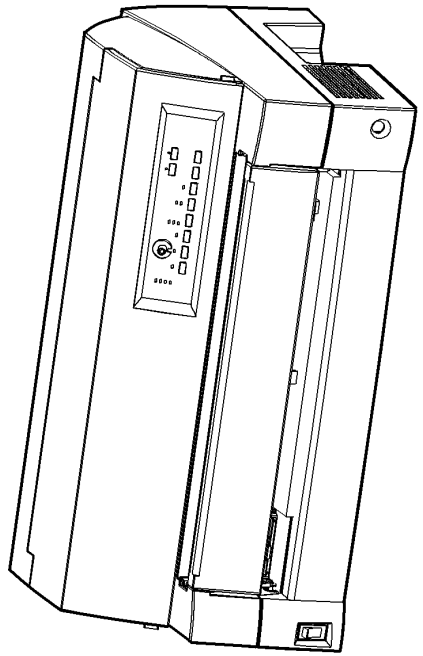
FUJITSU

USER'S MANUAL

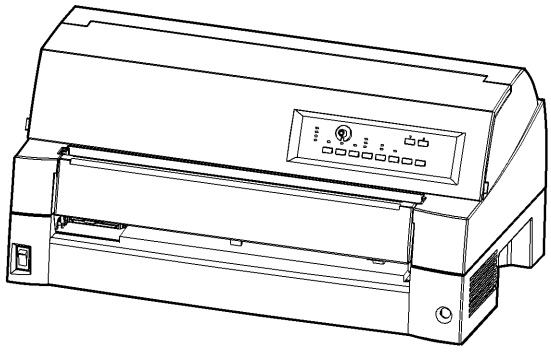


24-wire dot matrix printers

FUJITSU DL7600

FUJITSU

FUJITSU DL7600
DOT MATRIX PRINTER
USER'S MANUAL



IMPORTANT NOTE TO USERS

READ THE ENTIRE MANUAL CAREFULLY BEFORE USING THIS PRODUCT. INCORRECT USE OF THE PRODUCT MAY RESULT IN INJURY OR DAMAGE TO USERS, BYSTANDERS OR PROPERTY.

While FUJITSU ISOTEC has sought to ensure the accuracy of all information in this manual, FUJITSU ISOTEC assumes no liability to any party for any damage caused by any error or omission contained in this manual, its updates or supplements, whether such errors or omissions result from negligence, accident, or any other cause. In addition, FUJITSU ISOTEC assumes no liability with respect to the application or use of any product or system in accordance with descriptions or instructions contained herein; including any liability for incidental or consequential damages arising therefrom. FUJITSU ISOTEC DISCLAIMS ALL WARRANTIES REGARDING THE INFORMATION CONTAINED HEREIN, WHETHER EXPRESSED, IMPLIED, OR STATUTORY.

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Using This Product in High-risk Situations

This product is designed and manufactured for use in standard applications such as office work, personal devices, household appliances, and general industrial use. This product is not intended for special uses (nuclear-reactor control in atomic energy facilities, aeronautic and space systems, air traffic control, operation control in mass transit systems, medical devices for life support, or missile firing controls in weapons facilities) where particularly high reliability requirements exist, where the pertinent levels of safety are not guaranteed, or where a failure or operational error could threaten a life or cause a physical injury (hereafter referred to as “high-risk” use).

Customers considering the use of this product for high-risk applications must have safety-assurance measures in place beforehand. Moreover, they are requested to consult our sales representative before embarking on such specialized use.

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 B digital device, pursuant to Part 15B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measure:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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 M33325A.
2. The use of a nonshielded interface cable with the referenced device is prohibited. The length of the parallel interface cable must be 3 meters (10 feet) or less. The length of the optional serial interface cable must be 15 meters (50 feet) or less.
3. The length of the power cord must be 3 meters (9.8 feet) or less.

Notice for Canadian Users

This class B digital apparatus (M33325A) meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil (M33325A) numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Energy Saving

As an ENERGY STAR® Partner, FUJITSU ISOTEC LIMITED has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

The International ENERGY STAR® Office Equipment Program is an international program that promotes energy saving through the use of computers and other office equipments. The program backs the development and dissemination of products with functions that effectively reduce energy consumption. It is an open system in which business proprietors can participate voluntarily. The targeted products are office equipment such as computers, displays, printers, facsimiles, and copiers. Their standards and logos are uniform among participating nations.

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.

Printer model specifications differ with the power supply input voltage (M33325A; 100-120 or M33325B; 220-240 VAC).

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Other product names mentioned in this manual may also be trademarks of their respective companies.

ABOUT THIS MANUAL

Thank you for buying the Fujitsu DL7600 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 appendixes, a glossary, and an index. Appendix 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 OPTIONS

This manual covers model DL7600, a 136-column printer. Each model has a 100-120 (M33325A) VAC or 220-240 (M33325B) VAC power supply. A LAN card, a user add-on option, can be installed only on printer models with the Centronics parallel+USB interfaces. You must specify these when purchasing the printer.

Other options include a cut sheet feeder can be added by yourself after purchasing the printer.

DL7600

- Basic specifications
  - Print line at 10 cpi: 136 columns (DL7600)
- Control Panel: LED type
  - LCD type
- Interface: Centronics parallel + RS-232C
  - Centronics parallel + USB + LAN (LAN:user option)
- Alternative specification
  - Power supply: 100-120 VAC (M33325A)
  - 220-240 VAC (M33325B)
- User add-on option
  - LAN card
  - Cut sheet feeder
  - Tractor unit
  - Large Paper Table
  - Large Stacker
  - Small paper table

cpi: characters per inch

ORGANIZATION

This manual is organized as follows:

Quick Reference summarizes everyday printer operations. After you become familiar with the printer, use this section as a memory aid.

Chapter 1, Introduction, introduces the printer and identifies key features and options that enhance the printer's capabilities.

Chapter 2, Setting Up, 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 Handling, explains how to load and use paper with your printer.

Chapter 4, Printing, 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. After you become more familiar with the printer, use **Quick Reference** at the beginning of the manual to refresh your memory as needed.

Chapter 5, Using Setup Mode, 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. Refer to this chapter as indicated in Chapter 2 or as required.

Chapter 6, Maintenance, explains basic maintenance procedures for this printer.

Chapter 7, Trouble-Shooting, describes problem-solving techniques. Before you contact your dealer for help, check the list of problems and solutions provided in this chapter.

Chapter 8, Installing Options, describes the options available for the printer and explains how to install them.

At the end of this manual, you will find several appendixes, a glossary, and an index. Appendix A gives order numbers for printer supplies, options, and publications. Other appendixes 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 not follow 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	
	△ 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).
	⃠ indicates a prohibited action. The image in or beside this symbol expresses the prohibited action (the example on the left indicates that disassembly is prohibited).
	● 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.
Do not disassemble	This symbol and accompanying statement indicate a risk of injury, such as from electric shock, caused by disassembling 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.

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 an optional device or component, turn off the power to the printer and personal computer and disconnect their power plugs from the outlets before performing the work.

Otherwise, electric shock may result.

Connect only Fujitsu-recommended optional devices and components.

Otherwise, electric shock, fire, or failure 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.

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 operates when the front cover is unclosed, immediately turn the printer off, and unplug the power code from wall outlet.

Then contact your printer dealer to make repair of safety interlock.

Continued use of the printer in that condition, operation of the mechanism inside of the front cover may become a cause of an injury.

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.

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.

⚠ CAUTION

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 lever set to the appropriate paper thickness.

Use only an original ribbon cassette that is specified as suitable by Fujitsu.

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.

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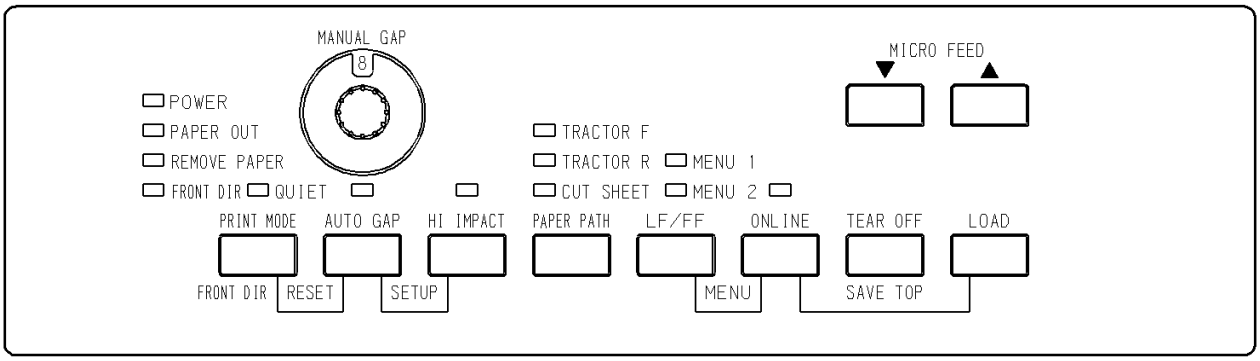
FUJITSU OFFICES 1

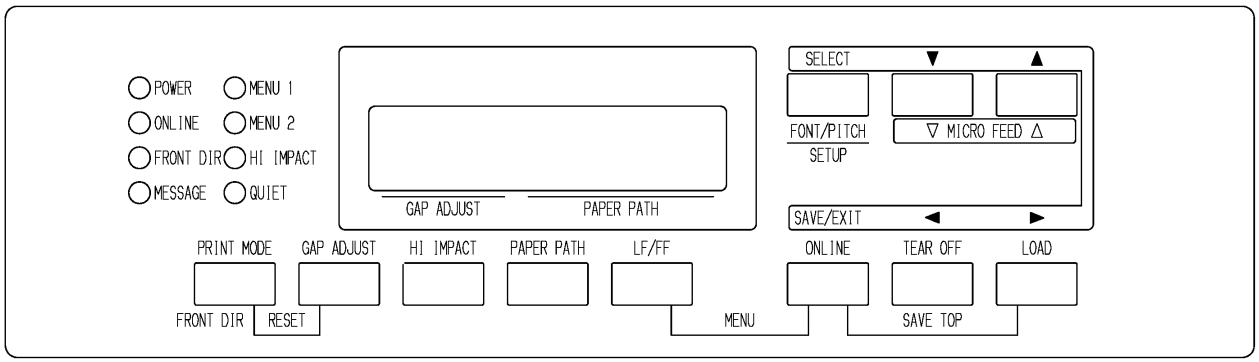
QUICK REFERENCE

Quick Reference is written for experienced users — users who are familiar with how the printer works, but who may need to refresh their memory occasionally. *Only the printer's normal (non-setup) mode is covered*. For details on setup mode, see Chapter 5.

Normal mode operation includes everyday operations, such as paper handling and font selection. The printer comes up in normal mode when turned on.



LED type Control panel



LCD type Control panel

The table on the next page lists normal mode operations with online and offline conditions and gives the required user response. Operations are listed by functions.

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: Does not apply.

Operation	Online	Offline	Required Response
Enter normal mode	N/A	N/A	Turn printer on. (Press I on the power switch.)
Place printer offline (Stop printing)	✓	—	Press ONLINE. So that ONLINE lamp is off.
Place printer online (Start printing)	—	✓	Press ONLINE. So that ONLINE lamp lights.
Load paper	✓	✓	Press LOAD.
Line feed (forward)	✓	✓	Press LF/FF within three seconds.
Unload paper to park position (both front and rear-fed continuous forms)	✓	✓	Press LOAD.
Form feed (forward)	✓	✓	Press and hold LF/FF until the operation starts.
Eject single sheets	✓	✓	Press and hold LF/FF until the operation starts.
Tear off forms (continuous forms only)	✓	✓	Press TEAR OFF. Tear off forms, then press any button to retract forms.
Micro feed (backward)	✓	✓	Press MICRO▲.
Micro feed (forward)	✓	✓	Press MICRO▼.
Select a direction from which cut sheet is ejected.	—	✓	Press FRONT DIR. When FRONT DIR lamp lights, cut sheet is ejected to the front side. When FRONT DIR lamp is off, cut sheet is ejected to the rear side.
Set/reset QUIET MODE.	✓	—	Press PRINT MODE.
Set/reset high impact mode	✓	✓	Press HI IMPACT.
Select a paper input source	✓	✓	Press PAPER PATH.

Printer Operations (Normal Mode) (Cont.)

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

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

N/A: Does not apply.

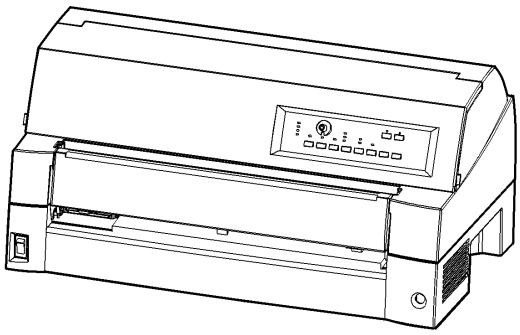
Operation	Online	Offline	Required Response
Select auto adjusting for paper thickness.	✓	✓	(LED type) Press AUTO GAP 2 second or more. So that AUTO GAP lamp lights (LCD type) Press GAP ADJUST. So that LCD display "AUTO"
Adjust for paper thickness manually	✓	✓	(LED type) Press AUTO GAP 2 second or more. So that AUTO GAP lamp is off. Then manual gap dial become effective. (LCD type) Press GAP ADJUST repeatedly. So that LCD display "GAP-1～GAP9,GAP-A～GAP-D
Save adjusted load positions	✓	✓	Press ONLINE and LOAD.
Select MENU1 or MENU2	—	✓	Press ONLINE and LF/FF.
Clear print buffer	—	✓	(LED type) Press FRONT DIR and AUTO GAP. (LCD type) Press PRINT MODE and GAP ADJUST.
Reset power-on defaults	✓	✓	Turn printer off, then on.
Start/stop/resume printing	✓	✓	Start: Send print command. Stop/resume: Press ONLINE.
Resume printing after paper	—	✓	Press ONLINE.
Enter setup mode	—	✓	(LED type) Press AUTO GAP and HI IMPACT. (LCD type) Press SET UP.
Enter font/pitch/quality Setting mode	✓	—	(LCD type only) Press FONT/PITCH.
Exit to normal mode Self-test printing	✓	✓	Start: Turn printer off. Press LF/FF while turning printer on. Pause/resume: Press LOAD. Exit: Press ONLINE.

1

INTRODUCTION

Congratulations on purchasing this printer. This printer is a compact, versatile, flat paper path printer that offers maximum compatibility with today's software packages and personal computers.

The 24-wire print head provides crisp, clear printing for business, office, and home environments. This printer is also easy to install and use.



DL7600 dot matrix printer (136 columns)

FEATURES

Key printer features, models and options are listed in the next two sections.

- **Software compatibility**. This printer, which operates primarily with the Fujitsu DPL24C PLUS command set, is compatible with the IBM Proprinter XL24E command set and the Epson ESC/P2 command set.
- **Various character sets**. As basic character sets, IBM PC character sets 1 and 2 are available for the Fujitsu DPL24C PLUS command set and the IBM Proprinter XL24E emulation, and the italic character set and graphics character sets 1 and 2 are available for the Epson ESC/P2 emulation. As national character sets, a total of 56 or 58 national character sets (depending on the emulation), including IBM PS/2 character sets, are available.
- **Multiple fonts.** The printer has nineteen resident fonts: Ten bit-map fonts — Courier 10, Pica 10, Prestige Elite 12, Boldface PS, OCR-B 10, OCR-A 10, Correspondence, Compressed, Draft, and High-speed Draft and nine outline fonts — Timeless, Nimbus Sans, and Courier, each in upright, italic, and bold.
- **High-speed printing**. At 10 cpi, print speed ranges from 180 cps for letter quality to 720 cps for hi-speed draft quality.

- **Large print buffer**. 128K bytes are available in total for storing input data and downloading fonts. A large input data buffer allows you to send files to the printer and return to work in your application. A large download buffer allows you to use custom fonts.
- **136-column print line**. 136-column printers print in landscape mode using legal- or standard-size computer forms.
- **Simple switching of paper types**. The ability to "park" continuous forms makes it easy to switch between continuous forms and single sheets from the control panel. This switching is possible even for an optional cut sheet feeder and second tractor.
- **Dual tractor feeding capability**. The tractor unit is removable and can be converted to front-feed or rear-feed.
- **Multi-path of paper**. The printer has multiple paths to feed paper : For the continuous form front and rear tractor(second tractor is option), For cut sheet loading paper table (front), front csf(option), rear csf(option).Also for cut sheet ejecting front and rear is selectable(front eject paper require removing for next paper loading)
- **Tear off function**. Available at both the front and the rear of the printer. The tear off button on the control panel is used.
- **High copy capability**
  - Up to nine sheets for front/rear continuous forms and cut sheets fed from front paper table.
  - Up to five sheets for CSF fed
- **Auto paper thickness control**. Features as standard equipment.
- **Auto interface selection**. The printer automatically selects the interface proper to the occasion.
- **Paper skew detection**. The printer detects a skew of paper that is manually fed from the paper table and automatically ejects it without printing.
- **Area-over print prevention**. The printer senses and memorizes the left and right edges of paper when loading the paper. If receiving data beyond either edge, the printer ignores it to prevent breakage of wires of print head.
- **Maintenance-free**. The printer only requires periodic cleaning and changing of the ribbon cartridge.

NOTE

Optional paper table is necessary to use single sheet papers.

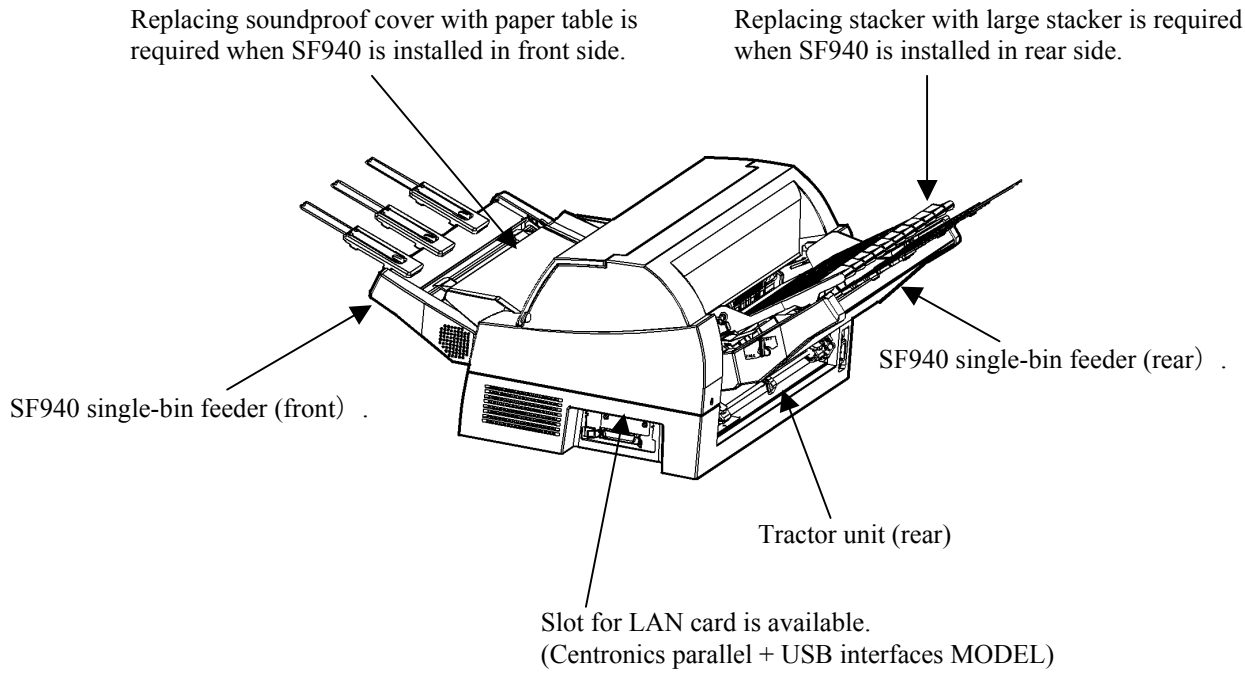
MODELS

- **Power Supply type**; 100-120VAC input (M33325A)
  220-240VAC input (M33325B)
- **Interface type**; Centronics parallel + USB interfaces
  Centronics parallel + RS232C serial interface
- **Control panel type;** LED type.
  LCD type.

OPTIONS

Printer add-on options are listed below. For details, see Chapter 8.

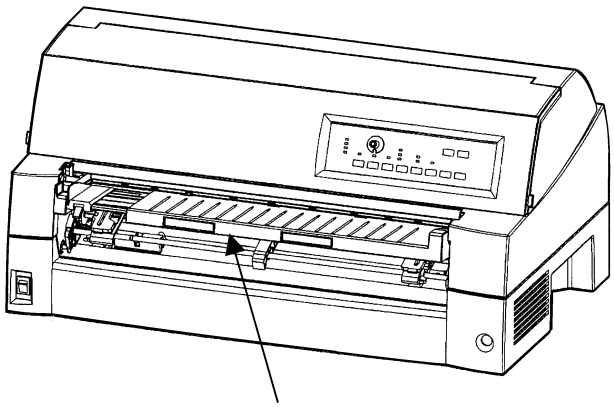
- **Cut sheet feeder**. The SF940 single-bin feeder is available as an option. Two cut sheet feeders can be installed in front of and behind the printer at the same time. A cut sheet feeder allows single cut sheets and multiple-part cut sheets to be fed automatically.
- **Tractor unit**. A second tractor unit may be bought as an additional option if dual tractor feeding capability is required.
- **LAN card.** A LAN card is available as a printer add-on option. A user installable function, the LAN card can be installed only on printer models with the Centronics parallel + USB interfaces. For details, see Chapter 8.



OPTIONS of DL7600 dot matrix printer

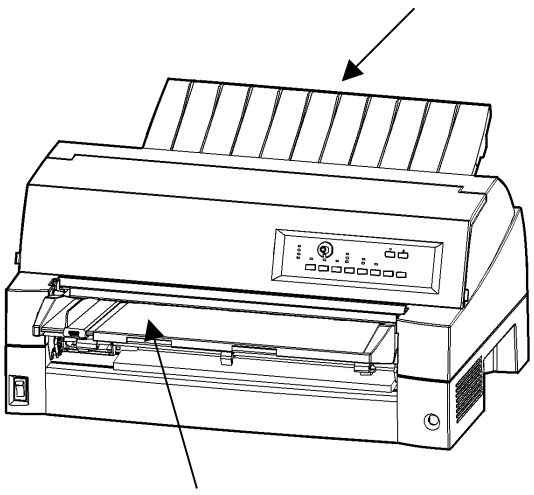
- **Small paper table.** Paper table should be installed instead of sound proof cover when use single sheets and install cut sheet feeder to front of printer.
- **Large stacker.** The large stacker accommodates sheets output from the rear. It is used in continuous printing with a cut sheet feeder.
- **Large paper table.** The large paper table helps to increase operability when large cut sheets are used.

  Also, sheets that are output from the front are easier to keep properly organized.



Small paper table

Large stacker



Large paper table

OPTIONS of DL7600 dot matrix printer

2

SETTING UP

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. 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:

- Unpack, assemble, and select a good location for the printer
- Identify the printer's major parts
- Connect the power and interface cables
- Test the printer before connecting it to your computer
- Install the printer driver
- Select an emulation and print a sample page using your software

If you have a problem while setting up the printer, review the section Solving Problems in Chapter 7. If the problem persists, contact your dealer.

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 the front, left, and right sides of the printer.
- ✓ 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.

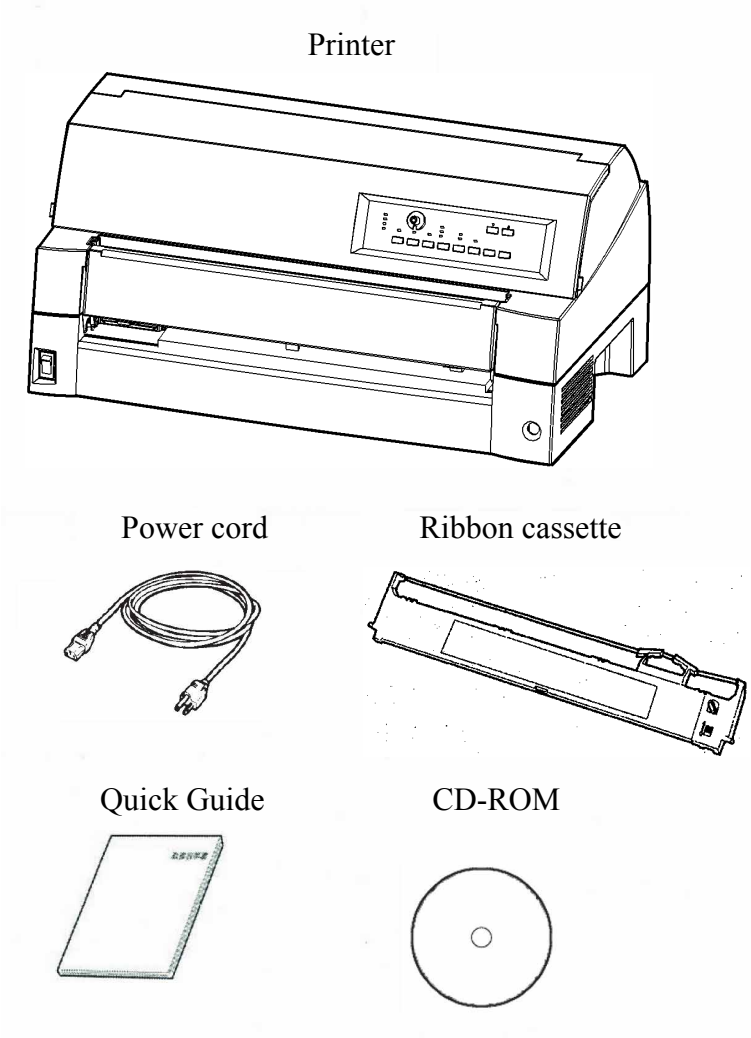
- ✓ Use only the power cord supplied with the printer or recommended by your dealer. Do not use an extension cord.
- ✓ Do not plug the printer into a power outlet that is shared with heavy industrial equipment, such as motors, or appliances, or such as copiers or coffee makers. Such equipment often emits electrical noise or causes power degradation.

UNPACKING THE PRINTER

Unpack the printer as follows:

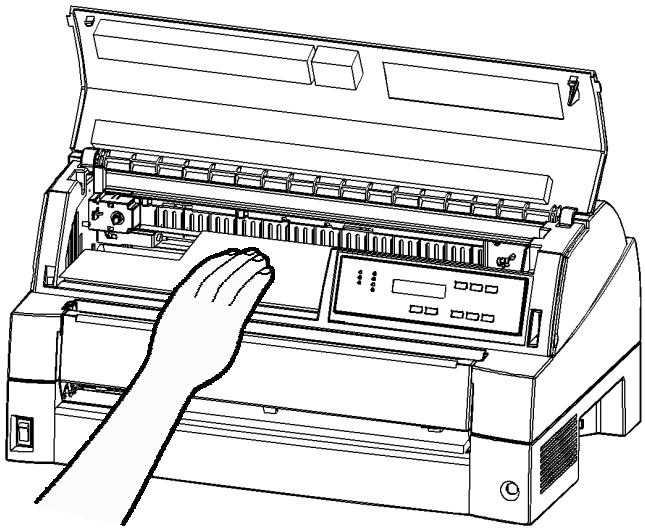
1. Open the carton and remove the printer and its components.

   Make sure that you have all of the items shown below. Note that the power cord supplied depends on the printer model (100-120 or 220-240 VAC power supply).



Checking items received

2. Carefully examine each item for damage. Report any problems to your dealer or shipping agent.
3. Place the printer where you plan to use it.
4. Remove the tapes and cushions securing the printer. Open the front cover and remove the shipping restraint cardboard that holds the print head carriage in place (shown below).



Removing the shipping restraint cardboard

5. 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.

NOTE

The interface cable is not included with the printer. You must purchase it separately. Connection of the interface cable is described later in this chapter.

Checking Options and Supplies

The following options and supplies, if ordered, are shipped separately:

- LAN card (option)
- Cut sheet feeder (option)
- Tractor unit (option)
- Small Paper Table (option)
- Large Stacker (option)
- Large Paper Table (option)
- Extra monochrome ribbon cartridges

Make sure that you received all the options you ordered. Installation of options is described in Chapter 8.

Once you are sure you have everything, you are ready to assemble the printer.

ASSEMBLING THE PRINTER

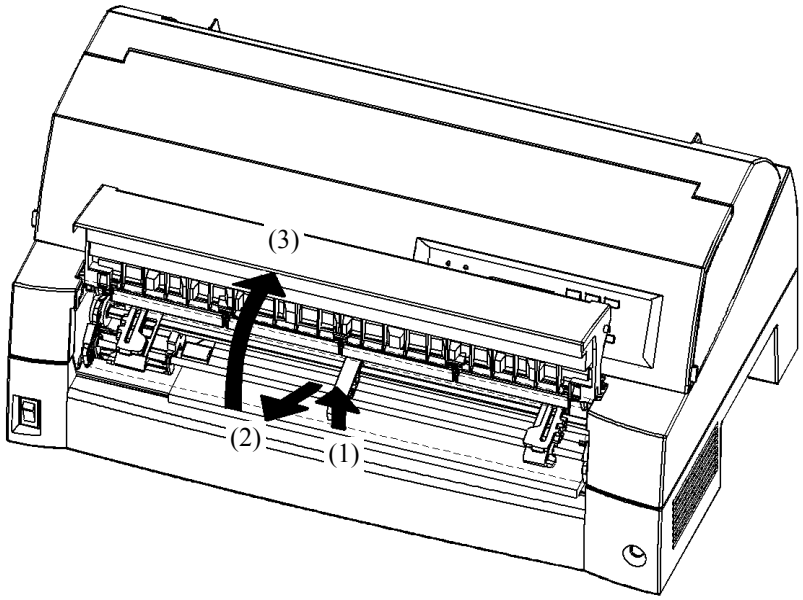
This section explains how to handling the soundproof cover, changing the tractor unit position and installing the ribbon cartridge.

Handling the soundproof cover

You must open and close the soundproof cover when you operate the front tractor.

