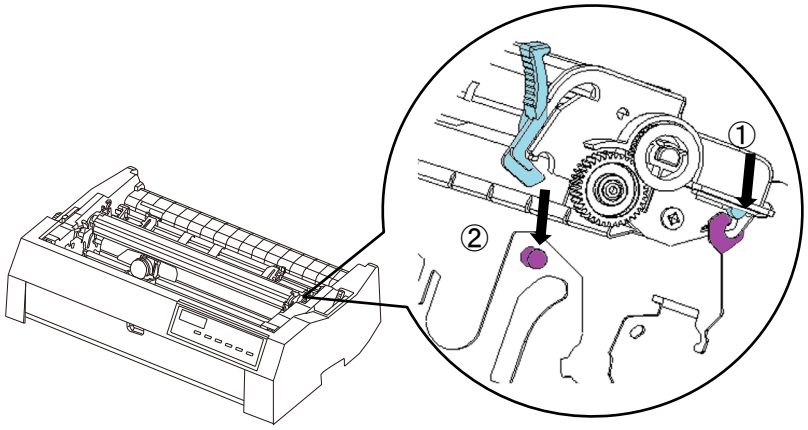
6. Place the Ribbon guide and Ribbon cartridge as shown below. Place the rear protrusions into the grooves of left and right frames, then press down the front protrusions as shown below.



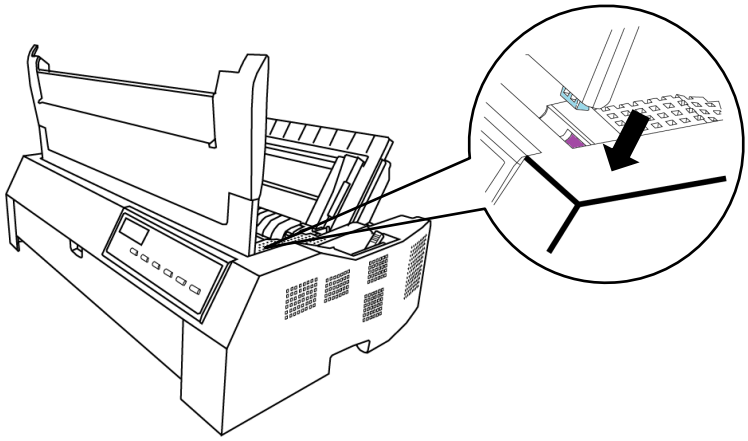
7. Turn the ribbon feed knob counterclockwise to take up any ribbon slack. Make sure that ribbon moves from right to left direction when move the print head left and right, and the ribbon is not twisted or creased.



8. Place the ejection unit as shown below. Then press gently until both sides of the eject unit click.



9. Reinstall the top cover.



10. After the ribbon cartridge has been installed in the printer, adjust the GAP lever to match the thickness of the paper and the number of sheets of paper to be used for information about the GAP lever, see the section entitled Adjusting the Paper Thickness in Chapter 3.

CONNECTING THE INTERFACE CABLE

Your printer supports one of the following interface options:

- •Centronics parallel interface + USB interface
  (The following are Parallel)
- •Parallel interface + USB + RS-232C Serial interface
  (The following are RS-232C)
- •Parallel interface + USB +LAN interface
- •Parallel interface + USB + LAN + RS-232C interface

The RS-232C interface is a factory option.
The LAN interface is also a factory option.
The parallel interface connector has wire clips. The serial interface connector has tapped holes. Cables for these interfaces are available from dealers, cable manufacturers, and other suppliers.
For detailed interface specifications, see Appendix D.

Selecting a Parallel Interface Cable

For the parallel interface, use a cable that meets the following specifications:

- At the printer end, use a shielded male IEEE1284-compliant centronics connector. To prevent RFI (Radio Frequency Interference), the connector cover must be connected to the cable shield.
- Most computers (including IBM PCs) require a male IEEE1284 C-compliant 25 pin connector on the computer side. however, require a Centronics connector. To determine the type of connector your computer uses, refer to your computer user manual.
- Make sure that the cable length does not exceed 3 meters (10 feet).

Selecting a RS-232C Interface Cable

For the RS-232C interface, use a cable that meets the following specifications:

- At the printer end, use a 9-pin male connector is used.
- To determine the type of connector your computer requires, refer to your computer user manual or ask your dealer.
- The cable length can be up to 15 meters (50 feet). This type of length is required in many networking and shared-printer configurations.

Selecting a USB Cable

- The length of the USB cable must be 5 meters (16.5 feet) or less.

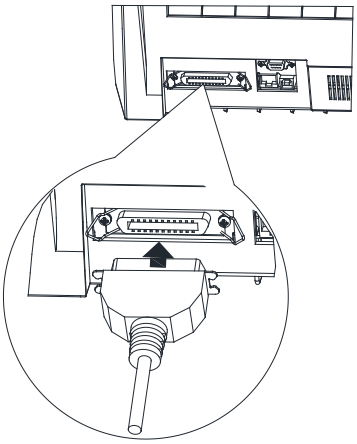
Selecting a LAN cable

- The length of the LAN cable must be 20 meters (66 feet) or less.
- The LAN cable, when used in 100BASE-TX environments, must conform to category 5 or higher.

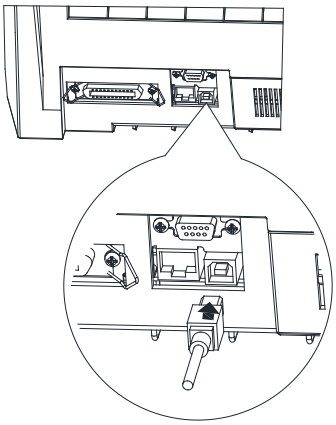
Connecting the Interface Cable

To connect the interface cable:

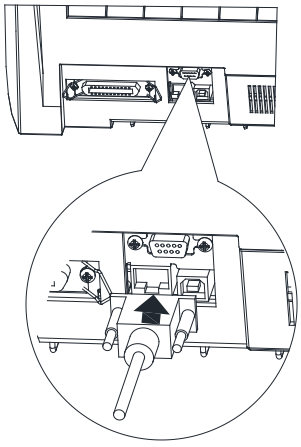
1.Turn off both the printer and the computer.
2.Attach the interface cable to the connector.
3. To secure a parallel interface cable, flip the fastener clips located onthe printer into the notches on the cable connector. To secure a serial interface cable, tighten the screws in the cable connector.
4.Attach the other end of the interface cable to your computer. Gently pull on the cable to verify that it is secure.



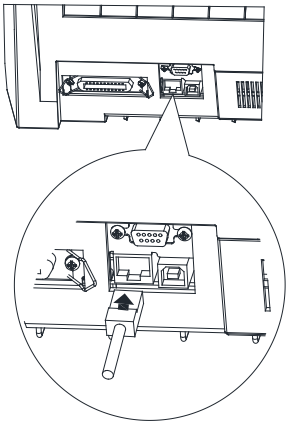
Parallel



USB



RS-232C (Factory Option)



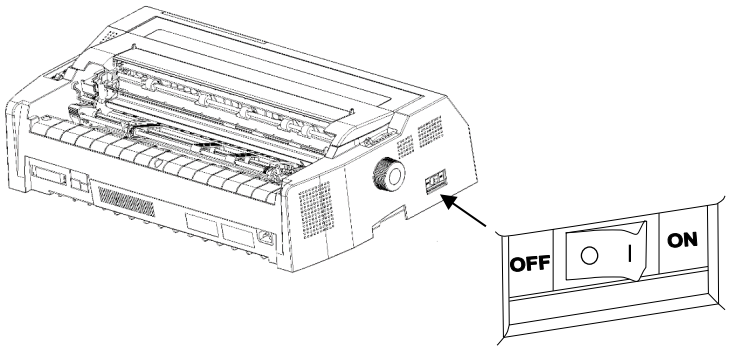
LAN (Factory Option)

* Illustration of Parallel Interface +USB+LAN+RS-232C interface

CONNECTING THE POWER SUPPLY

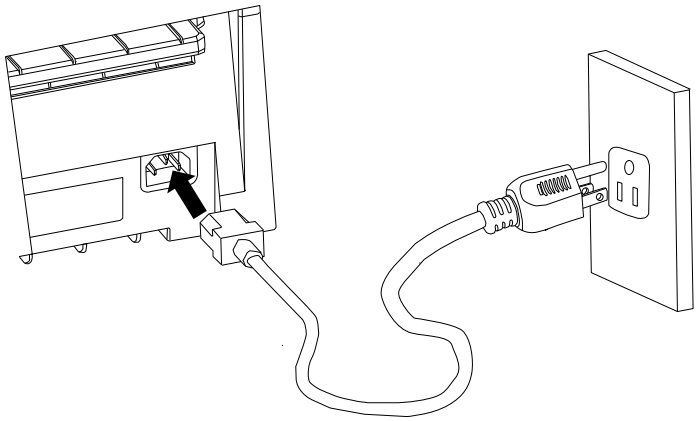
Before you plug in the printer:

- Make sure that the printer power is switched off. The side marked " | " on the power switch should be raised.
- Make sure that the power outlet is properly grounded.
- Make sure that you use the power cord shipped with the printer.



To plug in the power cord:

1. Plug one end of the power cord into the Power socket on the rear of the printer.
2. Plug the other end of the power cord into the power outlet.



3. Make sure that the power cord is securely connected.
4. Turn on the power by pressing the side marked " | " on the power-switch. Within a few seconds, the POWER indicator on the printer control panel will light, the print head will move to its home position.

	**< WARNING >** **For your safety, Connect using a power cord with earthing connection and a socket-outlet with earthing connection. Otherwise electric shock may cause.**

INSTALLING THE PRINTER DRIVER

A printer driver is required for using the printer in a Windows environment. Special printer drivers are provided with the DL4850+ printer.

For information about how to install printer drivers, refer to ' DL4850+ Software Guide.' or Readme.txt of the printer driver to be installed.

- These printer drivers run with ESC/P2 emulation.
  Be sure to specify ESC/P2 emulation for the printer mode.

- The DL4850+ printer driver is a printer driver for monochrome printing.

- The color data printing result may differ from its print preview or the monochrome data printing result.

DL4850+ Software Guide. can be opened from 'DL4850+ SETUP DISK'.

3

PAPER INSTALLATION GUIDE

The printer can handle either single sheets or continuous forms. Single sheets, also called cut sheets. Continuous forms include multipart forms fed into the printer using the forms tractors. The printer is able to print 1~7 plies multipart paper. *7P is for only Front and print accuracy is out of warranty.

This chapter explains how your printer uses paper.

Topics covered are:
- Adjusting the Print Gap lever
- Friction Feed Handling
- Tractor Feed Handling
- Continuous Paper Placement
- Tips on paper handling

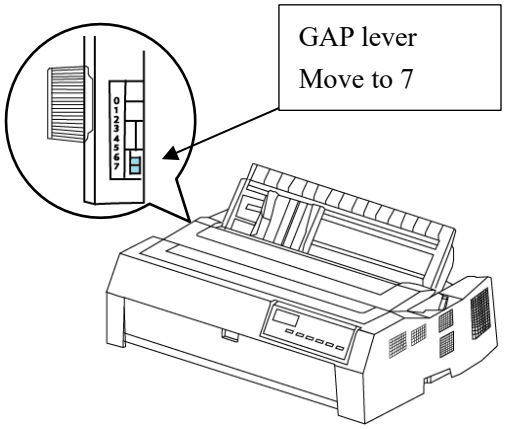
ADJUSTING THE PRINT GAP LEVER

Remove any paper clip or staple. Do not load paper that has been folded or damaged, wrinkled, or curled.

The printer can handle paper of different thicknesses, including multipart forms with up to seven parts (original plus six copies). For details on paper thickness specifications, see Appendix B.

The GAP lever, located at the top left center of the printer, allows you to adjust for different paper thicknesses. Be sure to adjust the GAP lever whenever you change the number of copies being printed. Using the wrong print gap may cause print head damage or paper jams.

The GAP lever has eight settings: 0 to 7. Use Table 3.2 to determine the appropriate setting for your paper; then, move the GAP lever to the appropriate position.



Number of Copies (Including the Original)	Ream weight(kg) *1	Setting *2
Single sheet	45,55,70	1
2-ply	34,43,55,70	2
3-ply	34,43,55,70	3
4-ply	34,43,55,70	4
5-ply	34,43,55	5
6-ply	34,43,55	6
7-ply Change ribbon	34	7

*1 Ream weight means weight of 1000 sheets of full-sized paper (788x1091) (kg).

*2 Vary the setting up or down to optimize printing. Select 7 when replacing a ribbon or clearing a paper jam.

NOTE

If the print result is dirty, the ribbon does not feed properly, or the paper is jammed, raise the lever one step.

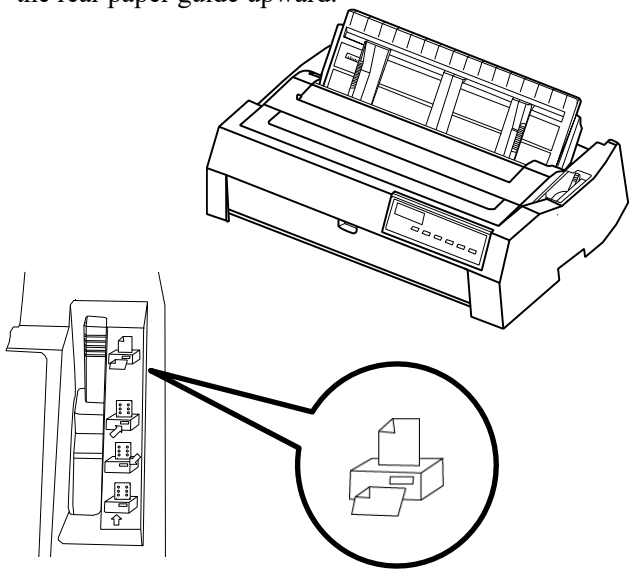
USING SINGLE SHEETS

This section describes how to load single sheets(cut sheets).
The maximum width for the cut sheet in this type of printer is 420mm (16.5inch).

Note
Use “Rear in top out” in automatic mode and “Front in top out” in manual mode. Diagonal printing may occur depending on the paper specifications.

Rear in top out

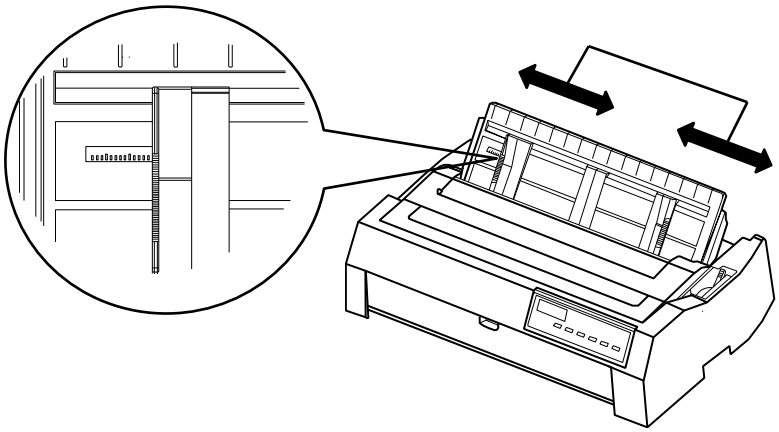
1. Choose the path for cut sheet by the path selection lever and set the rear paper guide upward.



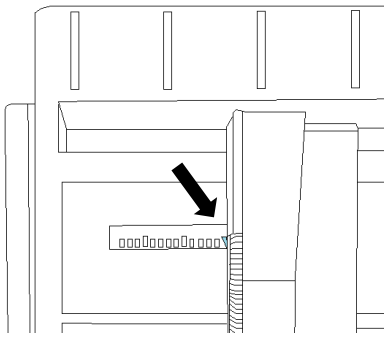
Selection lever position Enlarged view

2. Turn on the printer, the power indicator on the operator panel lights up.

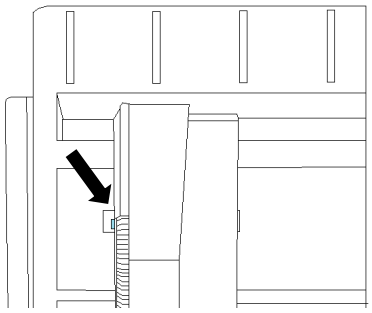
3. Below the left paper guide, the paper guide has a scale graduated in units of 0.1 inch. When the Left paper guide is set to "▽," the left margin is 5.08 mm.The left margin should be wider than 5.08 mm(0.2 inch).



Left paper guide position (left margin minimum 5.08mm)



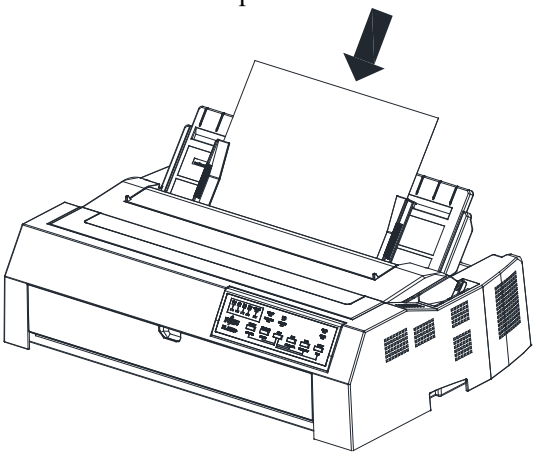
Left paper guide position (left margin maximum(38mm))



Note

Don’t move the guide more left from left margin maximum position, otherwise paper jam may cause.

4. Insert a sheet of paper into the cut sheet stand. Insert the paper until it stops securely. Adjust the paper guide on the right so that it fits on the platen in advance.



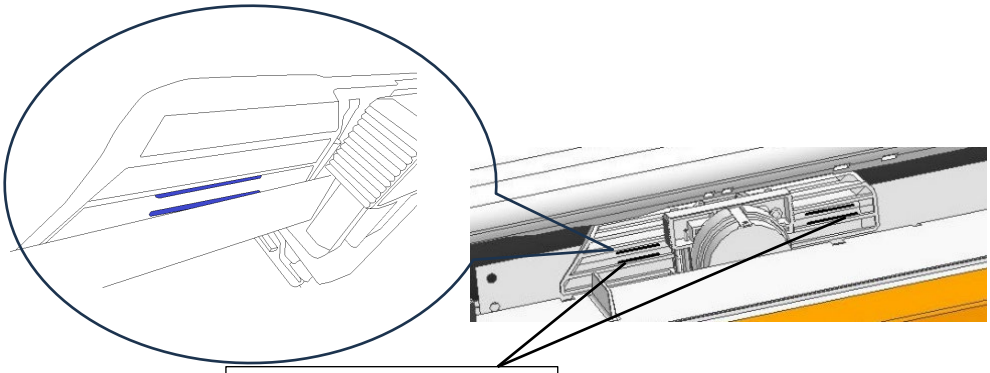
Note

When printing on a sheet of paper with a short length or a small loading capacity, load the paper one by one by pressing it against the feed slot. If the machine is not able to automatically feed paper, set the paper source manually.

5. If paper cannot be fed automatically, set the mode to Manual mode, load paper, and then use the LOAD button to feed paper. Even so, proper paper may not be loaded depending on the type of paper. In this case, adjust the paper loading position with the paper feed knob or the operator panel. After confirming the load position, press the online button.

Note
When confirm LOAD position, two lines on the card guide is useful as a aim. If there are not any line feed before character code will send, characters will be print on the line that between two scales on the card guide.

Examples : 12345

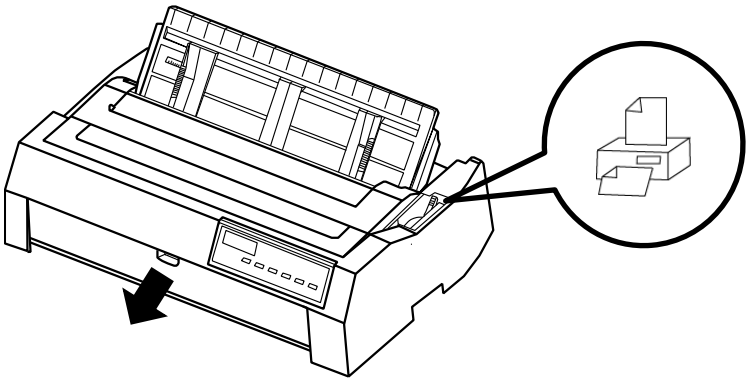


6. Execute the test printing and check the page margins. Make the following adjustments, as necessary:
   ・Horizontal alignment. Readjust the paper guides if required.
   ・Top-of-form setting (see Chapter 5).
   ・Margin settings. Use your software or the printer setup mode (see Chapter 5).

Front in top out

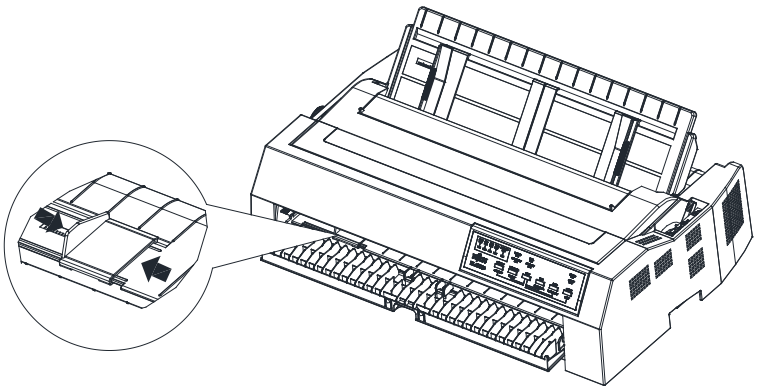
Note
We recommend that you use a rear in top out path that is easier to navigate. Front in top out path is less accurate than rear in top out path. Feed paper using the paper feed knob.

1. Choose the cut sheet using the path selection lever, and open the front cover. If you open the front cover, there is a paper guide for the front.