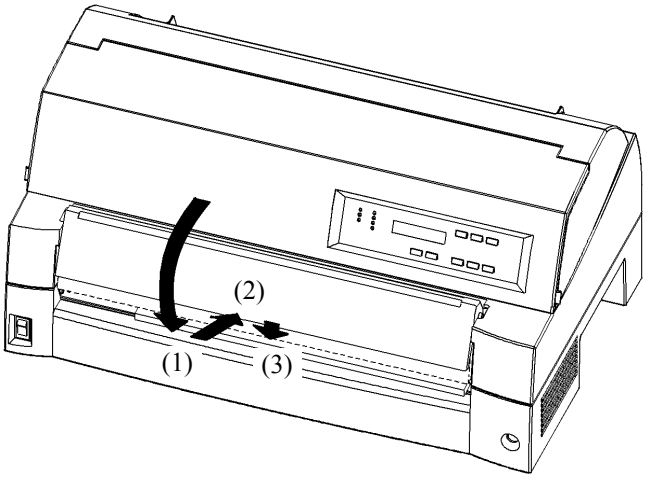
1 Open the soundproof cover.

Slightly raise the front end of the soundproof cover (1), then pull (2) and lift the table (3).

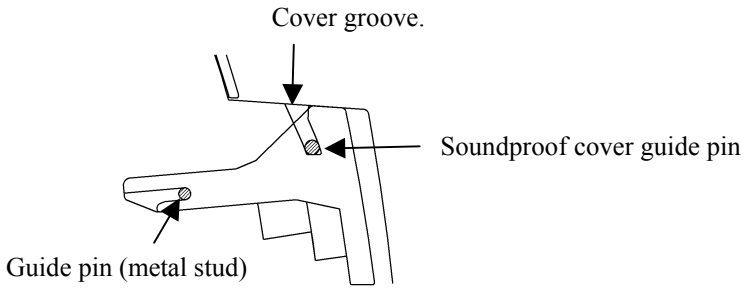


2 Close the sound proof cover.

Lower the soundproof cover as shown in the figure below (1), then push (2) and close (3) the cover.



The complete setup conditions are shown below. Make sure that the top end of the soundproof cover is engaged with the printer guide pin and the guide pin on the soundproof cover is inserted into the cover groove.



NOTE

Do not apply unreasonable force while you are handling the soundproof cover. It could cause damage. Also, do not leave the soundproof cover in incomplete setting. Running the printer with the soundproof cover left in incomplete conditions could cause a paper jam.

Installing the Ribbon cartridge

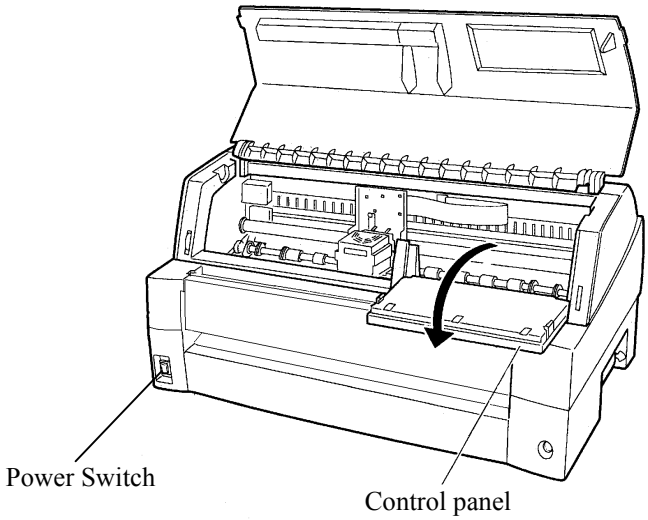
(HOT)	**CAUTION <HOT>** **The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.**

1. Prepare the printer to install the ribbon cartridge.
   Make sure that the print head protecting cardboard used for transportation has been removed, then turn on the printer power with the top cover closed. Ensure that the print head moves and stops at the ribbon replacement position.

   NOTE

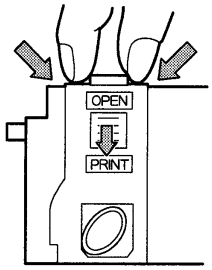
   If you turn on the printer power with the top cover open, the print head does not move. Turn the printer power with the top cover closed.

2. Turn off the printer power.
   Make sure that the power switch is set to the "O" side.
3. Open the front cover of the printer. Slide the print head carriage so that its center is at the position for replacing the ribbon cartridge (indicated by the triangle marking on the front of the upper cover).
4. Open the control panel for easy installation of ribbon cassette.



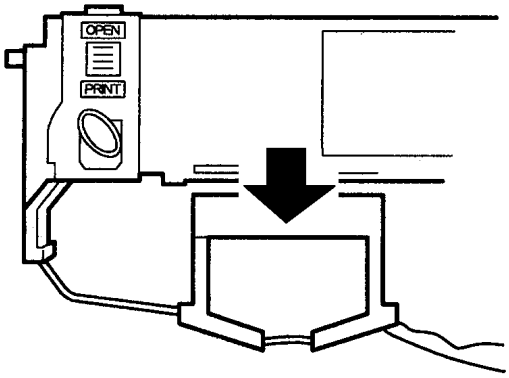
Preparing the printer to install the ribbon cartridge

5. Remove the ribbon cassette from its package. Push in the two ribbon release tabs. The tabs snap into the cassette and the ribbon feed mechanism engages.



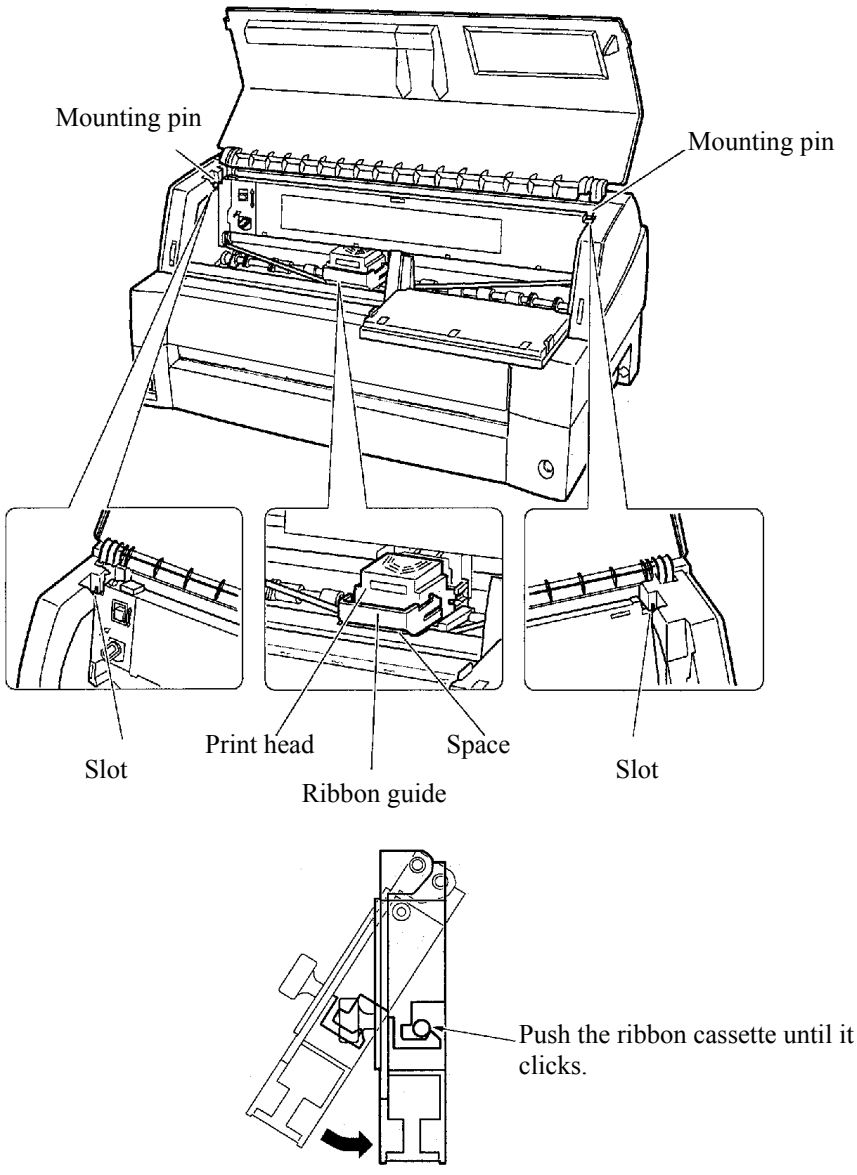
Preparing the ribbon cassette

6. Remove the ribbon guide (green part) from the ribbon cassette. Don't turn the ribbon feed knob before installation.



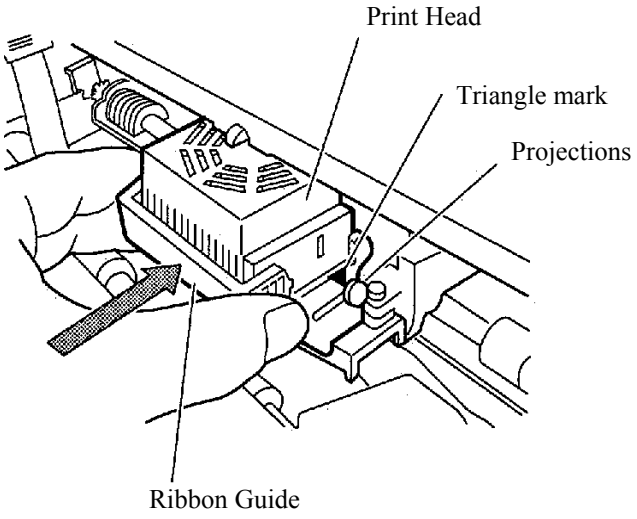
Preparing the ribbon cassette

7. Put the green ribbon guide into the space in front of print head. And then place the mounting pins (both side of ribbon cassette) on the slot of the printer cover. And then push the ribbon cassette so that the ribbon cassette is installed vertically.

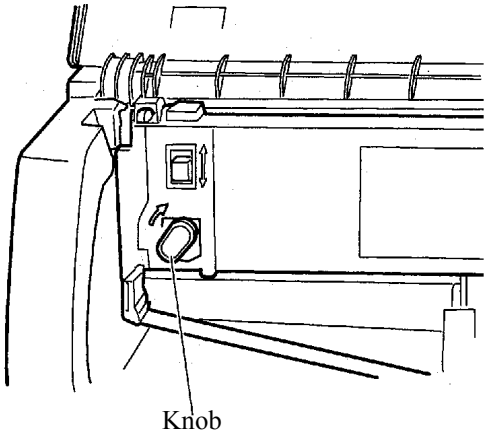


Installing the ribbon cassette

8. Attach the green ribbon guide on the print head.
   Please make sure that the ribbon slack lightly. (If the ribbon is strained, it will quirk when installation.)Push the green ribbon guide until the triangle mark "▼"meets the round projection of print head.



9. Turn the ribbon feed knob clockwise to take up any slack in the ribbon.



10. Return the control panel.

11. Close the front cover.

NOTE

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

Selecting the Tractor Unit Position

NOTE

This printer uses a detachable tractor that can be used on either the front or back of the printer. You can attach the tractor to either the front or back of the printer according to your installation or operating conditions. The printer is delivered to you with the tractor attached to the front. You can detach it from the front and then attach it to the back if needed.

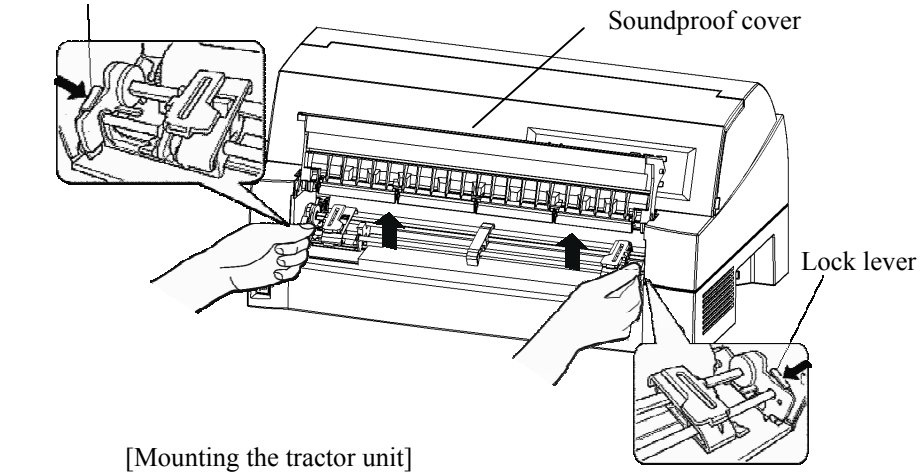
See “SELECTING PAPER PATH” in Chapter 3.

Mounting and removing the tractor unit

Tractor unit at the front

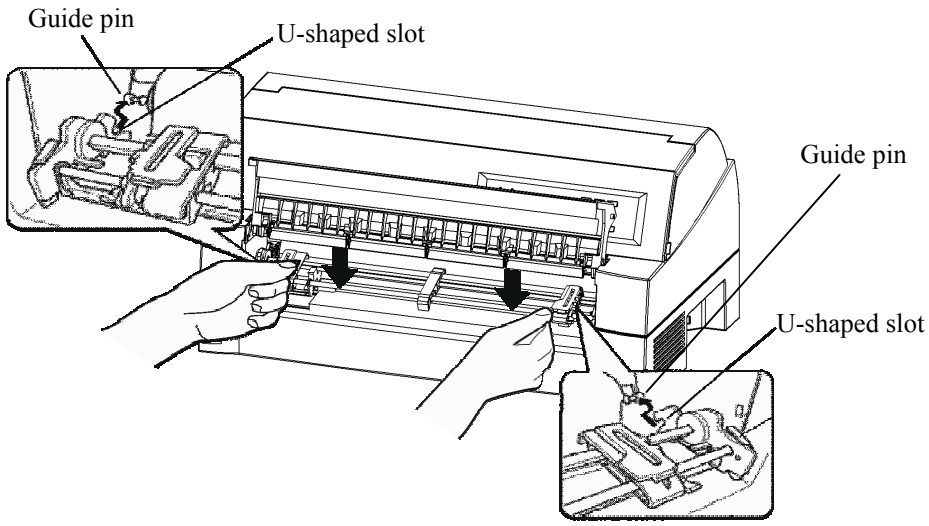
[Removing the tractor unit]

Raise the soundproof cover. While pressing the lock levers of the tractor frames located on both sides of the tractor unit, lift out the tractor unit to remove it.

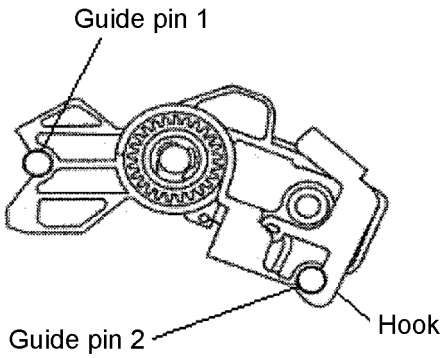


[Mounting the tractor unit]

1) Position the U-shaped slots on both sides of the tractor unit over the guide pins of the printer unit. (To set the tractor unit in position, line it up with the groove of the left guide pin. The right guide pin has no groove).
2) Push down the shaft at the front of the tractor unit until it locks with an audible click. (Do not press the lock levers when pushing down the shaft.)



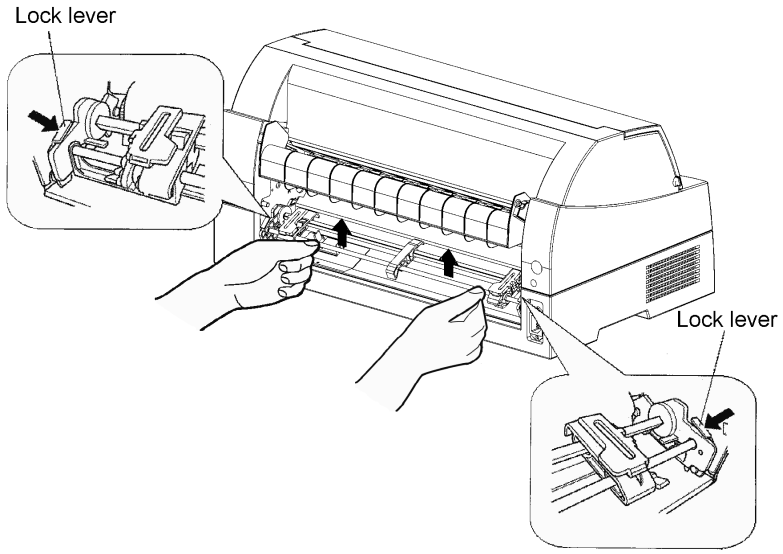
3) Verify that the hooks on both sides of the tractor unit are securely hooked onto guide pin 2 as shown in the following figure.



Tractor unit at the rear

[Removing the tractor unit]

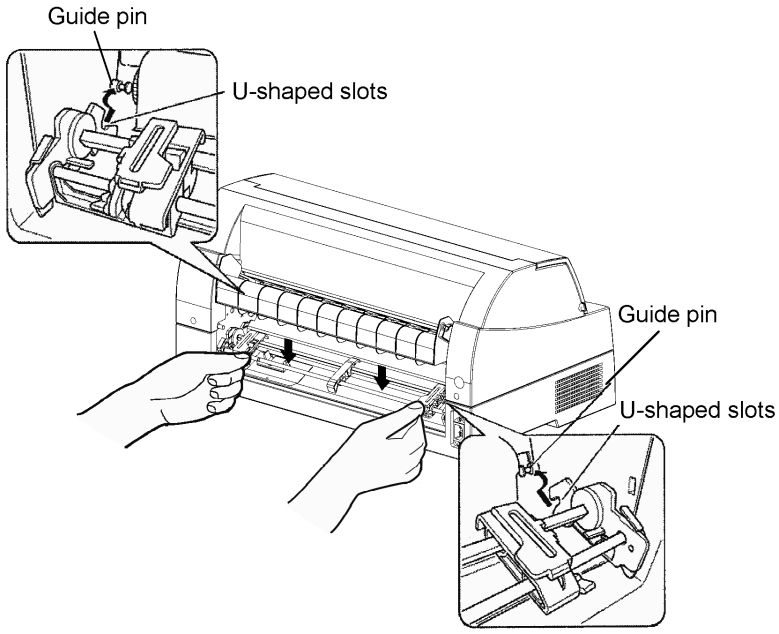
While pressing the lock levers of the tractor frames located on both sides of the tractor unit, lift out the tractor unit to remove it.



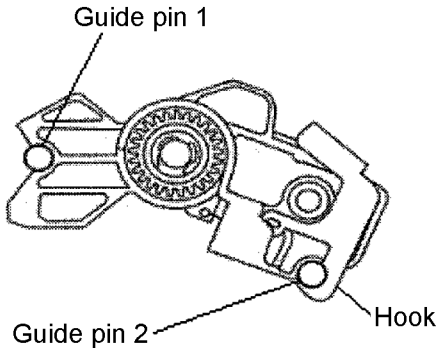
[Mounting the tractor unit]

1) Position the U-shaped slots on both sides of the tractor unit over the guide pins of the printer unit. (To set the tractor unit in position, line it up with the groove of the left guide pin. The right guide pin has no groove).

2) Push down the shaft at the front of the tractor unit until it locks with an audible click. (Do not press the lock levers when pushing down the shaft.)



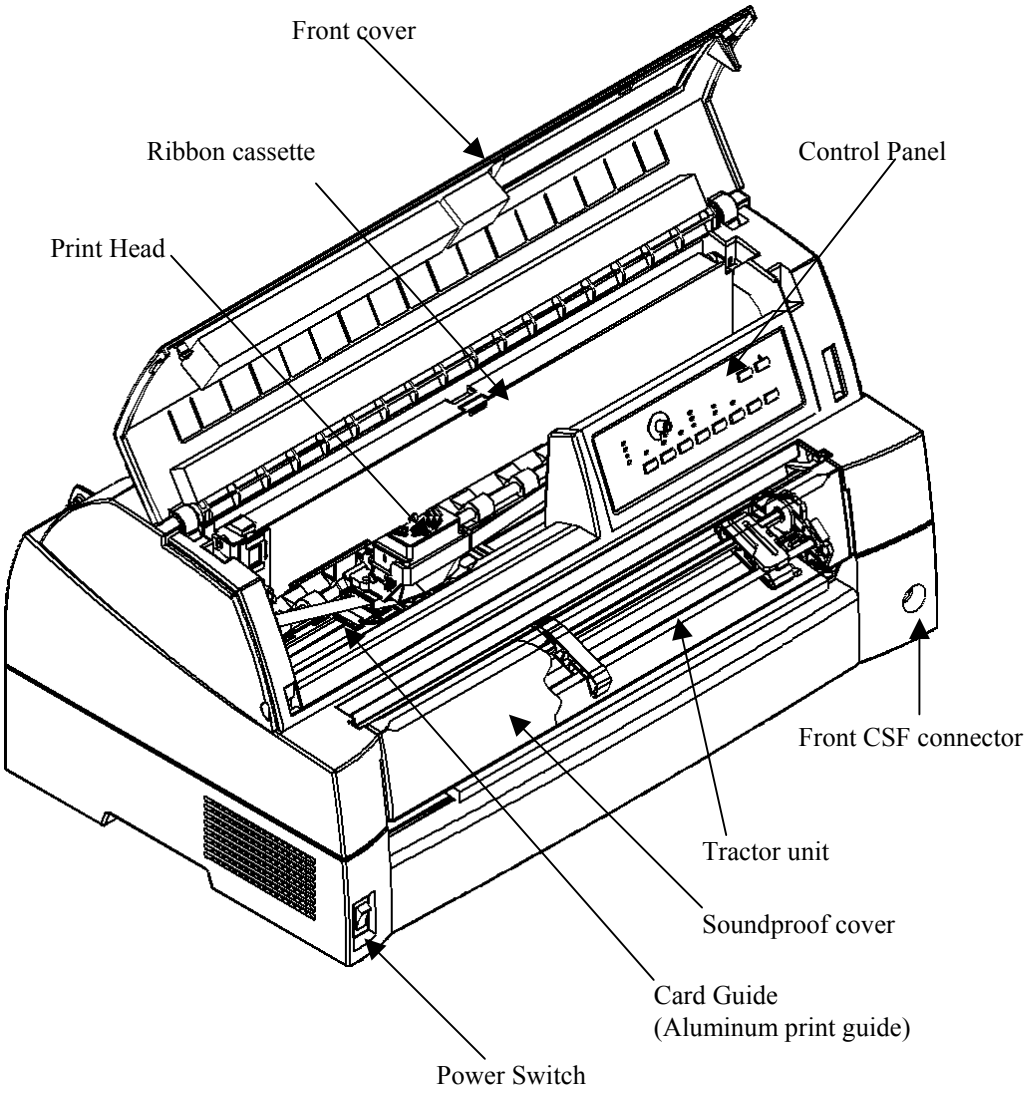
3) Verify that the hooks on both sides of the tractor unit are securely hooked onto guide pin 2 as shown in the following figure.



GETTING ACQUAINTED WITH YOUR PRINTER

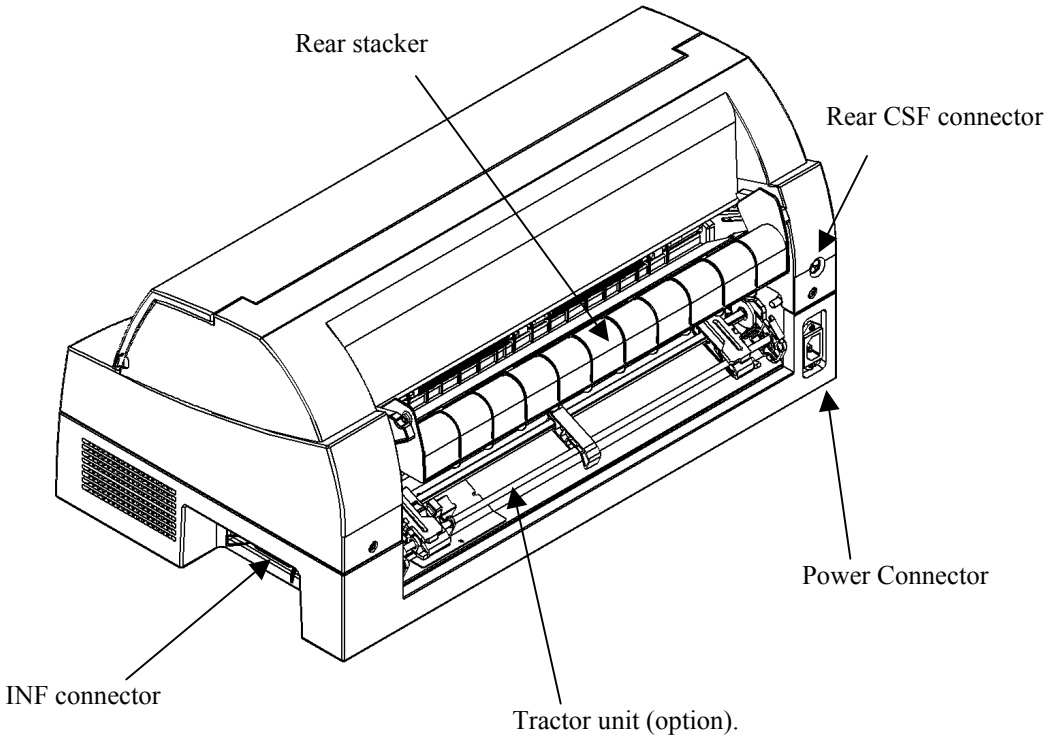
Now that your printer is assembled, take a moment to become familiar with its major parts.

Looking at the printer from the front left side and rear right side, you can see the parts of the printer shown in the figure below.



Printer components (front)

The printer control panel has the buttons and indicators used to load and feed paper (see Chapter 3) and select print features (see Chapter 4). The control panel also allows you to change the printer's optional settings (see Chapter 5).



Printer components (rear)

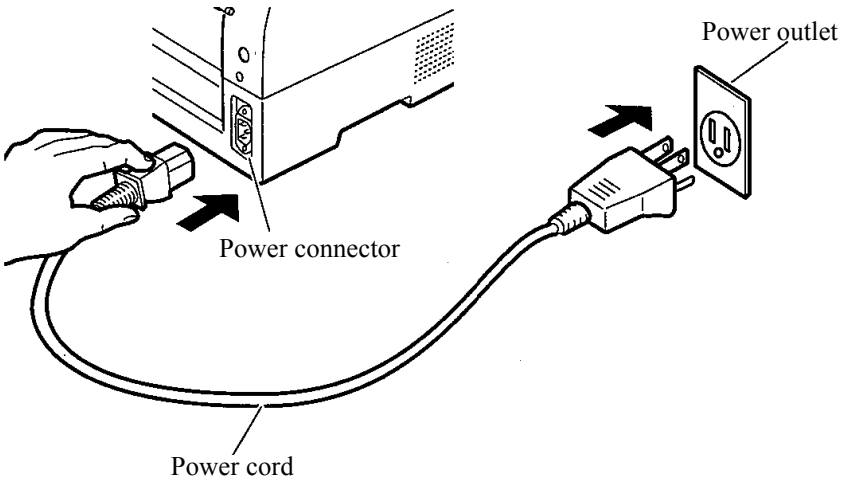
CONNECTING THE POWER CORD

Before you plug in the printer:

- ✓ Make sure that the printer power is switched off. The side marked "O" on the power switch should be depressed.
- ✓ Make sure that the power outlet is properly grounded.
- ✓ Make sure that you use the power cord shipped with the printer. This cord is designed to minimize radio frequency interference.

To plug in the power cord:

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



Connecting the power cord

3. Make sure that the power cord is securely connected.
4. Turn on the power by pressing the side marked "I" on the power switch. The POWER indicator on the printer control panel will light, the print head will move to its home position within a few seconds, and the ONLINE indicator will light (green).

NOTE

If no forms are loaded, the printer beeps and the red PAPER OUT indicator lights and the ONLINE indicator will not light.

TESTING THE PRINTER (OFFLINE)

At this point, load paper and run the printer self-test. The self-test checks printer performance and print quality before you connect the printer to the computer.

Loading Paper for the Self-Test

To print the self-test, load continuous form wider than 254 mm (10 inches) and set the left tractor so that the left end of continuous form may suit “0-10mm” of a scale (see Chapter 3).

Printing the Self-Test

The printer has a built-in self-test program. The self-test prints the firmware version, the names of the printer’s resident emulations, and all of the characters available in the emulations. The self-test prints 80 characters per line.

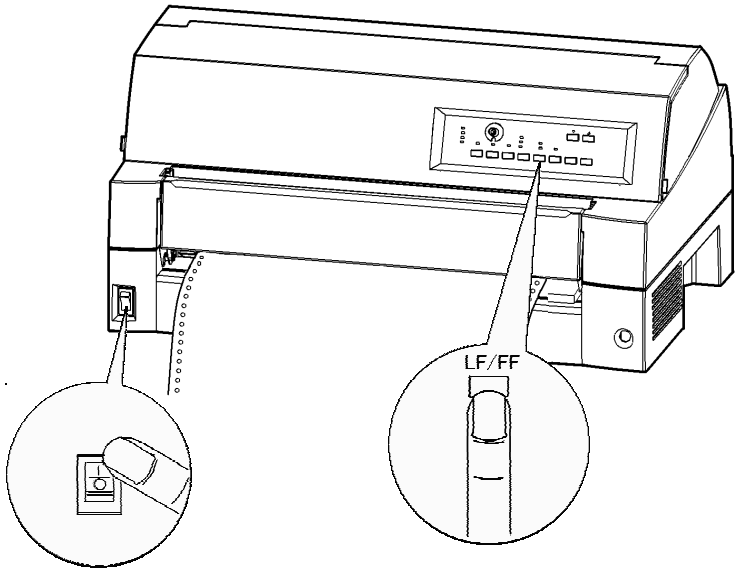
To print a self-test page, make sure that continuous forms are loaded.

Then proceed as follows:

1. Turn the printer off.
2. While pressing the LF/FF button, turn the printer back on.

   Keep the LF/FF button pressed until the printer beeps.

   Self-test printing will start.