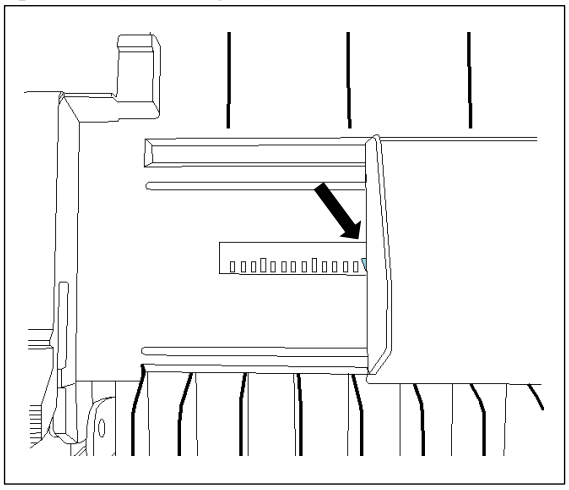


2. Turn on the printer, the power indicator on the operator panel lights up.

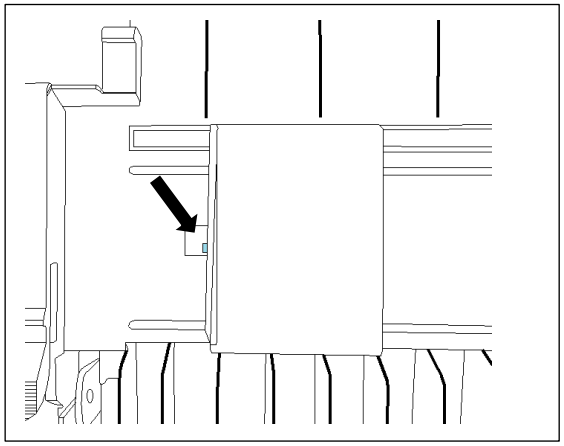
3. Below the left paper guide at the back of the cover is a scale in 0.1 increments. When the Left paper guide is set to "▽," the left margin is 5.08 mm.The left margin should be wider than 5.08 mm(0.2 inch).



Paper guide position (left margin (5.08mm))



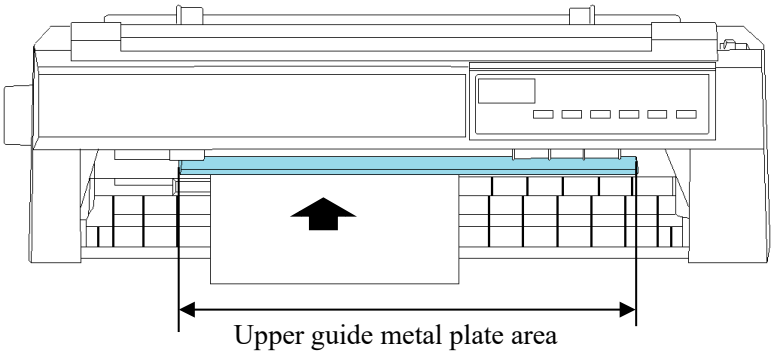
Paper guide position (left margin maximum(38mm))



Note

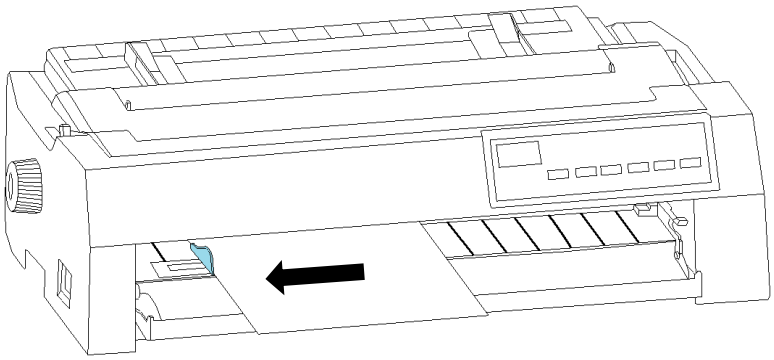
The guide is protected by a stopper when the maximum left margin is exceeded, but excessive force applied to the stopper may damage the guide.

3. First, set the paper within the range of the upper guide metal plate.



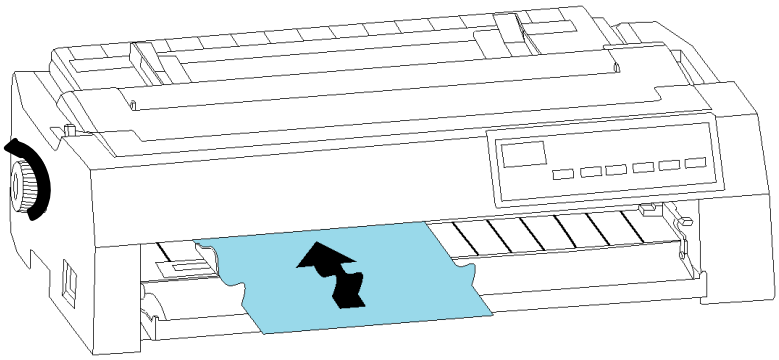
Upper guide metal plate area

Next, align the paper along the left guide so that it is at a right angle.



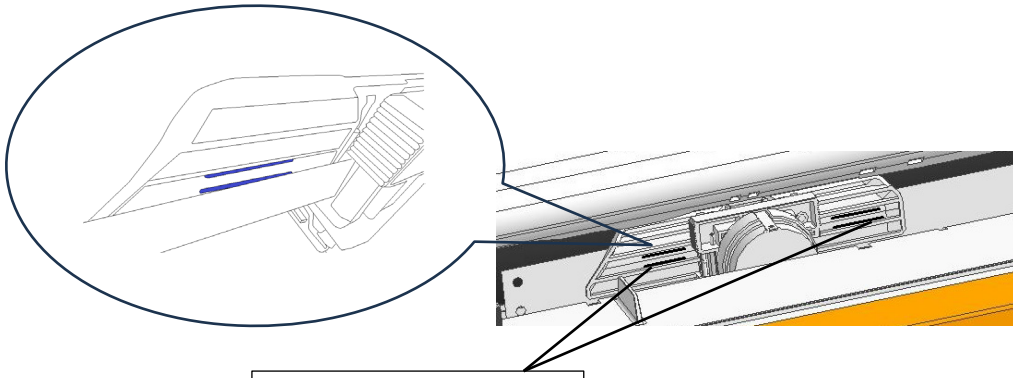
Push the paper in the direction of the arrow.Press the paper against the table with your hand and push it all the way in. Finally, while rotating the paper feed knob, push the paper in until the roller rolls the paper. Rotate the paper feed knob to feed paper to the loaded position.

* If the paper with a short length is loaded at an angle, try again from step 3. If you can grasp the paper by hand from the paper source, slide the paper by hand to correct the skew.



4. After paper is feed, adjust load position by using operator panel. After load position is confirmed press ONLINE button.

Note
If paper is feed by paper feed knob, and just after that line feed accuracy sometimes not fine. So, it is recommended adjusting by operator panel If paper feed knob was used.
When confirm LOAD position, two lines on the card guide is useful as a aim.



5. Execute the test printing and check the page margins. Make the following adjustments, as necessary:
   - Horizontal alignment. Readjust the paper guides if required.
   - Top-of-form setting (see Chapter 5).
   - Margin settings (see Chapter 5).

Ejecting Single Sheets

Each sheet is ejected automatically when the end of the printed page is reached. To manually eject sheets of paper, use either of the following methods:

- Press the LOAD button to eject the single sheet.
- Press and hold down the LF/FF button to execute a forward form feed.
- Turn the Paper Feed Knob counterclockwise.

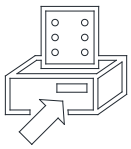
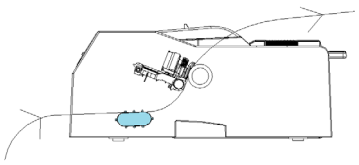
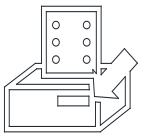
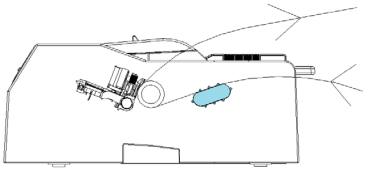
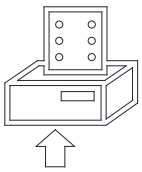
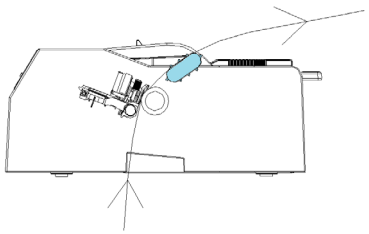
USING CONTINUOUS FORMS

Continuous forms paper, folded at the horizontal perforations, is ideal for printing rough drafts, long files and slips for various routine tasks. The paper is fed into the printer using the forms tractors.
The printer allows you to load continuous paper through the front, rear and bottom directions.

You can use the continuous paper with width up to 406 mm (16 inch). When you use continuous paper, the tractor should be set to one of the following positions: the front, the rear push tractor or the pull tractor. Make sure the paper path selection lever is pointed to the mark with same position as the tractor. For more information, please see “Paper path selection” section.

Tractor position and Paper path

The printer provides several paper paths for continuous paper. Set the path selection lever before you load continuous paper.

Tractor position	path selection lever location	Paper path for continuous paper
Front push tractor		
Rear push tractor		
Bottom Pull tractor		

Set the position of the tractor

The factory default tractor position is "Rear Push Tractor".
When using "Rear Push Tractor", use it as it is.

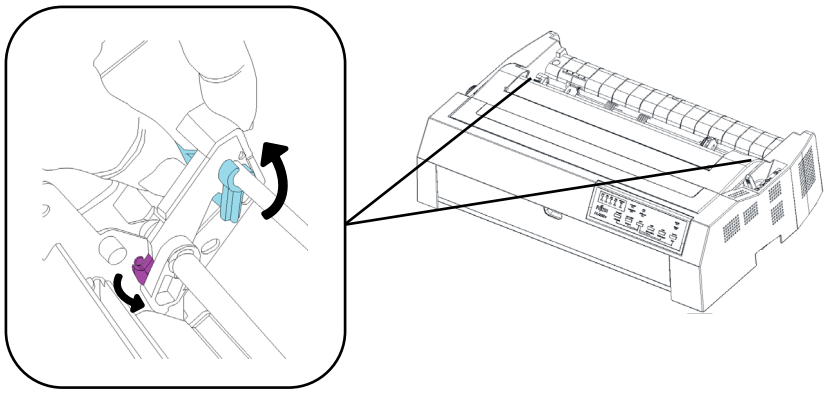
This section describes removal and installation when changing the tractor's position.

Be sure to turn off the power before removing the tractor when changing the paper feed.

Uninstall the tractor from rear push tractor position

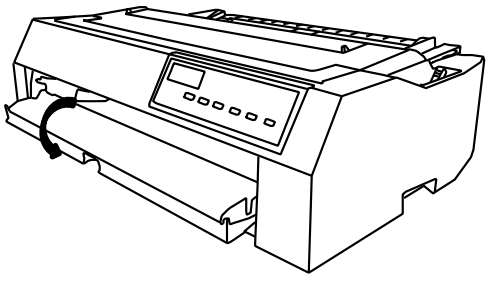
1. Remove the rear paper guide.

2. Press the locking tabs (blue levers) on either side of the tractor and rotate the tractor toward you to remove it from the printer.

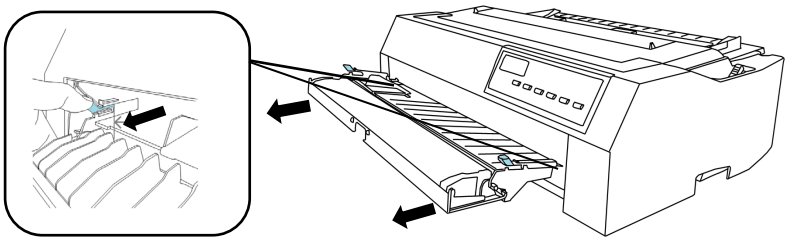


Uninstall a front push tractor

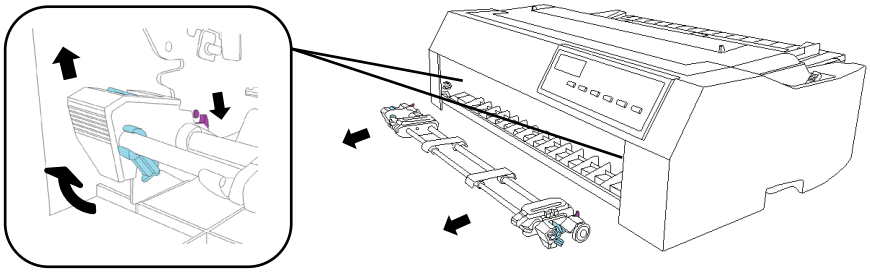
1. Open the front cover.



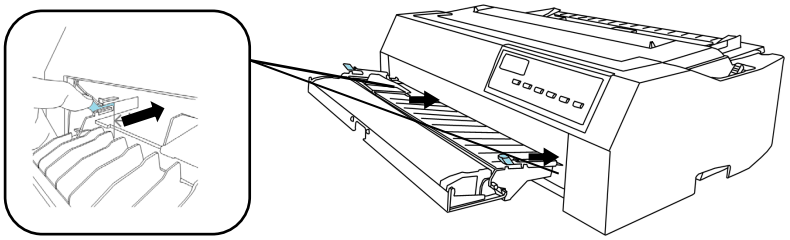
2. Grasp the handles on either side of the paper guides and pull the front cover out in the direction indicated by the arrow.



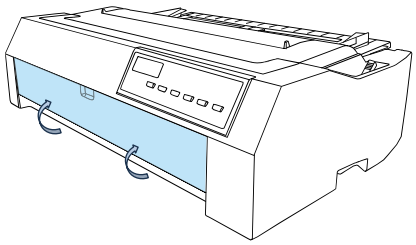
3. Press the locking tabs (blue levers) on both sides and rotate the tractor in the direction of the arrow to remove it from the printer.



4. Push the both sides of the front cover along the slot until it clicks into place.

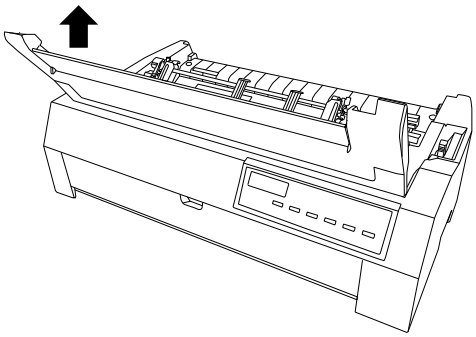


5. Close the front cover.

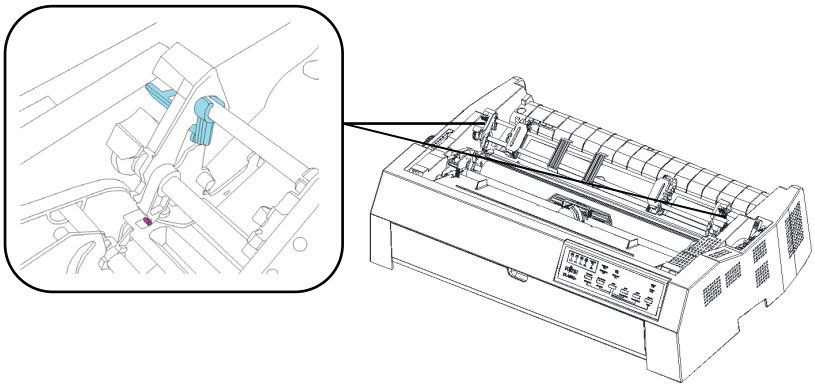


Uninstall the tractor from Bottom pull tractor position

1. Remove the top cover.



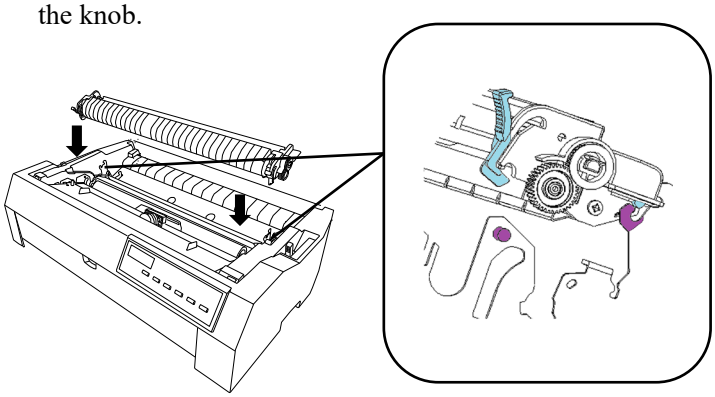
2. Press both locking tabs (blue levers) on the tractor, tilt the tractor forward, and lift it from the printer.



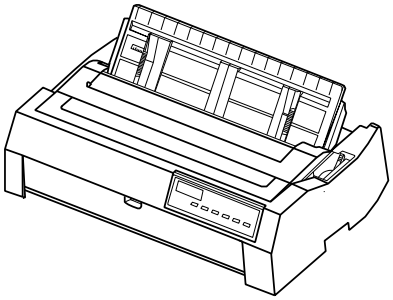
Note

When remove tractor, sometimes pegs of tractor may be snagged. So, operate it with kindly force. Otherwise, tractor may be broken.

3. Install the ejection unit. Place the protrusions on the back of both sides of the ejection unit on the sheet metal, and tilt the ejection unit forward to secure it to the protrusions on the sheet metal of the knob.

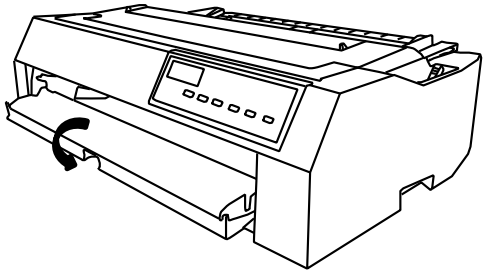


4. Close the top cover and install rear paper guide.

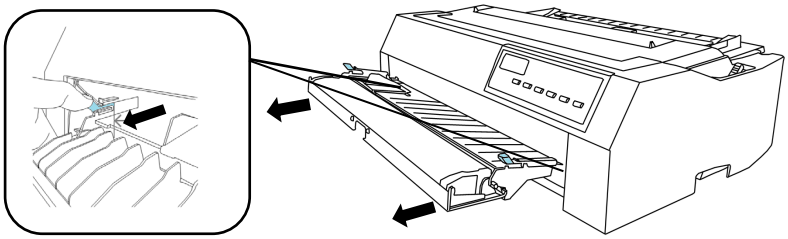


Install the tractor at front push tractor position

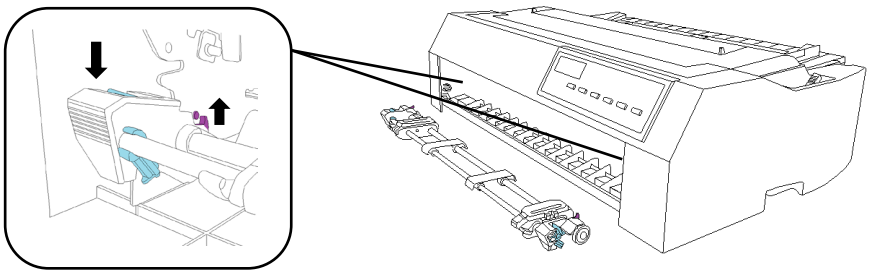
1. Make sure the printer is powered off. Open the front cover.



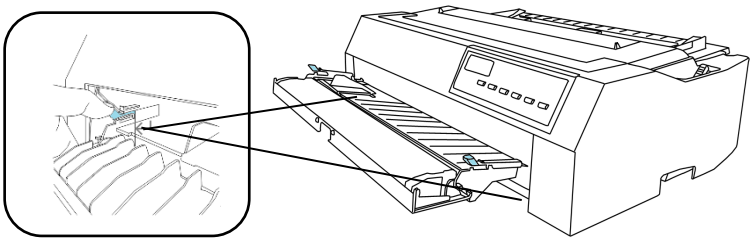
2. Remove the front cover by grasping the handles on both sides of sheet paper guide.



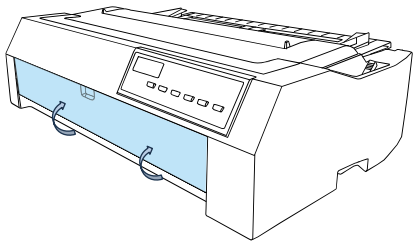
3. It is fixed by lowering the tractor by aligning the claw part (purple) of the tractor with the projection (purple) of the sheet metal.



4. Push the both sides of the front cover along the slot until it clicks into place.

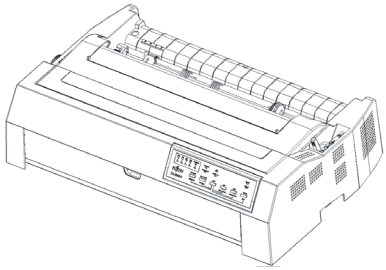


5. Close the front cover.

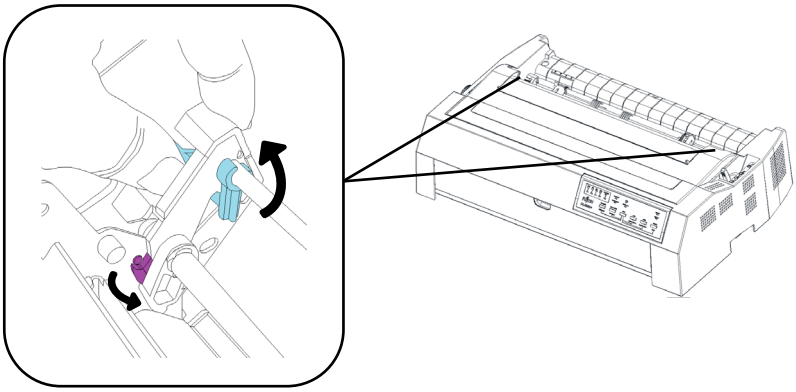


Install the tractor at rear push tractor position

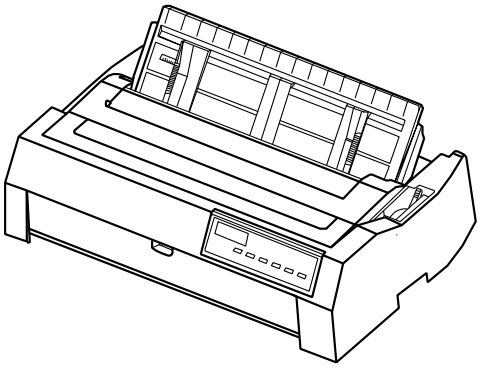
1. Make sure the printer is powered off and rear paper guide is removed.