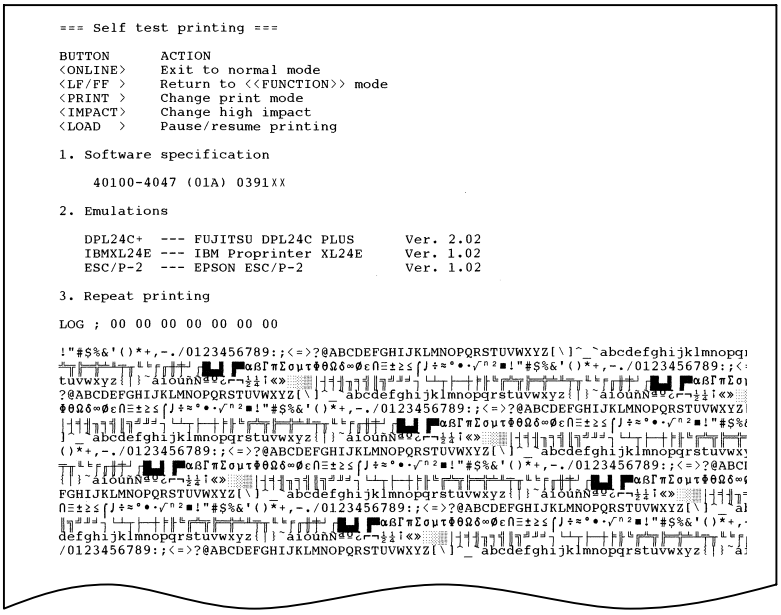
Starting the self-test

3. Allow printing to continue for a dozen or more lines of repeat printing. To exit the self-test mode, press the ONLINE button. To remove the test page refer to Chapter 3.

4. Examine the self-test page. It should look like the sample on the below.

   Check that printing is uniform and that there are no light, dark, or smudged areas. If the print quality is good, go to step 5. Otherwise, try to correct the problem as follows:

   - Make sure that the ribbon is installed correctly.
   - Load a new sheet of paper.
   - Repeat the self-test procedure.



```
=== Self test printing ===

BUTTON      ACTION
<ONLINE>    Exit to normal mode
<LF/FF >    Return to <<FUNCTION>> mode
<PRINT >    Change print mode
<IMPACT>    Change high impact
<LOAD  >    Pause/resume printing

1. Software specification

    40100-4047 (01A) 0391XX

2. Emulations

   DPL24C+  --- FUJITSU DPL24C PLUS      Ver. 2.02
   IBMXL24E --- IBM Proprinter XL24E     Ver. 1.02
   ESC/P-2  --- EPSON ESC/P-2            Ver. 1.02

3. Repeat printing

LOG ; 00 00 00 00 00 00 00

!"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopq
tuvwxyz{|}~ÄÖÜÑäöüßÉcr¬½¼¡«»
?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ÄÖÜÑäöüßÉcr¬½¼¡«»
ΦΩδ∞ØεΠ±≥≤∫⌠÷≈°•·√ⁿ²■!"#$%&'()ⁿ+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ
|┤╡╢╖╕╣║╗╝╜╛┐└┴┬├─┼╞╟╚╔╩╦╠═╬╧╨╤╥╙╘╒╓╫╪┘┌
]^_`abcdefghijklmnopqrstuvwxyz{|}~ÄÖÜÑäöüßÉcr¬½¼¡«»
()ⁿ+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwx
└┴┬├─┼╞╟╚╔╩╦╠═╬╧╨╤╥╙╘╒╓╫╪┘┌ΦΩδ∞ØεΠ±≥≤∫⌠÷≈°•·√ⁿ²■!"#$%&'()ⁿ+,-./0123456789:;<=>?@ABC
|}~ÄÖÜÑäöüßÉcr¬½¼¡«»
FGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ÄÖÜÑäöüßÉcr¬½¼¡«»
Π±≥≤∫⌠÷≈°•·√ⁿ²■!"#$%&'()ⁿ+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`a
└┴┬├─┼╞╟╚╔╩╦╠═╬╧╨╤╥╙╘╒╓╫╪┘┌ΦΩδ∞ØεΠ±≥≤∫⌠÷≈°•·√ⁿ²■!"#$%&'()ⁿ+,-
defghijklmnopqrstuvwxyz{|}~ÄÖÜÑäöüßÉcr¬½¼¡«»
/0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_`abcdefghijklmnopqrstuvwxyz{|}~ä
```

Sample self-test page

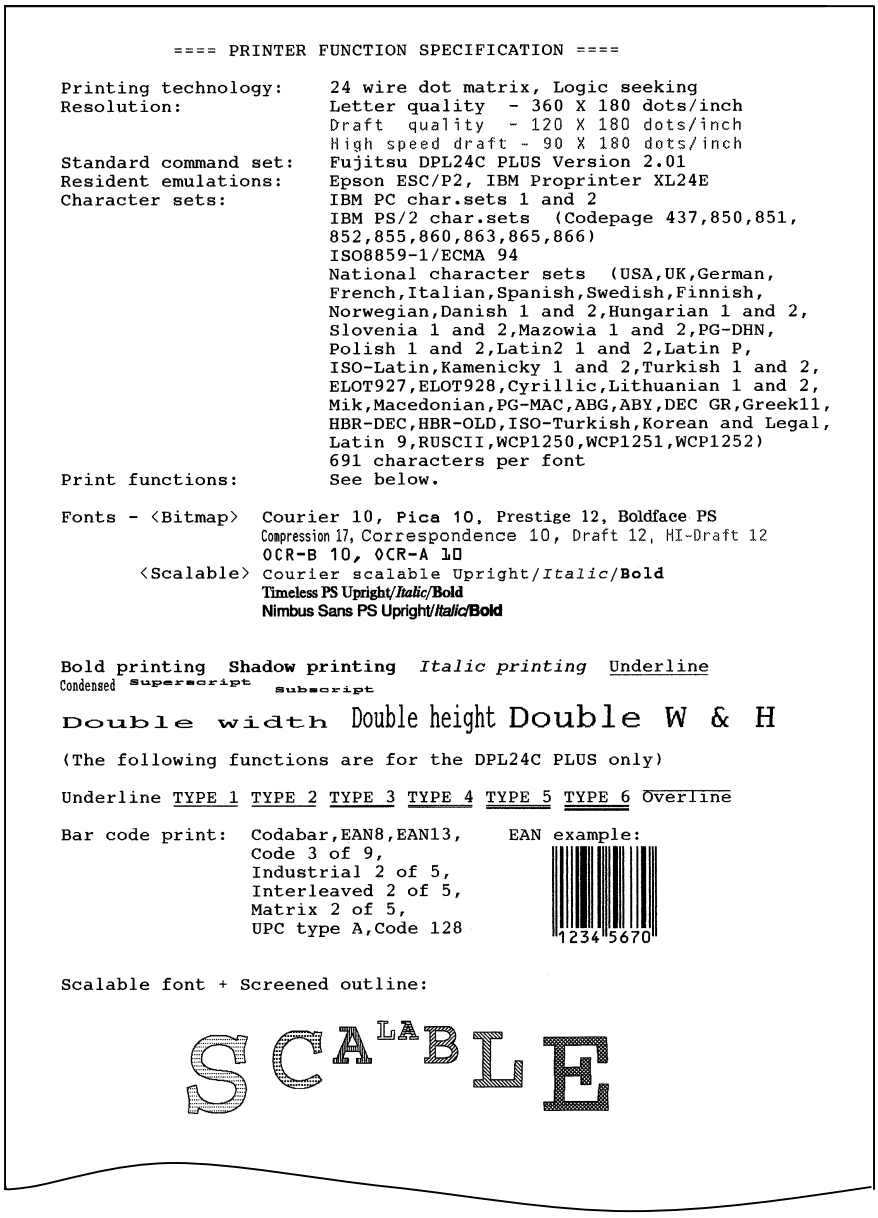
5. To exit the self-test mode, press the ONLINE button. The printer will return online.

NOTE

The printer can also print a special "demo pattern" that illustrates some of the printer's capabilities. To print the demo pattern:

1. **Load continuous forms** (wider than 254 mm (10 inches))**.**
2. **Turn the printer off .**
3. **While pressing the FRONT DIR button, turn the printer back on.**
   The printer will start printing the demo pattern.
4. **The demo pattern stops printing after one page. To pause or restart the demo during printing of a page, press the ONLINE button.**

5. **To exit demo mode, turn the printer off.**



==== PRINTER FUNCTION SPECIFICATION ====

Printing technology:	24 wire dot matrix, Logic seeking
Resolution:	Letter quality - 360 X 180 dots/inch Draft quality - 120 X 180 dots/inch High speed draft - 90 X 180 dots/inch
Standard command set:	Fujitsu DPL24C PLUS Version 2.01
Resident emulations:	Epson ESC/P2, IBM Proprinter XL24E
Character sets:	IBM PC char.sets 1 and 2 IBM PS/2 char.sets (Codepage 437,850,851, 852,855,860,863,865,866) ISO8859-1/ECMA 94 National character sets (USA,UK,German, French,Italian,Spanish,Swedish,Finnish, Norwegian,Danish 1 and 2,Hungarian 1 and 2, Slovenia 1 and 2,Mazowia 1 and 2,PG-DHN, Polish 1 and 2,Latin2 1 and 2,Latin P, ISO-Latin,Kamenicky 1 and 2,Turkish 1 and 2, ELOT927,ELOT928,Cyrillic,Lithuanian 1 and 2, Mik,Macedonian,PG-MAC,ABG,ABY,DEC GR,Greek11, HBR-DEC,HBR-OLD,ISO-Turkish,Korean and Legal, Latin 9,RUSCII,WCP1250,WCP1251,WCP1252) 691 characters per font
Print functions:	See below.

Fonts - <Bitmap> Courier 10, Pica 10, Prestige 12, Boldface PS
Compression 17, Correspondence 10, Draft 12, HI-Draft 12
OCR-B 10, OCR-A 10
<Scalable> Courier scalable Upright/*Italic*/**Bold**
Timeless PS Upright/*Italic*/**Bold**
Nimbus Sans PS Upright/*Italic*/**Bold**

Bold printing **Shadow printing** *Italic printing* Underline
Condensed Superscript Subscript

Double width Double height Double W & H

(The following functions are for the DPL24C PLUS only)

Underline TYPE 1 TYPE 2 TYPE 3 TYPE 4 TYPE 5 TYPE 6 Overline

Bar code print: Codabar,EAN8,EAN13,
Code 3 of 9,
Industrial 2 of 5,
Interleaved 2 of 5,
Matrix 2 of 5,
UPC type A,Code 128

EAN example:
1234 5670

Scalable font + Screened outline:

SCALABLE

Demo pattern

CONNECTING THE PRINTER TO YOUR COMPUTER

Your printer supports one of the following interface options:

- Centronics parallel interface+RS-232C serial interface
- Centronics parallel interface+USB (+LAN) interface

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.

The LAN card is a user installable option. For details, see Chapter 8 or refer to the Online Manual that comes with the LAN card.

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 Centronics connector, such as an Amphenol DDK 57FE-30360 or its equivalent. To prevent RFI (radio frequency interference), the connector cover must be connected to the cable shield.
- ✓ Make sure that the cable length does not exceed 3 meters (10 feet).

Selecting a Serial Interface Cable

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

- ✓ At the printer end, use a 25-pin male connector, such as a Cannon DB-25P or its equivalent.
- ✓ 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

- ✓ When the USB interface is used to connect to the host computer, the parallel interface and the serial interface (factory add-on option) cannot be connected simultaneously.
- ✓ The USB interface does not guarantee all connections of USB-supported devices.

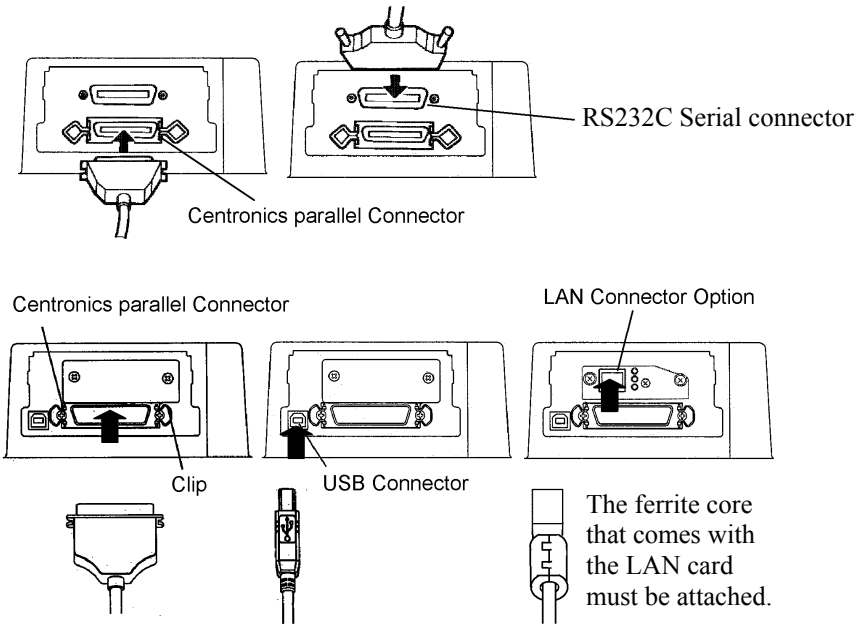
Selecting a LAN cable

- ✓ When the LAN cable is connected, the parallel and USB cables cannot be used.
- ✓ 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. Do not connect more than one interface cable type to the printer at the same time.



Connecting the interface cable

NOTE

The LAN interface is a user add-on option.

When installing a LAN card, remove the two screws securing the cover and remove the cover. Then insert the LAN card and reattach the cover with the two screws removed earlier. For details, refer to the Online Manual that comes with the LAN card.

3. To secure a parallel interface cable, flip the fastener clips located on the 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.

SELECTING AN EMULATION

Before printing with your software, verify that the correct emulation is selected on your printer. This section describes the available emulations and their selection.

For Experienced Users:

The printer's preselected factory setting is the Fujitsu DPL24C PLUS emulation. If this emulation is acceptable, you may skip this section.

An emulation is a set of commands used by your software to communicate with the printer. There are many different emulations available for printers.

Each emulation has unique features and capabilities. This printer offers three resident emulations:

- Fujitsu DPL24C PLUS (for Fujitsu DL-series printers)
- IBM Proprinter XL24E
- Epson ESC/P2

Resident emulations are stored in the printer's permanent memory.

Here are some points to help you determine which emulation to select:

- ✓ Determine which emulations your software supports. (Refer to your software documentation.) Since most software programs support this printer, try to run a program with the factory default emulation first.
  (DPL24C PLUS emulation is the factory default.) Try this emulation even if you are not sure of which emulation to choose. See Chapter 5 for detailed information about how your printer communicates with your software.

- ✓ If you are using more than one software package, determine which emulation is supported by the software you use most frequently.
  Select that emulation.
- ✓ If your software supports more than one emulation, select the DPL24C PLUS emulation if possible. This emulation has the greatest capabilities.
- ✓ If you want to use an emulation that is not supported by your software, contact your software manufacturer or printer dealer and ask whether support is available. You may be able to obtain a printer driver that is not shipped with the original software package.

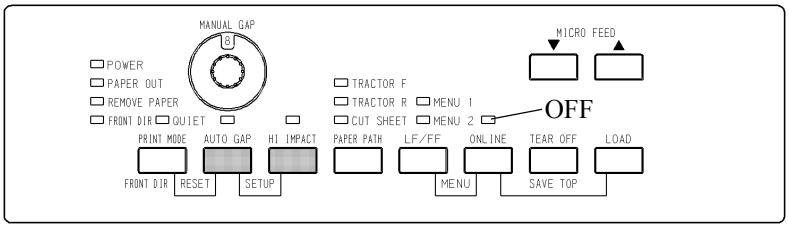
To select an emulation, proceed as follows(LED):

1. **Turn the printer on and load continues forms.**

   To print the "OFFLINE SET UP MODE", load continuous form wider than 254 mm (10 inches) and set the left tractor so that the left end of continuous form may suit "0-10mm" of a scale (see Chapter 3).

2. **Enter setup mode.(LED)**

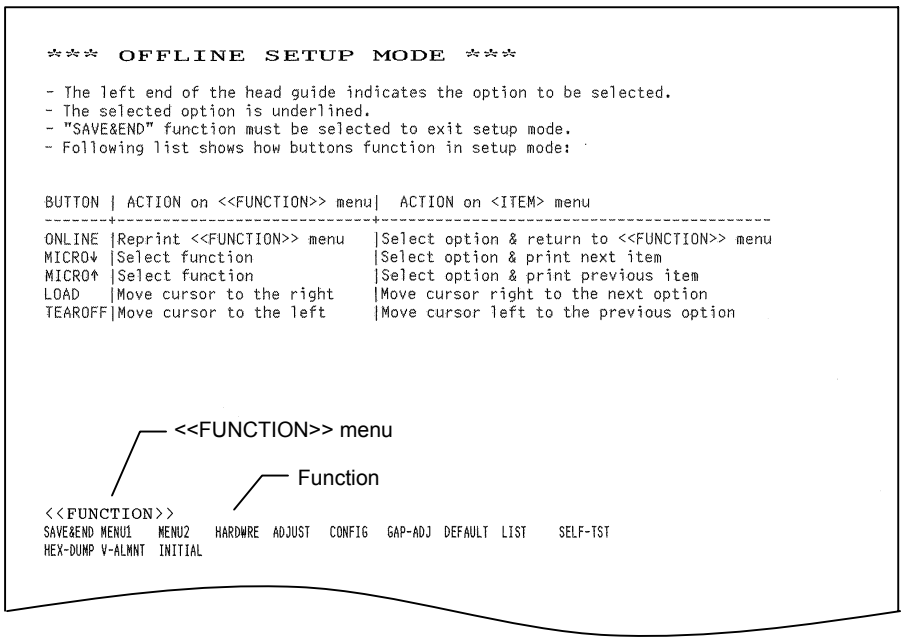
   Press the ONLINE button to place the printer offline. Then, press the setup buttons (AUTO GAP and HI IMPACT).



   As the printer enters offline setup mode, it prints the following information:

NOTE

If LCD type control panel. Please refer to Chapter 5.

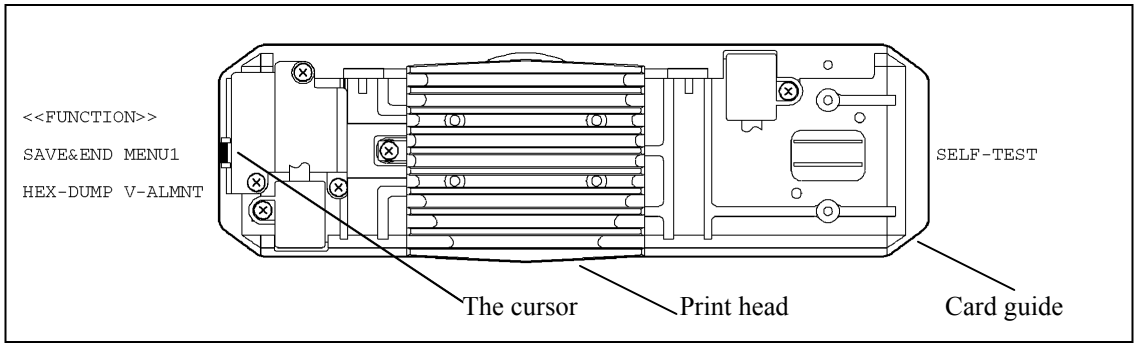


Initial printout in setup mode

Check that the <<FUNCTION>> menu is printed at the bottom of the page.

3. Select the MENU1 function.(LED)

Locate the cursor on left edge of the Card guide (aluminum print guide). Initially, this cursor should be positioned at SAVE & END at the beginning of the <<FUNCTION>> menu. Press the LOAD button repeatedly to position the cursor at MENU1, as shown below:



Press the ▼ MICRO FEED button to select MENU1 and print the following <EMULATE> options:

```
<EMULATE>       DPL24C+     XL24E     ESC/P2
```

The currently selected emulation is indicated by a short underline. In the figure shown above, the Fujitsu DPL24C PLUS emulation is selected.

4. **Select an emulation.(LED)**

   Press the LOAD button repeatedly to position the cursor at the required emulation. Press the ▼ MICRO FEED button to select the emulation and print the next MENU1 item.

5. **Exit MENU1.(LED)**

   Press the ONLINE button to exit the MENU1 function and reprint the <<FUNCTION>> menu.

6. **Exit setup mode to save the emulation.(LED)**

   To exit setup mode and save the new emulation, make sure that the cursor is positioned under SAVE & END. Then press the ▼ MICRO FEED button. The printer selects SAVE & END and then goes online.

To change other printer settings using the printer setup mode, see Chapter 5.

PRINTING A SAMPLE PAGE (ONLINE)

Once the self-test verifies that the printer is functioning correctly, try printing using one of your software packages. This exercise will ensure that the printer is correctly connected to your computer.

If you are using a parallel interface, the printer usually prints the correct characters automatically. However, you may need to adjust the page layout or various print features using your software or the printer setup mode. If you are using a serial interface, the printer may not work at all or it may print a lot of "?" characters. In this case, the serial settings on the printer do not match those of your computer or your software. Before changing any settings, use the procedure described below to try printing using the printer's preselected factory settings.

Test communication between the printer and computer as follows:

1. Load continuous forms.
2. Check that the printer is online. If the ONLINE indicator is not green, press the ONLINE button.
3. Try to print using your word processor, a programming language, or other software.

4. Use your software printer selection menus or the printer setup mode (described in Chapter 5) to make required changes in the page layout or other print features.

   If the printer does not print or prints the wrong characters, proceed as follows:

   - Make sure that the interface cable is properly connected.
   - Make sure that the printer emulation selected in your software is the same as that selected on the printer.
   - If you are using a serial interface, make sure that the printer serial interface settings are the same as those on the computer. The printer's preselected factory settings are 8 data bits, no parity, 1 stop bit, 9600 baud, and XON/XOFF protocol.

     You can change the serial settings on either the printer or your computer. To change the printer settings, see Chapter 5. To change the computer settings, use the selection menus provided by your software or the commands of your computer operating system.

     The following example uses the MS-DOS operating system:

Using MS-DOS to Specify Serial Interface Settings

For an IBM PC or compatible device, use the following MS-DOS MODE commands to set the computer serial settings to match the printer factory settings:

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1
```

To activate these settings whenever you turn the computer on, write the MODE commands in your AUTOEXEC.BAT file. Make sure that the MODE.COM file is included in your root directory.

If the printer still doesn't work, consult your dealer or someone experienced in serial interface communications.

- If an error occurs during printing with Windows, simply printing the page again will cause the printed characters to be garbled. To avoid this problem, execute reset from the control panel or turn off the printer, then print the page again.

You are now finished setting up and testing the printer. To familiarize yourself with everyday printer operations, such as loading paper, selecting print features, and printing, see Chapters 3 and 4.

INSTALLING THE PRINTER DRIVER

A printer driver is required for using the printer in a Windows environment. Special printer drivers for Windows 95, 98, Me, NT 4.0, 2000, XP, and Server 2003 are provided with the DL7600 printer.

For information about how to install printer drivers, refer to Readme.txt of the printer driver to be installed.

- These printer drivers run with DLP24C+ emulation. Be sure to specify DLP24C+ emulation for the printer mode.
- The DL7600 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.

3

PAPER HANDLING

This chapter explains how your printer uses paper.

Topics covered are:

- Selecting paper
- Overview of paper operations
- Selecting the paper path
- Adjusting for paper thickness
- Using continuous forms (front-tractor feed and rear-tractor feed)
- Using single sheets
- Feeding and positioning paper
- Switching paper types

Tips for paper handling are given at the end of this chapter. Check that section if you are using multipart forms, envelopes, or labels.

SELECTING PAPER

The printer can handle either single sheets or continuous forms. Single sheets, also called cut sheets, include envelopes and noncontinuous, multipart forms. Continuous forms include labels and multipart forms fed into the printer using the forms tractors.

For best results, use paper that meets the specifications listed below. (See Appendix B for detailed specifications.) If you are unsure of the suitability of a particular paper, try testing the paper or consult your dealer.

Length	Single sheets: 70 to 420 mm (3 to 16.5 in) Continuous forms: 102 mm (4 in) or greater
Width	Single sheets: 55 to 420 mm (2.16 to 16.5 in) Continuous forms: 102 to 420 mm (4 to 16.5 in)
Thickness	0.65 mm (0.026 in) maximum total thickness.
Copies	1 to 9-copies (Paper table/Front/Rear tractor) 1 to 5-copies (Cut sheet feeder)

Note:

To use cut sheets the optional large or small cut sheet table is required.

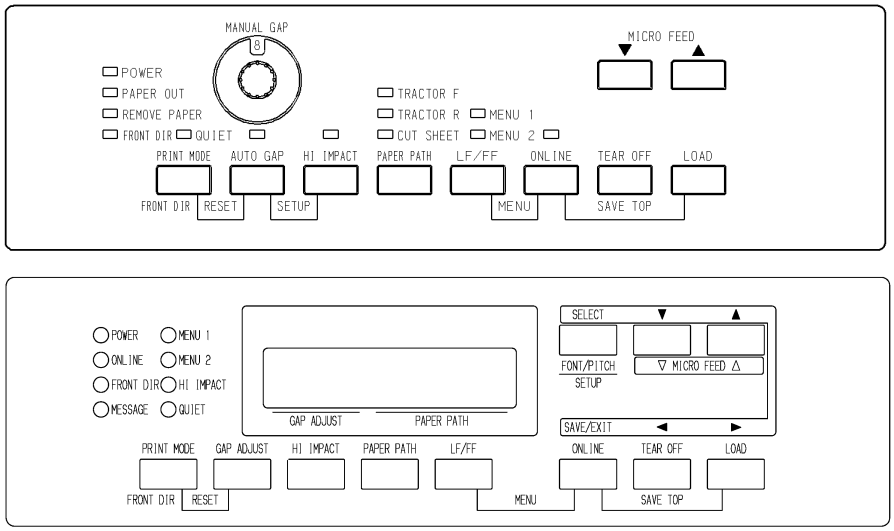
OVERVIEW OF PAPER OPERATIONS

The following buttons are used in paper handling:

- LF/FF, TEAR OFF, PAPER PATH, ▲ MICRO FEED, ▼ MICRO FEED and LOAD buttons on the control panel

  (A different function is enabled when each button is pressed in conjunction with the ONLINE button.)

The following figure shows the location of each button:



Location of the buttons

Table 3.1 summarizes the use of buttons in paper handling. More detailed information is provided later in this chapter.

NOTE

To load or feed paper, the printer must be:

- **Online but not receiving or printing data**
- **Offline but not in setup mode**

To micro feed paper, the printer must be:

- **Online but not receiving or printing data**
- **Offline but not in setup mode**

Table 3.1 Buttons Used for Paper Handling

Button/Dial	Purpose	Action
ONLINE	Change the printer mode Stop/resume printing	Press ONLINE to place the printer online or offline. Press ONLINE to stop or resume printing.
LOAD	Load/unload paper Save adjusted load point	Press LOAD to load paper or to retract continuous forms to the "park position." Press LOAD and ONLINE simultaneously to permanently store a load position adjusted by micro feeding immediately after loading paper.
LF/FF	Form feed Line feed	Press and hold LF/FF to execute a form feed. Continuous forms are fed forward by one page. Single sheets are ejected. Press LF/FF within three seconds to feed paper forward by one line.
TEAR OFF	Advance forms for tear-off	Press TEAR OFF to advance the forms perforation to the tear-off edge. Tear off the forms, then press any button to retract the remaining forms.
PAPER PATH	Selects paper path	Press PAPER PATH to select the paper path: front tractor, rear tractor, cut sheet.

Table 3.1 Buttons Used for Paper Handling (Cont.)

Button/Dial	Purpose	Action
PRINT MODE/ FRONT DIR	Select cut sheet ejection	Press PRINT MODE/FRONT DIR at Offline to select a direction of ejecting cut sheet. • Front ejection – FRONT indicator lights. It blinks when paper is ejected to the paper table prompting the user to remove the paper. • Rear ejection – FRONT indicator does not light. When you save your setting in the setup mode, it becomes the new default. The default setting is invoked whenever you turn on the printer.
▲ MICRO	Micro Feed	Press ▲MICRO/▼MICRO to feed paper by 1/180 inch in the direction of the arrow.
▼ MICRO		
(LED) AUTO GAP	Select paper thickness control mode	Select paper thickness control mode. AUTO GAP — AUTO GAP indicator lights. Manual Gap — AUTO GAP indicator doesn't lights. The Manual Gap dial is enabled.
(LED) MANUAL GAP DIAL	Select paper Thickness at MANUAL MODE	Select the paper thickness at MANUAL MODE. Auto Gap is usually used. Auto Gap is used for printing on paper of different thicknesses.
(LCD) GAP ADJUST	Select paper Thickness	Select the paper thickness as follows. AUTO, GAP-1, ·····, GAP-9, GAP-A, ··, GAP-D

SELECTING PAPER PATH

This printer has a variety of paper paths and feed directions.

Paper Paths and Feed Directions

See the following five cases.

: Cut sheet

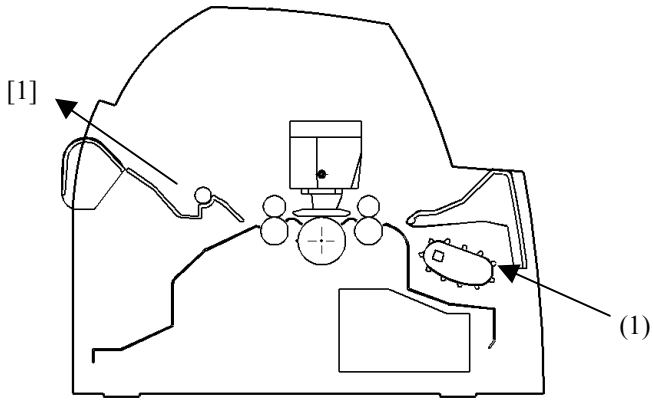
: Continuous forms

(n) : Input

[n] : Output

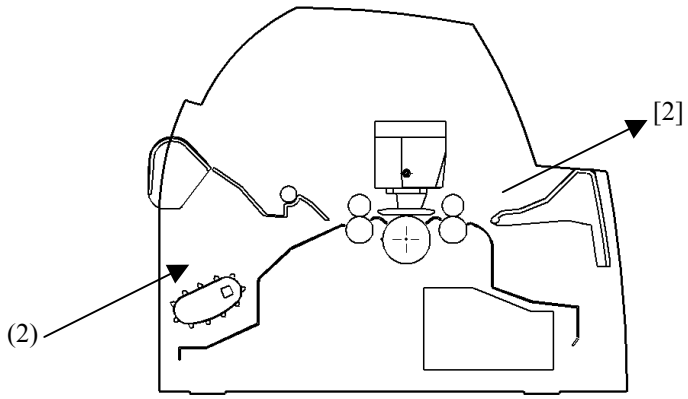
With front tractor

(1) Front tractor → Print → Rear eject



With rear tractor

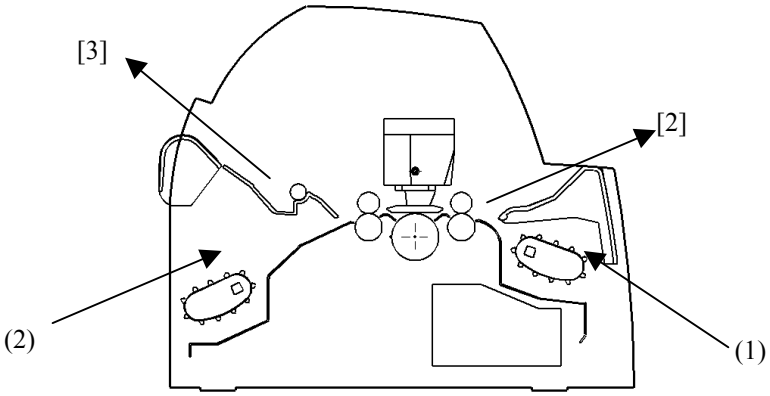
(2) Rear tractor → Print → Front eject



With front and rear tractors (either optional)

(1) Front tractor → Print → Rear eject

(2) Rear tractor → Print → Front eject



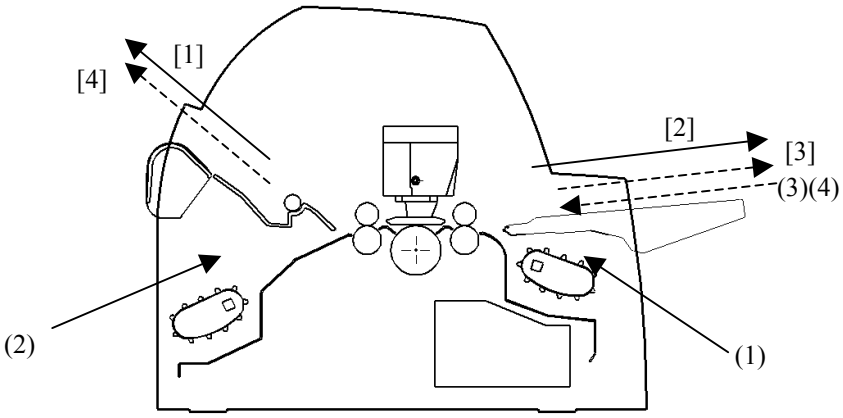
With front and rear tractors (either optional) and Large paper table (optional)

(1) Front tractor → Print → Rear eject

(2) Rear tractor → Print → Front eject

(3) Paper table → Print → Paper table

(4) Paper table → Print → Rear stacker



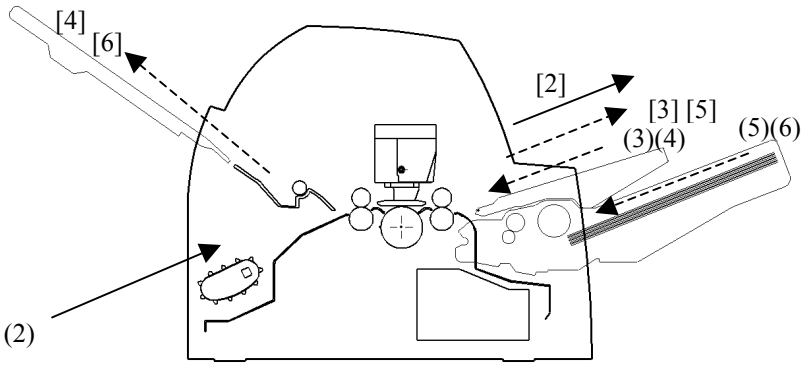
NOTE

Large and small paper table are available as option.

In the next two cases, the number of cut sheets stacked in the printer may be reduced depending on printing conditions and environments. Follow the notes.

With rear tractor and front optional cut sheet feeder and large stacker(optional) and large paper table(optional).

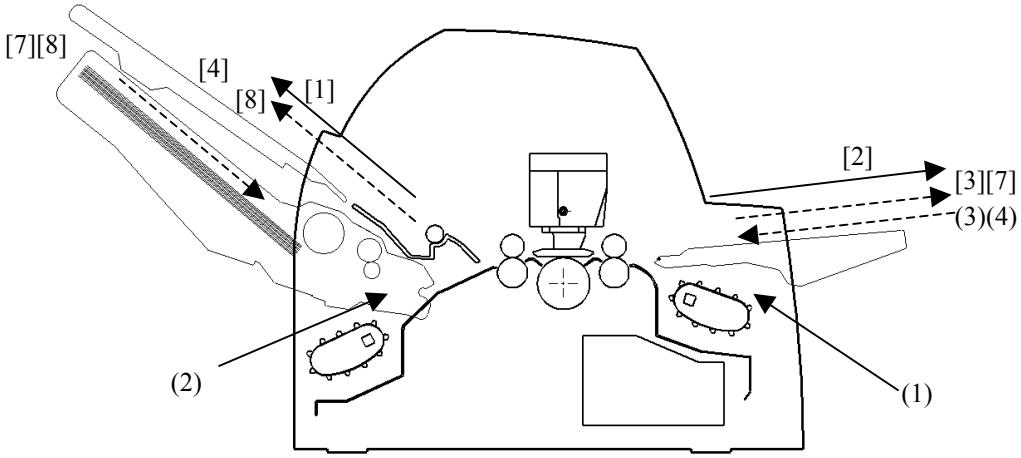
(2) Rear tractor → Print → Front eject
(3) Paper table → Print → Paper table
(4) Paper table → Print → Rear stacker
(5) Front cut sheet feeder → Print → Paper table
(6) Front cut sheet feeder → Print → Rear stacker



With front or rear tractor (either optional)and rear optional cut sheet feeder and large stacker(optional) and large paper table(optional).

In addition, the front and rear tractor (either is optional) can be mounted.

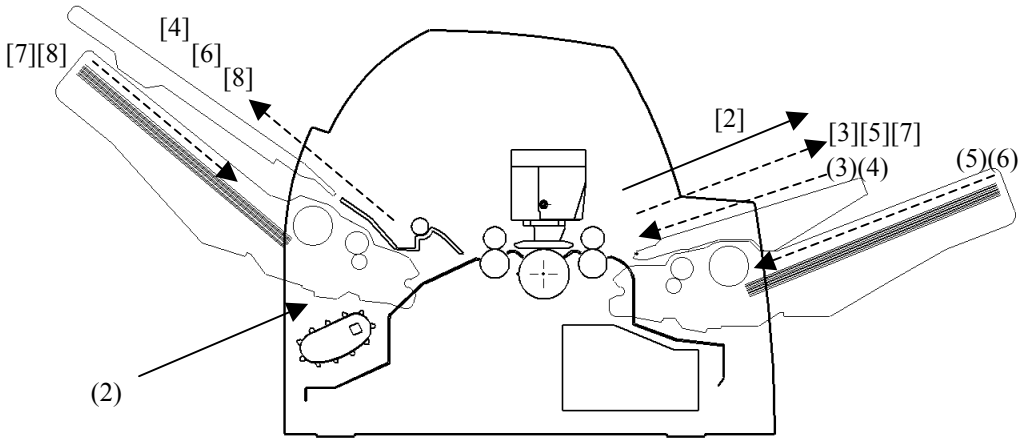
(1) Front tractor → Print → Rear eject
(2) Rear tractor → Print → Front eject
(3) Paper table → Print → Paper table
(4) Paper table → Print → Rear stacker
(7) Rear cut sheet feeder → Print → Paper table
(8) Rear cut sheet feeder → Print → Rear stacker



With rear tractor and front and rear optional cut sheet feeder and large stacker and large paper table.

In addition, the front and rear tractor (either is optional) can be mounted.

(2) Rear tractor → Print → Front eject
(3) Paper table → Print → Paper table
(4) Paper table → Print → Rear stacker
(5) Front cut sheet feeder → Print → Paper table
(6) Front cut sheet feeder → Print → Rear stacker
(7) Rear cut sheet feeder → Print → Paper table
(8) Rear cut sheet feeder → Print → Rear stacker



NOTES

When ejecting cut sheets to the paper table, the REMOVE PAPER indicator blinks after ejecting a cut sheet and stops printing. Before restarting printing, be sure to remove the cut sheet.

You must remove cut sheets one by one immediately after ejection.

This is required because the printer may load an ejected sheet again or an ejected sheet may push the previous sheets out of the printer.

To eject sheets larger than A4 size onto the paper table, the paper table must be replaced with the optional large cut sheet table to prevent ejected sheets from falling off the paper table.

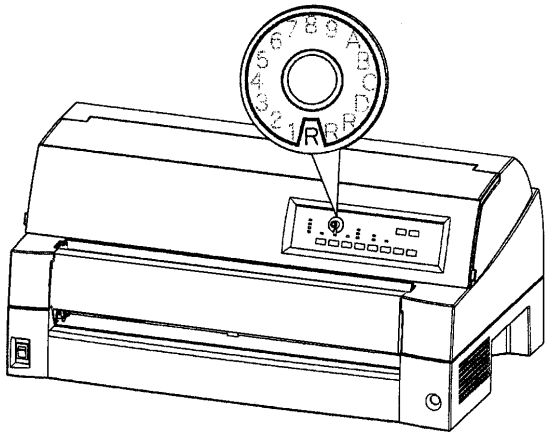
When printing thin paper, multipart copy paper, or large size paper, frequently remove the paper from the rear stacker or the paper table.

ADJUSTING FOR PAPER THICKNESS (LED)

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

The printer automatically adjusts for different paper thicknesses.

You can use the MANUAL GAP DIAL to adjust the paper thickness manually at manual mode. To place printer manual mode, press AUTO GAP buttons 2 seconds or more so that AUTO GAP lamp is off.



Adjusting the manual gap dial

Table 3.2 Manual Gap Dial Settings (LED)

Number of Copies (Including the Original) *1	Setting *2
1 copy	**1**
2 copies	**2**
3 copies	**3**
4 copies	**4**
5 copies	**5**
6 copies	**6**
7 copies	**7**
8 copies	**8**
9 copies, Envelopes	**A**
Slips	**B, C, D**
Ribbon replacement	**R**

*1 For carbon-interleaved paper, the carbon counts as one copy.

*2 Vary the setting up or down (including **A** to **R**) to optimize printing especially for labels and envelopes. Select **R** when replacing a ribbon or clearing a paper jam.

NOTE

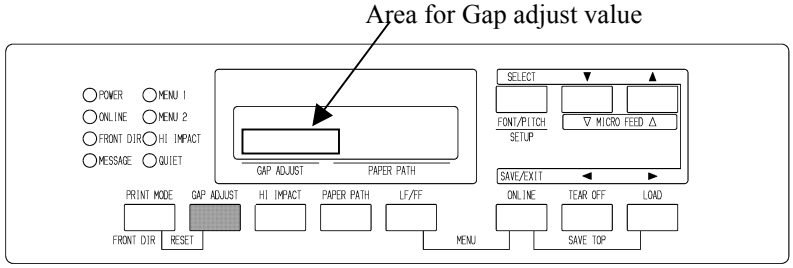
If printing is messy, the ribbon misfeeds, or the paper jams, move the lever one setting higher.

ADJUSTING FOR PAPER THICKNESS (LCD)

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

The printer automatically adjusts for different paper thicknesses.

You can use the GAP ADJUST button to adjust the paper thickness manually.



Adjusting the manual gap

Table 3.3 Manual Gap Settings (LCD)

Number of Copies (Including the Original) *1	Setting *2
1 copy	**GAP-1**
2 copies	**GAP-2**
3 copies	**GAP-3**
4 copies	**GAP-4**
5 copies	**GAP-5**
6 copies	**GAP-6**
7 copies	**GAP-7**
8 copies	**GAP-8**
9 copies, Envelopes	**GAP-9**
Slips	**GAP-A,B,C**
Ribbon replacement	**GAP-D**

*1 For carbon-interleaved paper, the carbon counts as one copy.

*2 Vary the setting up or down (including **A** to **D**) to optimize printing especially for labels and envelopes. Select **D** when replacing a ribbon or clearing a paper jam.

NOTE

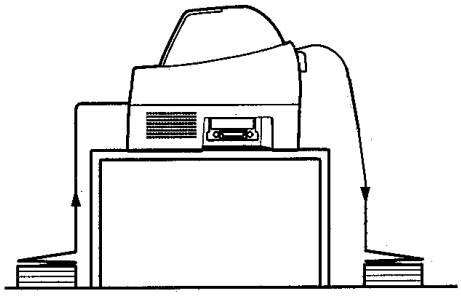
If printing is messy, the ribbon misfeeds, or the paper jams, move the lever one setting higher.

USING CONTINUOUS FORMS

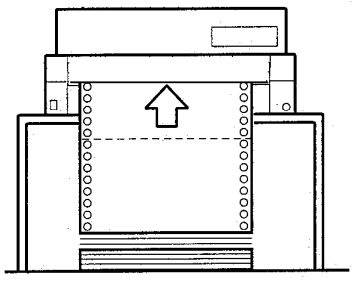
Continuous forms paper, fanfolded at the horizontal perforations, is ideal for printing rough drafts and long files. The paper is fed into the printer using the forms tractors.

Positioning the Paper Stack

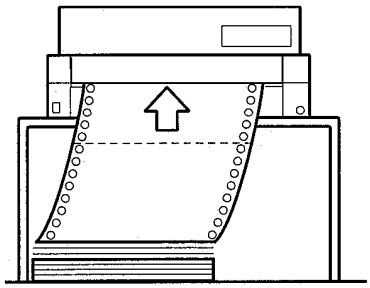
Place the stack of continuous forms paper directly below the rear of the printer or below the front of the printer. After the paper is installed in the printer, the paper path should look like this:



Good placement



Bad placement



Placement of continuous forms

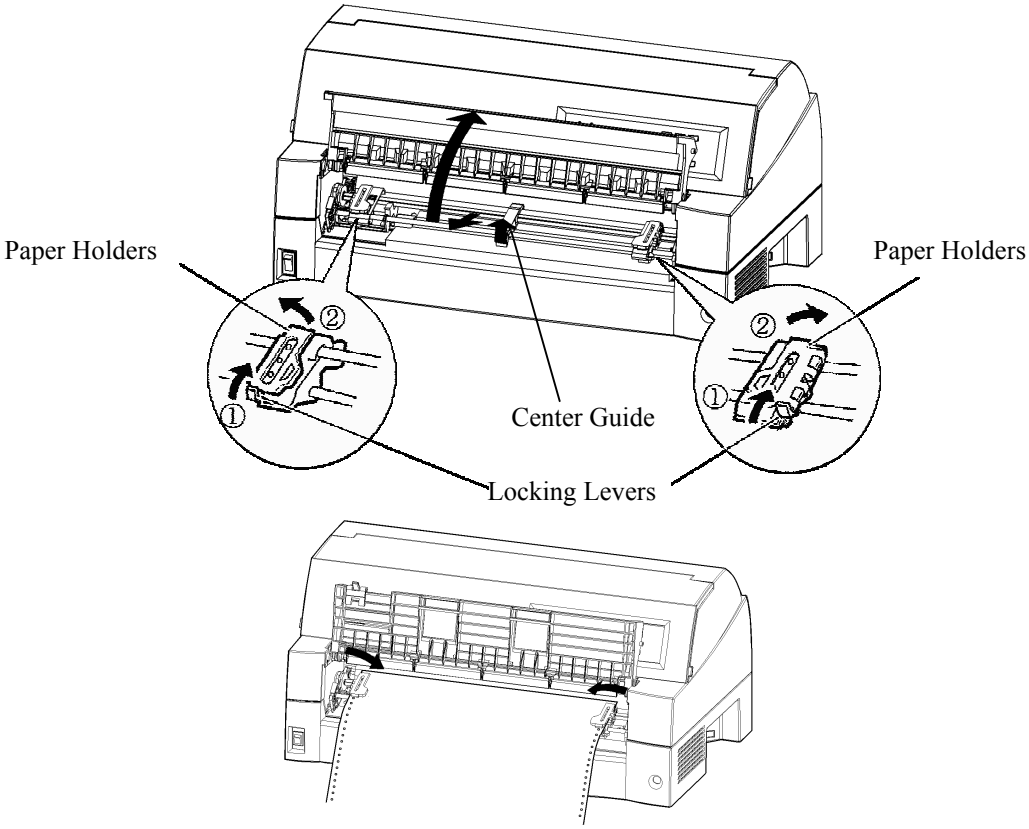
Loading Continuous Forms (Front Feed)

This section explains how to use continuous forms as the tractor unit is installed at the front of the printer. The tractor unit pushes continuous forms. This condition applies when you first purchase the printer.
Up to 8-ply media can be fed by the front tractor unit.

You can use continuous forms paper even if you have a cut sheet feeder installed at the rear of the printer.

To load continuous forms paper:

1. Make sure that the printer is turned on. Remove any single-sheet paper from the printer.
2. Lift up the soundproof cover as shown below.
3. Release the tractor locking levers by pulling them up(①). Open the tractor paper holders. See the following figure(②).
4. Position the tractors and center guide.
5. Fit the paper feed holes onto the left and right tractor pins. Adjust the right tractor to the width of the form. Close the paper holders.

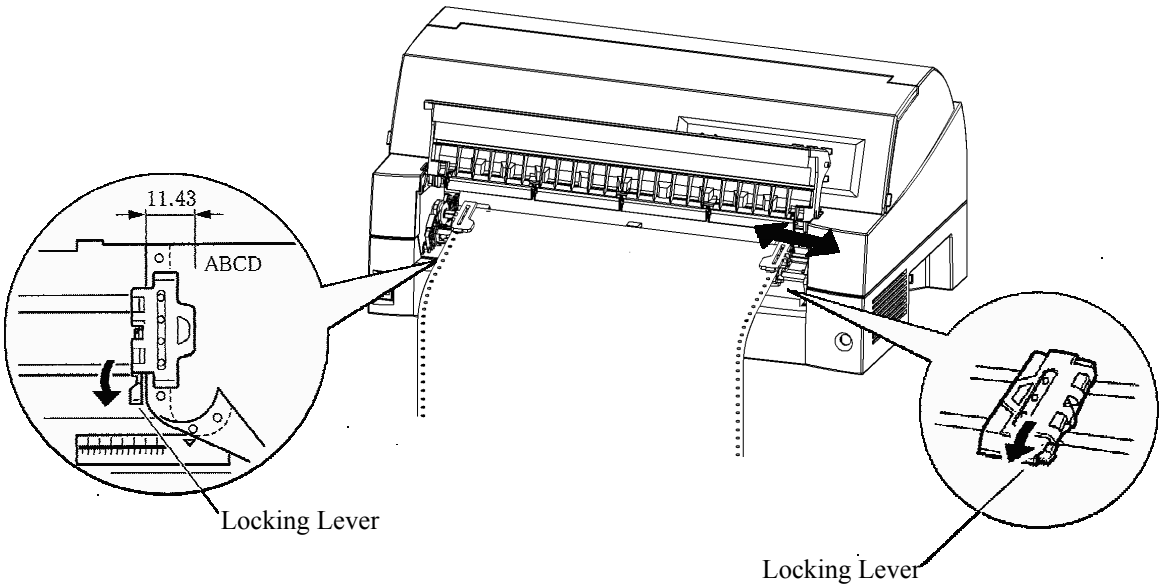


Set the continuous forms to front tractors

6. Adjust the left margin.

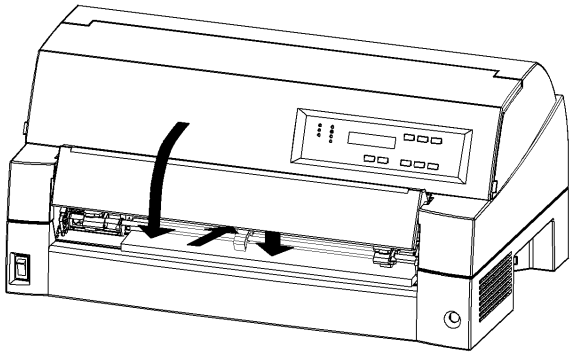
   Below the left tractor, there is a tractor guide, short inch-based ruler graduated in 10 columns per inch. Use the ruler to help position the tractor. When the paper edge is positioned to the zero line, the left margin is 12 mm (0.5 inch) including perforation area and the arrow indicates the location of the first character.

7. Pull the right tractor to stretch the paper taut. Push the right locking lever down to secure the tractor in place.



Adjusting tractor position

8. Lower the soundproof cover paper table to the down position (normal mode).



Lowering the cut sheet stand

CAUTION

- ***Before lowering the paper table, make sure that the paper holders are closed.***

  If the holders are opened, they may cause damage to the tractors and the paper table.

- ***Make sure that the paper table is positioned to its normal mode. If it is not done, jamming may occur when continuous forms paper is fed.***

9. Press the PAPER PATH button to select "FRONT TRACTOR". (The indicator lights.)
10. Press the LOAD button to advance the paper to the top-of-form position. Top-of-form is the first line on which printing can start. After loading paper, the printer goes into online mode.
11. Print a sample page and check the page margins. Make the following adjustments, as necessary:
    - Horizontal alignment. Move the forms tractors as required.
    - Top-of-form setting (see Chapter 5).
    - Margin settings. Use your software or the printer setup mode (see Chapter 5).

NOTE

Do not open the front cover during printing.

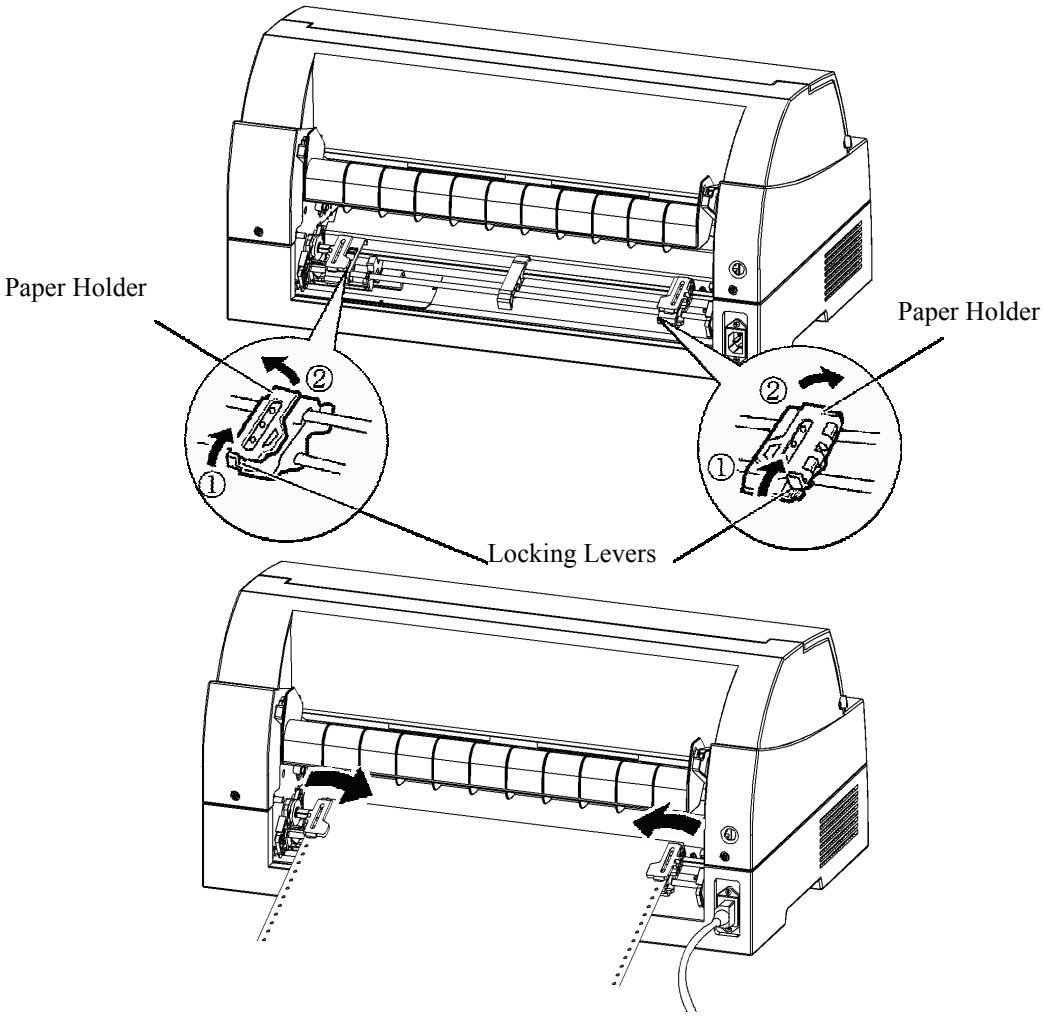
Loading Continuous Forms (Rear Feed)

A tractor is supplied as standard and is attached to the front of the printer. It can be attached to the rear of the printer. You can also buy a tractor unit as an additional rear tractor unit.

A maximum of 8-ply media can be fed from the rear tractor unit.

For reinstalling the tractor unit for rear feed, see page 2-10 to 2-13.

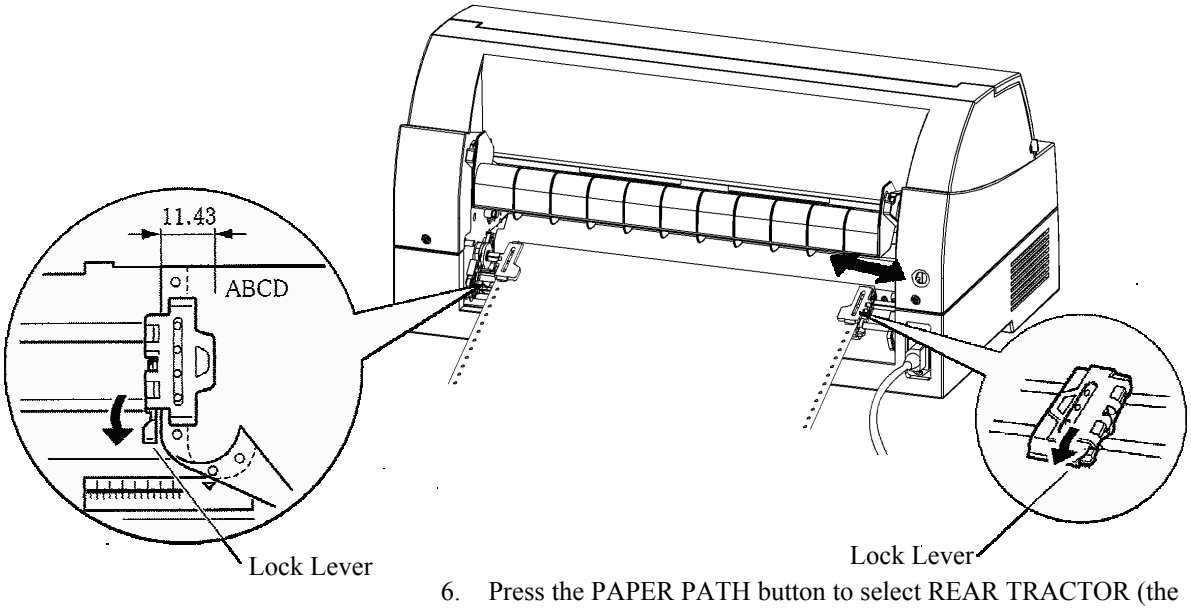
1. Release the tractor locking levers by pulling them up(①). Open the tractor paper holders. See the following figure(②).
2. Position the tractors and center guide.
3. Fit the paper feed holes onto the left and right tractor pins. Adjust the right tractor to the width of the form. Close the paper holders.



4. Adjust the left margin.

   Below the left tractor, there is a tractor guide, short inch-based ruler graduated in 10 columns per inch. Use the ruler to help position the tractor. When the paper edge is positioned to the zero line, the left margin is 12 mm (0.5 inch) including perforation area and the arrow indicates the location of the first character.

5. Pull the right tractor to stretch the paper taut. Push the right locking lever down to secure the tractor in place.



6. Press the PAPER PATH button to select REAR TRACTOR (the indicator lights).
7. Press the LOAD button to advance the paper to the top-of-form position. Top-of-form is the first line on which printing can start. After loading paper, the printer goes into online mode.
8. Print a sample page and check the page margins. Make the following adjustments, as necessary:
   - Horizontal alignment. Move the forms tractors as required.
   - Top-of-form setting (see Chapter 5).
   - Margin settings. Use your software or the printer setup mode (see Chapter 5).

Unloading Continuous Forms

To unload continuous forms:

1. Make sure that the FRONT TRACTOR or REAR TRACTOR indicator lights.
2. Press the LOAD button. The continuous forms paper is retracted to the park position. If the paper cannot be retracted in one operation, continue to press the LOAD button until the paper is parked.

   NOTE

   The printer can retract continuous forms paper up to a maximum of 55.8 cm (22 inches) per operation.

3. To remove the paper, raise the tractor paper holders and lift out the paper.

   NOTE

   If continuous forms are unloaded without stopping, the paper may slip off the tractors.

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 front and rear of the printer.

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:

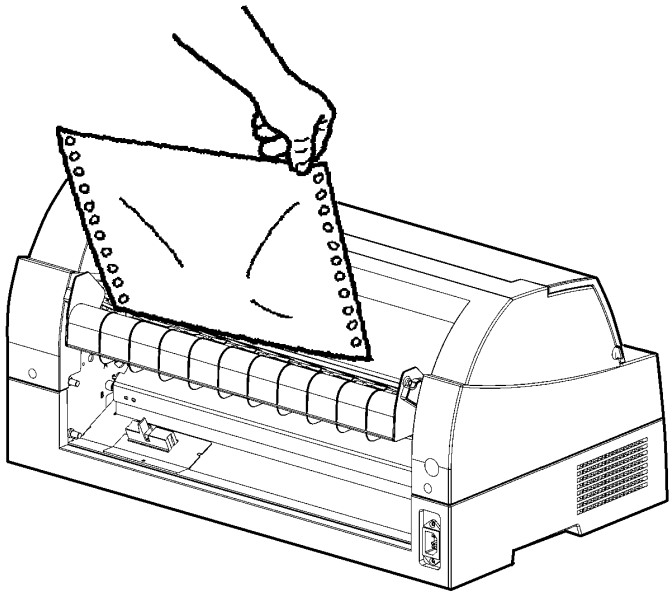
   AUTO using the HARDWARE function in setup mode, the paper automatically advances to the tear-off edge at the end of each job (or when the printer has printed all the data received).

   NOTE

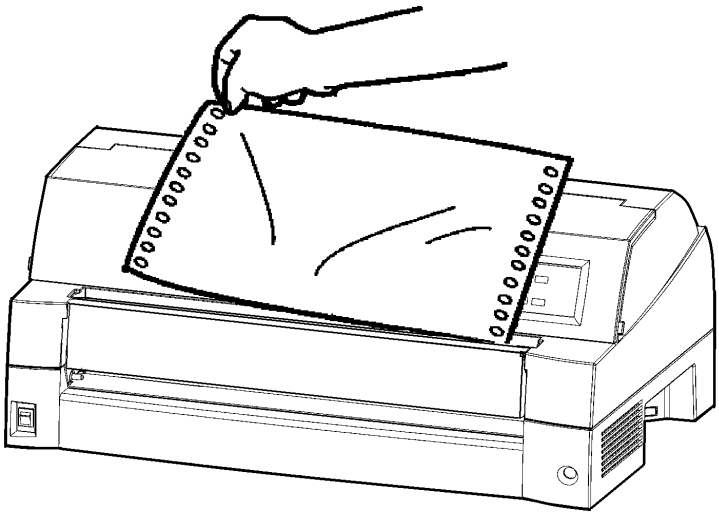
   If the bottom perforation of your paper is not positioned at the tear-off edge, the length of your paper may not be specified correctly in your software or the printer setup mode.

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.



Tearing off continuous forms (front feed)



Tearing off continuous forms (rear feed)

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

USING SINGLE SHEETS

This section describes how to load paper from the paper table or cut sheet feeder. The paper table allows paper to be loaded manually, one sheet at a time. A cut sheet feeder allows paper to be loaded automatically from the paper bin.

Loading a Paper From The Paper Table. (Option)

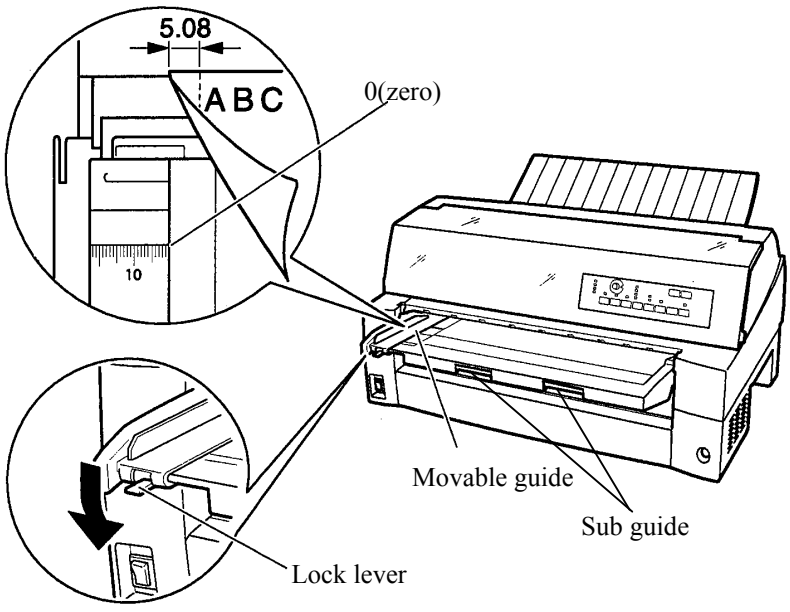
To load a sheet of paper from the paper table:

1. Make sure that the printer is turned on.
2. Press the PAPER PATH button to select CUT SHEET (the indicator lights).
3. Press the FRONT DIR button to select the direction of ejecting single sheets.
   - Front ejection — FRONTDIR indicator lights.
   - Rear ejection — FRONTDIR indicator doesn't light.
4. Adjust the left margin.

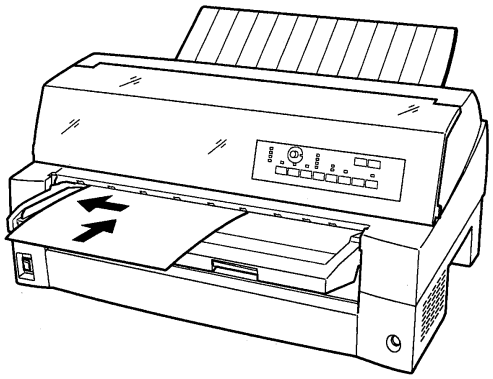
   On the left hand side of the paper table, a scale graduated in units of 1 [mm]. When the paper guide is positioned at scale 0 [mm], the left margin is 5 mm (0.2 inch).
   Push the lock lever down to secure the guide.
5. Pull the sub guide out as required to accommodate the paper size.

NOTE

When using the paper whose width is under 100 mm (4 inch), position the paper guide at scale 0 [mm].



Preparing to load a sheet of paper



Loading a sheet of paper

6. Insert a sheet of paper into the paper table. Make sure that the front edge of the paper engages snugly with the feed roller.

NOTE

If paper skews when it is loaded, the printer does not print and ejects the paper. (This function can be disabled by a setting in setup mode.)

7. Press the LOAD button. The paper will advance to the top-of-form position. The top-of-form position is the first line on which printing can start. To adjust the position of the paper slightly, press the ▲ MICRO FEED button or the ▼ MICRO FEED button. The paper will move forward or backward in 1/180-inch increments.