2. It is fixed by lowering the tractor by aligning the claw part (purple) of the tractor with the projection (purple) of the sheet metal.

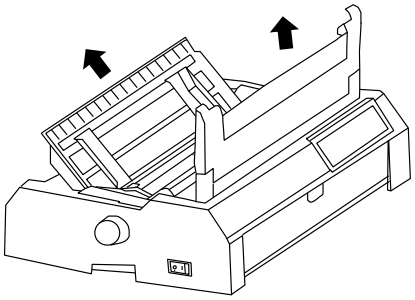


3. Install rear paper guide.

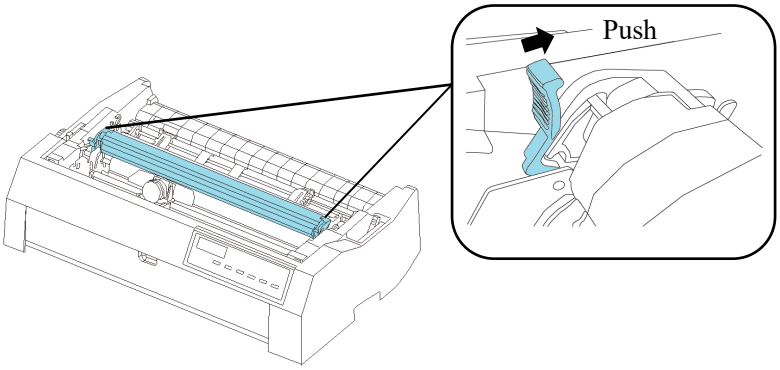


Install the Bottom pull tractor

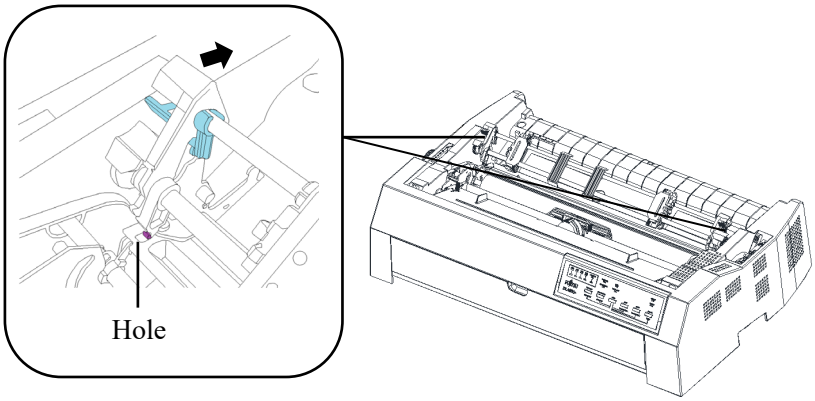
1. Make sure the printer is powered off. Remove the top cover and the rear paper guide.



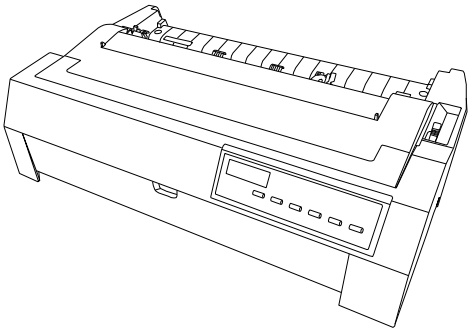
2. Remove the ejection unit pinch the tabs on each side of the ejection unit then lift the unit up and off the printer. Keep the ejection unit in a safe place.



3. Insert the claws (purple) on both sides of the tractor into the holes in the sheet metal, and fix the tractor by tilting it backward.



4. Close the top cover.



Notes

When using the bottom pull tractor, “Rear paper guide” and “Ejection unit” are not used, so please store them carefully.

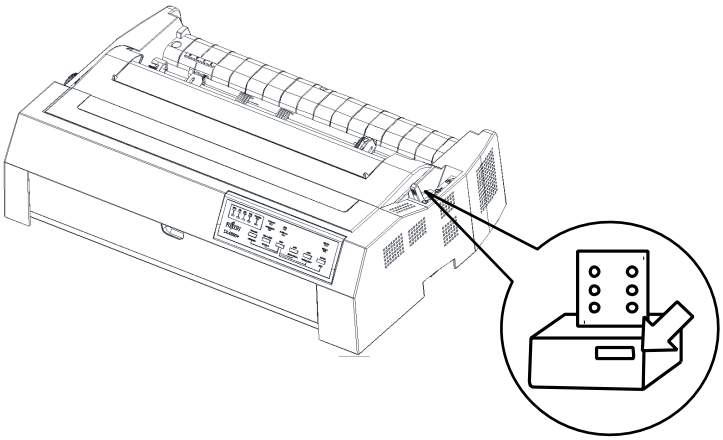
Loading Continuous Forms

This section explains how to use continuous forms. The tractor unit pushes or pulls continuous forms.

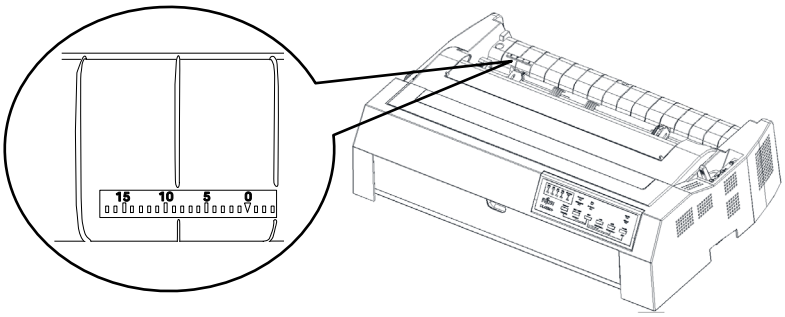
Load continuous paper from the rear push tractor

1. Make sure the printer is powered off and remove the rear paper guide.

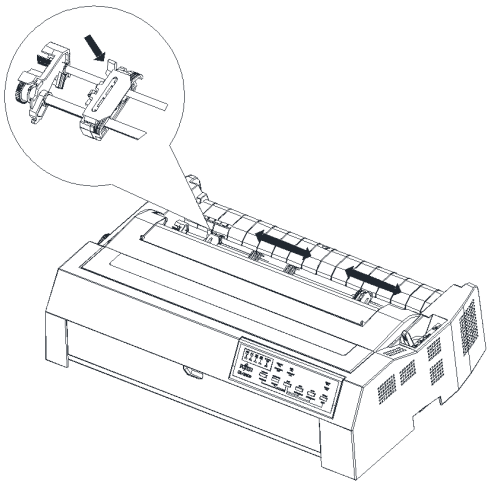
2. Set the paper path selector lever to the rear push tractor position.



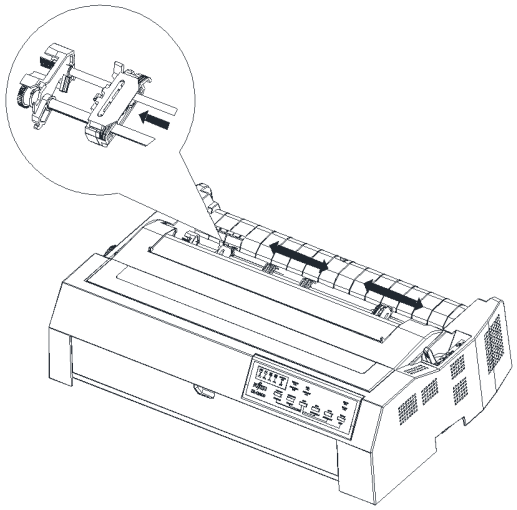
3. Below the left sprocket, the bottom cover has a scale graduated in units of 0.1 inch. The minimum left margin on paper is 5.08 mm (0.2 inch) at the scale "0" position.



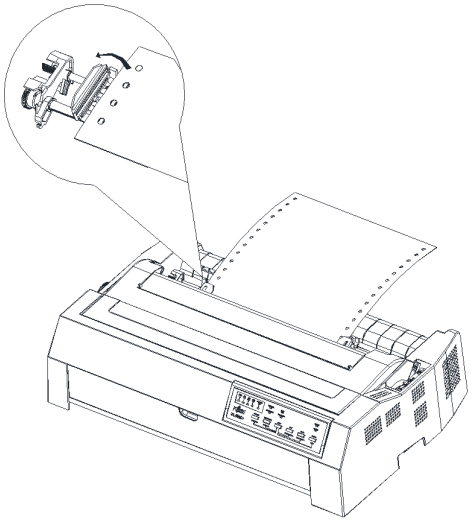
4. Pull up the left tractor tab and loosen the sprocket lock.



5. Slide the left sprocket to almost above the scale. Adjust the sprockets position so that left edge of the paper meets proper scale position. Then lock the left sprocket.



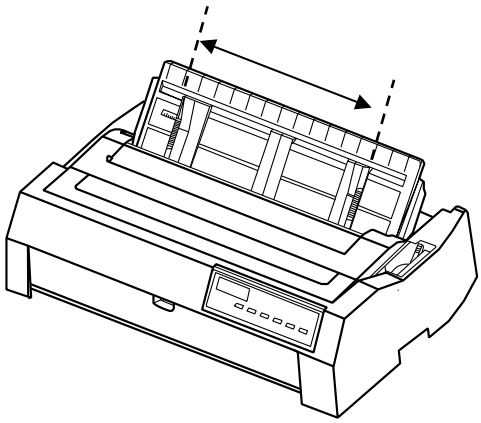
6. Pull up the right tractor tab and loosen the sprocket lock. Make sure the edge of continuous paper is straight and clean. Open the sprocket cover and fit the hole of continuous paper to the pin of tractor (Move the right sprockets according to paper width). Close the sprocket cover.



Note

Move the right sprockets with light tension, after release tension, lock the right sprockets. If lock the right sprockets during tension is forced sprocket hole may damaged

7. When loading continuous paper from the rear push tractor, be sure to attach the rear paper guides as they may cause printed paper to get caught. Also, adjust the position of the left and right paper guides to match the size of the printing paper to prevent paper transport.



8. Turn on the printer. Then press LOAD button to execute loading.

Remove continuous paper from the rear push tractor

1. Press “Tear Off” button to feed the paper to the tear-off position before removing continuous paper.

2. Tear off the printed continuous paper.

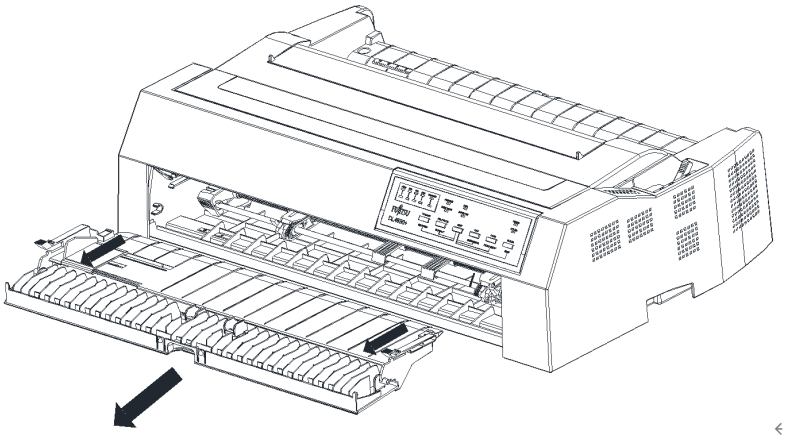
3. Press the LOAD button to back feed continuous paper to the tractor position. Feeding continuous paper backward for more than two pages may cause paper damaged.

4. Cut the printed paper before ejecting the continuous paper. If you perform this operation without cutting the printed paper, it may become smudged.

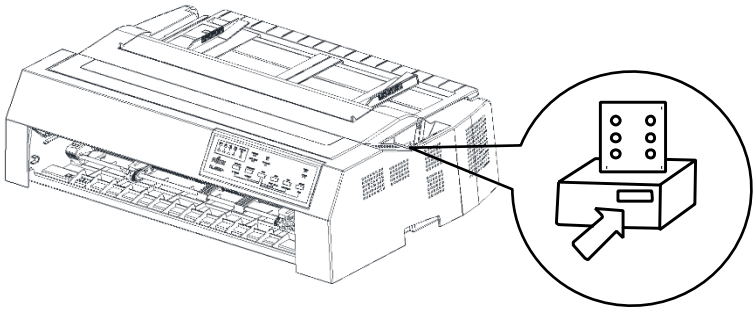
Note
If the tear-off position of continuous paper is not aligned with the tear-off edge of printer, use micro adjustment function to adjust it.

Load continuous paper with the front push tractor

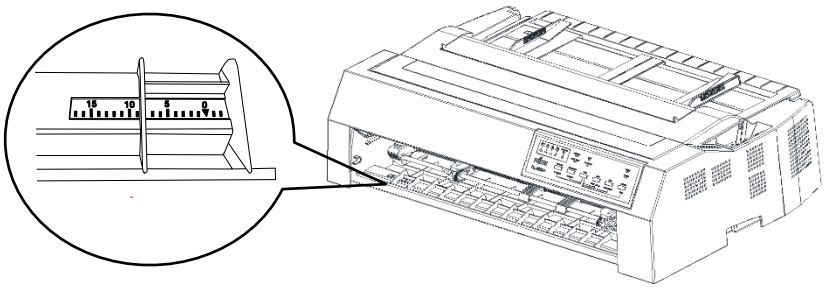
1. Make sure the printer is powered off. Open the cover of the front paper load location and remove the front cover.



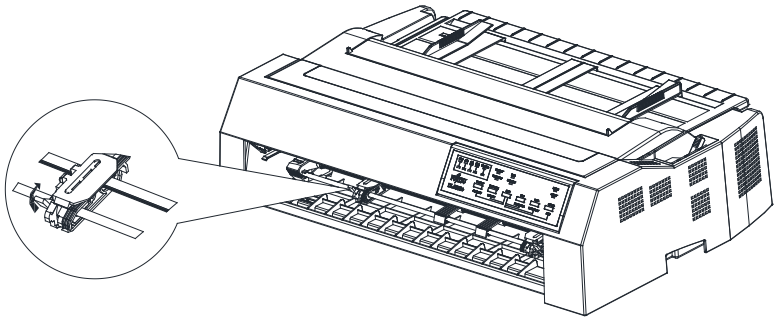
2. Make sure the tractor is in the front mounting slot and the paper path selection lever is set to the front push tractor position.



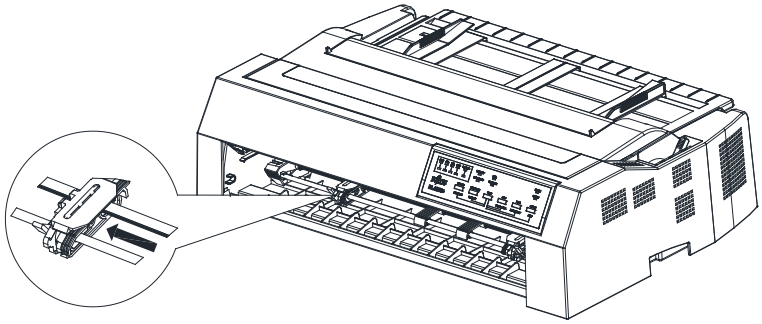
3. Below the left sprocket, the bottom cover has a scale graduated in units of 0.1 inch. The minimum left margin on paper is 5.08 mm(0.2 inch) at the scale "0" position.



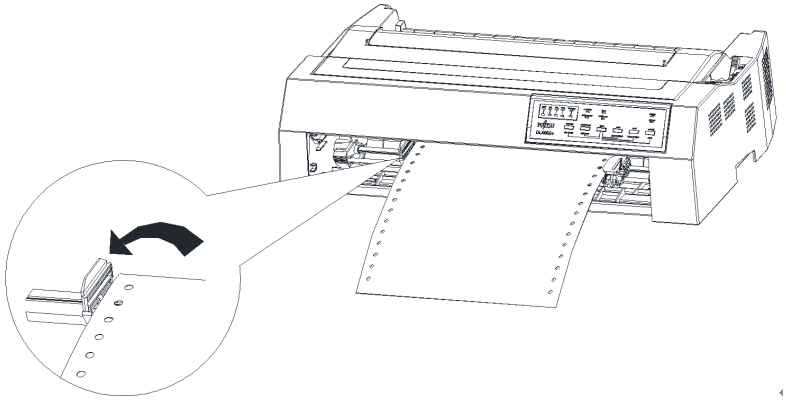
4. Pull up the left tractor tab and loosen the sprocket lock.



5. Slide the left sprocket to almost above the scale. Adjust the sprockets position so that left edge of the paper meets proper scale position. Then lock the left sprocket.

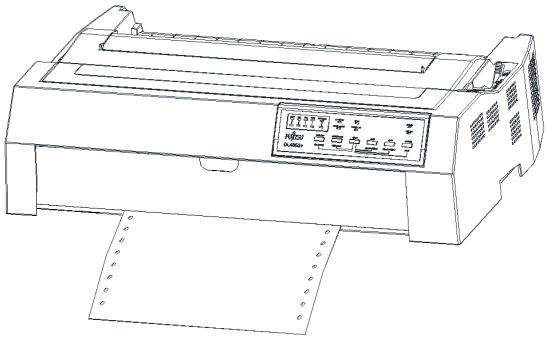


6. Pull up the right tractor tab and loosen the sprocket lock. Make sure the edge of continuous paper is straight and clean. Open the sprocket cover and fit the hole of continuous paper to the pin of tractor (Move the right sprockets according to paper width). Close the sprocket cover.



7. Move the right sprockets with light tension, after release tension, lock the right sprockets. If lock the right sprockets during tension is forced sprocket hole may damaged.

8. Set the front cover and close the front cover.



9. Turn on the printer. Then press LOAD button to execute load paper.

Remove continuous paper from the front push tractor

1. Press Tear-off button to feed the paper to the tear-off position.

2. Tear off the printed continuous paper.

3. Press “LOAD” button again to back to the top of form position. Feeding continuous paper backward for more than two pages in one time may cause paper damaged.

4. Cut the printed paper before ejecting the continuous paper. If you perform this operation without cutting the printed paper, it may become smudged.

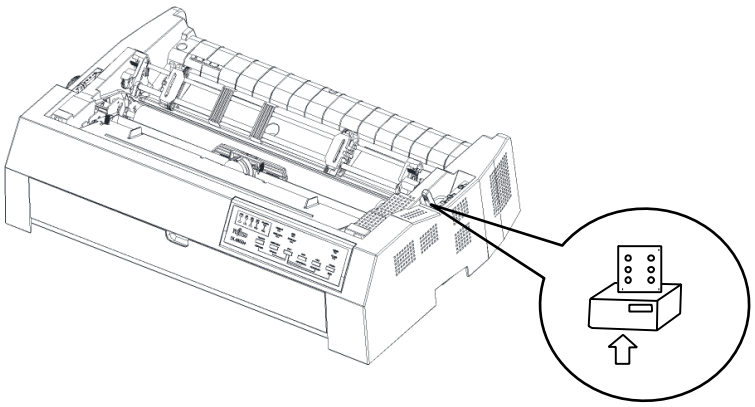
Notes

If the tear-off position of continuous paper is not aligned with the tear-off edge of printer, use micro adjustment function to adjust it.

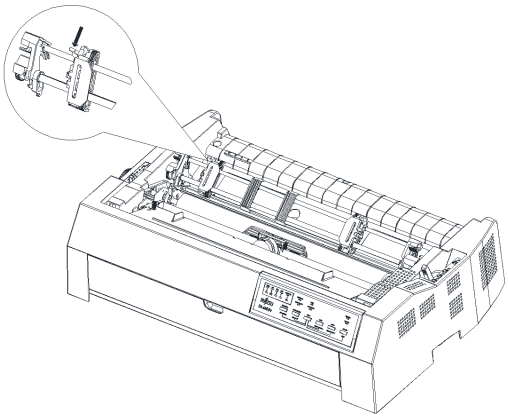
Loading continuous paper with the bottom pull tractor

1. Make sure the printer is powered off and take away the top cover and the rear paper guide and the ejection unit.

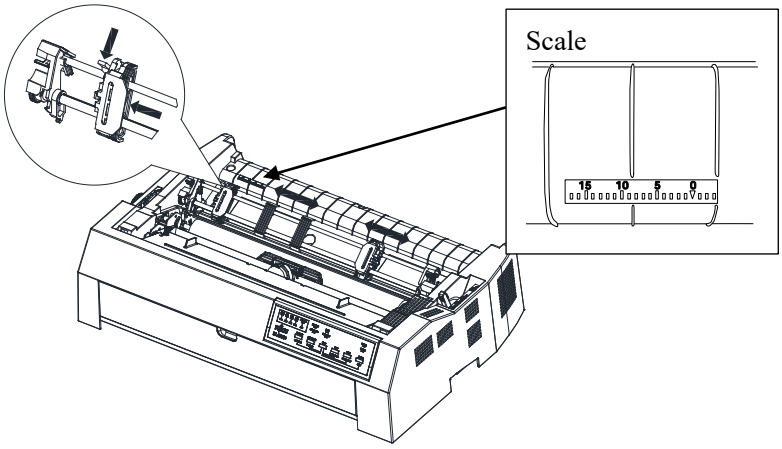
2. Make sure the pull tractor is set in right position, and the path selection lever is in bottom pull tractor position too.



3. Loose the sprockets by pulling the lock tabs forward, shown below.



4. Slide the left sprocket to almost same position of scale. Slide the right sprocket to match the width of continuous paper, but don't lock it. Move the paper support to the center of both sprockets.

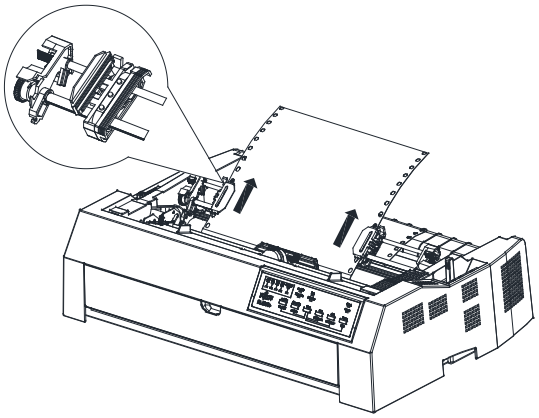


5. Make sure the edge of continuous paper is clean and straight. Insert the paper into the bottom slot, and turn the paper feed knob to feed the paper. Turn the paper feed knob to feed the paper into the sprocket.

Note

When loading paper from the bottom slot, be sure to use a printer stand with an opening large enough for the paper to feed through it without obstruction.

6. Open the sprocket cover to fit the holes of continuous paper to the pins of tractors. Close the sprocket cover.



7. Adjust the sprockets position so that left edge of paper meets proper scale position. Then lock the left sprocket.

8. Slide the right sprocket to tighten the continuous paper lightly, and then lock it.

9. Turn on the printer.

10. Adjust top of form position using paper feed knob then fine adjust by operator panel.
    (In case of adjust by only paper feed knob, first line pitch is not accurate)

Note
Do not use Tear Off and LOAD button when using the bottom pull tractor.

Remove continuous paper from the bottom pull tractor

1. Tear off continuous paper along the perforation.

2. Eject continuous paper forward by pressing “LF/FF” button.

Adjusting the TEAR OFF position

When the TEAR OFF button is used to advance the paper to cut it, the paper cut position and the perforation position may not match. In such cases, adjust their positions by using the following procedure.

1. Press the TEAR OFF button to advance the paper to its cut position.

2. While holding down the SHIFT button, adjust the cut position by using the LF/FF button or LOAD button.
   - LF/FF button: Pressing this button once extends the paper feed amount by 2/180 inches.
   - LOAD button: Pressing this button once reduces the paper feed amount by 2/180 inches.
   - The adjustment range is plus or minus 60/180 inches. When it is exceeded, an alarm beeps.

3. When the cut position is adjusted, release the SHIFT button. The paper feed amount at the end of the adjustment is stored as the amount by which the paper will be fed when the TEAR OFF button is pressed.

Tearing Off Continuous Forms

Your printer has a special “tear-off edge” that allows you to tear off printed pages without wasting paper. The tear-off edge is located on the ejection unit.

To tear off continuous forms using the tear-off edge:

1. Press the TEAR OFF button. The bottom perforation of the last page advances to the tear-off edge. If you specified TEAR OFF: AUTO using the Basic function in setup mode, the paper automatically advances to the tear-off edge at the end of each job (or when the printer has printed all the data received).

Note
If the bottom perforation of your paper is not positioned at the tear-off edge, the length of your paper may not be specified correctly in your software or the printer setup mode. Check that the paper length is specified correctly. For information on specifying page length using setup mode, see Chapter 5.

2. Tear the paper off at the perforation.

3. Press any button to retract the forms back to the top-of-form position.

FEEDING AND POSITIONING PAPER

Line Feed/Form Feed

Use the line feed/form feed function to move paper forward. This function is valid when the printer is online or offline. Pressing and holding down the LF/FF button feeds one sheet or one page of paper. this function is called FF function. Pressing the LF/FF button once advances the paper one line (do not hold the button more than three seconds). this function is called LL function, and this feed value is only effects until next FF movement.

The printer does not allow you to execute “reverse” form or line feeds from the control panel. To feed paper backward, manually rotate the Paper Feed Knob. Remember that this feed value is also remains after FF movement.

Micro Feed

Use the micro feed function to fine tune the position of the paper. This function is valid when the printer is offline. Press the SHIFT and LF/FF buttons simultaneously to micro-feed paper forward. Press the SHIFT and LOAD buttons simultaneously to micro-feed paper backward.

Remember that this feed value is also remains after FF movement.

Load Position Adjust

Use also the micro feed function to adjust the load position of the paper. When this function is used immediately after the LOAD button is pressed, it is retained as the changed load position.

SWITCHING PAPER TYPES

Switching between continuous paper and Single sheets

If you have more than one type of job, it is often necessary to switch between continuous forms and single sheets. This section explains how to switch between paper types. It is not necessary to remove the continuous forms paper from the printer when tractor is in the front-in or rear-in path.

Switching to single sheets

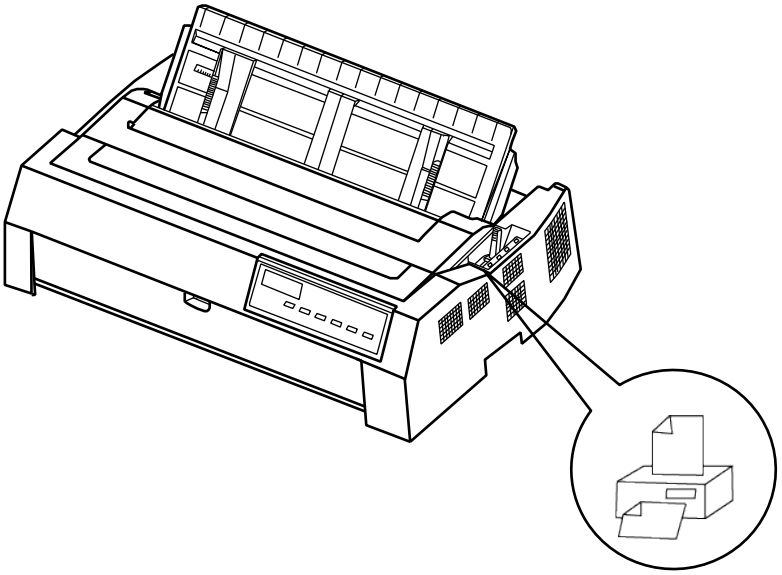
To switch from continuous paper to single sheets, follow these steps:

1. If there are any printed sheets in printer, press “Tear Off” button to feed the paper to the tear off position. Then tear off the paper.

2. Press “LOAD” button to load continuous paper backward to standby position. The PAPER OUT indicator turns red. The continuous paper is still in the tractor, but not occupy the paper path.

Note
If you perform this operation while there are printed pages, smudges may occur.

3. Place the paper path selection lever to the cut sheets path.



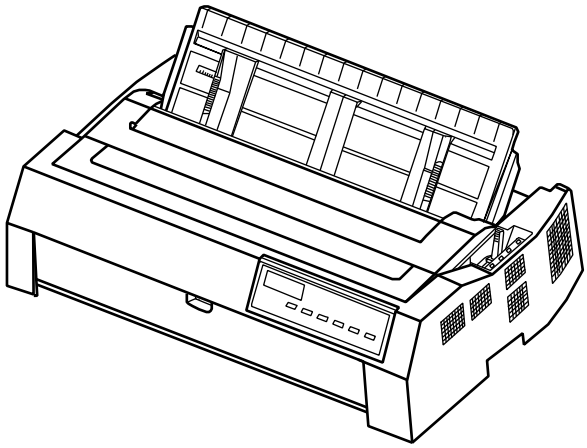
4. Load cut sheets from the front or top path, same as described in this chapter.
   You are now ready to print using single sheets.

Switching to continuous paper

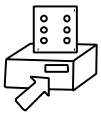
It is easy to switch to continuous paper.

1. If there is cut sheet in the printer, press “LOAD” button to eject cut sheet.

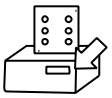
2. Move the paper path selection lever to the required (front-in or rear-in or Bottom in) path.



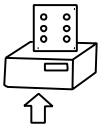
・The paper path selection lever Select lever



Front push tractor



Rear push tractor



Bottom pull tractor

3. Load continuous paper with the front-in or rear-in push tractor and bottom pull tractor. Load continuous paper with “LOAD” button before printing.
   You are now ready to print using continuous forms paper.

TIPS ON PAPER HANDLING

General Tips

·Use high-quality paper. Do not use paper that is wrinkled or curled at the edges.
·Do not use paper with staples or metal parts.
·Do not use paper with unpredictable variations in thickness, such as paper with partial multilayers, paper with embossed printing exposed.
·Store paper in a clean, dry environment.

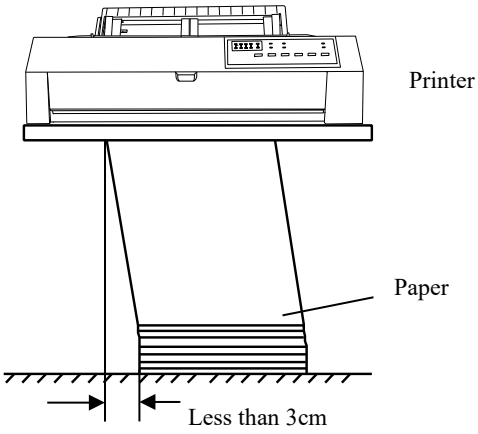
Multipart Forms

·When using continuous forms paper with front and rear push tractors and ejecting paper to the rear, use the rear paper guide in upright position.

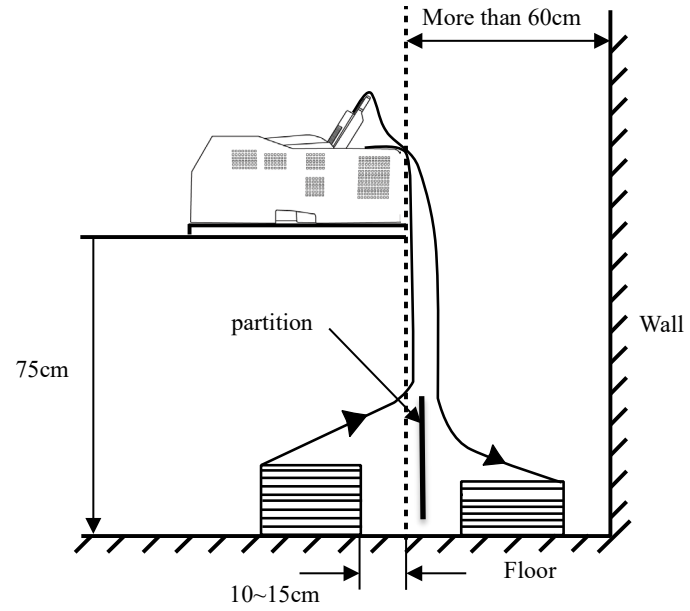
CONTINUOUS PAPER PLACEMENT

1. Place the printer on a solid base. The minimum suitable height of the solid base is 75 cm.

2. Left and right positioning: The direction of continuous paper should be parallel with the sheet feeder. The tolerance should be less than 3 cm.



3. Front and back positioning: The distance between the rear of printer and the wall should be more than 60cm. To avoid paper jam, the distance between the continuous paper and the edge of desk should be 10~15 cm.
   Put the partition is recommended to avoid paper JAM.



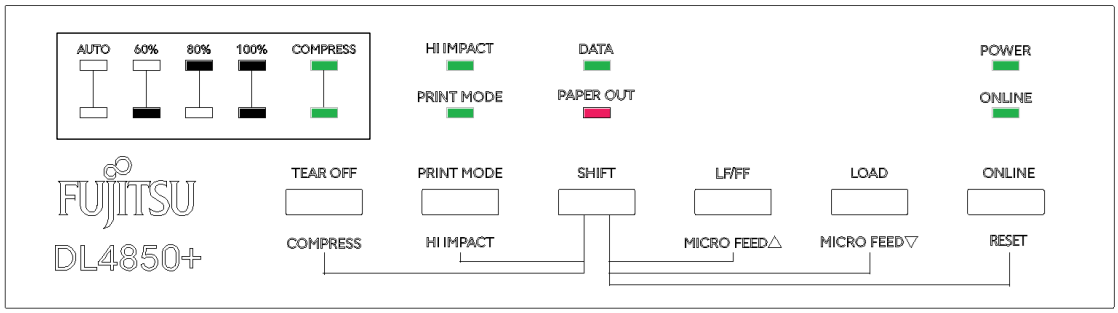
(Reserve)

4

CONTROL PANEL OPERATION

This chapter describes the following everyday printing operations:

- LED Indicators
- Panel Operation



The control panel includes two sections: indicators and buttons. Indicators indicate the current status of the printer, and buttons are used to control the status of the printer.

Attention

The LED may sometimes light when the Paper Feed Knob rotates or the carrier moves, even when the power is OFF. Do not unplug or plug in the interface cable when the LED is lit.

LED INDICATORS

There are 8 LEDs. The meaning of each LED are described below pages.

1. "POWER" LED:

-Lights up when the power is on.

2. "ONLINE" LED:

-Lights when online or turns off when offline.

3. "DATA" LED:

-Lights up while data is being received.

4. "PAPER OUT" LED:

-Lights up when there is no paper.

5. "HI IMPACT" LED:

-Indicates the high copy mode setting.

Normal mode: Unlit
High Copy Mode 1: Lit
High Copy Mode 2: Flashing

6. "PRINT MODE" LED:

-Indicates the print mode setting.

LQ: Unlit
CQ: Lit
DQ: Flashes 1 time (○●●●○●●●○●●●・・・)
HDQ: Flashes 2 times (○●○●●●○●○●●●・・・)
SHDQ: Flashes 3 times (○●○●○●●●○●○●○・・・)
*○: Lit, ● Off

7. "COMPRESS" LED:

-Indicates the setting of the horizontal compression mode. (Lamp Up - Lamp Down)

100%: OFF - OFF
80%: Off - On
60%: ON - OFF
AUTO: On - On

PRINTER OPERATIONS

Printer Operations (Normal Mode)

√ : Operation can be performed when the printer is in this state.

— : Operation cannot be performed when the printer is in this state. N/A :

Operation	Online	Offline	Required Response
Clear print buffer	√	√	Press and hold SHIFT and RESET until the printer emits three short beeps.
Eject single sheets	√	√	Press LOAD.
Enter normal mode	N/A	N/A	Turn printer on. (Press | on the power switch.)
Form feed (forward)	√	√	Press LOAD.
Line feed (forward)	√	√	Press LF/FF within shortly.
Load paper	√	√	Press LOAD.
Micro feed (backward)	√	√	Press SHIFT and LOAD.
Micro feed (forward)	√	√	Press SHIFT and LF/FF.
Place printer offline	√	—	Press ONLINE.
Place printer online	—	√	Press ONLINE.
Start/stop/resume printing	√	√	Start: Send print command. Stop/resume: Press ONLINE.
Self-test printing	N/A	N/A	Start: Turn printer off. Press SHIFT+PRINT MODE while turning printer on. Pause/resume: Press ONLINE . Exit: Turn printer off.
Tear off forms (Continuous forms only)	√	√	Press TEAR OFF. Tear off forms, then press TEAR OFF to retract forms.
Unload paper to park position (Continuous forms only)	√	√	Press LOAD.
Switch Print Mode	√	√	Press PRINT MODE. Switch among LQ-CQ-DQ-HDQ-SHDQ
Compress	√	√	Press SHIFT+ TEAR OFF. Compress rate switch among 100%-80%-60%-Auto
Hi Impact	√	√	Press SHIFT+ PRINT MODE. Hi Impact Switch among Normal-Mode1-Mode2

5

PRINTER SETTING CHANGES

In order to meet specific print requirements, the printer configurations may be changed.
The Printer Settings menu contains 4 sub-menus: Basic set Setup, ESC/P2 set Setup, IBM set Setup, Network set Setup.

This chapter describes the following operations:

•Basic set Setup;
•ESC/P2 set Setup;
•IBM set Setup;
•Network set Setup;

Note: Bold italic item is the default setting.

This chapter describes the following operations:
- BASIC SET SETUP
- ESC/P2 SET SETUP
- IBM SET SETUP
- NETWORK SETTINGS SETUP
- Bidirectional Alignment
- Hex Dump
- Restore Factory Default
- Self Test
- DLMENU

BASIC SET SETUP

Basic set	Valid Settings	Function
Interface	***AUTO***, LPT, USB, COM, LAN	AUTO: Printer can detect the type of input signal and activate the different port automatically.
Emulation	***ESC/P2,*** IBM	Selects the printer emulation. This should be the same as the host printer driver.
Baud Rate	2400,4800,***9600,*** 19200,38400,57600,115200	This parameter chooses the transmission rate of RS232C serial interfaces.
Data Bits	***8***,9	8: The number of each bit is 8. 9: The number of each bit is 9.
Stop Bits	***1***,2	1: Transmit data bytes use one stop bit. 2: Transmit data bytes use two stop bits.
Parity	***None***,Odd,Even	None: Bidirectional transmission has no odd-even check. Odd: Bidirectional transmission uses Odd parity. Even: Bidirectional transmission uses Even check.
Protocol	DTR/DSR, ***Xon/Xoff***	Hardware: RS232Cserial port flow control is DTR/DSR. Xon/Xoff: RS232Cserial port flow control is software.
Buffer	None,***Big***	None:no buffer Big:big buffer
PrintDir	***Normal,*** ForceOneWay, ForceTwoWay	Normal:Print direction is determined by logical seek or other printer situations. ForceTwoWay: Graphics and text are printed in both directions, resulting in faster printing speed. ForceOneWay: Graphics and text are printed from left to right, resulting in higher precision.
SpeedSelect	***CmdFirst,*** PanelFirst	CmdFirst: Print speed priority is determined by the command. PanelFirst: Print speed priority is determined by the control panel.
PrintMode	***LQ,***CQ,DQ,HDQ, SHDQ	LQ:Print in letter quality mode CQ: Print in correspondence quality DQ: Print in draft quality mode HDQ:Print in high speed draft quality mode SHDQ::Print in super high speed draft quality mode
Compress	***100%,***80%,60%, AUTO	100%: uncompressed 80%: compress to 80% 60%: compress to 60% AUTO: automatic compression
Hi Impact	***Normal***,mode1, mode2	Normal: The print speed is faster causing head hot easily and the impact force is weaker. Mode1: heavy-impact force printing Mode2: double-strike printing with heavy-impact force In mode1 and mode2: The print speed is reduced, resulting better thermal performance and copy capability.

Basic set	Valid Settings	Function
Quiet Print	Yes,***No***	Yes: Print in quite mode No:Print in normal mode
Pin Repair	***None***,needle 1-12,needle 13-24,needle 1,3…23,needle 2.4…24,needle1,needle 2….needle24	broken pins compensation None:No compensation Needle1-12: There are broken needles in the 1-12 positions, the 13-24 positions can be used for print compensation Needle13-24: here are broken needles in the 13-24 positions, the 1-12 positions can be used for print compensation Needle1,3…23: In the event of broken needles on odd-numbered positions, use the even-numbered needles for print compensation. In the event of broken needles on even-numbered positions, use the odd-numbered needles for print compensation. Needle2,4…24: Needle1,2,3…: Defines the broken / worn out pin No.
Font	***Roman***, Sanserif, Courier, Prestige, Script, OCRB, OCRA, Draft	Selects the font.
CodePage	***PC437,***Italy,PC850 PC860,PC863,PC865, PC858,PC864	Code page selections
InteCharSet	***U.S.A***，France，Germany，U.K.，Denmark1，Sweden，Italy，Spain1，Japan，Norway，Denmark2，Spain2，Latin，Korean，Ireland，Legal	International character set selections
PapLenLock	Yes,***No***	Yes: Lock the paper length No:unlock the paper length
LFRepeat	***Yes***,No	Paper feed consolidation Yes:Enable No:Disable
Device ID	None，USB+LPT ，***USB***，LPT	None: Disables USB and LPT Device ID. USB+LPT: Enables USB and LPT ID USB:Only enables USB ID LPT:Only enables LPT ID
RightMargin	***0/60***，5/60，10/60，15/60，20/60，25/60，30/60，35/60，40/60，45/60，50/60，55/60，60/60	Define the right margin in inches
LeftMargin	***0/60***，1/60，2/60，3/61，4/61，5/61，6/62，...，60/60	Define the left margin in inches
FCut-Top-org	***1.8/6***，2/6，3/6，...，66/6	Defines the separation in inches from the top edge of a single paper to the first print line(Front paper slot).