   After loading paper, the printer goes into online mode.

8. Print a sample page and check the page margins. Make the following adjustments, as necessary:

   - Horizontal alignment. Readjust the paper guide if required.
   - Top-of-form setting (see Chapter 5).
   - Margin settings. Use your software or the printer setup mode (see Chapter 5).

NOTE

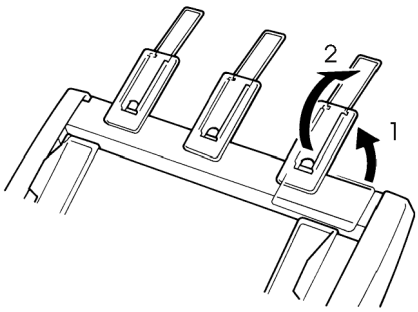
Do not open the front cover during printing. With the cover open detection option installed, the printer never prints while the front cover is open. Close the front cover to perform printing.

Loading Paper from the Cut Sheet Feeder (Option)

A cut sheet feeder (SF940) allows automatic printing on single sheets without the need to manually insert the sheets one-by-one. This can save you a lot of time when printing long files using single sheets. See Chapter 8 for more information on the cut sheet feeder.

For installation of the feeder, refer to its user's manual. When a feeder is mounted and the feeder cable is connected, the printer automatically knows the feeder type and controls the feeder accordingly.

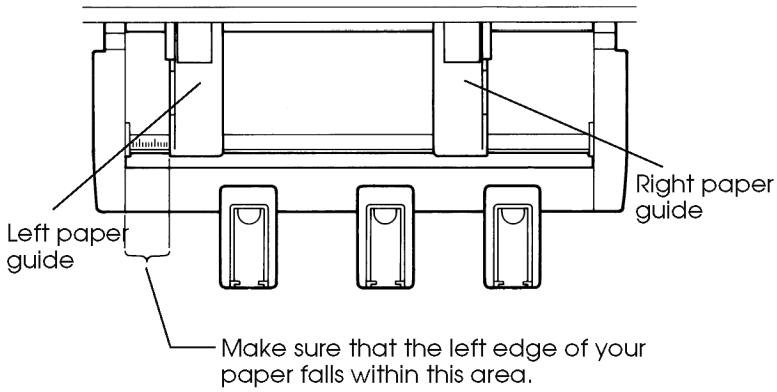
1. Two steps of extension are available for supporting long sheets of paper.



Steps of extension

2. Adjust the left margin.

   To help align the left paper guide, use the inch-based ruler located behind the paper guides. The ruler is graduated in 10 columns per inch. For example, setting the left paper guide 12.7 mm (0.5 inch) from the left gives a left margin of 6.3 mm (0.25 inch) plus the left margin specified by your software or the printer setup mode.

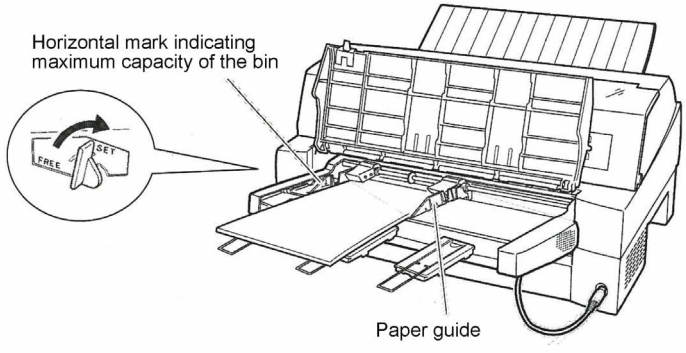


- Slide the right paper guide until the distance between the two guides is the approximate width of your paper.

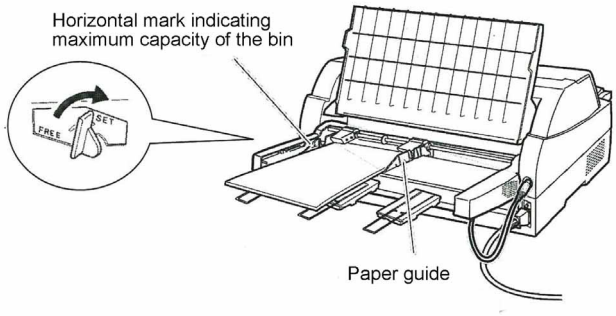
3. Manually fan the stack of paper and place it in the paper bin.

NOTE

A short horizontal mark inside the left paper guide indicates the maximum capacity of the bin. Make sure that your paper stack does not exceed this horizontal mark.



Loading the cut sheet feeder (Front feed)



Loading the cut sheet feeder (Rear feed)

4. Readjust the right paper guide, leaving a slight gap between the paper guide and the right edge of the paper. Slide the guide to the approximate width of the paper, or the paper will not be loaded properly. Pull the right locking lever forward.
5. Push the bin lever down to the “SET” position.
6. Load paper to the top-of-form position using either of the following methods:

- Load the paper manually. Press the LOAD button. The paper will advance to the top-of-form position. Adjust the position of the paper as needed by the ▲MICRO button or the ▼MICRO button (micro feed).
- Load the paper using your software. Press the ONLINE button to place the printer online. Load paper according to the instructions in your software documentation. Most software packages load paper automatically.

  After loading paper, the printer goes into online mode.

7. Print a sample page 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).

NOTE

Do not open the front cover during printing.

Ejecting Single Sheets

If you print using software, each sheet is ejected automatically when the end of the printed page is reached. To manually eject sheets of paper, use the following method:

- Press and hold down the LF/FF button to execute a forward form feed.

FEEDING AND POSITIONING PAPER

The following functions are available whether the printer is online or offline.

Line Feed/Form Feed

Use the line feed/form feed function to move paper forward.

- Pressing and holding down the LF/FF button feeds one sheet of paper.
- Pressing the LF/FF button once advances the paper one line (do not hold the button more than three seconds).

Micro Feed

Use the micro feed function to fine tune the position of the paper.

- Press the ▲ MICRO button to feed paper backward by 1/180 inch.
- Press the ▼ MICRO button to feed paper forward by 1/180 inch.

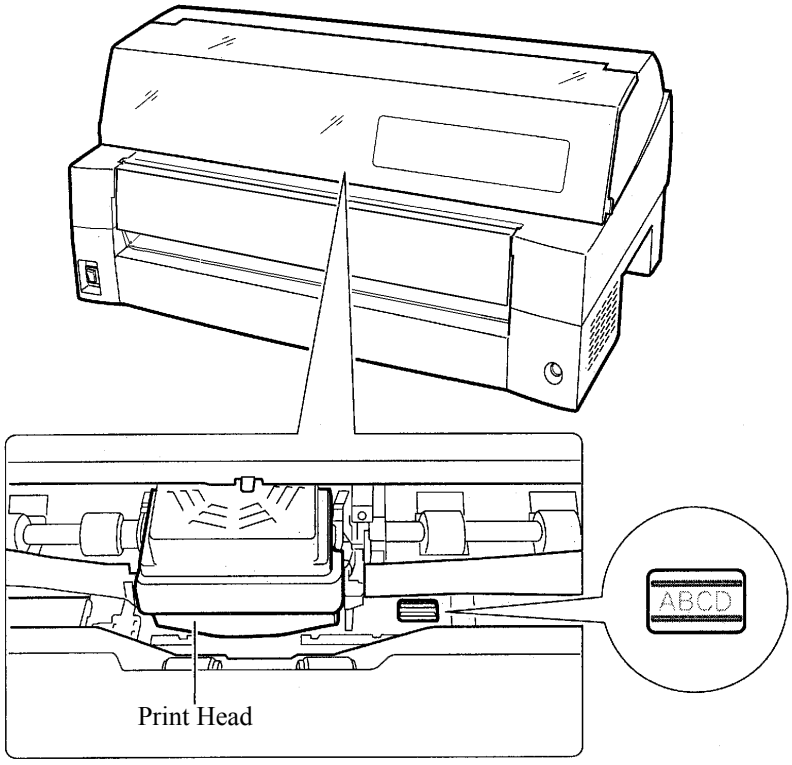
Remember that the top-of-form will differ from the original setting.

Load Position Adjust

Use also the micro feed function to adjust the load position of the paper.

- When the ▲ MICRO button or the ▼ MICRO button is used immediately after the LOAD button is pressed, the adjusted position of paper is retained as the new load position until the power is turned off.
- Pressing the ONLINE and LOAD buttons simultaneously saves the new position permanently.

The load position can be set for single sheets and continuous forms respectively.



Adjusting Load Position by Using Window of Card Guide

The lines of window on the right side of card guide indicate printing line. So use this as a guide to adjust load position.

General Tips

TIPS ON PAPER HANDLING

- 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, and labels with the backing sheet exposed.
- Store paper in a clean, dry environment.

Multipart Forms

- Avoid using carbon-interleaved single sheets if possible.

  Printing tends to become misaligned on the bottom sheet.
- To ensure smoother feeding of paper-stapled, multipart forms, raise the rear stacker to support the forms.

Envelopes

When printing envelopes, use the paper table or the manual feed slot of the cut sheet feeder. Note the following:

- When loading envelopes, make sure that the envelope flaps face forward. Otherwise, the envelopes may jam in the printer.

Labels

- Be careful to check operating conditions when using labels.

  Labels are sensitive to temperature and humidity.
- Only use labels mounted on continuous forms backing sheets.

  Do not print labels mounted on single sheet backing. Labels mounted on single sheet backing tend to slip and printing becomes crooked.
- Do not feed labels backwards using the LOAD button from the control panel. Jamming may occur.
- Do not use the printer tear-off feature when printing labels. If the labels are retracted, the backing may peel off and the labels may jam in the printer.
- Test-print labels before running a job. If jams occur, go into setup mode and
  - set the paper thickness control to manual mode and
  - set the paper thickness indicator to a wider position manually.

  If jamming problems continue, try a different type of label.

4

PRINTING

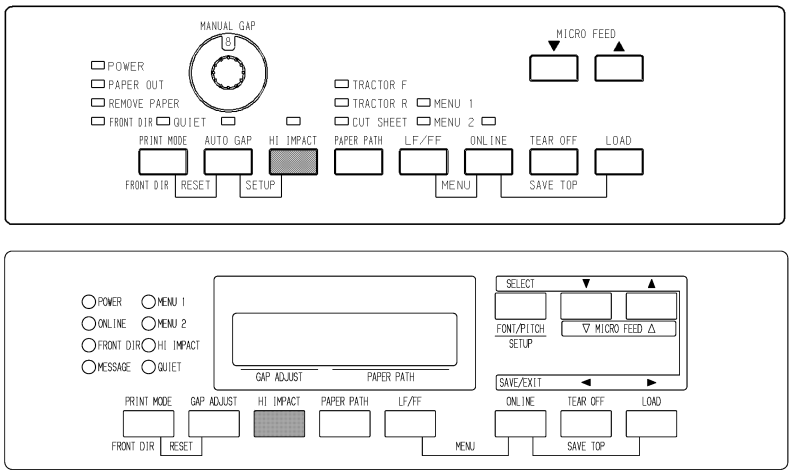
This chapter describes the following everyday printing operations:

- Using multipart form (hi impact mode)
- Selecting the print mode(quiet mode)
- Starting, stopping, or resuming printing
- Removing printed pages
- Clearing the print buffer
- Selecting the print features

MULTIPART FORMS (HI IMPACT MODE)

Instructions for loading paper are given in Chapter 3.

This printer has enough capability to print multipart forms. When superior copy capability is required, use the hi impact mode. Press the HI IMPACT button on the printer control panel. This function is valid when the HI IMPACT indicator lights.



Print control panel

NOTE

- **Setting hi impact mode by pressing the HI IMPACT button is cancelled when you turn off the printer.**
- **If you wish to have the hi impact mode set on power-on, save the setting in setup mode.**

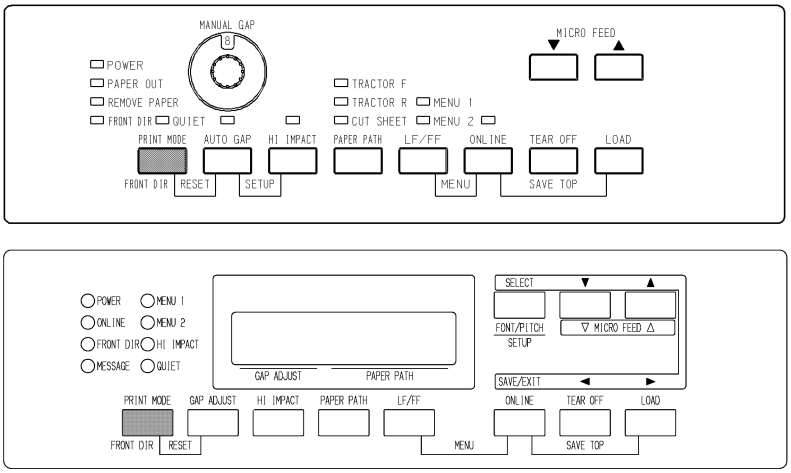
PRINT MODE (QUIET MODE)

Quiet mode reduces acoustic noise as follows.

The consecutive dots are omitted (LQ).
The print speed is slowed to LQ speed (except for LQ).
Skipping the space (no characters) at higher speed doesn't work.

To select Quiet mode:

1. Press the ONLINE button to place the printer online.
2. Press the PRINT MODE button. When QUIET indicator lights, QUIET MODE is valid.



Print control panel

NOTE

- **Setting quiet mode by pressing the PRINT MODE button is cancelled when you turn off the printer.**
- **If you wish to have the quiet mode set on power-on, save the setting in setup mode.**

STARTING OR STOPPING PRINTING

Starting Printing

Before you start to print, make sure that paper is loaded.

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 PRINT MODE and AUTO GAP buttons. Any data sent to the print buffer before you canceled printing will be lost.

Resuming from a Paper-Out

The printer can "sense" when paper runs out. Depending upon how PPR-OUT (paper-out) is set in setup mode, the printer either:

- Stops printing and lights the red PAPER OUT indicator, or
- Continues printing until no more data remains in the printer.

See Chapter 5 for details on setting PPR-OUT. The factory default is to stop printing if continuous forms paper runs out and to continue printing if single sheet paper runs out.

To resume printing when paper runs out, use either of the methods described below:

Printing the remaining lines on a page

This method is convenient to continue printing under the paper-out condition, but is not available when the cut sheet feeder is used.

1. Press the ONLINE button. The printer returns to online mode, prints or feeds one line, and the PAPER OUT indicator lights up again.
2. Repeat this procedure until the full page is printed. Line spacing, however, may be uneven.

CAUTION

When printing remaining lines, be careful not to print on the platen. Printing on the platen may damage both the platen and the print head.

Continuing printing after supplying paper

1. Install paper on the forms tractors or on the cut sheet stand, or in the cut sheet feeder bin, as described in Chapter 3.
2. To load the first sheet of paper, press the LOAD button. The PAPER OUT indicator will turn off.
3. Press the ONLINE button to place the printer online. The printer resumes printing.

NOTE

For continuous forms paper, the page where printing stopped and the page where printing resumes may be incorrectly printed. In this case, wait for the entire job to finish printing. Then reprint the incorrect pages.

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 and hold down the LF/FF button to execute a form feed.

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 PRINT MODE and AUTO GAP 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.

This method does not change or clear MENU1 and MENU2 settings, paper loading position settings, and downloaded fonts.

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 the printer control panel to select print features. Sometimes, the control panel enables you to select features not available through your software. For example, you can select downloaded fonts not supported by your software.

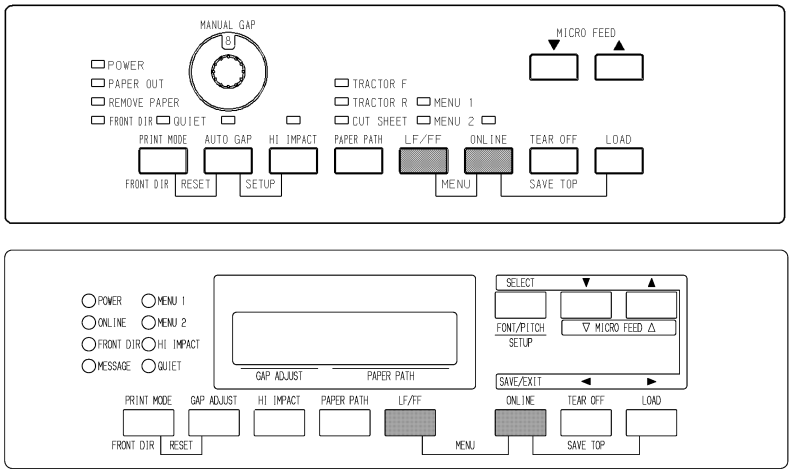
Using Commercial Software

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

Use the ONLINE and LF/FF button to directly select one of the two menus.



Printer control panel

The ONLINE and LF/FF buttons specify MENU1 or MENU2, either of which allows you to specify different sets of options in advance. Some of the print features include emulation, print quality, character pitch, and line spacing. To setup the print features to MENU1 and MENU2, refer to the chapter 5.

When you first turn the printer on, the MENU 1 indicator is lit; that is, all of the print features assigned to MENU1 are enabled. However, you can easily switch to MENU2 before printing.

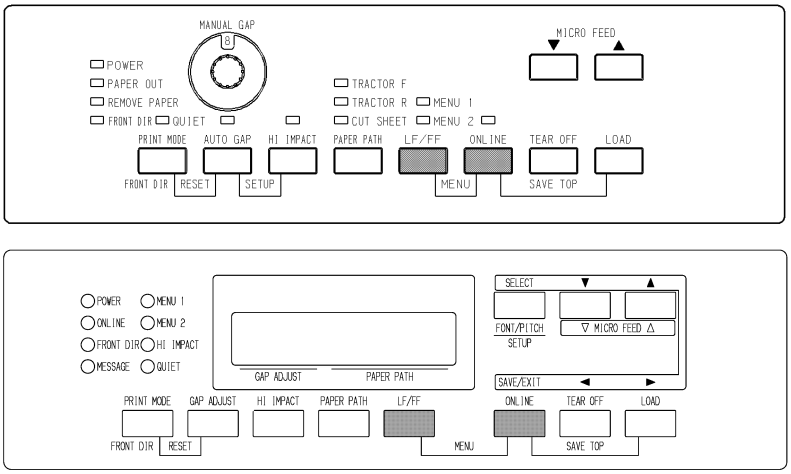
NOTE

For easy reference, keep a list of your current MENU 1 and MENU 2 settings near the printer. To print a list of current settings, see the section Printing a List of Selected Options in Chapter 5. You may also want to use the space provided in Table 4.1 to record your settings.

Selecting MENU1 or MENU2

When you first turn the printer on, MENU1 is selected. To change to MENU2 or back to MENU1, proceed as follows:

1. Press the ONLINE button to place the printer offline.
2. Repeatedly press the ONLINE and LF/FF buttons. The lighted indicator (1 or 2) shows the menu selected. When the menu selection is changed, the font (font, pitch, and quality) assigned in the selected menu becomes valid.

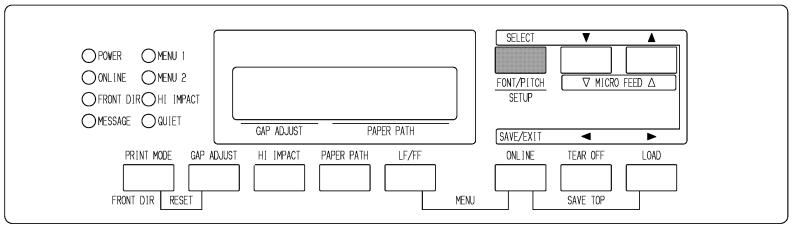


3. Press the ONLINE button to return online. You are ready to print using the selected menu.

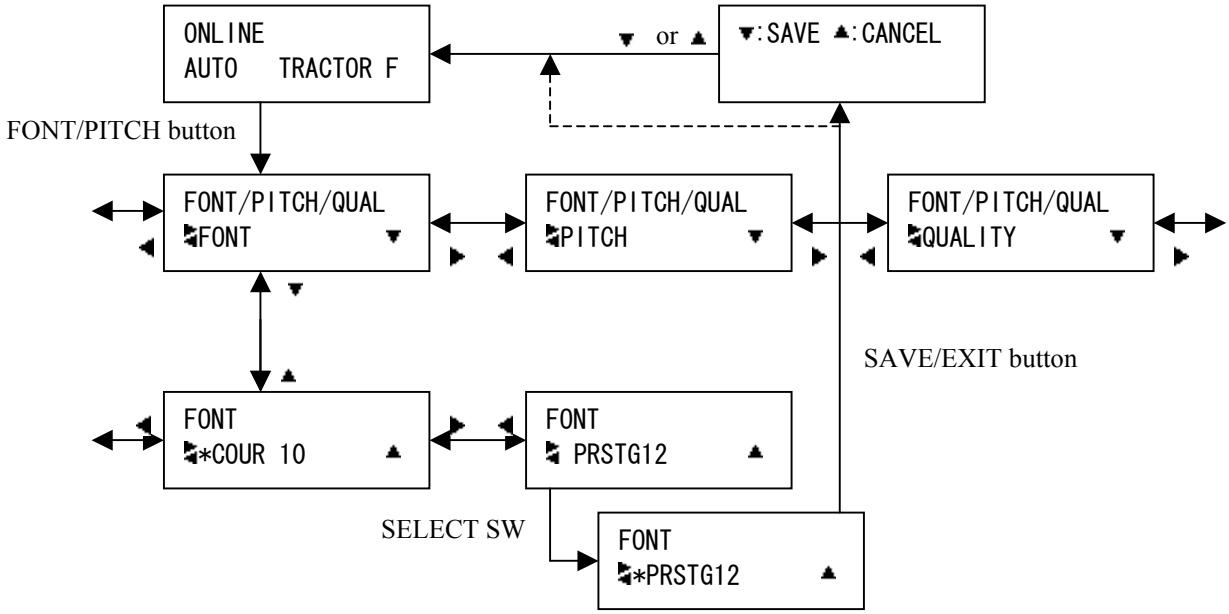
Using the Control Panel (LCD type only)

LCD type Control panel also can select print features including FONT/PITCH/QUALITY that assigned current MENU1 or 2 directly. To select print features enter select mode as follows.

1. Press the ONLINE button to place the printer online.
2. Press the FONT/PITCH button to enter select menu.



3. To move layer and in transverse direction, use ▼,▲,◀ and ▶ buttons.
4. To select print features, use ◀ ,▶ and SELECT buttons.
5. To save or exit press SAVE/EXIT buttons.
6. Press ▼ or ▲ buttons to finish.



"＊" is applied to a selected option.

FONT/PITCH/QUAL setting mode.

Table 4.1 MENU1 and MENU2 Settings

Setting	Default Settings *For easy reference, check (✓) or record your default settings in the space below.*	
Print Feature	**MENU1**	**MENU2**
Emulation Fujitsu DPL24C PLUS IBM Proprinter XL24E Epson ESC/P2		
Font Courier 10 Prestige Elite 12 Compressed 17 Boldface PS Pica 10 Correspondence OCR-B 10 OCR-A 10 Courier Normal 10 (outline) Courier Bold 10 (outline) Courier Italic 10 (outline) Nimbus Sans Normal PS (outline) Nimbus Sans Bold PS (outline) Nimbus Sans Italic PS (outline) Timeless Normal PS (outline) Timeless Bold PS (outline) Timeless Italic PS (outline) Downloaded font 0 Downloaded font 1		
Print quality Letter Report Draft High-speed draft		
Pitch 2.5, 3, 5, 6, 10, 12 15, 17, 18 or 20 cpi Proportional spacing		
Other features:		

5

USING SETUP MODE

Your printer has two modes: normal and setup. Normal mode is used for everyday printer operations and is explained in Chapters 3 and 4.

Setup mode serves two purposes. It enables you to:

- Select the printer's optional settings
- Help diagnose printer problems

These setup mode functions can be done either offline, using the printer control panel (offline setup), or remotely, using a setup program in your computer system or software (online setup). Primarily, this chapter explains how to use the offline setup mode. The online setup mode, which is reviewed briefly at the end of this chapter, is valid in all emulations.

Optional settings on the printer include the emulation, fonts, pitch, page length and page width, serial interface options, and the top-of form setting. When you save your settings in the printer's permanent memory, they become the new settings or defaults. These defaults are invoked whenever you turn on the printer. For example, if you save DPL24C PLUS as the default emulation, DPL24C PLUS is invoked when you turn on the printer.

The printer diagnostic functions are SELF-TST, HEX-DUMP, and V-ALMNT. These functions are helpful for printer trouble-shooting, as described in Chapter 7.

HOW TO USE THIS CHAPTER

The sections in this chapter are presented in logical sequence. *If you are a first-time user, be sure to read the following sections first:*

- Entering Setup Mode
- Overview of Setup Mode

These sections will familiarize you with how setup mode works. Once you understand the basics, use the following sections to select printer options that are compatible with your computer system's hardware and software setup:

- Printing a List of Selected Options
- Deciding Which Options to Change
- MENU1 and MENU2 Items and Options
- Hardware Items and Options
- Print Position Adjustment Items and Options
- Configuration Items and Options

- Head Gap Adjustment Items and Options
- Exiting and Saving

To restore the printer default settings (factory defaults or power-on defaults), see the section **Resetting Defaults** later in this chapter.

For information on using the SELF-TST, HEX-DUMP, and V-ALMNT functions, see the section **Using the Diagnostic Functions** later in this chapter.

For Experienced Users:

Once you are familiar with setup mode, you may want to use the flowchart at the end of this chapter for quick reference. The flowchart lists all printer setup functions, items, and options.

ENTERING SETUP MODE(LED)

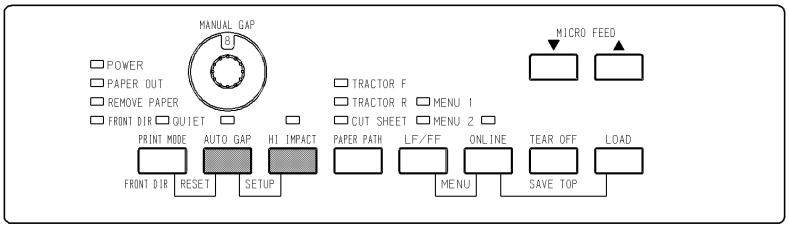
Before entering setup mode, load continuous forms paper from the front tractor into the printer as described in Chapter 3. Several sheets of paper may be required to make all of your setup mode selections.

To enter setup mode, follow these steps:

1. Make sure that front continuous forms paper is loaded and press the PAPER PATH button to select the appropriate paper path.

   If continuous forms paper is fed from the rear or a CSF is mounted, the printer does not enter SETUP mode.

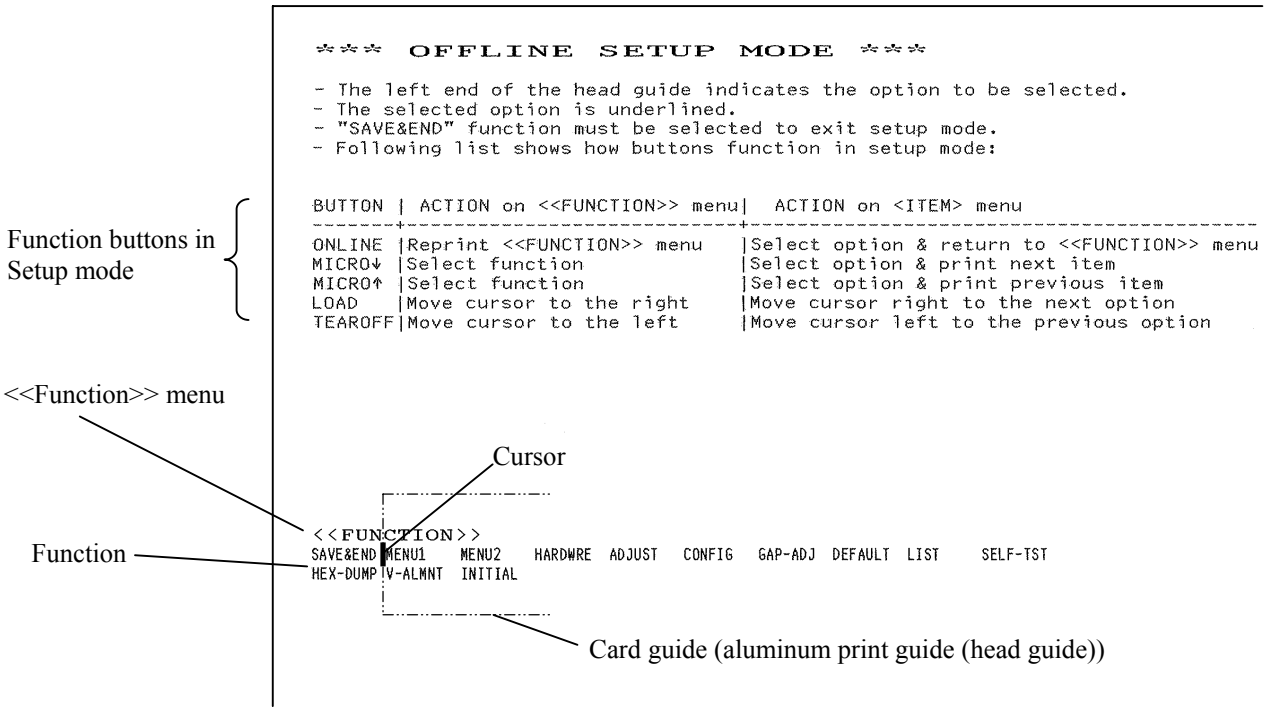
2. Press the ONLINE button to place the printer offline.
3. Press the AUTO GAP and HI IMPACT buttons simultaneously until the printer beeps.



Entering setup mode

If you do not hear a beep or an alarm beep (beeps four times), you are not in setup mode. Place the printer offline and try again.

4. When the printer enters offline setup mode, it prints the following information.



Initial printout in setup mode

The initial printout contains a header, help menu, and <<FUNCTION>> menu. The header tells you that the printer is offline and in setup mode. The help menu provides a quick summary of how to use setup mode. The <<FUNCTION>> menu lists all of the functions available to you in setup mode. Note that the cursor on the left edge of the aluminum print guide is initially positioned at the SAVE & END function.

Setup mode can also be entered by turning off the printer, then turning the printer back on while pressing the AUTO GAP and HI IMPACT buttons simultaneously until the printer beeps.

OVERVIEW OF SETUP MODE (LED)

When you enter setup mode, the following <<FUNCTION>> menu is printed:

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

Table 5.1 summarizes the purpose of each function.

Table 5.1 Setup Mode Functions

Function	Purpose
SAVE & END	Exits setup mode and saves any changes made while in setup mode.
MENU1 and MENU2	Assigns print features to MENU1 and MENU2 on the printer control panel.
HARDWRE	Changes the printer hardware options.
ADJUST	Changes the print position adjustment options.
CONFIG	Changes the configuration options.
GAP-ADJ	Adjust the gap between the print head and printing paper.
DEFAULT	Resets factory defaults in MENU1 and MENU2.
INITIAL	Resets factory defaults in MENU1, MENU2, HARDWRE, ADJUST, CONFIG, GAP-ADJ.
LIST	Prints a list of all currently selected options.
SELF-TST	Runs the self-test.
HEX-DUMP	Prints hex dumps.
V-ALMNT	Checks and corrects vertical print alignment.

To select a function from the <<FUNCTION>> menu:

1. Repeatedly press the “TEAR OFF” or “LOAD” button to position the cursor on the left edge of the aluminum print guide at the function you require.
2. Press the ▲ button or the ▼ button to select the function. If the function has items and options, the printer prints the first item and its options. The MENU1, MENU2, HARDWRE, ADJUST, CONFIG, and GAP-ADJ functions contain items that have selectable options. The other functions have neither items nor options.

The first three MENU1 items and their options are shown below. Items are enclosed in single brackets < >. A short underlined portion is current option and long underlined portion is selected option.