Basic set	Valid Settings	Function
FCut-Top-fin	***0/180***，1/180，2/180，3/180，4/180，5/180，...，29/180	Compensation value added to Single Top(Front paper slot).
RCut-Top-org	***1.8/6***，2/6，3/6，...，66/6	Defines the separation in inches from the top edge of a single paper to the first print line(Rear paper slot).
RCut-Top-fin	***0/180***，1/180，2/180，3/180，4/180，5/180，...，29/180	Compensation value added to Single Top(Rear paper slot).
FCont-Top-org	***1.8/6***，2/6，3/6，...，66/6	Defines the separation in inches from the top edge of a fanfold to the first print line(Front paper slot).
FCont-Top-fin	***0/180***，1/180，2/180，3/180，4/180，5/180，...，29/180	Compensation value added to Fanfold Top(Front paper slot)
RCont-Top-org	***1.8/6***，2/6，3/6，...，66/6	Defines the separation in inches from the top edge of a fanfold to the first print line.
RCont-Top-fin	***0/180***，1/180，2/180，3/180，4/180，5/180，...，29/180	Compensation value added to Fanfold Top(Rear paper slot)
FCut-Lf-Adj	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for single paper(Front paper slot). (Correct the line feed deviation when the line feed is approximately 10 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
FCut-Lf-Adj-M	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for single carbonless copy paper.(Front paper slot) (Correct the line feed deviation when the line feed is approximately 10 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
RCut-Lf-Adj	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for single paper.(Rear paper slot) (Correct the line feed deviation when the line feed is approximately 10 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
RCut-Lf-Adj-M	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for single carbonless copy paper.(Rear paper slot) (Correct the line feed deviation when the line feed is approximately 10 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
FCont-Lf-Adj	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for continuous paper.(Front paper slot) (Correct the line feed deviation when the line feed is approximately 30 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
FCont-Lf-Adj-M	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，	Set the line feed correction quantity for single carbonless copy paper.(Rear paper slot) (Correct the line feed deviation when the line feed is approximately 30 inch. If the printing position

Basic set	Valid Settings	Function
	21/360，GRAPHIC	deviates in the upward direction, correct it in the + direction.)
RCont-Lf-Adj	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for continuous paper.(Rear paper slot) (Correct the line feed deviation when the line feed is approximately 30 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
RCont-Lf-Adj-M	-21/360，-14/360，-7/360，***0/360***，7/360，14/360，21/360，GRAPHIC	Set the line feed correction quantity for single carbonless copy paper.(Rear paper slot) (Correct the line feed deviation when the line feed is approximately 30 inch. If the printing position deviates in the upward direction, correct it in the + direction.)
Tearoff	***Manual***,Auto	Auto: Form Feed command from the host causes the printer to advance the paper to the tear-off position. Printing resumes on the TOF on next page. Manual: After the completion of a print job, press a panel key to advance the paper to the tear-off position.
Tearoff-Adj	-60/60,-58/60…-2/60,***0***,2/60,4/60…58/60,60/60	Compensation value added to Tearoff position for single paper.
Tearoff-Adj-M	-60/60,-58/60…-2/60,***0***,2/60,4/60…58/60,60/60	Compensation value added to Tearoff position for single carbonless copy paper
GatherMode	Yes,***No***	Whether the print head is centered after each line of printing Yes:printer head is moved to center after each line of printing No:pinter head is not moved to center each line of printing
FCutLoad	***Manual***,Auto-1sec,Auto-2sec,Auto-3sec	Manual: Standard operation of Cur Sheet (Front). Refer to Chapter 3 Auto:Cut sheet will be fed after setting time (Front) .
RCutLoad	Manual,Auto-1sec,***Auto-2sec***,Auto-3sec	Manual: Standard operation of Cur Sheet (Rear). Refer to Chapter 3 Auto:Cut sheet will be fed after setting time (Rear) .
Auto-Pr	Yes,***No***	Set whether to start printing automatically when data reception is interrupted for 0.5 seconds while unprinted data remains in the buffer in the printer. Yes: Enable automatic printing. No: Disable automatic printing.
CarriagePos	***MODE1***, MODE2	Sets the carrier stop position when conveying paper. MODE1: Digit 42.5 MODE2: Digit 15

ESC/P2 SET SETUP

ESC P/2 setup	Valid Settings	Function
Pitch	***10CPI***，12CPI，15CPI，17CPI，20CPI，Ratio	Controls the characters per inch setting.
Width	***136***，110，106，80	Select print width

		The maximum print width is 136 columns
Page Len	***11 Inch***，11/4 Inch，3 Inch，3.5 Inch，11/3 Inch，4 Inch，11/2 Inch，6 Inch，7 Inch，7.25 Inch，8 Inch，8.5 Inch，10.5 Inch，70/6 Inch，12 Inch，14 Inch，17 Inch	Sets the page length in inches
Line Space	1/8 Inch，***1/6 Inch***，1/5 Inch	Select line space
Auto LF	Yes, ***No***	Yes: CR = CR+LF; No: CR = CR
Auto CR	***Yes***, No	Yes:LF = LF+CR; No: LF = LF
Data Cut	Yes, ***No***	Yes: If the print data exceeds the print width, trim the excess part No: If the print data exceeds the print width, the exceeding part will automatically wrap to the next line
Zero Style	Slash, ***No- Slash***	0: No-slashed Zero 0. Ø: Slashed Zero Ø. Specifies whether to print the number zero with a slash. This is useful to distinguish the capital letter “O” from the number “0”
Attribute	***None***,Bold,Double	None:normal print Bold:Heavy impact strike print Double: double-strike printing

IBM SET SETUP

IBM setup	Valid Settings	Function
Pitch	***10CPI***，12CPI，15CPI	Controls the characters per inch setting.
Width	***136***，110，106，80	Select print width The maximum print width is 136 columns
Page Len	***11 Inch***，11/4 Inch，3 Inch，3.5 Inch，11/3 Inch，4 Inch，11/2 Inch，6 Inch，7 Inch，7.25 Inch，8 Inch，8.5 Inch，10.5 Inch，70/6 Inch，12 Inch，14 Inch，17 Inch	Sets the page length in inches
Line Space	1/8 Inch，***1/6 Inch***，1/5 Inch	Select line space
Auto LF	Yes, ***No***	Yes: LF = LF+CR; No: LF = LF
Auto CR	***Yes***, No	Yes:CR = CR+LF; No: CR = CR
Data Cut	Yes, ***No***	Yes: If the print data exceeds the print width, trim the excess part No: If the print data exceeds the print width, the

		exceeding part will automatically wrap to the next line
Zero Style	Slash, ***No- Slash***	0: No-slashed Zero 0. Ø: Slashed Zero Ø. Specifies whether to print the number zero with a slash. This is useful to distinguish the capital letter “O” from the number “0”
Attribute	***None***,Bold,Double	None:normal print Bold:Heavy impact strike print Double: double-strike printing
AGM	Yes, ***No***	Yes: Enables the graphic image command. No: Disables the graphic image command.

NETWORK SETTINGS SETUP

NetWork setup	Valid Settings	Function
DHCP	Disable,***Enable***	Turn on or turn off DHCP, Disable indicates turn off, Enable indicates turn on
IP Addr	***0.0.0.0***	Printer IP address, IP address can be changed if required
Subnet Mask	***255.255.255.0***	Subnet Mask
GateWay	***0.0.0.0***	Default Gateway
IPv6 Function	***Disable***,Enable	Disable or Enable IPv6 support
IPv6 Address	***fe80:X:X:X:XXXX:XXXX:XXXX:XXXX***	IPv6 Address

BIDIRECTIONAL ALIGNMENT

When wiggling vertical grids appears in tabular reports, you should adjust the Bidirectional Alignment. The procedures to adjust bi-directional alignment across adjacent line grids:

1. Power off the printer, after loading paper,hold down the [SHIFT]+[LF/FF]+[LOAD] key while powering on the printer and then release the key when the print head starts to move. The printer enters in Bidirectional Alignment adjust mode.

Note

There are two Bidirectional Alignment adjust modes: “Single paper” and“ Multiaynery paper”. Each mode has seven speeds. Bidirectional Alignment adjust mode adjusts for each speed. The first mode is "Single paper" LQ adjustment mode.

2. The adjustment status of each speed is printed.
   The following information is printed.
   - Speed During Adjustment
   - adjustment value
   - Vertical line (3 rows)

   If the vertical lines are off, you need to adjust them.

3. If the second line is off to the left, press [SHIFT] + [LF/FF]. The adjustment value is decreased by 1.
   If the second line is off to the right, press [SHIFT] + [LOAD]. The adjustment value is increased by 1.
   Each time you press the button, the adjustment status is printed.

4. Repeat steps 2 and 3 until the vertical lines no longer deviate.

5. Press [PRINT MODE] to adjust next mode.
   Follow the same procedure to adjust the speed at other speeds.

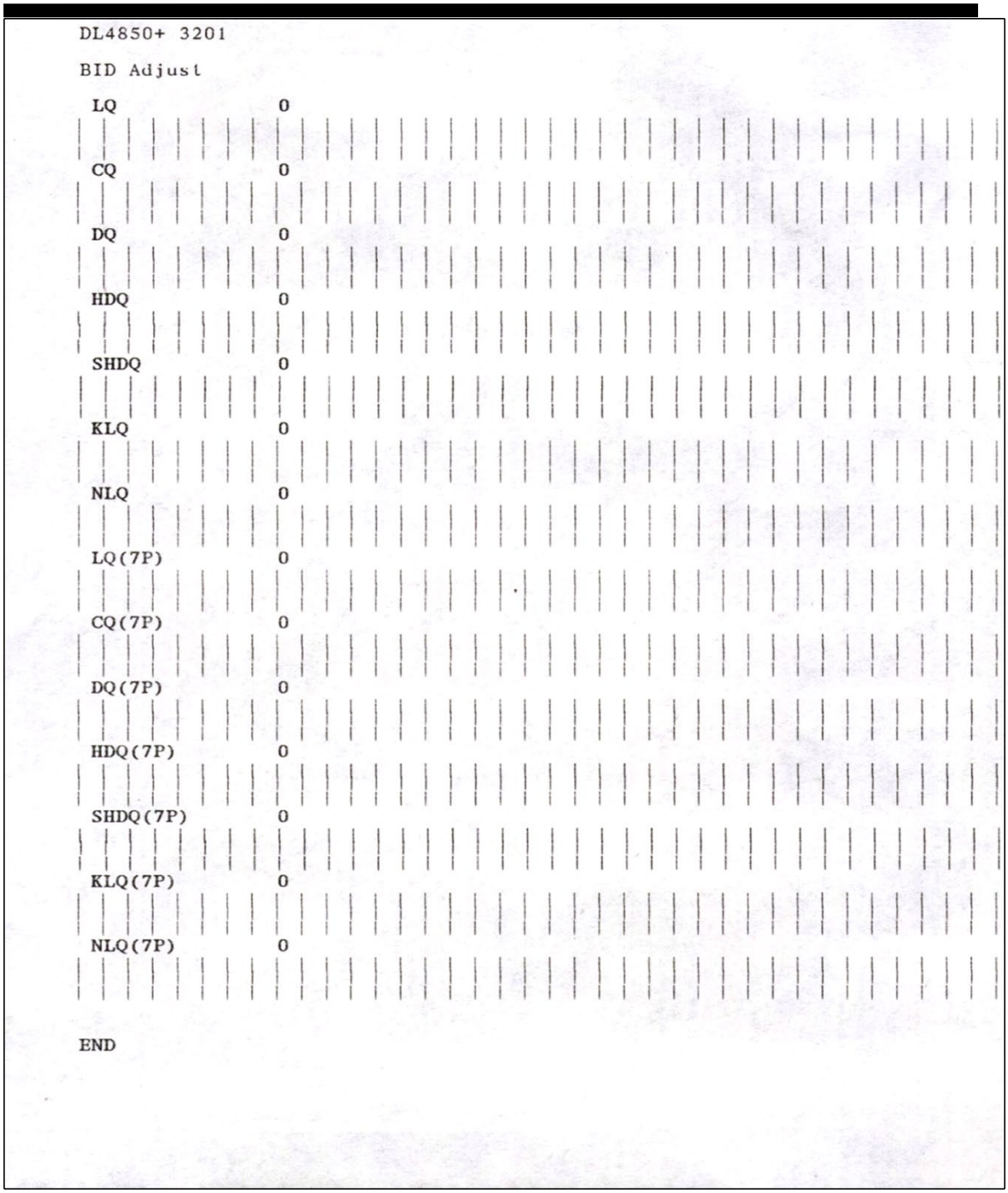
6. Press [SHIFT]+[PRINT MODE] to switch between “Single paper” adjust mode and “Multiayer paper” adjust mode.
   “Multiayer paper” will print (7P) next to the speed.
   The procedure for adjusting and changing the speed is the same as in "Single paper" mode.

7. Press [ONLINE] to exit Bidirectional Alignment adjust mode.

NOTES

1. The adjustment of Single paper and Mutilayer paper is separate and does not affect each other, ensuring that the adjustment is consistent with the application.

2. In order to make the printer achieve the desired print effect, it is recommended that all items be adjusted to the best printing state when conducting bidirectional testing and longitudinal correction, instead of tuning one or two.


DL4850+ 3201
BID Adjust
LQ 0
CQ 0
DQ 0
HDQ 0
SHDQ 0
KLQ 0
NLQ 0
LQ(7P) 0
CQ(7P) 0
DQ(7P) 0
HDQ(7P) 0
SHDQ(7P) 0
KLQ(7P) 0
NLQ(7P) 0
END

HEX DUMP

The procedures to Hex Dump

Hold down the [LF/FF] + [LOAD] key while powering on the printer and then release the key when the print head starts to move.

Beeps once to indicate going into hex dump mode:
Prints data from host in hexadecimal representation.
Pressing [ONLINE] suspends the printing.
When the hex dump has finished, pressing [ONLINE] forces the printing of the last line of data, as any line termination control code from host has no function.
Switch off the power to terminate the hex dump.

RESTORE FACTORY DEFAULT

The procedures to restore factory default settings:

Hold down the [SHIFT] +[ONLINE] key while powering on the printer and then release the key when the print head starts to move.
The printer beeps and reset to indicate successful restoration.

SELF TEST

Hold down the [SHIFT] + [PRINTMODE] key while powering on the printer and then release the key when the print head starts to move.
Prints the printer settings and self-test pattern, show as follow picture.

DLMENU

You can change the printer settings using the DLMenu included on the CD-ROM. The DLMenu is usable only with a USB interface. Refer to the "DL4850+ Software Guide" for installation and usage instructions.

6

PRINTING

This chapter describes the following everyday printing operations

Instructions for loading paper are given in Chapter 3.

This chapter describes the following operations:

- Selecting print features
- Starting or stopping printing
- Removing printed pages
- Clearing the print buffer
- Adjusting Print position.
  Case of Loading position is not fine.
  Case of cumulative Pitch is not fine.
- Adjusting or customizing Tear off position.

Notes

When printing with a high duty setting (solid black or high black ratio), ink contamination may occur.

SELECTING PRINT FEATURES

The print features you select determine how your printed pages will look. Print features include the following:

Print quality
Fonts
Pitch (characters per horizontal inch)
Page length and width
Line spacing (lines per vertical inch)

To select print features, you can use either commercial software or the printer control panel. The method you use depends on the capabilities of your software. If your software has most of the features you require, you may rarely – if ever – have to use the control panel. *In fact, your software often overrides the printer settings.*

If your software has limited options, you can use DL MENU to select print features. Sometimes, the DL MENU enables you to select features not available through your software. For example, you can select downloaded fonts not supported by your software.

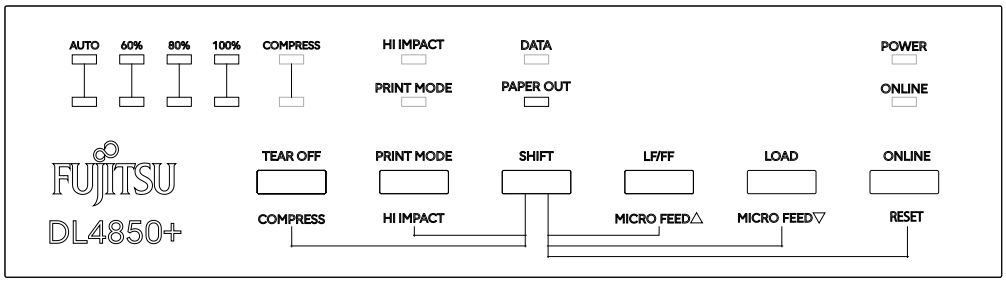
Using Commercial Software

Many commercial software packages offer a wide variety of print features, including some features that are not supported by this printer. For example, software often provides a wider range of font sizes than the printer can accommodate. Software also allows you to specify multiple fonts on a page. To determine which features your software supports and how to select them, refer to your software documentation.

Using the Control Panel

The control panel includes two sections: indicators and buttons. Indicators indicate the current status of the printer, and buttons are used to control the status of the printer.

About the control panel, See the Chapter 4 “Control Panel Operation.”



STARTING OR STOPPING PRINTING

Starting Printing

Before you start to print, make sure that paper is loaded. Also, verify that the GAP lever is set to the appropriate position (1 to 7).

To start printing, press the ONLINE button to place the printer online. Then start your software.

Stopping Printing

To stop printing immediately, press the ONLINE button to place the printer offline. You can also use your software to stop printing, but there will be a slight delay before printing stops. Any data sent to the print buffer but not yet printed is stored until you resume printing. Data in the print buffer is lost if you turn the printer off.

To resume printing, press the ONLINE button again. To cancel printing, use the cancel commands provided by your software or computer. To clear the print buffer, place the printer offline and press the SHIFT and ONLINE buttons. Any data sent to the print buffer before you canceled printing will be lost.

Resuming from a Paper-Out

Usually when the printer detects Paper End, print data of last page is already finished. So you can resume printing, just execute next paper loading.

If last pages print data remains printer buffer, some characters or some line feed command will be executed after loading new paper, in this case one page of paper will be wasted. But from next page, printing is restarted properly.

REMOVING PRINTED PAGES

This section describes the best methods for removing single sheets or continuous forms paper after printing.

Removing Single Sheets

When you print using software, the printer automatically ejects each sheet of paper when the end of the printed page is reached. To eject sheets manually, use one of the following methods:

·Press the LOAD button to eject the single sheet.
·Press and hold down the LF/FF button to execute a form feed,
or
·Turn the Paper Feed Knob counterclockwise.

Removing Continuous Forms

To avoid wasting paper, use the printer tear-off function to remove continuous forms paper. Press the TEAR OFF button to advance the perforation to the tear-off edge. Tear the paper off, and then press any button to retract the paper back to the top-of-form position. See Chapter 3 for more detailed instructions.

CLEARING THE PRINT BUFFER

Place the printer offline. Press the SHIFT and ONLINE buttons simultaneously to clear all data from the print buffer. This method is useful when you cancel a print operation and do not want to continue printing data already sent to the printer.

ADJUSTING PRINT POSITION

This section describes methods for adjusting printing position.

Adjustment of the Loading Position

In case of displacement value is large (more than 1 line), you should check the set up value.

Refer the BASIC SET UP on page 5-3

Top-org is rough setting of top margin.
Top-fin is fine setting of top margin.

You can also adjust Top-fin value by operator panel. The procedure is as follows.

1.Make sure the printer is powered-on.
2.Load the continuous paper or the cut sheet (Use the LOAD button to load the cut sheet).
3.Hold down the SHIFT button while pressing the LF/FF button to adjust the position forward.
4.Hold down the Shift button while pressing the LOAD button to adjust the position backward.

The newly adjusted loading position is automatically saved and the printer will always feed the paper to this new position.

Note
In case of cut sheet, this method that using operator panel is not valid when loading mode is manual that is default setting. You should use DL MENU to adjust auto loading position of cut sheet or the change the setting of FCutLoad or RCutLoad.

There is a limit (maximum is 29/180inch and minimum is 0/180inch) for the loading position. If you exceed the limitation during adjustment, the printer beeps and stops the adjustment.

During the adjustment, if the adjusted value meets the factory default value, the printer beeps and stops for a moment. Base your adjustment on the factory default value.

Adjustment of the Printing Position（cumulative Pitch）

In case of printing position is not fine, but loading position is fine. You can select set up value of cumulative Pitch.

Refer the BASIC SET UP on page 5-4

Lf-adj is value for cumulative pitch collection.

Note
cumulative pitch of cut sheet Increases proportionally,
cumulative pitch of continuous forms saturates in a few pages.

ADJUSTING OR CUSTOMIZING TEAR OFF POSITION

This section describes methods for adjusting tear off position.

Adjustment of the Tear-off Position

If the tear-off position is not in line with the tear-off edge, follow the steps below to make adjustment.

1.Make sure that the paper has been set to the tear-off position.
2.Hold down the Shift button while pressing the LF/FF button to adjust the position forward.
3.Hold down the Shift button while pressing the LOAD button to adjust the position backward.
4.Tear off the printed continuous paper.
5.When the printer resumes printing, it will feed the continuous paper to the loading position automatically before printing.

The newly set tear-off position is automatically saved.

Note

There is a limit (maximum is -60/60inch and minimum is 60/60inch) for the tear-off position. If you exceed the limitation during adjustment, the printer beeps and stops adjustment.
During the adjustment, if the adjusted value meets the factory default value, the printer beeps and stops for a moment. Please base your adjustment on the factory default value.
This adjustment value is also can be selected by DLMENU.
Refer the BASIC SET UP on page 5-5

7

MAINTENANCE

Your printer requires very little care. Occasional cleaning and replacement of the ribbon cartridge are all that is required.

Cleaning is recommended approximately every 6 months or 300 hours of operation, whichever is sooner.

Lubrication of the printer is not usually necessary.

If the print head carriage does not move smoothly back and forth, clean the printer in the manner described in this chapter. If the problem continues, contact your dealer to determine whether lubrication may be necessary.

The housing and the top cover of the printer help protect it against dust, dirt, and other contaminants. However, paper produces small particles that accumulate inside the printer. This section explains how to clean and vacuum the printer and how to clean the paper bail rollers.
It is easier to clean the printer when the cover is open.

This chapter describes the following content:

- Cleaning
- Cleaning the Platen(Paper Roller)
- Replace the ribbon

CLEANING

Cleaning and Vacuuming the Printer

	**< WARNING >** **To avoid any possibility of injury, before cleaning the printer, turn off the power to both the printer and the computer, and unplug the printer.**

	**< CAUTION HOT >** **The print head and metal frame is hot during printing or immediately after** **printing. Do not touch them until it cools down.**

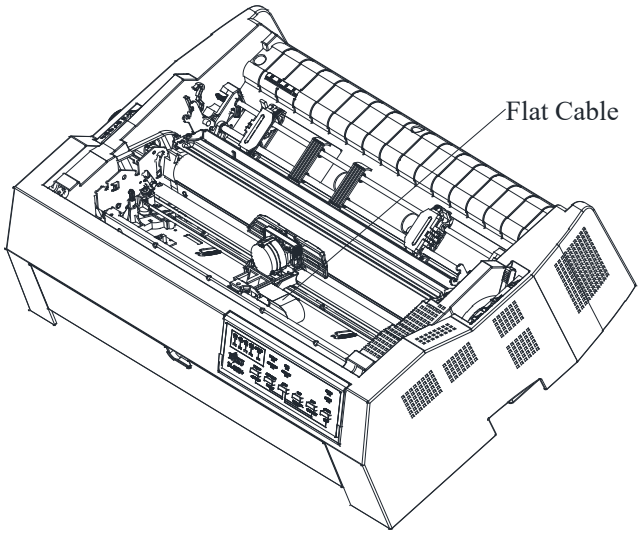
Use the following procedure to clean and vacuum the printer as required:

1. Remove any paper from the printer. Make sure that the power is off, and then disconnect the printer power cord.
2. Using a soft vacuum brush, vacuum the exterior of the printer. Be sure to vacuum the air vents at the front, left sides, and bottom of the printer. Also vacuum the front and rear paper guide.
3. Use a soft, damp cloth to wipe the exterior of the printer, including the cover. A mild detergent may be used.

CAUTION

Do not use solvents, kerosene, or abrasive cleaning materials that may damage the printer.

4. Remove the top cover, the ejection unit of the printer and remove the ribbon cartridge. Refer to page 7-5 for instructions on removing the ribbon cartridge. Using a soft vacuum brush, gently vacuum the platen, print head carriage, and surrounding areas. You can easily slide the print head to the left or right when the power is off. Be careful not to press too hard on the flat cable that extends from the print head carriage.



5. Raise the ejection unit. Vacuum the rollers, paper entry slot, and surrounding areas.

6. Re-install the ribbon cartridge, the ejection unit, the top cover.

7. Raise the rear paper guide. Vacuum the forms tractors and surrounding areas.

8. Remove the front cover. Vacuum the forms tractors and surrounding areas.

CLEANING THE PLATEN AND EXIT ROLLERS

Clean the platen and rollers about once a month to remove excess ink. Use a mild detergent as appropriate.

1. Apply a small amount of platen cleaner to a soft cloth. Avoid spilling inside the printer.

CAUTION
Do not use alcohol to clean the platen. Alcohol may cause the rubber to harden.

2. Place the cloth against the platen and manually rotate the Paper feed knob.

3. To dry the platen, place a dry cloth against the platen and manually rotate the Paper feed knob.

4. Gently wipe the rollers using the cloth moistened with the platen cleaner. Dry the rollers using a dry cloth.

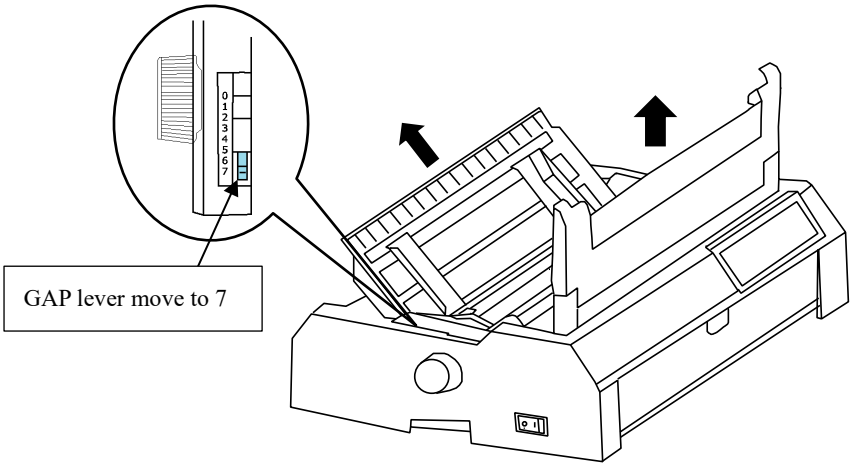
REPLACE THE RIBBON

	**< CAUTION HOT >** **The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.**

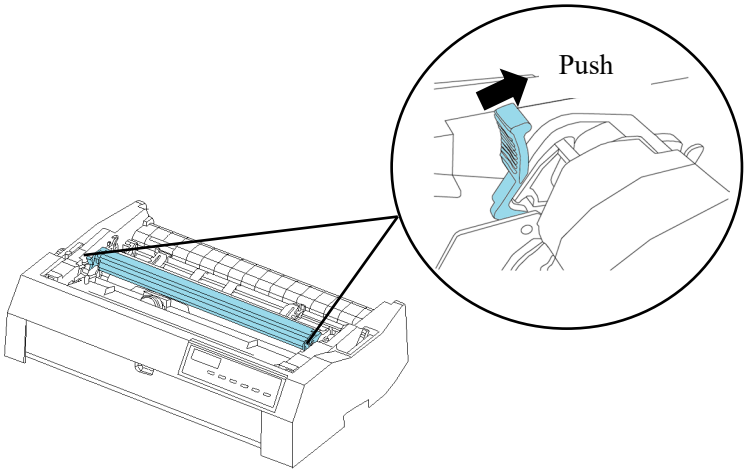
To replace the Ribbon cartridge:

Note
If you touch the Ribbon base, the ink will stick to your hands, so be careful not to touch it.

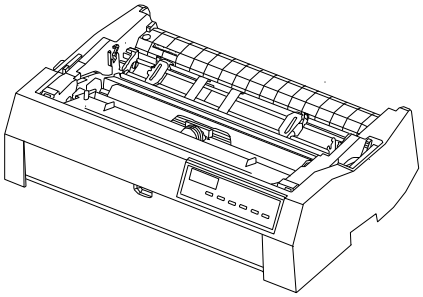
1. Turn the printer off. Before you install the ribbon cartridge, move the GAP lever to 7. Then, Take out the top cover and rear paper guide.



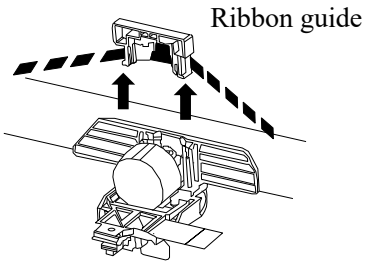
2. Remove the ejection unit pinch the tabs on each side of the ejection unit then lift the unit up and off the printer.



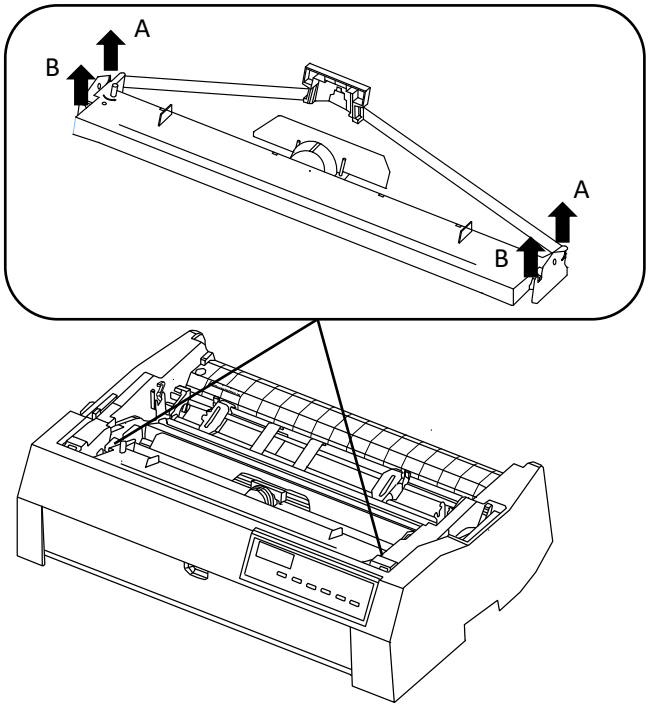
3. Slide the print head to the middle position.



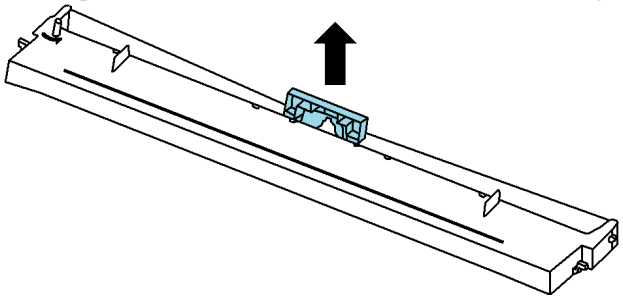
4. Remove the ribbon guide.



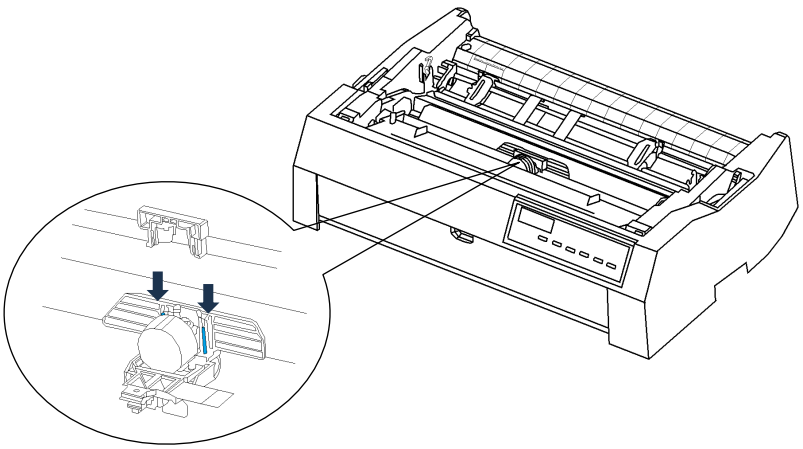
5. To remove the ribbon cartridge, lift the ribbon guide out of the cartridge and carefully lift the cartridge out of the printer. First, lift the printhead side of the ribbon cassette and remove the mounting pins “A” (both sides of the ribbon cartridge). Then lift the entire ribbon cassette up and remove the mounting pins “B” (on each side of the ribbon cartridge).



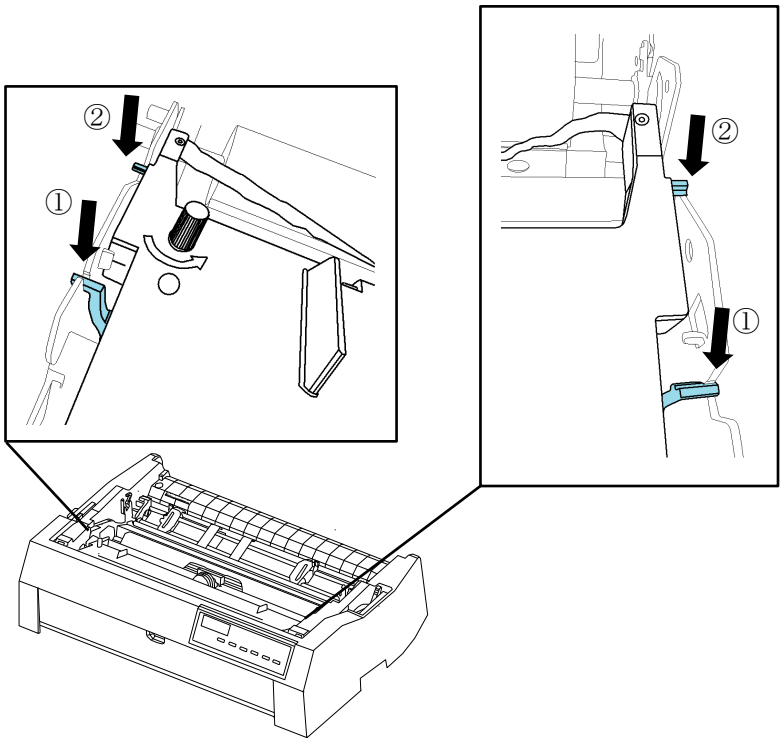
6. Separate the Ribbon Guide from Ribbon Cartridge.



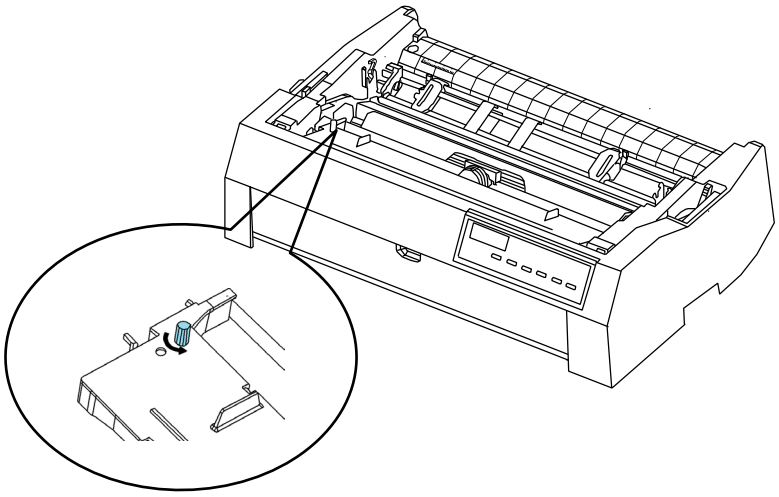
7. Place the Ribbon guide and Ribbon cartridge as shown below. Press down the ribbon guide gently against the printer until it clicks into place.



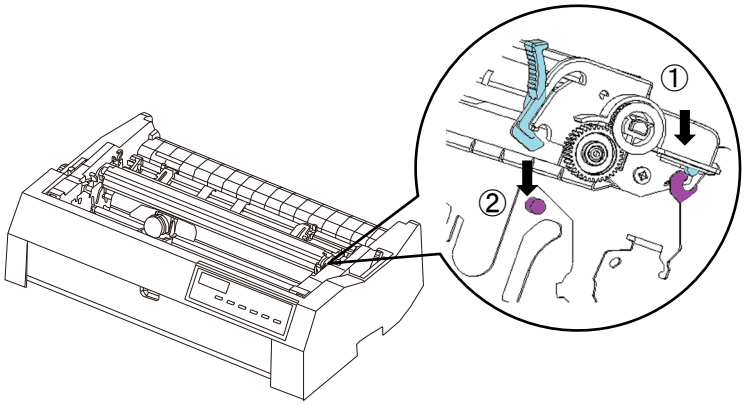
8. Place the Ribbon guide and Ribbon cartridge as shown below. Place the rear protrusions into the grooves of left and right frames, then press down the front protrusions as shown below.



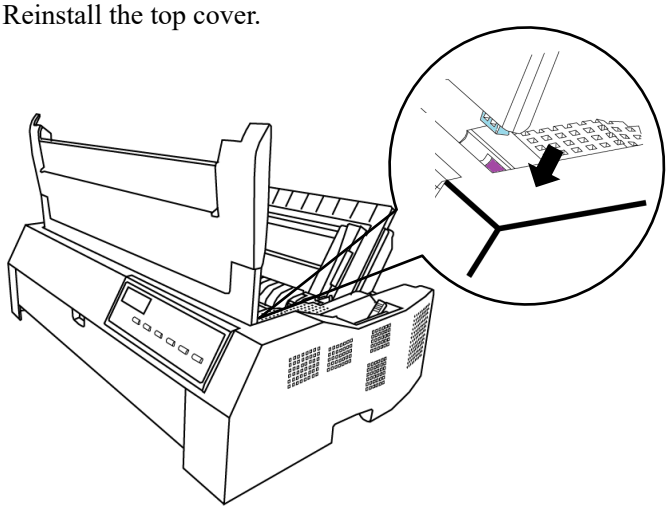
9. Turn the ribbon feed knob counterclockwise to take up any ribbon slack. Make sure that ribbon moves from right to left direction when move the print head left and right, and the ribbon is not twisted or creased.



10. Place the ejection unit as shown below. Then press gently until both sides of the eject unit click.



11. Reinstall the top cover.



12. After the ribbon cartridge has been installed in the printer, adjust the GAP lever to match the thickness of the paper and the number of After the ribbon cartridge has been installed in the printer, adjust the GAP lever to match the thickness of the paper and the number of sheets of paper to be used.
    For information about the GAP lever, see the section entitled Adjusting the Paper Thickness in Chapter 3.

NOTE

A Fujitsu ribbon cartridge is recommended. Don't use other cassettes are used, operating problems or a damage of print head may be caused.

(Reserve)

8

TROUBLE-SHOOTING

Your printer is extremely reliable, but occasional problems may occur. You can solve many of these problems yourself, Using this chapter.

If you encounter problems that you cannot resolve, contact your dealer for assistance.

This chapter is organized as follows:

- Print quality problems
- Paper handling problems
- Operating problems
- Printer failures

SOLVING PROBLEMS

Print quality problems

Poor print quality or other printing problems are often caused by incorrect printer setup or incorrect software settings. A gradual decrease in print quality usually indicates a worn ribbon. Table 8.1 identifies common print quality problems and suggests solutions.

Table 8.1 Print Quality Problems and Solutions

Problem	Solution
Printing is too light or too dark.	Make sure that the ribbon cartridge is properly installed and that the ribbon feeds smoothly. Make sure that the GAP lever is set for the thickness of your paper. See Table 3.2 in Chapter 3.
Stains or smudges appear on the page.	Check ribbon wear. Replace the ribbon if necessary. Make sure that the GAP lever is set for the thickness of your paper. See Table 3.2 in Chapter 3. Check whether the tip of the print head is dirty. Clean the head with a soft cloth if necessary.
The page is blank.	Make sure that the ribbon cartridge is properly installed.
Printing is erratic or the wrong characters are printed. Many "?" characters are printed.	Make sure that the interface cable is securely connected to both the printer and computer. Make sure that the printer emulation selected in your software is the same as the emulation selected on the printer. See the section Selecting an Emulation in Chapter 5. If you are using an RS-232C serial interface, make sure that the serial settings required by your software or computer are the same as the settings on the printer.

Paper Handling Problems and Solutions

Table 8.2 describes common paper handling problems and suggests solutions. See Chapter 3 for detailed procedures on loading and using paper.

Table 8.2 Paper Handling Problems and Solutions

Problem	Solution
Paper cannot be loaded or fed.	Make sure that the paper path select lever is set correctly. Move the lever backward for single sheets and forward for 3 types continuous forms path. Make sure that the paper covers the paper-out sensor. Make sure that the paper holder is closed and forms tractors are positioned correctly to match the width of your paper. Make sure that the printer does not detect the paper after you have ejected the loaded paper manually. If the printer detects paper even though it has already been ejected, press the LOAD button and have the printer perform the paper ejection operation, then load the paper again.
Paper jams while loading.	Move the GAP lever to position 7. Turn off the printer and remove the jammed paper. Remove any obstructions from the paper path. Make sure that the GAP lever is set for the thickness of your paper. See Table 3.2 in Chapter 3.

Problem	Solution
	Make sure that the paper is not folded, creased, or torn. Reload the paper.
Paper jams while printing.	Move the GAP lever to position 7. Turn off the printer and remove the jammed paper. Remove any obstructions from the paper path. Make sure that the GAP lever is set for the thickness of your paper. See Table 3.2 in Chapter 3. For continuous forms, make sure that the incoming and outgoing paper stacks are correctly placed. Paper should feed straight. Reload the paper.
Paper slips off the forms tractors or the perforated holes of the paper tear during printing.	Make sure that the forms tractors are positioned correctly for the width of your paper and that the perforated holes of the paper fit directly over the tractor sprockets.
Paper Skew while printing. Paper deviates off the Tractor. Paper is teared from perforations.	・Make sure that paper selection lever is selected properly. ・If the paper width is less than 6 inches, Please try Carriage Position MODE2. (Refer to the CarriagePos in BASIC SET UP in Chapter 5). ・Raise the print gap lever one step. (Refer to ADJUSTING THE PRINT GAP LEVER on Chapter 3). ・Try another Paper path.

Tips for Clearing a Jammed Sheet from the Printer

If a sheet of paper is jammed between the print head and the platen and cannot be removed, clear it as follows:

1. Turn off the printer and disconnect the power cord from the receptacle.

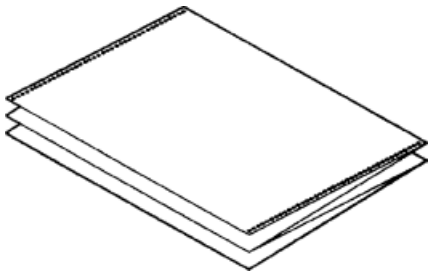
2. Remove the top cover and the ejection unit of the printer.

3. Move the GAP lever to position 7.

4. Move the print head so that you can remove the jammed sheet easily and clear the sheet.

NOTE
The print head is hot immediately after printing. Move it after making sure that it gets cool.

If you cannot clear the jammed sheet by the above procedure, set fourfold continuous forms paper on the forms tractors and turn the Paper Feed Knob to feed the paper forward. The jammed paper is pushed out. Before operation, be sure to position the print head at the center of the jammed paper.



Operating Problems

If any of the errors listed in Table 8.3 occurs, the PAPER OUT LED lights up, and an alarm beeps, and the printer goes offline.

In such cases, the buttons on the control panel can be used in the same manner as those when the printer is in the offline state.

Table 8.3 Operating Problems

Error name	Error description	Recovery method
Paper end (PE) error	Paper end is detected.	Insert and load the paper in the paper tray
Eject jam error	Paper end is not detected even after a large amount of continuous forms or cut sheets were ejected	• Eject forms or sheets. Press the online button to turn the printer online
Continuous form/ cut sheet switch lever error	In continuous form loading status, the continuous form/cut sheet switch lever is switched to cut sheet mode.	Switch the continuous form/cut sheet switch lever back to its original position.
	In cut sheet loading status, the continuous form/cut sheet switch lever is switched to continuous form mode.	Remove the loaded paper.

Printer Failures

A user cannot generally resolve a problem involving defective printer hardware. On detecting a fatal error, the printer will:

•Stop printing.
•All LED indicators light or blink (see Table 8.4 for the error type). If the problem cannot be resolved, contact your dealer or service partner

No error condition is displayed if any of these errors occurs.

Turn the printer off and back on, then rerun the same job to check if the error was transient. If the error recurs, contact your dealer.

Table 8.4 Error Indications on LEDs

Error	LED states <Blink>
Print head error	HI IMPACT
CR error	DATA
High voltage error	COMPRESS(lower)
FLASH writing error	PRINT MODE
UART error	COMPRESS(UP) + HI IMPACT
FLASH reading error	HI IMPACT + DATA
Font library error	DATA + COMPRESS(lower)
Turn off error	COMPRESS(lower) + PRINT MODE

DIAGNOSTIC FUNCTIONS

The printer diagnostic functions are Self-Test page, hex-dump mode and print alignment adjustment.

- Self-Test page: Tells you whether the printer hardware is functioning correctly. If the printer hardware is functional, any problems you are having are probably caused by incorrect printer settings, incorrect software settings, the interface, or the computer.
- HEX-DUMP MODE: Allows you to determine whether the computer is sending the correct commands to the printer, and whether the printer is executing the commands correctly. This function is useful to programmers or others who understand how to interpret hex dumps.
- PRINTING ALIGNMENT ADJUSTMENT: Allows you to check and, if necessary, correct the printer's vertical line print alignment in bi-directional mode.