```
< EMULATE>DPL24C+   XL24E   ESC/P2

<FONT     >
COUR 10   PRSTG12  COMPRSD  BOLDFCE  PICA 10  CORRESP  OCR-B    OCR-A    COUR-N    COUR-B
COUR-I    N.SAN-N  N.SAN-B  N.SAN-I  TIMLS-N  TIMLS-B  TIMLS-I  DOWNLD0  DOWNLD1

<QUALITY>LETTER   REPORT   DRAFT    HI-DRFT
```

To select an option from the <item> menu:

1. Repeatedly press the “TEAR OFF” or “LOAD” button to position the cursor on the left edge of the aluminum print guide at the option you require.
2. Press the ▼ button to select the option. The printer prints the next item and its options. You can press ▲ to select the option. Then, the printer prints the previous item and its options.
3. After selecting the desired options, press the ONLINE button to reprint the <<FUNCTION>> menu.

   For each item, the short-underlined option is the current default option (the option currently saved in the printer’s permanent memory). In the previous example, the default options are Fujitsu DPL24C PLUS emulation, Courier 10 font, and letter print quality.

Setup Mode Example (LED)

To become familiar with setup mode, try the following example. This example shows how to change the font and pitch in MENU2 to Prestige Elite 12 and 12 cpi.

1. **Load continuous forms paper.**
2. **Enter setup mode.**

   Press the AUTO GAP and HI IMPACT buttons simultaneously until the printer beeps.

3. **Select the MENU2 function.**

   Wait for the printer to stop printing and press the “TEAR OFF” or “LOAD” button twice to position the cursor on the left edge of the aluminum print guide at MENU2. Press the “▲” button or the “▼” button to select the MENU2 function and print the <EMULATE> item and its options.

4. Select the current emulation.

Since you do not want to change the emulation, press the "▼" button to select the current emulation and print the next item, <FONT> and its options.

5. Change the font to Prestige Elite 12.

Press the "TEAR OFF" or "LOAD" button once to position the cursor on the left edge of the aluminum print guide on PRSTG12. Press the "▼" button to select PRSTG12 and print the next item, <QUALITY>, and its options.

6. Select the current print quality.

Since you do not want to change the print quality, press the ▼ button to select the current print quality and print the next item, <PITCH>, and its options.

7. Change the pitch to 12 cpi and exit the MENU2 function.

Press the "TEAR OFF" or "LOAD" button once to position the cursor on the left edge of the aluminum print guide on 12 CPI. Since you do not want to make any other changes in MENU2, press the ONLINE button to select 12 CPI and exit MENU2. The <<FUNCTION>> menu is then reprinted.

8. Exit setup mode, saving the new font and pitch.

Since the cursor on the left edge of the aluminum print guide is on SAVE & END, press the ▲ MICRO FEED button or the ▼ MICRO FEED button to select SAVE & END. The printer saves Prestige Elite 12 and 12 cpi as the new power-on defaults in MENU2. The printer then exits setup mode and returns online. These settings remain in effect until changed.

Points to Remember

- Whenever you enter setup mode, short help menus are printed at the top of the page. Help menus are also printed when you select the SELF-TST, HEX-DUMP, or V-ALMNT functions.

  Use help menus for quick reference while in setup mode.

- When printing the items and options for each function, you can only print one item at a time. However, you can move either forward or backward in the item list. To move forward (print the next item), press the ▼ button. To move backward (print the previous item), press the ▲ button.

- While in the <<FUNCTION>> menu or when selecting a function that contains items and selectable options, press the ONLINE button to reprint the <<FUNCTION>> menu.

- A short underline under the first two letters of an option indicates that it is the current default setting. For example, 12 CPI indicates that 12 characters per inch is the default pitch.

  To change the default, select and save a new pitch setting.

- While in setup mode, you can use the LIST function to print out a list of the currently selected options (see the next section for details).

- To exit setup mode and permanently save your changes, select the SAVE & END function. For details, see the section **Exiting and Saving** later in this chapter. To exit setup mode without saving your changes, turn the printer off. Your previous power-on defaults are active when you turn the printer on again.

PRINTING A LIST OF SELECTED OPTIONS(LED)

The LIST function prints a list of all the printer's currently selected options. This function is useful for checking the printer settings when you first enter setup mode or just before you exit. To print a list of options, load continuous forms paper and then proceed as follows:

1. **Enter setup mode.**

   Press the AUTO GAP button and the HI IMPACT button simultaneously until the printer beeps. Wait for the printer to stop printing and check that the following <<FUNCTION>> menu is printed:

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

2. **Select the LIST function.**

   Repeatedly press the “TEAR OFF” or “LOAD” button to position the cursor on the left edge of the aluminum print guide on LIST. Next press the ▲ button or the ▼ button to select the LIST function. The printer starts to print a list of the currently selected options. The preselected factory settings, also called factory defaults, are shown on the opposite page.

   When the printer finishes printing the list of options, it reprints the <<FUNCTION>> menu.

3. **Do either of the following:**

   - Select another function, or
   - Exit setup mode, saving any changes you made.

   For details about other functions, see the other sections in this chapter. To exit setup mode and save your changes, make sure that the cursor on the left edge of the aluminum print guide is positioned on SAVE & END, then press the ▲ button or the ▼ button.

*** Setup Parameters ***

<< Menu 1 settings >>

Func.	Item	Option
MENU1	EMULATE	DPL24C+
MENU1	FONT	COUR 10
MENU1	QUALITY	LETTER
MENU1	PITCH	10 CPI
MENU1	LINE SP	6 LPI
MENU1	CHAR-W	NORMAL
MENU1	CHAR-H	NORMAL
MENU1	ATTRIB	NONE
MENU1	PAGE LG	11.0 IN
MENU1	LFT-END	1 COLM
MENU1	TOP-MRG	1 LINE
MENU1	LANGUGE	PAGE437
MENU1	CHR-SET	SET2
MENU1	PRF-SKP	NO-SKIP
MENU1	WIDTH	13.6 IN
MENU1	ZEROFNT	NO-SLSH
MENU1	DC3-CDE	ENABLE
MENU1	CR-CODE	CR ONLY
MENU1	LF-CODE	LF & CR
MENU1	RGHTEND	WRAP
MENU1	==END==	

<< Menu 2 settings >>

Func.	Item	Option
MENU2	EMULATE	DPL24C+
MENU2	FONT	COUR 10
MENU2	QUALITY	LETTER
MENU2	PITCH	10 CPI
MENU2	LINE SP	6 LPI
MENU2	CHAR-W	NORMAL
MENU2	CHAR-H	NORMAL
MENU2	ATTRIB	NONE
MENU2	PAGE LG	11.0 IN
MENU2	LFT-END	1 COLM
MENU2	TOP-MRG	1 LINE
MENU2	LANGUGE	PAGE437
MENU2	CHR-SET	SET2
MENU2	PRF-SKP	NO-SKIP
MENU2	WIDTH	13.6 IN
MENU2	ZEROFNT	NO-SLSH
MENU2	DC3-CDE	ENABLE
MENU2	CR-CODE	CR ONLY
MENU2	LF-CODE	LF & CR
MENU2	RGHTEND	WRAP
MENU2	==END==	

<< Hardware settings >>

Func.	Item	Option	
HARDWRE	PPR-OUT	DETECT	
HARDWRE	PRT-DIR	BI-DIR	
HARDWRE	BUZZER	ON	
HARDWRE	WORD-LG	8 BIT	
HARDWRE	BUFFER	8KBYTE	
HARDWRE	INTRFCE	AUTO-2S	
HARDWRE	FORMAT	8NONE 1	(*1)
HARDWRE	BAUD-RT	9600	(*1)
HARDWRE	PROTOCL	XON/XOF	(*1)
HARDWRE	DSR	IGNORE	(*1)
HARDWRE	DUPLEX	FULL	(*1)
HARDWRE	CTS	DETECT	(*1)
HARDWRE	CD	IGNORE	(*1)
HARDWRE	==END==		

<< Config settings >>

Func.	Item	Option	
CONFIG	TEAROFF	MANUAL	
CONFIG	TEARPOS	VISIBLE	(*2)
CONFIG	CUTLOAD	AUTO	
CONFIG	LOADTIM	1.5 SEC	
CONFIG	DECODE	DIRECT	
CONFIG	AREACNT	DISABLE	
CONFIG	CUT-ONL	ONLINE	
CONFIG	CNT-ONL	ONLINE	
CONFIG	LOCK	NONE	
CONFIG	//S//	DISABLE	
CONFIG	FCNT-PE	EDGE	
CONFIG	RCNT-PE	EDGE	
CONFIG	GATHER	DISABLE	
CONFIG	CUT-CTL	SPEED	
CONFIG	SKIP-PR	ENABLE	
CONFIG	STATUS	DISABLE	
CONFIG	BANDCTL	DISABLE	
CONFIG	TOF-CTL	DRIVER	
CONFIG	CUTEDIR	FRONT	
CONFIG	CSFEDIR	REAR	
CONFIG	CUTEJCT	AUTO	
CONFIG	FL-CENT	POSN1	
CONFIG	RL-CENT	POSN1	
CONFIG	SKENCNT	ENABLE	
CONFIG	FF-CODE	EJECT	
CONFIG	PRT-CUT	99/180	
CONFIG	CSFBIN1	FRONT	
CONFIG	CNT-LD	SPEED	
CONFIG	CSF-LD	NORMAL	
CONFIG	CSFAPTC	NORMAL	
CONFIG	LF-CTL	SPEED	
CONFIG	PR-MODE	NORMAL	
CONFIG	HI-IMPT	DISABLE	
CONFIG	LQ-MODE	MODE1	
CONFIG	DQ-MODE	MODE2	
CONFIG	==END==		

<< Adjust settings >>

Func.	Item	Option
ADJUST	FCNTORG	1.8/6IN
ADJUST	FCNTFIN	0 /180
ADJUST	RCNTORG	1.8/6IN
ADJUST	RCNTFIN	0 /180
ADJUST	FCUTORG	1.8/6IN
ADJUST	FCUTFIN	0 /180
ADJUST	RCUTORG	1.8/6IN
ADJUST	RCUTFIN	0 /180
ADJUST	CNT-LFT	0 /90
ADJUST	CUT-LFT	0 /90
ADJUST	FCNTADJ	0 /360
ADJUST	RCNTADJ	0 /360
ADJUST	FCNTAJL	0 /360
ADJUST	RCNTAJL	0 /360
ADJUST	CUT-ADJ	0 /360
ADJUST	FCSFADJ	0 /360
ADJUST	RCSFADJ	0 /360
ADJUST	==END==	

<< Gap Adjust settings >>

Func.	Item	Option
GAP-ADJ	AMOUNT	AUTO
GAP-ADJ	==END==	

*1 FORMAT to CD are not printed when PARALEL option is selected for INTRFCE.
It is printed equipped with RS-232C.

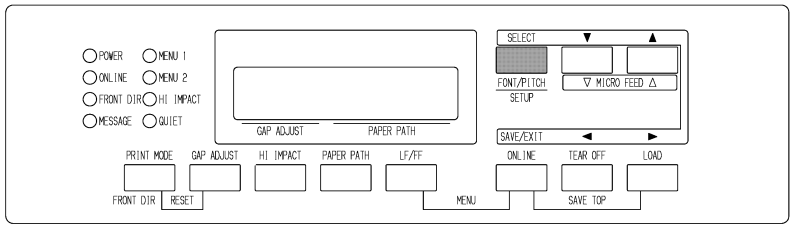
*2 TEAR-EN is printed when AUTO option is selected for TEAROFF.

Printout of factory defaults using LIST

ENTERING SETUP MODE(LCD)

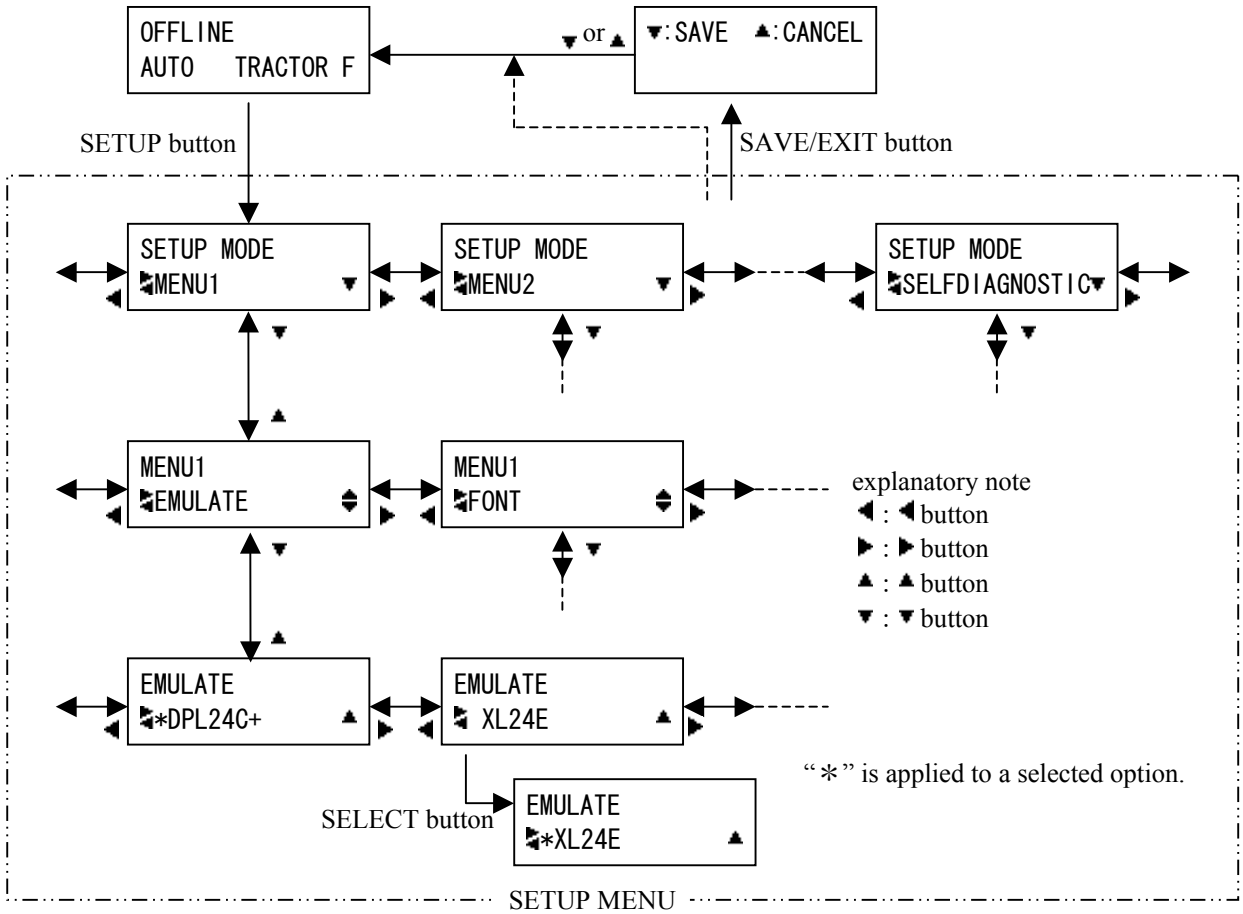
To enter setup mode, follow these steps:

1. Press the ONLINE button to place the printer offline.
2. Press the SETUP button until the printer beeps.



Entering setup mode

3. When the printer enters offline setup mode, LCD display shall change as follows.



Transition of LCD SETUP MODE

Setup Mode Example (LCD)

To become familiar with setup mode, try the following example. This example shows how to change the Emulation in MENU2 to ESC/P2.

1. Press the ONLINE button to place the printer online.
2. Press the SETUP button to enter select menu. Then following message is displayed.

   SETUP MODE
   ▶MENU1 ▼

3. Press ▶ button until following message is displayed.

   SETUP MODE
   ▶MENU2 ▼

4. Press ▼ buttons to move to lower layer. Then following message is displayed.

   MENU2
   ▶EMULATE

5. Press ◀,▶ to choose Items in this layer.

   MENU2
   ▶EMULATE

6. Press ▼ buttons to move to lower layer. Then following message is displayed.

   EMULATE
   ▶*DPL24C+ ▲

7. Press ◀,▶ to choose Options in this Item.

   EMULATE
   ▶ ESC/P2 ▲

8. Press SELECT button to select displayed option. Then "＊" is applied to a selected option (not saved yet).

   EMULATE
   ▶*ESC/P2 ▲

7. Press SAVE/EXIT buttons to register selected option on printer's permanent memory.

   ▼:SAVE ▲:CANCEL

6. Press ▼ to finish.

OVERVIEW OF SETUP MODE (LCD)

Available functions of LCD types SETUP MODE are as follows.

Table 5.2 summarizes the purpose of each function.

Table 5.2 Setup Mode Functions(LCD)

Function		Purpose
MENU1 and MENU2		Assigns print features to MENU1 and MENU2 on the printer control panel.
HARDWRE		Changes the printer hardware options.
ADJUST		Changes the print position adjustment options.
CONFIG		Changes the configuration options.
GAP-ADJ		Adjust the gap between the print head and printing paper.
SUB FUNCTION	SAVE&EXIT	Exits setup mode and saves any changes made while in setup mode.
	LIST	Prints a list of all currently selected options.
	DEFAULT	Resets factory defaults in MENU1 and MENU2.
	INITIAL	Resets factory defaults in MENU1, MENU2, HARDWRE, ADJUST, CONFIG, GAP-ADJ.
SELFDIAGNOSTIC	SELF-TST	Runs the self-test.
	HEX-DUMP	Prints hex dumps.
	V-ALMNT	Checks and corrects vertical print alignment.

Detail of selecting items and options are almost same as LED type.

General difference of LCD type SETUP MODE is only SETUP method.

PRINTING A LIST OF SELECTED OPTIONS(LCD)

The LIST function prints a list of all the printer's currently selected options. This function is useful for checking the printer settings when you first enter setup mode or just before you exit. To print a list of options, load paper A4 size or more in advance and select list function.

NOTE

If paper runs out only LOAD button is available.

DECIDING WHICH OPTIONS TO CHANGE

The previous page shows a printout of the printer's factory default settings. In this printout, options are listed by functional group:

- Menu 1 settings (MENU1 function)
- Menu 2 settings (MENU2 function)
- Hardware settings (HARDWRE function)
- Print position adjustment settings (ADJUST function)
- Configuration settings (CONFIG function)
- Print head gap adjustment settings (GAP-ADJ function)

Most selectable options only alter print features, such as the typestyle, and page format. However, some options must be selected correctly for the printer to work properly with your hardware and software.

For each function, Table 5.3 lists items whose options must be selected correctly for system and printer accessory compatibility.

Table 5.3 Required Options

Function	Item	Option
MENU1	EMULATE	The emulation selected on the printer must be the same as the emulation selected in your software. If you selected an emulation when you set up the printer (Chapter 2), you do not need to change the EMULATE option unless you want to change to a different emulation. The emulation assigned to MENU1 is the default when you turn the printer on. See the section **MENU1 and MENU2 Items and Options** later in this chapter.
MENU2	None	If you use MENU2, the emulation selected for MENU 2 must be the same as the emulation selected in your software. See the section **MENU1 and MENU2 Items and Options** later in this chapter.

Table 5.3 Required Options (Cont.)

Function	Item	Option
HARDWRE	FORMAT BAUD-RT PROTOCL DSR DUPLEX CTS CD	If you have a serial interface, the serial interface options selected on the printer must be the same as the settings you selected using your software or your computer operating system. If the settings are not the same, the printer will not print or will print garbage. See the section **Hardware Items and Options** later in this chapter.
ADJUST	None	If you are not using software to specify the top margin of the page, use the printer's default top-of-form setting, 1 inch (25.4 mm) from the top of the paper. If you are using software to specify the top margin of the page, change the default setting to 1/6 inch (4.2 mm). See the section **Print Position Adjustment Items and Options** later in this chapter.
CONFIG	None	You can change the printer's primary configuration. See the section **Configuration Items and Options** later in this chapter.
GAP-ADJ	None	If you adjust the gap manually or fix the gap, change the setting. See the section **Print Head Gap Adjustment Items and Options**.

MENU1 AND MENU2 ITEMS AND OPTIONS

The MENU1 and MENU2 functions allow you to change the print options assigned to MENU1 and MENU2 on the printer control panel. In normal (nonsetup) mode, you can easily switch between the menus for printing, as described in Chapter 4.

MENU1 is invoked when you first turn the printer on.

Select the same emulation on the printer as is selected in your software. If the emulations are not the same, the printer will not work correctly with your software. If you plan to use two different emulations on a regular basis, assign the most frequently used emulation to MENU1. Assign the second emulation to MENU2. All of the other settings available for MENU1 and MENU2 are optional. Some of the items and options will vary with the emulation.

To determine which features your software supports, refer to your software documentation.

Table 5.4 describes the MENU1 and MENU2 items and options. Both functions offer the same items and options. The items in Table 5.4 are listed in the order in which they are printed. Not all items are defined for all emulations and some options vary with the emulation.

The procedure for changing the options is referred to in the section **Setup Mode Example**.

Table 5.4 MENU1 and MENU2 Items and Options

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<EMULATE>		Select the same emulation as is selected in your software. See the section **Selecting an Emulation in** Chapter 2 for information on selecting an emulation.
	DPL24C+	Fujitsu DL-series printers (DPL24C PLUS command set)
	XL24E ESC/P2	IBM Proprinter XL24E printers Epson printers using the ESC/P2 command set
		NOTE: When you change the emulation, all MENU1 or MENU2 options are reset to the factory defaults for that emulation.
<FONT>		For each of the following fonts, the recommended pitch settings are given after the font name. When you change the font, be sure to also change the pitch, if required.
	COUR 10	Courier, 10cpi
	PRSTG12	Prestige Elite, 12cpi
	COMPRSD	Compressed font, 15,17,and 18cpi
	BOLDFCE	Boldface, Proportional
	PICA 10	Pica, 10cpi
	CORRESP	Correspondence,10cpi
	OCR-B	OCR-B, 10cpi
	OCR-A	OCR-A, 10cpi
	COUR-N	Courier Normal, 10cpi
	COUR-B	**Courier Bold, 10cpi**
	COUR-I	*Courier Italic, 10cpi*
	N.SAN-N	Nimbus Sans Normal, Prop.
	N.SAN-B	**Nimbus Sans Bold, Prop.**
	N.SAN-I	*Nimbus Sans Italic, Prop.*

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<FONT> (continued)	TIMLS-N TIMLS-B TIMLS-I	**Timeless Normal, Prop.** **Timeless Bold, Prop.** ***Timeless Italic, Prop.***
	DOWNLD#	Font 0 or font 1 in the printer's download RAM See Appendix F for font examples.
<QUALITY>		Select the print quality that most often meets your needs.
	LETTER	Letter print quality. This option provides the highest resolution but the slowest print speed. It cannot be used with the compressed font.
	REPORT	Report print quality. This option provides lower resolution than letter quality, but at twice the speed. If you want only the double speed, regardless of fonts, use the correspondence font. The quality of the correspondence font is higher than that of report.
	DRAFT	Regular draft print quality. This option provides lower resolution than report quality, but at 3 times letter speed.
	HI-DRFT	High-speed draft print quality. This option provides lower resolution than draft quality, but at 4 times letter speed.

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<PITCH>	## CPI	2.5, 3, 5, 6, <u>10</u>, 12, 15, 17, 18, or 20 cpi (characters per horizontal inch) If 15cpi is selected at ESC/P2 emulation, font size is compressed and DQ and HDQ printing is done at LQ speed. To avoid speed down, select NOCMPRS at 15CPI item.
	PROP SP	Proportional spacing (1/12 inch per character space)
<LINE SP>	## LPI	1, 2, 3, 4, 5, <u>6</u>, 7, or 8 lpi (lines per vertical inch) **6 lpi** **3 lpi (double spacing)** ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD ABCD
<CHAR-W>		Change also the pitch 2 TIMES or 4 TIMES is selected.
	<u>NORMAL</u>	Standard character width ABCD
	2 TIMES	Double character width ABCD
	4 TIMES (*1)	Quadruple character width ABCD

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<CHAR-H>		Change also the line spacing if 2 TIMES or 4 TIMES is selected.
	NORMAL	Standard character height ABCD abcd
	2 TIMES	Double character height ABCD abcd
	4 TIMES (*1)	Quadruple character height ABCD abcd
<ATTRIB>		Selects an attribute to add emphasis to your documents. Only one attribute may be selected at a time.
	NONE	Standard characters (no attributes)
	ITALICS	*Italic printing*
	CONDNSD (*1)	Condensed printing
	SHADOW	Double printing with a slight horizontal offset
	BOLD	Double printing at the same position

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<PAGE LG>		Specifies the length of the page in inches.
	## IN	For DPL24C PLUS and IBM XL24E emulations: 3.0, 3.5, 4.0, 5.0, 5.5, 6.0, 7.0, 8.0, 8.5, <u>11.0</u> (letter size), 11.6 (A4 size), 12.0, 14.0, 18.0 inches, or LINE For Epson ESC/P2 emulation: 4.0, 4.5, 5.0, ..., <u>11.0</u>, 11.5, ..., 22.0 inches
	LINE	Selecting the page length by specifying number of lines per page (default: 66 lines per page) Selecting this option displays the <PG LX10> and <PG LX1>. Use in combination the <PG LX10> to set the tens value of the lines-per-page setting, and the <PG LX1> to set the ones value of the lines-per-page setting.
<PG LX10>	Tens value setting for setting number of lines per page	0 LINE, 10 LINE, 20 LINE, 30 LINE 40 LINE, 50 LINE, <u>60 LINE</u>, 70 LINE 80 LINE, 90 LINE • The LINE setting depends on the line spacing setting 'LINE SP'. • When 0 LINE is set, the line spacing value is 11.0 IN (only when both 'PG LX10' = '0 LINE' and 'PG LX1' = '0 LINE' are set).
<PG LX1>	Ones value setting for setting number of lines per page	0 LINE, 1 LINE, 2 LINE, 3 LINE 4 LINE, 5 LINE, <u>6 LINE</u>, 7 LINE 8 LINE, 9 LINE • The LINE setting depends on the line spacing setting 'LINE SP'. • When 0 LINE is set, the line spacing value is 11.0 IN (only when both 'PG LX10' = '0 LINE' and 'PG LX1' = '0 LINE' are set).

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

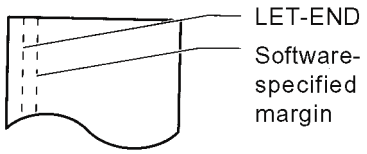
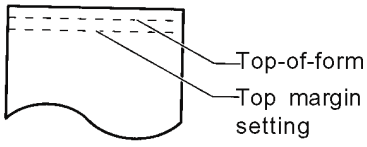
MENU1 and MENU2 Items	Options	Description
<LFT-END>		Specifies the print start column for changing the left margin. Printing starts at the position given by this column plus your software-specified left margin.
	## COLM	Column 1, 2, 3, ..., 41 
<TOP-MRG>		Specifies the number of space lines for the top margin. The resultant blank space is the <TOP-MRG> setting minus 1 line. The total size of your top margin is the above resultant value plus the following two settings: top-of-form (default = 1 inch) and the software-specified top margin. If you are using software to specify the top margin, use the default (1 line) for <TOP-MRG>.
	## LINE	1, 2, 3,4, 5, 6, 7, 8, 9, or 10 lines 

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<LANGUGE>		Selects a language. Appendix E shows the character sets for each language. Two-pass means that diacritical marks are printed separately from their letters and that letters are printed without any reduction. The first listing is common to all emulations. Options specific to each emulation are skipped. See the subsequent listings (*2) and(*3).
	USA	American English (Same as code page 437)
	UK	British English
	GERMAN	German
	SWEDISH	Swedish
	PAGE437	Code page 437
	PAGE850	Code page 850
	PAGE860	Code page 860
	PAGE863	Code page 863
	PAGE865	Code page 865
	ECMA94	ECMA 94
	ISO8859	ISO 8859-1
	PG852	Code page 852
	PG852-T	Code page 852 two-pass
	PG855	Code page 855
	PG866	Code page 866
	HUNGARY	Hungarian
	HUNG-T	Hungarian two-pass

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<LANGUGE> (continued)	SLOV	Slovenian
	SLOV-T	Slovenian two-pass
	POLISH	Polish
	POLSH-T	Polish two-pass
	MAZOWIA	Mazowian
	MAZOW-T	Mazowian two-pass
	LATIN2	Latin 2
	LATIN2-T	Latin 2 two-pass
	KAMENIC	Kamenicky
	KAMEN-T	Kamenicky two-pass
	TURKY	Turkish
	TURKY-T	Turkish two-pass
	CYRILIC	Cyrillic
	IBM437	IBM 437
	IBM851	IBM 851
	ELOT928	ELOT 928
	PG-DHN	Code page DHN
	LATIN-P	Latin Polish
	ISO-LTN	ISO Latin
	LITHUA1	Lithuanian1
	LITHUA2	Lithuanian2
	MIK	
	MACEDON	Macedonian
	PG-MAC	
	ELOT927	

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<LANGUGE> (continued)	ABG	
	ABY	
	DEC GR	
	HBR-OLD	
	PG862	
	HBR-DEC	
	GREEK 11	
	ISO-TUK	ISO Turkish
	RUSCII	
	LATIN-9	
	WCP1250	Windows-1250
	WCP1251	Windows-1251
	WCP1252	Windows-1252
	(*2)	
	FRENCH	French
	ITALIAN	Italian
	SPANISH	Spanish
	DANISH1	Danish I
	DANISH2	Danish II
	FINNISH	Finnish
	NORWEGN	Norwegian

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<LANGUGE> (continued)		
	DANISH1	Danish I
	ITALIAN	Italian
	SPANSH1	Spanish I
	SPANSH2	Spanish II
	JAPAN	Japanese
	NORWEGN	Norwegian
	LATIN A	Latin American
	FRENCH	French
	DANISH2	Danish II
	KOREA	Korea
	LEGAL	Legal
<CHR-SET>	(*2)	
	SET 1	IBM character set 1
	<u>SET 2</u>	IBM character set 2
		If a downloaded (soft) font is used, the character set for that font overrides the <CHR-SET> setting.
	(*3)	
	<u>ITALIC</u>	Italic characters are available.
	GRAPHIC	Graphics characters (ruled lines) are available.

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

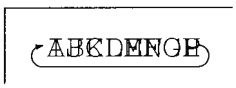
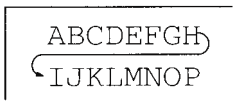
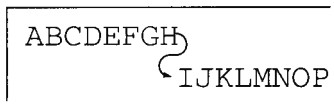
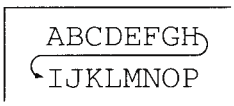
- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<PRF-SKP>		For continuous forms, this option specifies whether an inch is skipped around the perforation. If you are not using software to specify a bottom margin, select SKIP when using thicker, multipart forms.
	SKIP	One inch is skipped around the perforation.
	NO-SKIP	The perforation is not skipped. Printing continues in the bottom margin of the page.
<WIDTH>	13.6 IN	13.6-inch page width
	11.4 IN	11.4-inch page width
	11.0 IN	11-inch page width
	8.0 IN	8-inch page width
<ZEROFNT> (*2)		Specifies whether to print the number zero with a slash. This is useful to distinguish the capital letter “O” from the number “0”. Invalid for some soft fonts.
	NO-SLSH	0
	SLASH	ø

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

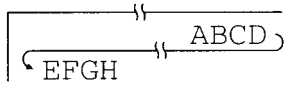
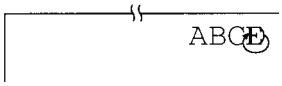
MENU1 and MENU2 Items	Options	Description
<DC3-CDE> (*4)	ENABLE	Enables the DC1 and DC3 codes. Any data received between DC3 and the next DC1 is ignored.
	DISABLE	Disables the DC1 and DC3 codes. These codes are then ignored.
<CR-CODE>	CR ONLY	No line feed is added to a carriage return. 
	CR & LF	A line feed is added to each carriage return. 
<LF-CODE> (*2)	LF ONLY	No carriage return is added to a line feed. 
	LF & CR	A carriage return is added to each line feed. 

Note
The default value of <LF-CODE> changes with the selected emulations as follows.
"LF&CR" is a default value in the DPL24C+ emulations.
"LF ONLY" is a default value in the XL24E emulations.

Table 5.4 MENU1 and MENU2 Items and Options (Cont.)

NOTES:

- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

MENU1 and MENU2 Items	Options	Description
<RGHTEND>	WRAP	End-of-line wrap. Causes a carriage return plus a line feed. 
	OVR-PRT	Characters are overprinted at the end of a line. 
<15CPI> (*3)	COMPRES	Enables compression of font when 15cpi selected at ESC/P2 emulation. Horizontal and vertical font size is compressed.
	NOCMPRS	Disables compression of font when 15cpi selected at ESC/P2 emulation. When accept the compressing command, only horizontal compression is executed.
<==END==>		(LED only) Indicates the end of MENU1 items. Press the ▼ button to print the first item, <EMULATE>. Press the ▲ button to print the previous item, <RGHTEND>. Press the ONLINE button to reprint the <<FUNCTION>> menu.

*1 Unavailable in the IBM XL24E emulation

*2 Unavailable in the Epson ESC/P2 emulations

*3 Available only in the Epson ESC/P2 emulations

*4 Available only in the DPL24C+ emulation

Resetting MENU1 and MENU2

To reset the factory defaults for both MENU1 and MENU2, select the DEFAULT/INITIAL function. For more information, see the section Resetting Defaults later in this chapter. The DEFAULT function cannot reset those options which are handled by the HARDWRE, ADJUST, CONFIG, and GAP-ADJ functions. The INITIAL function can reset those options which are handled by the HARDWRE, ADJUST, CONFIG, and GAP-ADJ functions.

CHANGING HARDWARE OPTIONS

The HARDWRE function defines the printer's hardware operating conditions. If you are using the optional RS-232C serial interface, the serial interface options must be set properly for the printer to function correctly with your system hardware.

Table 5.5 describes the HARDWRE items and options. Items are listed in the order in which they are printed. The procedure for changing the hardware options is described after Table 5.5.

Table 5.5 HARDWRE Items and Options

NOTE: Underlined options are the factory defaults.

HARDWRE Items	Options	Description
<PPR-OUT>		Specifies how the printer responds when you run out of paper.
	CNTONLY	The printer detects paper-out only for continuous forms. Printing stops and the PAPER OUT indicator lights red.
	<u>DETECT</u>	The printer detects paper-out for both continuous forms and single sheets. Printing stops and the PAPER OUT indicator lights red.
	IGNORE	The printer ignores paper-out for both continuous forms and single sheets. Printing continues until no more data remains. No PAPER OUT warning is displayed.

Table 5.5 HARDWRE Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

HARDWRE Items	Options	Description	
<PRT-DIR>	BI-DIR	Bidirectional printing. The printer prints in either direction while seeking the next print direction for a shorter print time.	
	UNI-DIR	Unidirectional printing. Unidirectional printing is used for printing vertical lines in tables even if vertical alignment is not adjusted. Unidirectional printing is slower than bidirectional printing.	
<BUZZER>		Enables or disables the printer status buzzer.	
	ON	Buzzer on (recommended). The printer beeps to indicate paperout or other conditions.	
	OFF	Buzzer off under any conditions.	
<WORD-LG>		To determine the required word length, refer to your computer documentation. Select 8-BIT to print bit image graphics.	
	8 BIT	8-bit word length (used by most computers)	
	7 BIT	7-bit word length (MSB = 0)	
<BUFFER>		Assigns buffer memory to input data and downloaded font data.	
		Print buffer	**Download buffer**
	NONE	0 byte	128K bytes
	256BYTE	256 bytes	127.75K bytes
	2KBYTE	2K bytes	126K bytes
	8KBYTE	8K bytes	120K bytes
	24KBYTE	24K bytes	104K bytes
	32KBYTE	32K bytes	96K bytes
	96KBYTE	96K bytes	32K bytes
	128KBYT	128K bytes	0K bytes

Table 5.5 HARDWRE Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

HARDWRE Items	Options	Description
<BUFFER> (continued)		**NOTE:** • **0BYTE option is recommended only for graphics application.** • **With 128KB selected, the printer cannot accept any download font data.**
<INTRFCE>		Selects the type of the interface to the computer.
	PARALEL	Centronics parallel interface
	SERIAL	RS-232C serial interface
	USB	USB interface
	AUTO-2S	Auto interface selection mode
	AUTO-4S AUTO-6S	• Both interfaces are ready for communication.
	AUTO10S AUTO15S	• Specify the timing regarding the selected interface as being inactive.