For details on using these functions, please refer to chapters 5.

GETTING HELP

If you are not able to correct a problem using this chapter, contact your dealer for assistance. Be prepared to provide the following information:

- Your printer model number, serial number, and date ofmanufacture. Look for this information on the rating label at the back of the printer.
- Description of the problem
- Type of interface you are using
- Names of your software packages
- List of the printer default settings. To print the default settings

A

SUPPLIES AND OPTIONS

This chapter lists the supplies and options available for the printer.

Contact your dealer for information on ordering any of these items.

SUPPLIES

Supplies	Order Number
Ribbon cartridge Black ribbon	KA02110-0201

(Reserve)

B

PRINTER AND PAPER SPECIFICATIONS

This chapter gives the physical, functional, and performance specifications for the printer.

It also gives detailed paper specifications.

PHYSICAL SPECIFICATIONS

Dimensions	Height:	173 mm
	Width:	628 mm
	Depth:	398 mm
Weight	Approximately	12 kg
AC power requirements		100 to 240 V ±10%; 50-60 Hz
Input Current		2.2 A
Power consumption		Average 140 VA Maximum 255 VA
Heat generation		Average 251.2 KJ/h
Interface		Centronics parallel and USB Centronics parallel and USB and RS-232C serial Centronics parallel and USB and LAN Centronics parallel and USB and RS-232C serial and LAN
Data buffer size		Centronics parallel and USB, 1M bytes RS-232C serial and LAN, 150K bytes
Download buffer		Maximum 150K bytes
Usage Environment		5 to 38°C (41 to 100°F) 30% to 80% RH (no condensation) Wetbulb temperature, less than 29°C (84°F)
Storage environment		–15 to 60°C (–4 to 140°F) 10% to 95% RH (no condensation)

Acoustic noise	Average 58 dBA when printing in letter quality ISO 7779 (Bystander Position Front)

FUNCTIONAL SPECIFICATIONS

Print method		Impact dot matrix with a 0.2 mm, 24-wire head
Print direction		Bidirectional logic-seeking or unidirectional seeking
Character cell		Horizontal x vertical
	LQ (10 cpi):	36 x 24 dots
	CQ（10 cpi）:	18 x 24 dots
	DQ(10 cpi):	12 x 24 dots
	HDQ(10 cpi):	8 x 24 dots
	SHDQ(10cpi):	6 x 24 dots
Paper handling		
	Standard:	Friction-feed platen (cut sheets) Rear in top out, Front in top out(Front in top out is out of warranty) Push tractors (rear or front feed of continuous forms) Pull tractors (bottom feed of continuous forms) Paper loading by LOAD button Advancing perforations to tear-off edge by TEAR OFF button Parking continuous forms when using cut sheets
Paper type		1-to 7-part side-glued continuous forms 1-to 5-part top-glued cut sheets
Paper size		
		102-406mm
Continues	Width:	(4-16 in)
	Length:	102 mm (4 in) or greater
Cut sheets	Width:	102-420mm (4-16.5 in)
	Length:	76-420 mm (2.9-16.5 in)
Paper thickness		0.38 mm (Only Front) Print assured up to 0.32mm

Paper length

By software	Programmable in one line or inch increments in all emulations
By control panel	Depends upon emulations. Default is 11 inches for all emulations.

Number of copies Up to 7, including the original (7P is for only Front tractor and Pull tractor)

Command sets (emulations)

Resident
Epson ESC/P2
IBM Proprinter XL24E

Character sets

ESC/P2:
- Italic character set
- Graphics character sets 1 and 2
- Character sets (code pages 437, 850, 860, 863, 865, 858, 864)
  Total of 24 national character sets
- OKI Barcode ESC DLE

Fonts

Resident	Eight fonts available Roman, Sanserif, Courier, Prestige, Script, OCR-B,OCR-A, Draft
Downloaded	Available from independent vendors

Line spacing 1, 2, 3, 4, 5, 6, 7, or 8 lines per inch. Programmable in 1/360 inch or various increments for image graphics. (ESC/P2)

Character pitch 2.5, 3, 5, 6, 10, 12, 15, 17.1, 18, or 20 cpi, or proportional spacing.
Programmable in 1/360 inch or various increments for image graphics.

Characters per line

10 cpi	136 cpl
12 cpi:	163 cpl
15 cpi:	204 cpl
17.1 cpi:	231 cpl
18 cpi:	244 cpl
20 cpi:	272 cpl

cpi: characters per inch

cpl: characters per line

PERFORMANCE SPECIFICATIONS

Print speed

LQ:	120 cps
CQ:	240 cps
DQ:	360 cps
HDQ:	480 cps
SHDQ:	600 cps
	cps: characters per second

Line feed speed 68 ms per line at 6 lines per inch

Form feed speed 3.6 inches per second

Ribbon life Up to 17 million characters

Certification Safety:

Model	Certification	Regulation	country
M33335E	UL	UL 62368-1	United States
	CSA	CSA C22.2 No. 62368-1	Canada
	GS	EN 62368-1	Europe

EMI regulation:

Model	Certification	Regulation	country
M33335E	FCC	CFR 47 FCC Part15 Subpart B class A	United States
	IC	ICES-003 class A	Canada
	CE-EMC	EN 55032 class A	Europe *1

*1 This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Energy regulation:

Model	Certification	Regulation	country
M33335E	Energy star	Imaging Equipment V3.2	

Harmful material management

Model	Regulation	country
M33335E	REACH: Regulation(EC)No.1907/2006	Europe

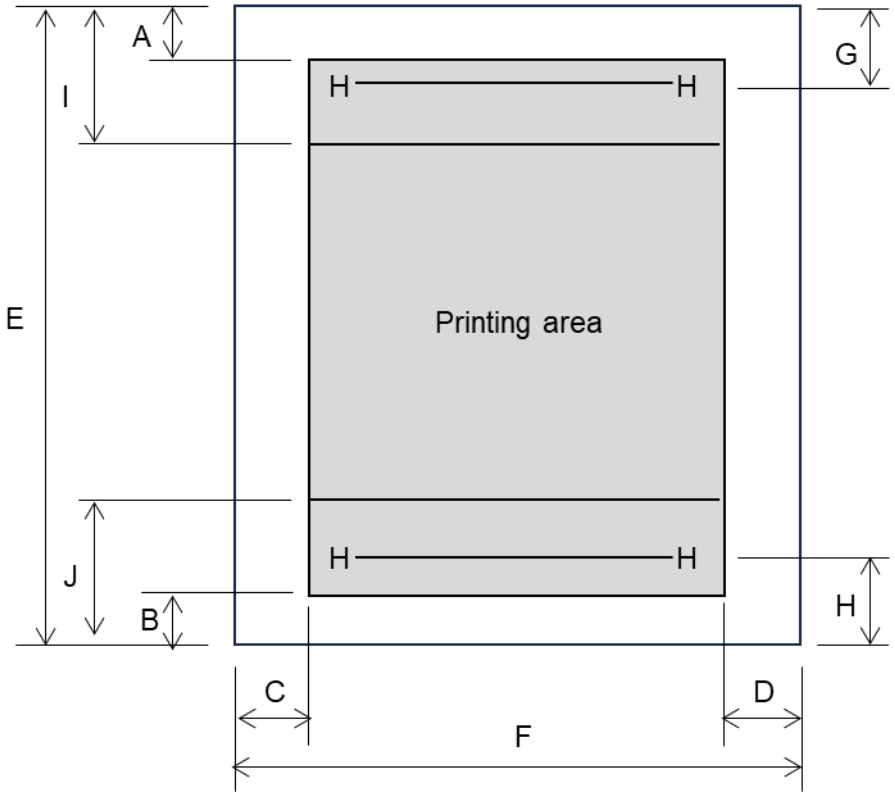
PAPER SPECIFICATIONS

Print Area

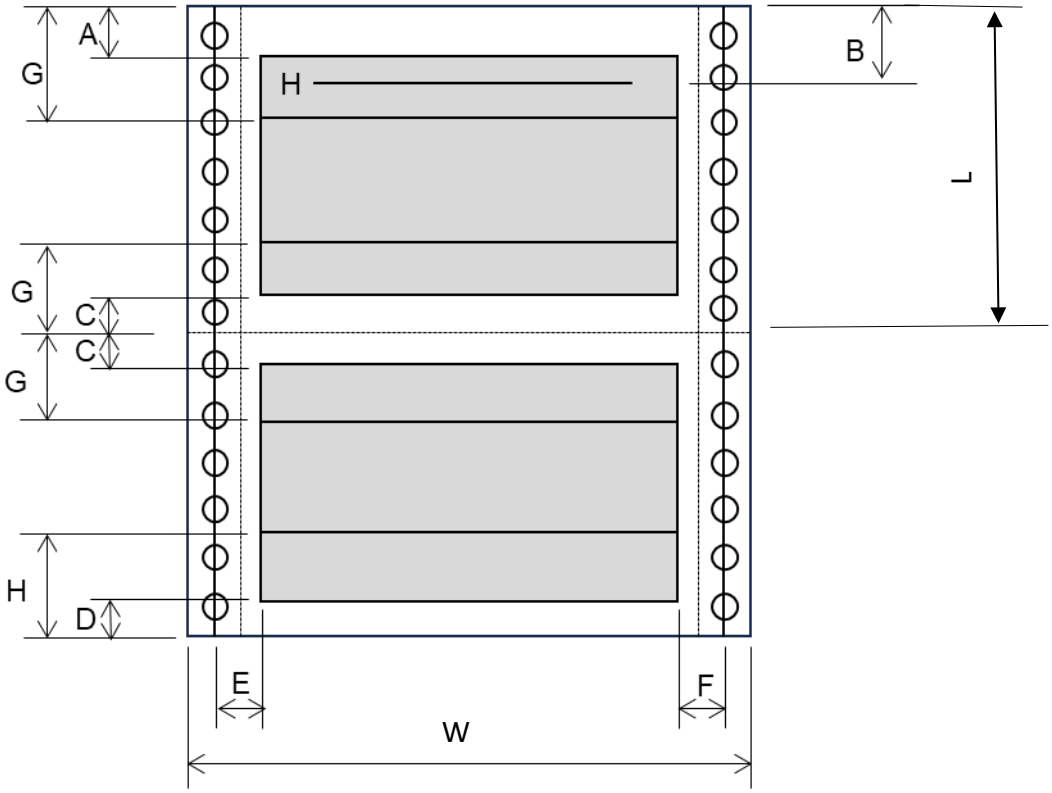
This section illustrates the recommended print area for single sheets and continuous forms.

Feeding paper by friction (single paper)

Printing area



Pos	Title	Dimension
A	Top margin	4.2 mm (0.17 inch) or more
B	Bottom margin	4.2 mm (0.17 inch) or more
C	Left margin	5.08～38mm (0.2～1.5 inch)
D	Right margin	5.08mm (0.2 inch) or more
E	Page length	76～420mm(3.0～16.54 inch)
F	Paper width	120～420mm(4.72～16.54 inch)
G	Top Print Position	5.9mm (0.23 inch) or more
H	Bottom Print Position	5.9mm (0.23 inch) or more
I	Line feed accuracy not guaranteed area	25.4mm (1 inch)
J	Line feed accuracy not guaranteed area	25.4mm (1 inch)



Pos	Title	Dimension
A	Top margin	4.2 mm (0.17 inch) or more
B	Top Print Position	5.9mm (0.23 inch) or more
C	Top and bottom margin	4.2 mm (0.17 inch) or more
D	Bottom margin	8.5 mm (0.33 inch) or more
E	Left margin	5.08～32mm (0.2～1.26 inch)
F	Right margin	5.08mm (0.2 inch) or more
G	Line feed accuracy not guaranteed area	25.4mm (1 inch)
H	Line feed accuracy not guaranteed area	Pull Tractor: 25.4mm (1 inch) Front in:125mm (4.92 inch) Rear in: 120mm (4.72 inch)
W	Paper Width	102 – 406mm(4～16inches)
L	Page Length	102mm(4 inches) or more

Paper Thickness

Paper thickness is given by the weight of the paper in either grams per square meter (g/m2) or in pounds per bond (lbs/bond). The following table shows the allowable paper thickness for one-part paper or for each sheet of multipart paper. The total thickness must not exceed 0.32 mm (0.013 inch).
Only the front in can feed paper up to 0.38 mm. (Accuracy is guaranteed up to 0.32 mm.)

The weight of carbonless or carbon-backed paper may vary, depending upon the paper manufacturer. When using paper of borderline thickness, test the paper before running a job.

C

COMMAND SETS

This chapter describes printer commands and their parameters.

This printer has two resident command sets:

- ESC/P2 Emulation Command List
- IBM Emulation Command List

ESC/P2 EMULATION COMMAND LIST

Function	Command
Print Mode Control	
Double-strike (bold) printing on	ESC G
Double-strike (bold) printing off	ESC H
Emphasized (shadow) printing on	ESC E
Emphasized (shadow) printing off	ESC E
Italic printing on	ESC 4
Italic printing off	ESC 5
Select character style	ESC q (*n*)
n = 0: Normal	
1: Outlined	
2: Shaded	
3: Outlined and shadowed	
One-line double-width characters on	SO or ESC SO
One-line double-width characters off	DC4
Double-width characters on/off	ESC W (*n*)
(on: *n* = 1, off: *n* = 0)	
Double-height characters on/off	ESC w (*n*)
(on: *n* = 1, off: *n* = 0)	
Condensed characters on	SI or ESC SI
Condensed characters off	DC2
Subscript or superscript printing on	ESC S (*n*)
(subscript: *n* = 1, superscript: *n* = 0)	
Subscript and superscript printing off	ESC T
Underline on/off	ESC - (*n*)
(on: *n* = 1, off: *n* = 0)	
Select line	ESC (- (n_1) (n_2)
n_1 = 3, n_2 = 0, d_1 = 1	(d_1) (d_2) (d_3)
d_2 = 0: Ignore command	
1: Underline	
2: Strike through	
3: Overscore	
d_3 = 0 or 4: Cancel line selection	
1: Single line	
2 or 3: Double line	
5: Single-dotted line	
Select printing style	ESC ! (*n*)
This command allows you to combine various printing styles. The value of n is the sum of the values of the styles you want to combine.	
n = 0: Pica pitch	
1: Elite pitch	
2: Proportional spacing	
4: Condensed	
8: Shadow	
16: Bold	
32: Double-width	
64: Italics	
128: Underline	

Function	Command
Horizontal Control	
Space	SP
Backspace	BS
Carriage return	CR
Set elite pitch	ESC M
Set pica pitch	ESC P
Set 15 CPI	ESC g
Proportionally spaced characters on/off (on: n = 1, off: n = 0)	ESC p (n)
Set inter-character space to n/120 inch (for draft) or n/180 inch (for letter and proportional) ($0 \leq n \leq 127$)	ESC SP (n)
Select character pitch (specify unit o pitch) n_1 = 1, n_2 = 0 d = 10 to 19: 10/3600 inch = 1/360 inch d = 20 to 29: 20/3600 inch = 1/180 inch d = 30 to 39: 30/3600 inch = 1/120 inch d = 40 to 49: 40/3600 inch = 1/90 inch d = 50 to 59: 50/3600 inch = 1/72 inch d = 60 to 69: 60/3600 inch = 1/60 inch	ESC (U (n_1) (n_2) (d)
Vertical Control	
Line feed	LF
Form feed FF	
Advance paper n/180 inch ($1 \leq n \leq 255$)	ESC J (n)
Set line spacing to 1/8 inch	ESC 0
Set line spacing to n/180 inch ($0 \leq n \leq 255$)	ESC 3 (n)
Set line spacing to n/60 inch ($0 \leq n \leq 127$)	ESC A (n)
Set line spacing to 1/6 inch	ESC 2
Set line spacing to n/360 inch ($0 \leq n \leq 255$)	ESC + (n)
Tabulation	
Horizontal tab execution	HT
Set horizontal tabs The values of n_1 to n_k in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set. ($1 \leq n \leq 255$) ($1 \leq k \leq 32$)	ESC D (n_1) ... (n_k) NUL
Move print position n/60(*1) inch right from left margin (n = n_1 + n_2 x 256)	ESC $ (n_1) (n_2)
Move print position n/120(*1) inch (for draft) or n/180(*1) inch (for letter) left or right from the current position (n = n_1 + n_2 x 256)	ESC \ (n_1) (n_2)
Vertical tab execution	VT

*1This pitch is the default, but can be changed by the ESC (U command beforehand.

Function	Command
Set vertical tabs The values of $n_1$to n_k in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set. $(1 \le n \le 255)$ $(1 \le k \le 16)$	ESC B (n_1) ... (n_k) NUL
Move to dot line $(d_1 + d_2 \times 256)/360$(*1) inch $n_1 = 2$, $n_2 = 0$ *$(0 \le d_1 \le 255)$ $(0 \le d_2 \le 127)$*	ESC (V (n_1) (n_2) (d_1) (d_2)
Vertical relative move by $(d_1 + d_2 \times 256)/360$(*1) inch $n_1 = 2$, $n_2 = 0$ $(0 \le d_1 \le 255)$ $(0 \le d_2 \le 127)$ $-32768 \le d_1 + d_2 \times 256 \le 32768$	ESC (v (n_1) (n_2) (d_1) (d_2)
Page Formatting	
Set right margin to column n $(1 \le n \le 255)$	ESC Q (n)
Set left margin to column n $(0 \le n \le 255)$	ESC l (n)
Set top and bottom margins from top of page $n_1 = 4$, $n_2 = 0$ • Top margin = $(t_1 + t_2 \times 256)/360$(*1) inch $(0 \le t_1 \le 255)$ $(0 \le t_2 \le 127)$ • Bottom margin = $(b_1 + b_2 \times 256)/360$(*1) inch $(0 \le b_1 \le 255)$ $(0 \le b_2 \le 127)$	ESC (c (n_1) (n_2) (t_1) (t_2) (b_1) (b_2)
Set perforation skip by n lines $(1 \le n \le 127)$	ESC N (n)
Perforation skip off	ESC O
Set page length to n lines $(1 \le n \le 127)$	ESC C (n)
Set page length to n inches $(1 \le n \le 22)$	ESC C NUL (n)
Set page length to $(d_1 + d_2 \times 256)/360$(*1) inch $n_1 = 2$, $n_2 = 0$ $(0 \le d_1 \le 255)$ $(0 \le d_2 \le 127)$	ESC (C (n_1) (n_2) (d_1) (d_2)

*1This pitch is the default, but can be changed by the ESC (U command beforehand.

Function	Command
Character Set Control	
Select character set 1	ESC 7
Select character set 2	ESC 6
Select character set table	ESC t (*n*)
n = 0: Italics character set	
1: Graphics character set	
2: Downloaded character set	
3: Graphics character set	
Select international character set	ESC R (*n*)
n = 0: USA	
1: France	
2: Germany	
3: United Kingdom	
4: Denmark 1	
5: Sweden	
6: Italy	
7: Spanish 1	
8: Japan	
9: Norway	
10: Denmark 2	
11: Spanish 2	
12: Latin America	
13: Korea	
64: Legal	
Clear input buffer	CAN
Delete a character	DEL
Force most significant bit to 1	ESC >
Force most significant bit to 0	ESC =
Cancel control over most significant bit	ESC #

Function	Command
Font Selection and Downloading	
Select font *n* = 0: Resident character set 1: Downloaded character set	ESC % (*n*)
Select letter or draft quality *n* = 0: DQ 1: LQ 2: CQ 3: HDQ 4: SHDQ	ESC x (*n*)
Select type style *n* = 0: Roman 1: Sanserif 2: Courier 3: Prestige 4: Script 5: OCR-B 6: OCR-A 7: Roman 8: Roman 9: Roman	
Copy resident character set to download area	ESC : NUL (*n*) (*s*)
Create download font	ESC & NUL (n_1) (n_2) (d_0) (d_1) (d_2) (*data*)
Bit Image Graphics	
Graphics type m graphics	ESC * (*m*) (*n*1) (*n*2) (*data*)
Bit image mode definition	ESC ? (*s*) (*n*)
Single-density graphics	ESC K (n_1) (n_2) (*data*)
Double-density graphics	ESC L (n_1) (n_2) (*data*)
High-speed double-density graphics	ESC Y (n_1) (n_2) (data)
Quadruple-density graphics	ESC Z (n_1) (n_2) (*data*)
Miscellaneous	
Sound the bell	BEL
Unidirectional printing on/off (on: *n* = 1, off: *n* = 0)	ESC U (*n*)
Initialize printer	ESC @

IBM EMULATION COMMAND LIST

Function	Command
Print Mode Control	
Double-strike (bold) printing on	ESC G
Double-strike (bold) printing off	ESC H
Emphasized (shadow) printing on	ESC E
Emphasized (shadow) printing off	ESC F
One-line double-width characters on	SO or ESC SO
One-line double-width characters off	DC4
Double-width characters on/off (on: *n*=1, off: *n*=0)	ESC W (*n*)
Double-height/double-width characters $n_1 = 4$, $n_2 = 0$, $m_1 = 0$, $m_2 = 0$ m_3 controls character height and line spacing:	ESC [@ (n_1) (n_2)

m_3	Height	Spacing
0	Unchanged	Unchanged
1	Normal	Unchanged
2	Double	Unchanged
16	Unchanged	Single
17	Normal	Single
18	Double	Single
32	Unchanged	Double
33	Normal	Double
34	Double	Double

m_4 controls character width:

m_4	Width
0	Unchanged
1	Normal
2	Double

Condensed characters on	SI or ESC SI
Condensed and elite characters off	DC2
Subscript or superscript printing on (subscript: *n* = 1, superscript: *n* = 0)	ESC S (*n*)
Subscript and superscript printing off	ESC T
Underline on/off (on: *n* = 1, off: *n* = 0)	ESC - (*n*)
Overline on/off (on: *n* = 1, off: *n* = 0)	ESC _ (*n*)
Select print mode	ESC [d (n_1) (n_2) (*c*)
Horizontal Control	
Space	SP
Backspace	BS
Carriage return	CR
Elite characters on	ESC :
Proportionally spaced characters on/off (on: *n* = 1, off: *n* = 0)	ESC P (*n*)