	AUTO20S	To switch the interface to the optional LAN interface, mount the LAN card with the setup mode set to “AUTO-XS” or “AUTOXXS” under “INTERFCE,” which in turn is under “HARDWRE” The interface will automatically switch to the optional LAN interface. To switch the interface to something other than the optional LAN interface, do either of the following: • To return the setup mode to “INTERFCE” under “HARDWRE,” remove the LAN card. • To switch the interface to a fixed interface, set PARALEL,USB with the LAN card mounted, and the setup mode set to “INTERFCE” under “HARDWRE.”

Table 5.5 HARDWRE Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

HARDWRE Items	Options	Description		
Serial Interface or USB interface Items. The following <FORMAT> to <DUPLEX> items are not printed when you select the PARALEL option for the <INTRFCE> item. Be sure that the options selected on the printer are the same as the options selected using your computer operating system or your software. Refer to the documentation provided for your computer and software.				
<FORMAT>		**Number of data bits**	**Parity bit**	**Number of stop bits**
	8NONE 1	8	None	1
	8NONE 2	8	None	2
	8EVEN 1	8	Even	1
	8ODD 1	8	Odd	1
	7EVEN 1	7	Even	1
	7ODD 1	7	Odd	1
	7MARK 1	7	Mark	1
	7SPACE 1	7	Space	1
	7EVEN 2	7	Even	2
	7ODD 2	7	Odd	2
		The data format also includes a start bit. The mark is logical 1. The space is logical 0.		
<BAUD-RT>	150 300 600 1200 2400 4800 9600 19200	The baud rate is in bps (bits per second). Select the same baud rate as 600 used by your computer or modem.		

Table 5.5 HARDWRE Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

HARDWRE Items	Options	Description
<PROTOCL>		Indicates data transmission protocol.
	XON/XOF	The DC1 and DC3 codes are used.
	DTR	The Data Terminal Ready signal is used.
	REV-CHL	The Reverse Channel signal is used.
<DSR>	IGNORE	DSR is ignored by the printer.
	DETECT	DSR is detected by the printer.
<DUPLEX>	FULL	Simultaneous data transmission occurs in opposite directions.
	HALF	Data transmission occurs in either direction, but not simultaneously.
<CTS>	IGNORE	CTS is ignored by the printer.
	DETECT	CTS is detected by the printer.
<CD>	IGNORE	CD is ignored by the printer.
	DETECT	CD is detected by the printer.
<==END==>		(LED only) Indicates the end of the HARDWRE item list. Press the ▼ button to print the first item, which is <PPR-OUT>. Press the ▲ button to print the previous item. Press the ONLINE button to reprint the <<FUNCTION>> menu.

CHANGING PRINT POSITION ADJUSTMENT OPTIONS

When you print using ruled paper, you often want to adjust the print position so that the print sits properly on the ruled lines. The ADJUST function allows you to:

- Set top-of-form position
- Fine-tune top-of-form position
- Fine-tune left print start column (left margin)
- Adjust for accumulative line spacing error in a page

The top edge of your paper is the physical top of the page. The logical top of the page, as "understood" by the printer when loading paper, is called the top-of-form. Printing starts at this position. Note that printing actually starts at the position obtained by adding the following:

- Top-of-form, default = 1.8/6 inch (7.6mm)
- Top margin specified by your software
- Printer TOP-MRG (top margin setting), default = 1 line

Table 5.6 describes the ADJUST items and options. Items are listed in the order they are printed. The procedure for changing top-of-form is described after Table 5.6.

Table 5.6 ADJUST Items and Options

NOTE: Underlined options are the factory defaults.

ADJUST Items	Options	Description
<FCNTORG>	1/6 IN 1.8/6 IN : 6/6 IN : 66/6 IN	Sets the top-of-form for front continuous forms in increments of 1/6 inch (4.2 mm) from the physical top of the page. The default is recommended if your top margin is not software-specified. A setting of 1/6 inch is preferable when your top margin is software-specified.
<FCNTFIN>	0/180, ..., 29/180	Fine-tunes the top-of-form position for front continuous forms. Increases top-of-form in increments of 1/180 inch (0.14 mm).
<RCNTORG>	1/6 IN 1.8/6 IN : 6/6 IN : 66/6 IN	Sets the top-of-form for rear continuous forms in increments of 1/6 inch (4.2 mm) from the physical top of the page. The default is recommended if your top margin is not software-specified. A setting of 1/6 inch is preferable when your top margin is software-specified.
<RCNTFIN>	0/180, ..., 29/180	Fine-tunes the top-of-form position for rear continuous forms. Increases top-of-form in increments of 1/180 inch (0.14 mm).

Table 5.6 ADJUST Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

ADJUST Items	Options	Description
<FCUTORG>	1/6 IN 1.8/6 IN : 6/6 IN : 66/6 IN	Sets the top-of-form for front single sheets in increments of 1/6 inch (4.2 mm) from the physical top of the page. The default is recommended if your top margin is not software-specified. A setting of 1/6 inch is preferable when your top margin is software-specified.
<FCUTFIN>	0/180, ..., 29/180	Fine-tunes the top-of-form position for front single sheets. Increases top-of-form in increments of 1/180 inch (0.14 mm).
<RCUTORG>	1/6 IN 1.8/6 IN : 6/6 IN : 66/6 IN	Sets the top-of-form for rear single sheets in increments of 1/6 inch (4.2 mm) from the physical top of the page. The default is recommended if your top margin is not software-specified. A setting of 1/6 inch is preferable when your top margin is software-specified.
<RCUTFIN>	0/180, ..., 29/180	Fine-tunes the top-of-form position for rear single sheets. Increases top-of-form in increments of 1/180 inch (0.14 mm).

Table 5.6 ADJUST Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

ADJUST Items	Options	Description
<CNT-LFT>	-10/90, ..., 0/90, ..., 10/90	Fine-tunes the left print start position for continuous forms. Moves the position left or right in increments of 1/90 inch (0.28 mm).
<CUT-LFT>	-10/90, ..., 0/90, ..., 10/90	Fine-tunes the left print start position for single sheets. Moves the position left or right in increments of 1/90 inch (0.28 mm).
<FCNTADJ>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates for the forms feed error accumulated through feeding of front continuous forms.
<RCNTADJ>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates for the forms feed error accumulated through feeding of rear continuous forms.
<FCNTAJL>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates for the forms feed error accumulated through feeding of front continuous forms. (Last page)

Table 5.6 ADJUST Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

ADJUST Items	Options	Description
<RCNTAJL>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates for the forms feed error accumulated through feeding of rear continuous forms. (Last page)
<CUT-ADJ>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates the line spacing pitch on the basis of the spacing error accumulated for feeding single sheets by10 inches. Decreases or increases in increments of 1/360 inch in total.
<FCSFADJ>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates the line spacing pitch on the basis of the spacing error accumulated for feeding single sheets by10 inches. Decreases or increases in increments of 1/360 inch in total. This option is available only when paper is being loaded in the front cut sheet feeder.
<RCSFADJ>	-14/360, -9/360, -4/360, 0/360 4/360, 9/360, 14/360, GRAPHIC(*1)	Compensates the line spacing pitch on the basis of the spacing error accumulated for feeding single sheets by10 inches. Decreases or increases in increments of 1/360 inch in total. This option is available only when paper is being loaded in the rear cut sheet feeder.

Table 5.6 ADJUST Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

ADJUST Items	Options	Description
<==END==>		(LED only) Indicates the end of MENU1 items. Press the ▼ button to print the first item, <FCNTORG>. Press the ▲ button to print the previous item, <RCSFADJ>. Press the ONLINE button to reprint the <<FUNCTION>> menu.

*1: When printing graphics, selecting “GRAPHIC” may result in the printing of clearer graphics.

CHANGING CONFIGURATION OPTIONS

The CONFIG function defines the printer's primary configuration. You can set the following options to ensure that the printer meets your requirements:

- Tear off for continuous forms
- Auto loading of single sheets
- Direct decoding of certain commands
- Enabling of the Area-over detection

Table 5.6 describes the CONFIG items and options. Items are listed in the order they are printed. The procedure for changing the configuration options is described after Table 5.7.

Table 5.7 CONFIG Items and Options

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<TEAROFF>		Auto or manual tear off feed.
	MANUAL	Automatic tear off feed is invalid, and tear off feed must be done using the TEAR OFF button.
	AUTO	Automatic tear off feed is valid but only for continuous forms. Tear off feed can also be done using the TEAR OFF button.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<TEARPOS>		Tear off position.
	VISIBLE	Select this option when your software positions forms to the next top-of - form after printing the last data. The printer performs tear off feed without adding a form feed when data transfer has stopped.
	ALWAYS	Select this option when your software stops after printing the last data. The printer performs tear off feed after adding a form feed when data transfer has stopped. **Note: For both settings, tear off positioning will fail if the page length setting does not match the actual perforation spacing.**
The following <TEAR-EN> item is printed when TEAROFF:AUTO is specified for the <TEAROFF> item.		
<TEAR-EN>		Tear off enabled time (offset time).
	0 SEC 1 SEC 2 SEC 4 SEC 6 SEC	The offset time is from when data transfer stops to when the printer performs automatic tear off feed. If the printer receives data again within the offset time, the printer does not perform automatic tear off feed.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<TEAR-EN> (continued)		In some application programs, data transfer may stop temporarily due to internal processing. This setting can avoid an undesired tear off feed by waiting for up to six seconds each time data transfer stops.
<CUTLOAD>		Single sheet auto loading.
	AUTO	Single sheet paper is automatically loaded a certain time after you set the paper.
	BUTTON	Single sheet paper can be loaded by pressing the LOAD button.
The following <LOADTIM> item is printed when CUTLOAD:AUTO is specified for the <CUTLOAD> item.		
<LOADTIM>		Auto load start time.
	0.5, 1.0, 1.5, 2.0 2.5, 3.0SEC	Auto loading starts when this amount of time passes after you set single sheet paper.
<DECODE>		Command decode timing.
	DIRECT	The printer decodes certain commands immediately after receiving data. Example: ESC SUB I, ESC CR P (DPL24C+) ESC Q # (IBM XL24E)
	QUEUED	The printer decodes commands after storing all data (including commands) in the input buffer. This speeds data reception because the printer does not require decoding time during data reception.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<AREACNT>		Area-over detection control.
	ENABLE	Detects the left and right edges of paper when loading the paper. The printer does not print data beyond the edges.
	DISABLE	Does not detect the edges. Select this option when you are using colored or preprinted paper.
<CUT-ONL>		Printer status after loading paper in offline mode for single sheets.
	OFFLINE	Remains offline after paper loading.
	ONLINE	Goes into online after paper loading.
<CNT-ONL>		Printer status after loading paper in offline mode for continuous forms.
	OFFLINE	Remains offline after paper loading.
	ONLINE	Goes into online after paper loading.
<LOCK>		Lock function of setup mode.
	NONE	Enables all buttons on the control panel.
	SETUP	Disables the setup-related buttons to keep the printer from entering setup mode during the offline state.
	ALL	Disables the setup-related buttons and the MENU button. Once this setting has been selected, setup mode cannot be entered from the control panel. To cancel this setting, turn the power on while simultaneously pressing the HI IMPACT, PAPER PATH, and LF/FF buttons.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<//S//>		Effectiveness of the Cut Sheet Selection command (//S//).
	DISABLE	Makes the command ineffective.
	ENABLE	Makes the command effective.
		Note: The Cut Sheet Selection command (//S//) changes the paper source to the paper table and waits for manual insertion of a cut sheet.
<FCNT-PE>		Detection of end of front continuous forms.
	TRACTOR	Paper end is detected by the sensor on the tractor unit.
		Paper-end unprinted area: Continuous forms: About 101 mm
	EDGE	Regardless of paper end, printing continues near to the edge of paper.
		Paper-end unprinted area: About 4 mm for both continuous forms
<RCNT-PE>		Detection of end of rear continuous forms.
	TRACTOR	Paper end is detected by the sensor on the tractor unit.
		Paper-end unprinted area: Continuous forms: About 157 mm
	EDGE	Regardless of paper end, printing continues near to the edge of paper.
		Paper-end unprinted area: About 4 mm for both continuous forms

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
GATHER		Setting of ribbon protective control at a line feed on continuous forms
	ENABLE	The protective control is executed.
	DISABLE	The protective control is not executed.
CUT-CTL		Setting of retracting control at canceling TEAR OFF of continuous forms.
	PRCISIN	The precision-prioritized retracting control is executed. It retracts a certain amount of paper (the top part of the paper which hangs out from the TOFS), and then moves back to the position before TEAR OFF. If TOFS detects paper end when a certain amount of paper is retracted, it executes the continuous forms save operation and then executes the paper loading operation.
	SPEED	The speed-prioritized retracting control is executed. It retracts the paper by the amount the paper was advanced.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
SKIP-PR		Setting of printing speed change processing (skip)
	ENABLE	The skip processing is executed. When a certain amount of blank spaces are found in a line, it changes the printing speed for the blank spaces.
	DISABLE	The skip processing is not executed. It does not change the printing speed for the blank spaces. - If the printing speed of the printing data varies before and after the blank spaces (such as LQ characters + blank space + CQ characters), it changes printing speeds regardless of this setting.
STATUS		Setting of the asynchronous status function
	ENABLE	The status information is stored in the send buffer by a nibble mode request.
	DISABLE	The status information is not stored in the send buffer by a nibble mode request.
BANDCTL		Setting of reducing backward line feeds as much as possible. Backward line feeds occur when printing vertical enlargement characters or multi-path characters which involve several printing paths for a print activation.
	ENABLE	Reduce control is performed.
	DISABLE	Reduce control is not performed.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
TOF-CTL		Setting of priority on TOF control to a printer driver specification or a setup specification. TOF control determines the amount of the top margin when paper is fed to the home position.
	DRIVER	Driver specification is given priority.
	SETUP	Setup specification is given priority.
<CUTEDIR>		Selection of the eject direction of cut sheets with manually feeding of cut sheets
	FRONT	Ejected to the front.
	REAR	Ejected to the rear.
<CSFEDIR>		Selection of the eject direction of cut sheets with use of a CSF
	FRONT	Ejected to the front.
	REAR	Ejected to the rear.
<CUTEJCT>		Selection for automatic ejection of cut sheets
	AUTO	Automatic ejection of cut sheets when no cut sheet is detected
	MANUAL	No automatic ejection of cut sheets when no cut sheet is detected
<FL-CENT>		Selection of the print carrier position when paper is fed via a front path (with feeding of continuous forms paper from the front, use of a front CSF, and manual feeding of cut sheets)
	POSN1	Position 1: Column 31
	POSN2	Position 2: Column 42

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<RL-CENT>		Selection of the print carrier position when paper is fed via a front path (with feeding of continuous forms paper from the rear and use of a rear CSF)
	POSN1	Position 1: Column 31
	POSN2	Position 2: Column 42
<SKEWCNT>		Detection of paper feed skew
	ENABLE	Enables paper feed skew detection.
	DISABLE	Disables paper feed skew detection.
<FF-CODE>		Selection of the method of processing for the FF code is received in cut sheet mode or for the "LF/FF" switch
	EJECT	Ejects cut sheets.
	FORM-FD	Uses a page break.
<PRT-CUT>		Selection of the cut amount (margin) on both sides of continuous forms paper when AREACNT, the cut amount in continuous printing, is set to ENABLE
	71/180	Sets the cut amount for printing to 71/180 inches (about 10.0 mm).
	99/180	Sets the cut amount for printing to 99/180 inches (about 14.0 mm).
<CSFBIN1>		Selection of the CSF for bin 1 if both a front CSF and rear CSF are mounted
	FRONT	Front CSF
	REAR	Rear CSF

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<CNT-LD>		Selection for the paper feeding of continuous forms paper
	PRCISIN	Gives a higher priority to precision.
	SPEED	Gives a higher priority to speed.
<CSF-LD>		Selection of the method of feeding from the CSF
	NORMAL	Feeds paper directly from the CSF hopper.
	SWBACK	Feeds paper from the CSF hopper to either the cut sheet table used with a front CSF or the stacker used with a rear CSF. Then, that paper is fed again.
<CSFAPTC>		Paper thickness detection with use of a CSF
	ALWAYS	Every sheet of paper that is fed
	NORMAL	Sheet of paper that is fed immediately after the feed pin is switched
<LF-CTL>		Selection for LF mode
	PRCISIN	Gives a higher priority to precision.
	SPEED	Gives a higher priority to speed.
<PR-MODE>		Selection for print mode (standard/low noise)
	NORMAL	Prints in standard mode.
	QUIET	Prints in low-noise mode.
<HI-IMPT>		Selection for high printing pressure mode
	DISABLE	Prints in standard pressure mode.
	ENABLE	Prints in high printing pressure mode.

Table 5.7 CONFIG Items and Options (Cont.)

NOTE: Underlined options are the factory defaults.

CONFIG Items	Options	Description
<LQ-MODE >		Selection for letter quality printing mode
	MODE1	Prints in 180CPS printing mode.
	MODE2	Prints in 125CPS printing mode.
<DQ-MODE >		Selection for draft quality printing mode
	MODE1	Prints in 720CPS printing mode.
	MODE2	Prints in 540CPS printing mode.
<==END==>		(LED only) Indicates the end of the CONFIG item list. Press the ▼ button to print the first item, which is <TEAROFF>. Press the ▲ button to print the previous item. Press the ONLINE button to reprint the <<FUNCTION>> menu.

HEAD GAP ADJUSTMENT ITEMS AND OPTIONS

The GAP-ADJ function adjusts the gap between the print head and the paper. The automatic paper thickness control (APTC) feature is built in this printer. If you adjust the gap manually or fix the gap, change the option of GAP-ADJ function.

For the procedure how to change the options refer to the section **Setup Mode Example** earlier in this chapter.

Table 5.8 GAP-ADJ Items and Options

NOTE: Underlined options are the factory defaults.

GAP-ADJ Items	Options	Description
<AMOUNT>	(LED type)	Specifies the print head gap.
	AUTO	The print head gap is set automatically.
	MANUAL	Turn the paper thickness dial (indicator) manually.
	(LCD type)	
	AUTO	The print head gap is set automatically.
	GAP-1 GAP-2 GAP-3 GAP-4 GAP-5 GAP-6 GAP-7 GAP-8 GAP-9 GAP-A GAP-B GAP-C GAP-D	The print head gap is set selected manual gap.
<==END==>		(LED only) Indicates the end of the GAP-ADJ item list. Press the ▼ button to print the first item, which is <AMOUNT>. Press the ▲ button to print the previous item. Press the ONLINE button to reprint the <<FUNCTION>> menu.

EXITING AND SAVING

This section describes how to exit setup mode and save any changes you made:

To exit setup mode immediately, select the SAVE & END (for LED type) SAVE&EXIT (for LCD type) function.

Any settings changed while in setup mode are saved as the new power-on defaults for the printer. The new defaults remain active until you change them again.

NOTE (LED only)

The only way to exit setup mode without saving your changes is to turn off the printer. When you turn the printer back on, the previous default settings are used.

Procedure (for LED type)

To exit setup mode and save your changes using SAVE/END, proceed as follows:

1. **Print the <<FUNCTION>> menu.**

   The <<FUNCTION>> menu should be the last printed line on the page. If the menu is not printed, press the ONLINE button to print the menu. The <<FUNCTION>> menu is shown below:

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

2. **Select the SAVE/END function.**

   Make sure that the cursor on the left edge of the aluminum print guide is positioned under SAVE & END. Press the ▲ button or the ▼ button to select SAVE & END. The printer exits setup mode and returns online (the ONLINE indicator lights green). Any changes you made while in setup mode are saved.

Procedure (for LCD type)

To exit setup mode and save or cancel your changes using SAVE/EXIT function, proceed as follows:

1. **Push SAVE/EXIT button.**

   Push SAVE/EXIT button, then "▼:SAVE ▲:CANCEL" is displayed on LCD PANEL

2. **Push ▼or▲ button.**

   Push ▼ to save changing.

   Push ▲ to cancel changing.

RESETTING DEFAULTS

This section describes how to reset the printer's power-on defaults, all of the factory defaults, or the factory defaults only for MENU1 and MENU2.

Resetting Power-On Defaults

Power-on defaults are the settings saved in the printer's permanent memory. The defaults are enabled whenever you turn the printer on.

The only (LED type) way to reset the power-on defaults is to turn the printer off and then on again. This method is useful if you have made changes in setup mode that you do not want to save. LCD type, save or cancel options are available on exit menu.

Resetting Factory Defaults

Factory defaults are those settings preselected at the factory. For a list of the printer's factory defaults, see the section Printing a List of Selected Options earlier in this chapter. To reset the factory defaults for all functions, proceed as follows:

1. Turn off the printer.
2. While pressing the LOAD and, TEAR OFF buttons, turn on the printer. Continue to press the two buttons until the printer beeps.

   The factory defaults are now reset.

   Another available method is to select INITIAL in SETUP mode. The method of making settings is the same as the method for selecting DEFAULT on the next page, except that INITIAL must be selected instead of DEFAULT.

Resetting Factory Defaults in MENU1 and MENU2

This method resets factory defaults for MENU1 and MENU2 options, listed in Table 5.4, but does not reset the printer hardware, print position adjustment, and configuration options.

Procedure (for LED type)

To reset the factory defaults in MENU1 and MENU2, select DEFAULT in SETUP mode. Detail of method as follows:

1. **Enter setup mode (LED type).**

   Press the AUTO GAP button and the HI IMPACT button simultaneously until the printer beeps. Wait for the printer to stop printing and check that the following <<FUNCTION>> menu is printed:

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

2. **Select the DEFAULT function (LED type).**

   Repeatedly press the "TEAR OFF" or "LOAD" button to position the cursor on the left edge of the aluminum print guide on DEFAULT. Press the ▲ button or the ▼ button to select the DEFAULT function. The printer reprints the <<FUNCTION>> menu. The default values in MENU1 and MENU2 are now reset (not saved yet).

3. **Save reset values (LED type).**

   To exit setup mode and save the new defaults, make sure that the cursor on the left edge of the aluminum print guide are positioned on SAVE & END, then press the ▲ MICRO button or the ▼ MICRO button.

Procedure (for LCD type)

To reset the factory defaults in MENU1 and MENU2, select DEFAULT in SETUP mode. Detail of method as follows:

1. **Enter setup mode (LCD type).**

   Press the SETUP button at offline state. Check that the "SETUP MODE" is displayed on LCD panel.

2. **Select the DEFAULT function (LCD type).**

   Repeatedly press the "◀" or "▶" button to display "SUB FUNCTION". And then press the"▼" button to move lower layer. And then repeatedly press the "◀" or "▶" button to display "DEFAULT". And then press the "SELECT" button to reset the default values in MENU1 and MENU2 (not saved yet).

3. **Save reset values (LCD type).**

   Exit setup mode, saving the factory defaults.

   Push SAVE/EXIT button. Check that "▼:SAVE ▲:CANCEL" is displayed on LCD panel. Then press the"▼" button.

USING THE DIAGNOSTIC FUNCTIONS

This section describes how to use the following diagnostic functions:

- SELF-TST
- HEX-DUMP
- V-ALMNT

These functions are used for checking print quality and diagnosing printer problems. HEX-DUMP also provides useful information for programmers.

Printing the Self-Test

The SELF-TST function prints test pages to check how the printer operates independently of your computer. The self-test does not check the interface between the computer and the printer.

The self-test prints the printer's firmware version, its resident emulations, and all of the characters available in the currently selected character set.

If the DPL24C PLUS emulation is selected for MENU1, the self-test is printed using the settings currently assigned to MENU1.

Procedure

This procedure assumes that you are in setup mode. To print the self-test, make sure that continuous forms paper is loaded into the printer.

Then proceed as follows :

1. **Print the <<FUNCTION>> menu.(LED)**

   The <<FUNCTION>> menu should be the last printed line on the page. If the menu is not printed, press the ONLINE button to print the menu. If you are using the HEX-DUMP function, press the "TEAR OFF" or "LOAD" button instead of the ONLINE button to print the menu. The following <<FUNCTION>> menu is printed:

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

2. **Select the SELF-TST function.(LED)**

   Repeatedly press the "TEAR OFF" or "LOAD" button to position the cursor on the left edge of the aluminum print guide on SELF-TST, and then press the "▲" button or the "▼" button. The printer selects SELF-TST and starts printing. A short help menu is printed at the top of the page, followed by the self-test. Note that the printer is not online during self-test printing.

1. **Move to TOP MENU of SETUP MODE.(LCD)**

   Press the "▲" button until "SETUPMODE" is displayed on LCD panel.

2. **Select the SELF-TST function.(LCD)**

   Repeatedly press the "◀" or "▶" button to display "SELFDIAGNOSTIC". And then press the"▼" button to move lower layer. And then repeatedly press the "◀" or "▶" button to display "SELF-TEST". And then press the "SELECT" button to start self-test printing. A short help menu is printed at the top of the page, followed by the self-test. Note that the printer is not online during self-test printing.

3. **Examine the self-test page.**

   A sample self-test page is shown in Chapter 2. To pause during self-test printing, press the "LOAD" button. To resume self-test printing, press the "LOAD" button again.

4. **Exit the SELF-TST function.**

   Exit the SELF-TST function in either of the following ways:

   - To exit SELF-TST and remain in setup mode, press the LF/FF button. The <<FUNCTION>> menu is then reprinted (LED type).
   - To exit SELF-TST and return online, press the ONLINE button. The printer permanently saves any changes made while in setup mode and returns online.

The self-test can also be started by turning off the printer, and then pressing the LF/FF button while turning the printer back on. As described in Chapter 2, this method is useful when you first set up the printer.

Printing Hex Dumps

The HEX-DUMP function prints data and commands in hexadecimal characters and abbreviated control codes. The IBM character set 2 is used for printing (see Appendix E). The HEX-DUMP function is useful for checking whether your computer is sending the correct commands to the printer and whether the printer is executing the commands correctly. It is also useful for debugging software programs.

Procedure

To print hex dumps, make sure that continuous forms paper is loaded into the printer. Then proceed as follows:

1. **Enter setup mode(LED).**

   Press the AUTO GAP button and the HI IMPACT button simultaneously until the printer beeps. Wait for the printer to stop printing and check that the following <<FUNCTION>> menu is printed:

2. **Select the HEX-DUMP function(LED).**

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

   Repeatedly press the "TEAR OFF" or "LOAD" button to position the cursor on the left edge of the aluminum print guide on HEX-DUMP, then press the ▲ button or the ▼ button to select the HEX-DUMP function. The printer goes online and prints a header and a short help menu.

1. **Enter setup mode(LCD).**

   Press the SETUP button at offline state. Check that the "SETUP MODE" is displayed on LCD panel.

2. **Select the HEX-DUMP function(LCD).**

   Repeatedly press the "◀" or "▶" button to display "SELFDIAGNOSTIC". And then press the"▼" button to move lower layer. And then repeatedly press the "◀" or "▶" button to display "HEX-DUMP". And then press the "SELECT" button. The printer goes online and prints a header and a short help menu.

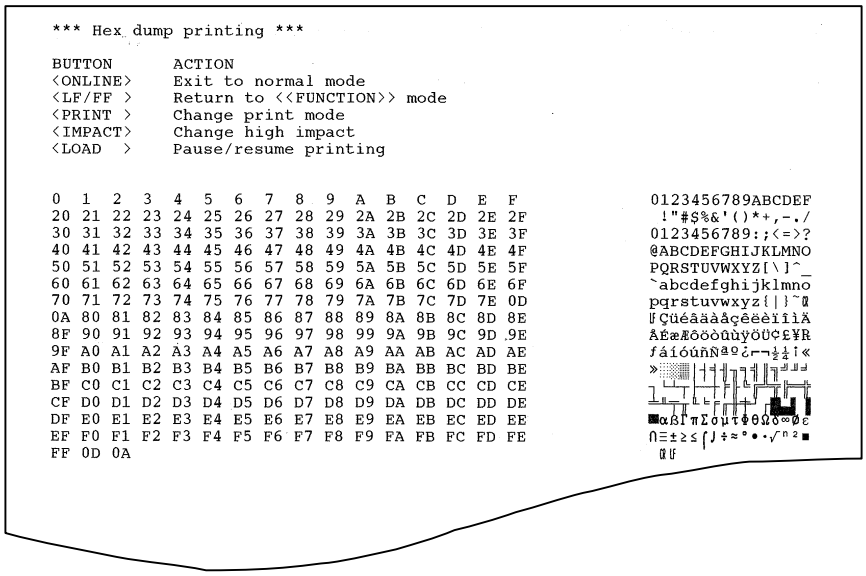
3. **Print the hex dump.**

   To start hex dump printing, send your file or program to the printer. The printer goes online and prints the hex dump.

   Press the LOAD button to pause during hex dump printing. To resume hex dump printing, press the "LOAD" button again.

NOTE

When hex dump printing stops, data that is less than one line printed yet, to print remaining data exit Hex-Dump mode(push LF/FF or ONLINE).