Function	Command
Vertical Control	
Line feed	LF
Form feed	FF
Advance paper n/216 inch ($1 \leq n \leq 255$)	ESC J (n)
Set line spacing to 1/8 lines	ESC 0
Set line spacing to 7/72 inch	ESC 1
Set line spacing to n/216 inch ($0 \leq n \leq 255$)	ESC 3 (n)
Preset line spacing to n/72 inch ($1 \leq n \leq 255$)	ESC A (n)
Set line spacing to 1/6 inch or to the value preset by line spacing command ESC A (n)	ESC 2
Change graphics line spacing base to 1/216 or 1/180 inch (for ESC J and ESC 3) $m_1 = 4$, $m_2 = 0$ $0 \leq t_1 \leq 255$, $0 \leq t_2 \leq 255$, $t_3 = 0$ $t_4 = 180$ or 216	ESC [\ ($m1$) ($m2$) (t_1) ... (t_4)
Tabulation	
Horizontal tab execution	HT
Set horizontal tabs The values of n_1 to n_k in this command are the ASCII values of the print columns (at the current character width) at which tabs are to be set. ($1 \leq n \leq 255$) ($1 \leq k \leq 28$)	ESC D (n_1) ... (n_k) NUL
Clear all horizontal tabs	ESC D NUL
Move print position right by n/120 inch ($0 \leq n_1, n_2 \leq 255$) (n = n_1 + n_2 x 256)	ESC d (n_1) (n_2)
Vertical tab execution	VT
Set vertical tabs The values of n_1 to n_k in this command are the ASCII values of the lines (at the current line spacing) at which tabs are to be set. ($1 \leq n \leq 255$) ($1 \leq k \leq 64$)	ESC B (n_1)... (n_k) NUL
Clear all vertical tabs	ESC B NUL
Reset tabs to default values	ESC R
Page Formatting	
Set left margin at column n and right margin at column m ($0 \leq n, m \leq 255$)	ESC X (n) (m)
Set perforation skip by n lines ($1 \leq n \leq 255$)	ESC N (n)
Perforation skip off	ESC O
Set page length to n lines ($1 \leq n \leq 255$)	ESC C (n)
Set page length to n inches ($1 \leq n \leq 22$)	ESC C NUL (n)
Set top of form	ESC 4

<table>
<tr><th>Function</th><th>Command</th></tr>
<tr><td>Character Set Control
Select character set 1
Select character set 2
Print n_1 + n_2 x 256 characters from all-character set

(chars.: codes of characters to print,
0 ≤ chars. ≤ 255)
Print a character from all-character set
(char.: a code of character to print,
0 ≤ char. ≤ 255)
Select code page table n
(0 ≤ n_1, n_2 ≤ 255) (n = n_1 + n_2 x 256)
<table>
<tr><th>C_1</th><th>C_2</th><th>Code page ID</th></tr>
<tr><td>0</td><td>0</td><td>Ignore command</td></tr>
<tr><td>1</td><td>181</td><td>Code page 437</td></tr>
<tr><td>3</td><td>82</td><td>Code page 850</td></tr>
<tr><td>3</td><td>92</td><td>Code page 860</td></tr>
<tr><td>3</td><td>95</td><td>Code page 863</td></tr>
<tr><td>3</td><td>97</td><td>Code page 865</td></tr>
</table>
Select font and character spacing

Clear input buffer
Deselect printer (ignore input)</td><td>
ESC 7
ESC 6
ESC \ (n_1) (n_2)
(chars.)

ESC ^ (char.)

ESC [T (n_1) (n_2)
0 0 (c_1) (c_2)

ESC [I (n_1)
(n_2) (c_1) (c_2)
CAN
ESC Q #</td></tr>
<tr><td>Downloading
Select resident or downloaded font
Ex. n = 0: Resident Draft
2: Resident Courier
4: Downloaded Draft
6: Downloaded Courier
Create download font</td><td>ESC I (n)

ESC = (n_1) (n_2)
ID (m_1) (m_2)
(data)</td></tr>
</table>

Function	Command
Bit Image Graphics	
Single-density graphics	ESC K (n_1) (n_2) (*data*)
Double-density graphics	ESC L (n_1) (n_2) (*data*)
High-speed double-density graphics	ESC Y (n_1) (n_2) (*data*)
Quadruple-density graphics	ESC Z (n_1) (n_2) (*data*)
High-resolution graphics	ESC [g (n_1) (n_2) *(m)* (*data*)
Select graphics mode	ESC * (*m*) (c_1) (c_2) (*data*)
Miscellaneous	
Sound the bell	BEL
Unidirectional printing on/off (on: $n = 1$, off: $n = 0$)	ESC U (*n*)
Add a carriage return to all line feeds (on: $n = 1$, off: $n = 0$)	ESC 5 (*n*)
Printer offline	ESC j
Initialize printer	ESC [K (n_1) (n_2)

D

INTERFACE INFORMATION

This printer can communicate with a computer through a Centronics parallel interface, a RS-232C serial interface, a USB interface, or a LAN interface. You can specify the interface selection mode so that the printer uses which interface or it can automatically select the interface from which it first recrives data.

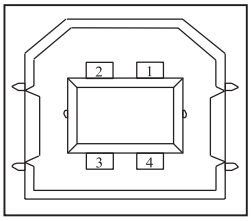
This chapter provides information you may need for wiring your own interface cables or for programming computer-to-printer communications. Most users do not need the information in this chapter. To simply connect your printer to your computer, follow the instructions in Chapter 2

USB INTERFACE

Cable

This printer supports the USB 2.0 Full speed specification. To connect to the host, use USB 2.0-compliant INF cables (5 meters (196 inch) or shorter). (Use the shielded cables.)

Connector pin alignment



No.	Signal name	Function
1	vbus	Power supply
2	D-	Data transfer
3	D+	Data transfer
4	GND	Signal ground
Shell	Shield	

- Connector specifictaion

Printer side Type B receptacle (female)
Upstream port

Cable side Type B plug (male)

Specification

- Basic specification USB interface compliant

Note

It does not guarantee all operations on hosts.

- Power control Self-power device

- Transmission mode Full speed (Maximum 12 Mbps + 0.25%)

PARALLEL INTERFACE

This parallel interface can operate in the following two modes:

- Unidirectional (forward channel) mode or conventional mode: This printer supports a conventional Centronics interface.

- Bidirectional (forward/reverse channel) mode or nibble mode: This printer supports a bidirectional communication per Nibble mode of the IEEE 1284 Standard.

The cable connector on the printer side must be a shielded IEEE 1284 compliant cable.

The connector pin assignments are given in the following tables by modes. In the tables:

- "Input" denotes a signal from the computer to the printer.

- "Output" denotes a signal from the printer to the computer.

- The return lines specified in the second column represent twisted pairs, with one side connected to signal ground.

- The standard signal levels are 0.0 to +0.4 V (low), and +2.4 to +5.0 V (high).

Compatible Mode

Pin No.	Return Pin No.	Signal name	Direc-tion	Description
1	19	Data Strobe (DSTB)	Input	This signal is a strobe pulse for reading data (Data 1 to 8). The printer reads data when this signal is low. The pulse width must be 1 µs or more at the receiving terminal.
2–9	20--27	Data 1 to 8	Input	Data 8 (pin 9) is the most significant bit; however, this pin is not used in 7-bit ASCII communications. Logical 1 signals must go high at least 1 µs before the falling edge of the Data Strobe signal and must stay high for at least 1 µs after the rising edge.
10	28	Acknowledge (ACK)	Output	This pulse signal indicates that the printer has received data and is ready to accept the next set of data. This signal is also sent when the printer is switched from offline to online.
11	29	Busy	Output	Data cannot be received when this signal is high. This signal is high during data entry, when the printer is offline, when the buffer is full, or when an error occurs.
12	30	Paper Empty (PE)	Output	This signal is high when the printer is out of paper.

Pin No.	Return Pin No.	Signal name	Direc-tion	Description
13	–	Select (SLCT9	Output	This signal is high when the printer is online.
14	–	Auto Feed XT	Input	Not used
15	–	–	–	No connection
16	–	Signal Ground	–	Logic ground level (0 V)
17	–	Frame Ground	–	Printer chassis ground line. FG and SG are connected.
18	–	+5V	Output	Not used
19–30	–	Signal Ground	–	Twisted pair return lines
31	–	Input Prime (INPRM)	Input	If this signal is low for more than 50 µs, the printer is reset to the initial condition and is placed online.
32	–	Fault	Output	This signal is low when the printer is offline, paper is out, or when there is a printer error.
33	–	Signal Ground	–	Logic ground level (0 V)
34	–	–	–	No connection
35	–	+5 VR	Output	Pulled up to +5 V through a 1 kohm resistor
36	–	SLCT-IN	Input	Not used

Nibble Mode

Pin numbers 2 to 9, 15 to 31, and 33 to 35 are the same as the conventional mode.

Pin No.	Return Pin No.	Signal name	Direc-tion	Description
1	19	Host Clock	Input	This signal is set high when the host requests the reverse data transfer phase (nibble mode).
10	28	Printer Clock	Output	Reverse data transfer phase: This signal goes high when data being sent to the host is established. Reverse idle phase: This signal is set low then goes high to interrupt the host, indicating that data is available.
11	29	Printer Busy	Output	Reverse data transfer phase: Data bit 3, data bit 7, then forward path (host to printer) busy status
12	30	Ack Data Req	Output	Reverse data transfer phase: Data bit 2, then data bit 6 Reverse idle phase: This signal is set high until the host requests data and, after that, follows the Data Available signal.
13	–	X Flag	Output	Reverse data transfer phase: Data bit 1, then data bit 5

Pin No.	Return Pin No.	Signal name	Direc-tion	Description
14	–	Host Busy	Input	Reverse data transfer phase: This signal is set low when the host can receive data, and goes high when the host has received data. Following a reverse data transfer, the interface enters the reverse idle phase when the Host Busy signal goes low and the printer has no data. Reverse idle phase: This signal goes high when the Printer Clock signal goes low so that the interface re-enters the reverse data transfer phase. If it goes high with the 1284 Active signal low, the 1284 idle phase is aborted and the interface returns to the compatibility mode.
32	–	Data Available	Output	Reverse data transfer phase: This signal is set low when the printer is ready to send data to the host. During the data transfer, it is used as data bit 0 (LSB), then data bit 4. Reverse idle phase: This signal is used to indicate that data is available.
36	–	1284 Activ	Input	This signal goes high to cause the printer to enter the reverse data transfer phase (nibble mode).

SERIAL INTERFACE

RS-232C is the standard serial interface for data terminal equipment. The cable connector should be DB-9P female connector at both ends. The DB9 interface is a simplified version of the DB25 interface, which only has 9 pins. The main pins used include transmit data (TXD), receive data (RXD), and signal ground (GND). The DB9 interface is commonly referred to as the RS-232 interface. It is part of the communication protocol standard originally developed jointly by the Electronic Industries Alliance (EIA) and Telecommunications Industry Association (TIA). DB9 is more suitable for application scenarios that simplify equipment and reduce costs. Many devices support or can be converted to use the DB9 interface, thereby improving device compatibility and interoperability.

The table that follows shows the pin assignments commonly used by most computers. In the table:

- "Input" denotes a signal from the computer to the printer.
- "Output" denotes a signal from the printer to the computer.
- The signal level for mark state (logical 1) is -3 V or lower; for space state (logical 0), it is +3 V or higher.

Pin No.	Signal Name	Direc–tion	Description
1	–	–	Not Connect
2	RD	Input	Received Data. This pin carries information from the computer to the printer.
3	TD	Output	Transmitted Data. This pin carries information from the printer to the computer.
4	DTR	Output	Data Terminal Ready. Spaces are sent when the printer has been powered on and is ready to receive or transmit data.
5	SG	–	Signal Ground (common return)
6	DSR	Input	Data Set Ready. Spaces are sent when the computer has been powered on and is ready to receive or transmit data
7	DTR	Output	Same as 4 pins.
8	–	–	Not Connect
9	–	–	Not Connect

Serial Options

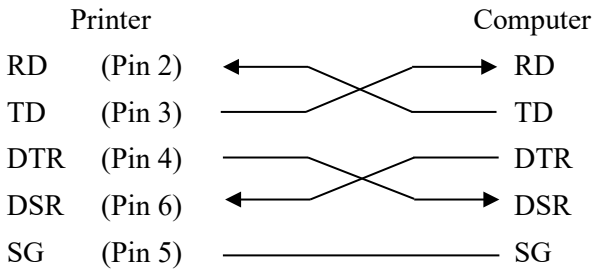
The serial options for the computer and the printer must match. Use the printer control panel, the computer operating system, or your software to change options specified as "selectable."

Transmission mode:	Asynchronous, full duplex, or half duplex (selectable)
Speed:	2400, 4800, 9600, 19200, 38400, 57600, or 115200 baud (selectable)
Data bits:	8 or 9 bits (selectable)
Parity bit:	Odd, Even, or None (selectable)
Start bit:	1 bit
Stop bit:	1 or 2 bits (selectable)
Protocol:	XON/XOFF, DTR (Data Terminal Ready) (selectable)
Buffer size:	150K bytes

Cable Wiring

This printer allows two types of serial communication control: DSR-enabled and DSR-disabled. The type of control required is determined by your computer requirements. The type of control also affects the way the interface cable is wired. To determine whether you need DSR-enabled control or DSR-disabled control, use the printer HARDWARE function (see Chapter 5).

DSR-disabled control offers simpler cabling and communication than does DSR-enabled control. DSR-disabled control can be used to interface with an IBM PC and most other computers. With DSR-disabled control, the input control signals DSR is always considered high, regardless of their actual states. Therefore, no wire connection for these pins is required. The following figure shows the wiring required for connection to an IBM PC.



Serial Protocols

A protocol is a set of instructions that control the way data is transmitted between devices such as a computer and printer. The protocol ensures that the computer does not send information to the printer faster than the information can be processed. By telling the computer when the printer

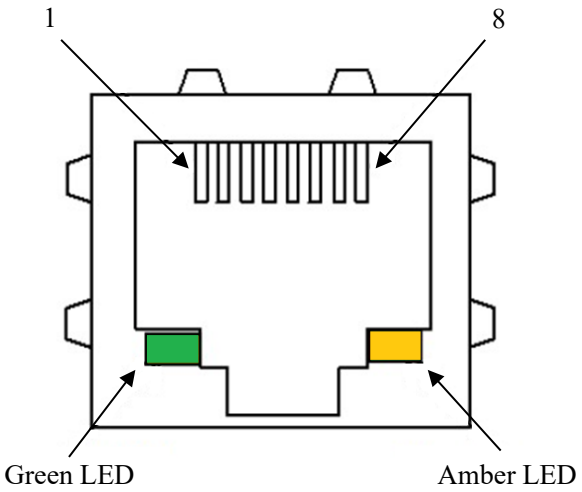
can receive data, the protocol prevents the printer's buffer from overflowing.

This printer offers a choice of four different protocols for connection to a variety of computers: XON/XOFF, DTR. If you computer documentation does not recommend a particular protocol, try DTR. The following table describes the three protocols.

Protocol	Description
XON/XOFF	When the printer is ready to receive data, it sends the XON code (hex 11). When fewer than 255 bytes of space remain in the buffer (or when the printer is taken offline), the printer sends the XOFF code (hex 13). (When the input buffer is configured for 256 bytes, the buffer limit is reduced from 255 bytes to 63 bytes.) The computer must stop transmitting data within 255 (63) characters of receiving the XOFF code, or information may be lost. If paper runs out, the printer sends an NAK code (hex 15).
DTR	DTR is a hardware protocol; that is, the DTR signal on interface cable pin 4 is used to control the flow of data rather than transmission of a character code. When the printer is ready to receive data, pin 4 is high. When fewer than 255 (63) bytes of space remain in the buffer (or when the printer is taken offline), pin 4 is low. The computer must stop transmitting data within 255 (63) characters of DTR being low, or information may be lost.

ETHERNET INTERFACE

Connector pin alignment



Green LED: LINK/ACK
Amber LED: 100Mbps

No.	Signal line name	DIR	Function
1	TXO+	NIC-HUB	Transmit data +
2	TXO-	NIC-HUB	Transmit data -
3	RXI+	HUB-NIC	Receive data +
4	–	–	–
5	–	–	–
6	RXI-	HUB-NIC	Receive data -
7	–	–	–
8	–	–	–

Note :
Green LED: LED is on, indicates the link is connected.
Amber LED: LED is flashing, indicates the data is switching.

Ethernet I/O 10/100 Mulitprotocol

The Ethernet interface enables the printer to connect to local area networks. Its attributes are:

Hardware	LAN/Ethernet: RJ45, Ethernet 100BASE-TX with 100 Mbps (IEEE802.3u), 10BASE-T with 10 Mbps (IEEE802.3)
Supported Protocols	TCP/IP
Setup	DLMENU * For instructions on how to use DLMENU, please refer to the "DL4850+ Software Guide."

Ethernet TCP/IP

When using your printer in a local network with Ethernet connections and the TCP/IP protocol, you have to assign address information.

Address information for the Ethernet Port can only be made available by your network administrator, who has the necessary rights to install Printers on the network and/or make any changes.

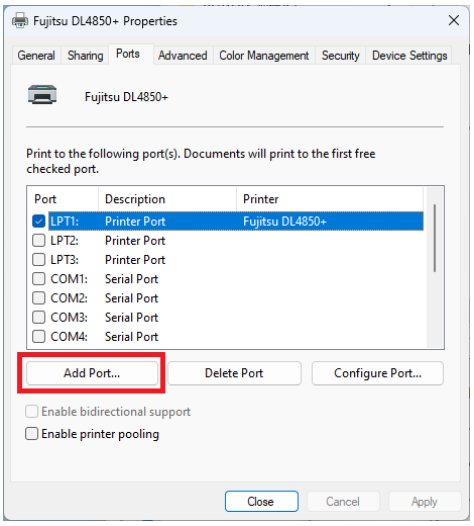
If you want to set the Ethernet port, you need to use USB to connect the DLMENU.

The use of Ethernet interface

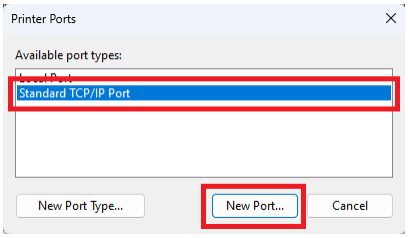
1. Install Ethernet interface board into the printer. Connect PC and the printer using the network cable. Turn on the printer to connect DLMENU. The user interface is shown as below.
2. Launch DLMenu and change the network settings.

Parameters	Function
DHCP	Disable or Enable DHCP.
IP Address	Printer IP address can be changed when needed.
Default Gateway	Default Gateway
Subnet Mask	Subnet Mask
IPv6 Function	Disable or Enable IPv6.

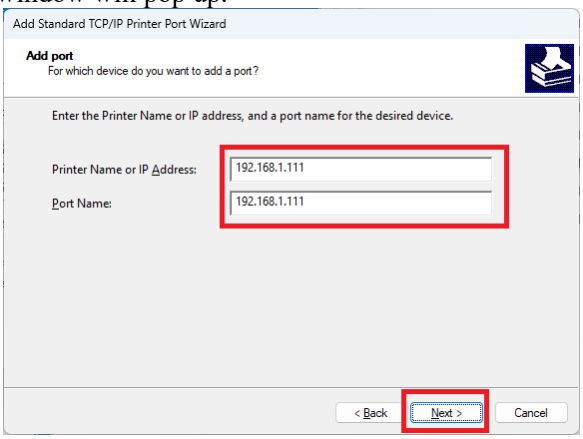
3. Set printer IP address to be the same net segment as PC IP address in step Disconnect DLMENU after the Ethernet parameters are setup. The printer restarts automatically.
   Follow following instructions to add the print port in the driver.



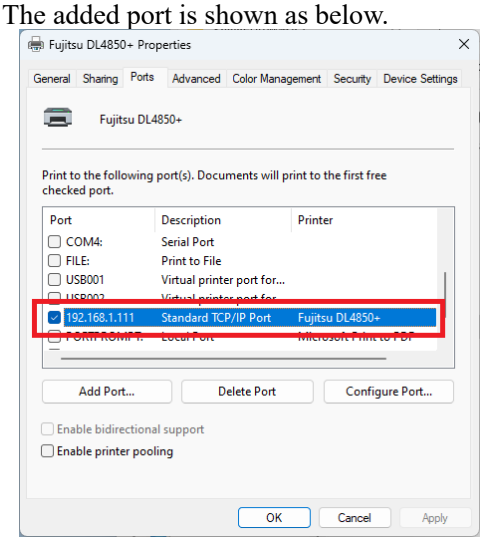
4. Click “Add Port…” in step 3. Below window will pop up.



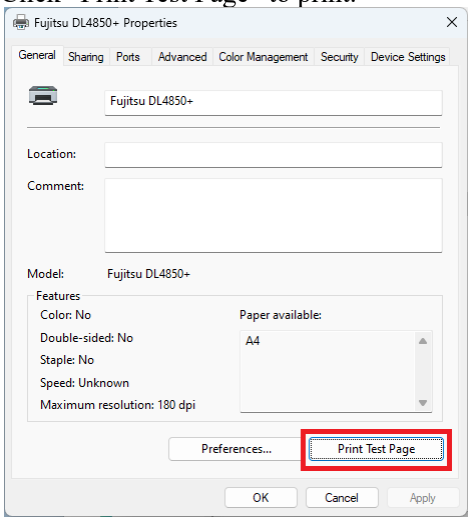
5. Select “Standard TCP/ Port”in step 4 and click “New Port...”. Below window will pop up.



6. Type in the printer IP address in step 5 and click “Next”. The added port is shown as below.



7. Click “Print Test Page” to print.



Note:

When DHCP is ON, two network cables should be connected with the router. One is connected to PC while the other one is connected to the printer. Enter the router interface through IE browser to view the IP address assigned to the printer, then repeat the above steps 3~6 to add the printer IP port into the drive port. Send the data to print when completed.

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