```
*** Hex dump printing ***

BUTTON      ACTION
<ONLINE>    Exit to normal mode
<LF/FF >    Return to <<FUNCTION>> mode
<PRINT >    Change print mode
<IMPACT>    Change high impact
<LOAD  >    Pause/resume printing


0  1  2  3  4  5  6  7  8  9  A  B  C  D  E  F          0123456789ABCDEF
20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F          !"#$%&'()*+,-./
30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F          0123456789:;<=>?
40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F          @ABCDEFGHIJKLMNO
50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F          PQRSTUVWXYZ[\]^_
60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F          `abcdefghijklmno
70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 0D          pqrstuvwxyz{|}~
0A 80 81 82 83 84 85 86 87 88 89 8A 8B 8C 8D 8E          ÇüéâäàåçêëèïîìÄ
8F 90 91 92 93 94 95 96 97 98 99 9A 9B 9C 9D 9E          ÄÉæÆôöòûùÿÖÜ¢£¥R
9F A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 AA AB AC AD AE          ƒáíóúñÑªº¿⌐¬½¼¡«
AF B0 B1 B2 B3 B4 B5 B6 B7 B8 B9 BA BB BC BD BE          »
BF C0 C1 C2 C3 C4 C5 C6 C7 C8 C9 CA CB CC CD CE
CF D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 DA DB DC DD DE
DF E0 E1 E2 E3 E4 E5 E6 E7 E8 E9 EA EB EC ED EE          αßΓπΣσµτΦΘΩδ∞∅ε
EF F0 F1 F2 F3 F4 F5 F6 F7 F8 F9 FA FB FC FD FE          ∩≡±≥≤⌠⌡÷≈°∙·√ⁿ²■
FF 0D 0A                                                 ■
```

Sample hex dump

4. Exit the HEX-DUMP function.

Exit the HEX-DUMP function in either of the following ways:

- To remain in setup mode, press the LF/FF button. The <<FUNCTION>> menu is then reprinted (LED type). For details on other functions, see other sections in this chapter.
- To return to online normal mode, press the ONLINE button. If you press the ONLINE button while the hex dump is printing, the printer immediately switches to normal online mode, but data that was sent to the printer is printed in normal mode. At same time the printer permanently saves any changes made while in setup mode.

You can also enter hex dump mode, by turning off the printer, and then turning the printer back on while simultaneously pressing the ONLINE button and the LF/FF button until the printer beeps.

Checking Vertical Print Alignment (V-ALMNT)

The V-ALMNT function corrects the vertical character displacement that sometimes occurs with bidirectional printing. Characters printed from left to right are not aligned with characters printed from right to left as shown below:

```
This example shows how printing looks
when characters are vertically
misaligned. Note that the left
margin is not straight.
```

If you notice misaligned printing, use the following procedure to check and correct the vertical print alignment.

Procedure

Make sure that continuous forms paper is loaded in the printer. If possible, use forms at least 356 mm (14 inches) wide to avoid printing on the platen. However, you can also use letter or A4 size forms if you set the WIDTH option in MENU1 to 8 inches. See the section Changing MENU1 and MENU2 Items and Options for details. Then proceed as follows to check and correct vertical print alignment:

1. **Enter setup mode (LED).**

   Press the AUTO GAP button and the HI IMPACT button simultaneously until the printer beeps. Wait for the printer to stop printing and check that the following <<FUNCTION>> menu is printed:

```
<< FUNCTION >>
SAVE&END MENU1    MENU2    HARDWRE  ADJUST   CONFIG   GAP-ADJ  DEFAULT  LIST     SELF-TST
HEX-DUMP V-ALMNT  INITIAL
```

2. **Select the V-ALMNT function(LED).**

   Repeatedly press the “TEAR OFF” or “LOAD” button to position the cursor at V-ALMNT, then press the “▲” button or the “▼” button to select the V-ALMNT function. The printer prints the help menu then starts printing rows of parallel bars using letter quality speed.

1. **Enter setup mode(LCD).**

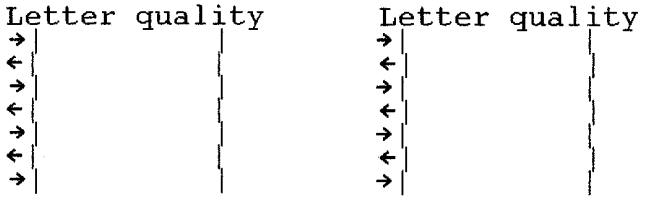
   Press the SETUP button at offline state. Check that the “SETUP MODE” is displayed on LCD panel.

2. **Select the V-ALNMNT function(LCD).**

   Repeatedly press the “◀” or “▶” button to display “SELFDIAGNOSTIC”. And then press the“▼” button to move lower layer. And then repeatedly press the “◀” or “▶” button to display “V-ALNMNT”. And then press the “SELECT” button. The printer prints the help menu then starts printing rows of parallel bars using letter quality speed.

3. Adjust the vertical print alignment at letter quality speed.

Examine the parallel bars. If the bars are aligned (not jagged), go to step 4. If the bars are offset to the left, repeatedly press the "▼" button until the bars are aligned. If the bars are offset to the right, repeatedly press the "▲" button until the bars are aligned. (In the following figure, the first line is assumed to be printed from left to right.)



Bars offset to the left Bars offset to the right

Press the HI IMPACT button to enter Hi Impact mode. Make similar adjustments.

4. Adjust the vertical print alignment at letter 2 speed.

Press the "TEAR OFF" button to switch from letter speed to letter 2 speed.

Examine the parallel bars and adjust the vertical print alignment as described in step 3.

HI IMPACT button is disable at letter 2 speed in V-ALMNT function.

HI IMPACT mode of letter quality 2 is the same speed as HI IMPACT mode of letter quality.

5. Adjust the vertical print alignment at correspondence speed.

Press the "TEAR OFF" button to switch from letter 2 speed to correspondence speed.

Examine the parallel bars and adjust the vertical print alignment as described in step 3.

Press the HI IMPACT button to enter Hi Impact mode. Make similar adjustments.

6. Adjust the vertical print alignment at draft speed.

Press the "TEAR OFF" button to switch from correspondence speed to draft speed.

Examine the parallel bars and adjust the vertical print alignment as described in step 3.

Press the HI IMPACT button to enter Hi Impact mode. Make similar adjustments.

7. Adjust the vertical print alignment at high draft speed.

Press the "TEAR OFF" button to switch from draft speed to high draft speed.

Examine the parallel bars and adjust the vertical print alignment as described in step 3.

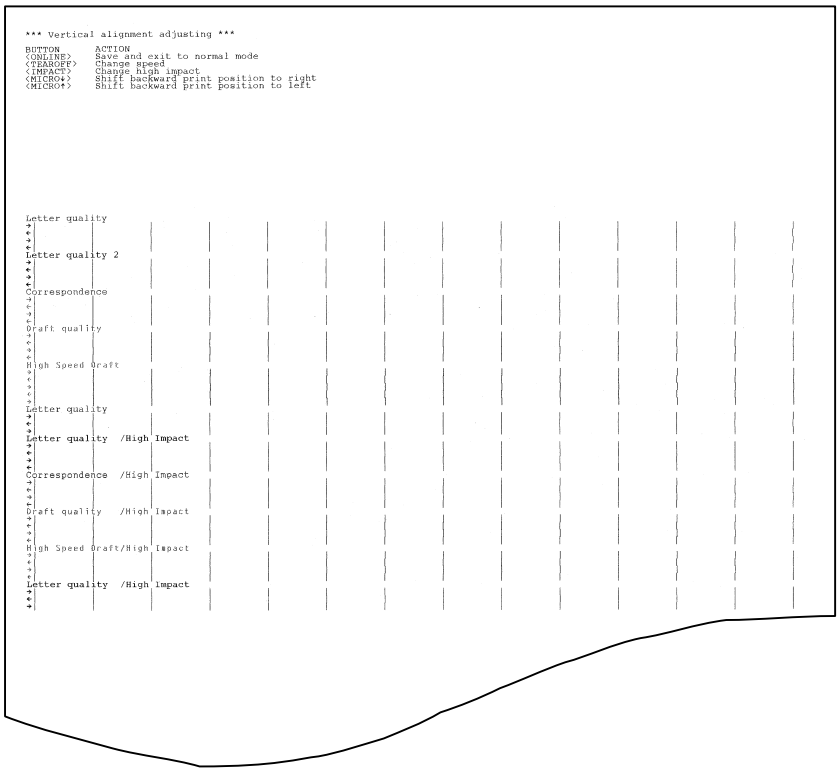
Press the HI IMPACT button to enter Hi Impact mode. Make similar adjustments.

8. Exit the V-ALMNT function.

Press the ONLINE button to exit the V-ALMNT function and save the new vertical alignment settings. The printer exits setup mode and returns online.

NOTE

To exit the V-ALMNT function, you must exit setup mode.



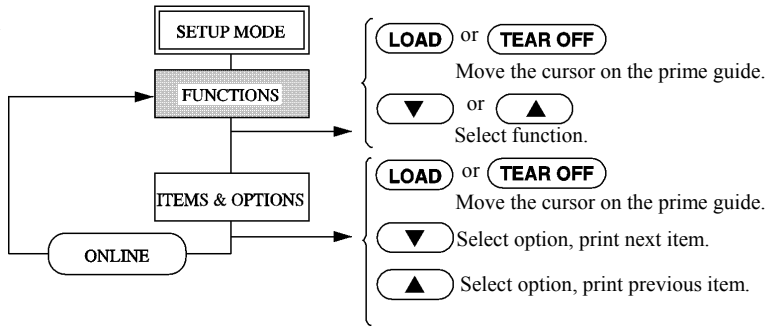
Correct vertical print alignment

SETUP MODE REFERENCE

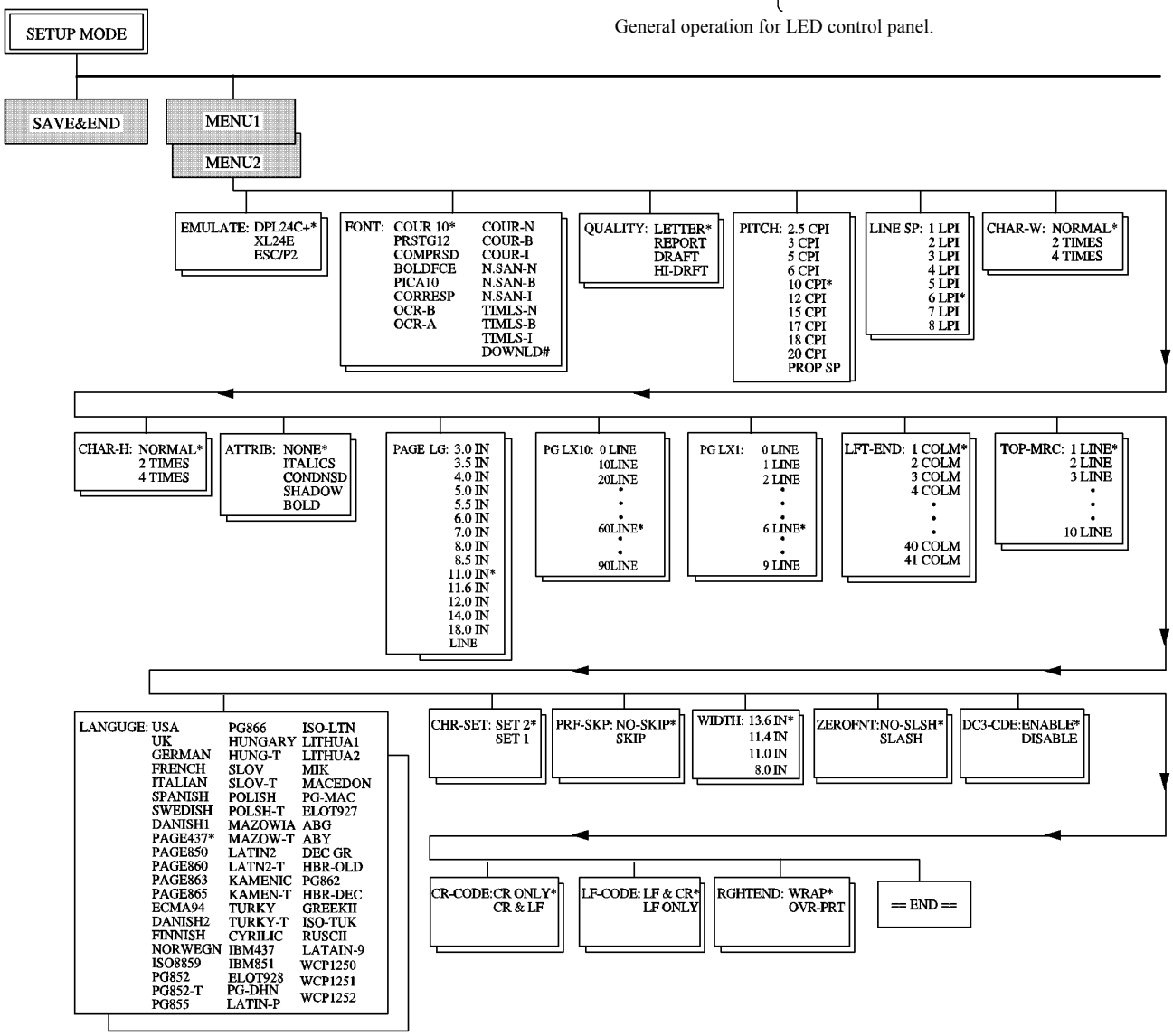
The following flowchart shows how setup mode is organized for the Fujitsu DPL24C PLUS emulation. Differences in the IBM Proprinter XL24E and Epson ESC/P2 emulations are summarized after the flowchart.

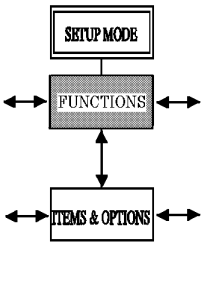
DPL24C PLUS ORGANIZATION

Note:
Asterisks (*) indicate default setting at shipment.



General operation for LED control panel.





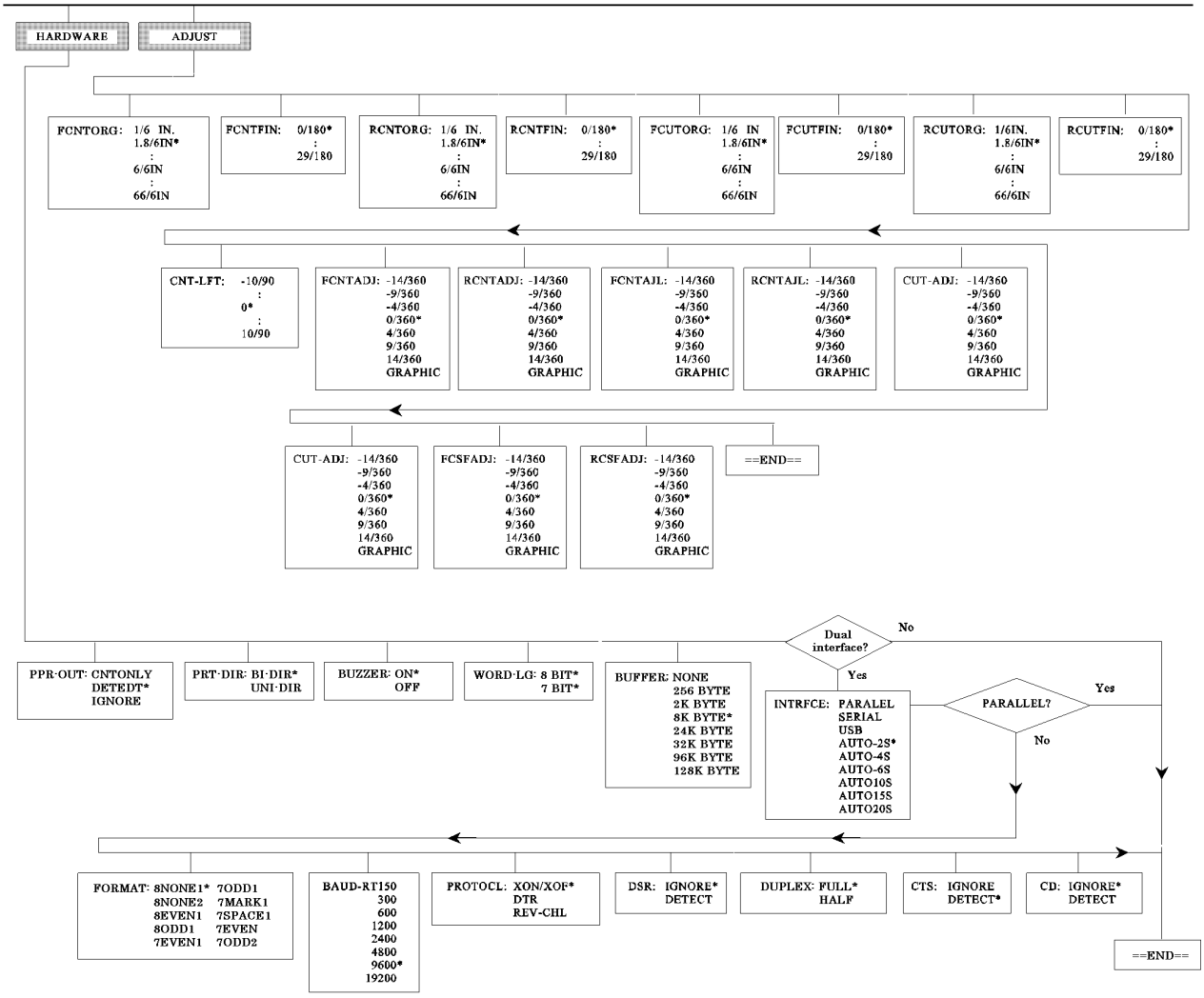
SETUP To enter SETUP MODE press SETUP at offline state.

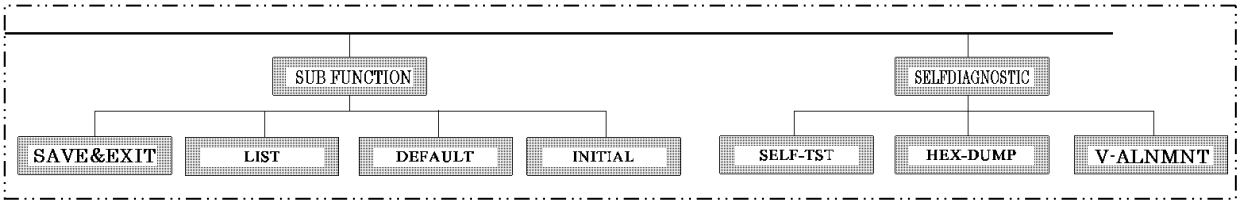
Move displaced items

SELECT Select the displayed option.

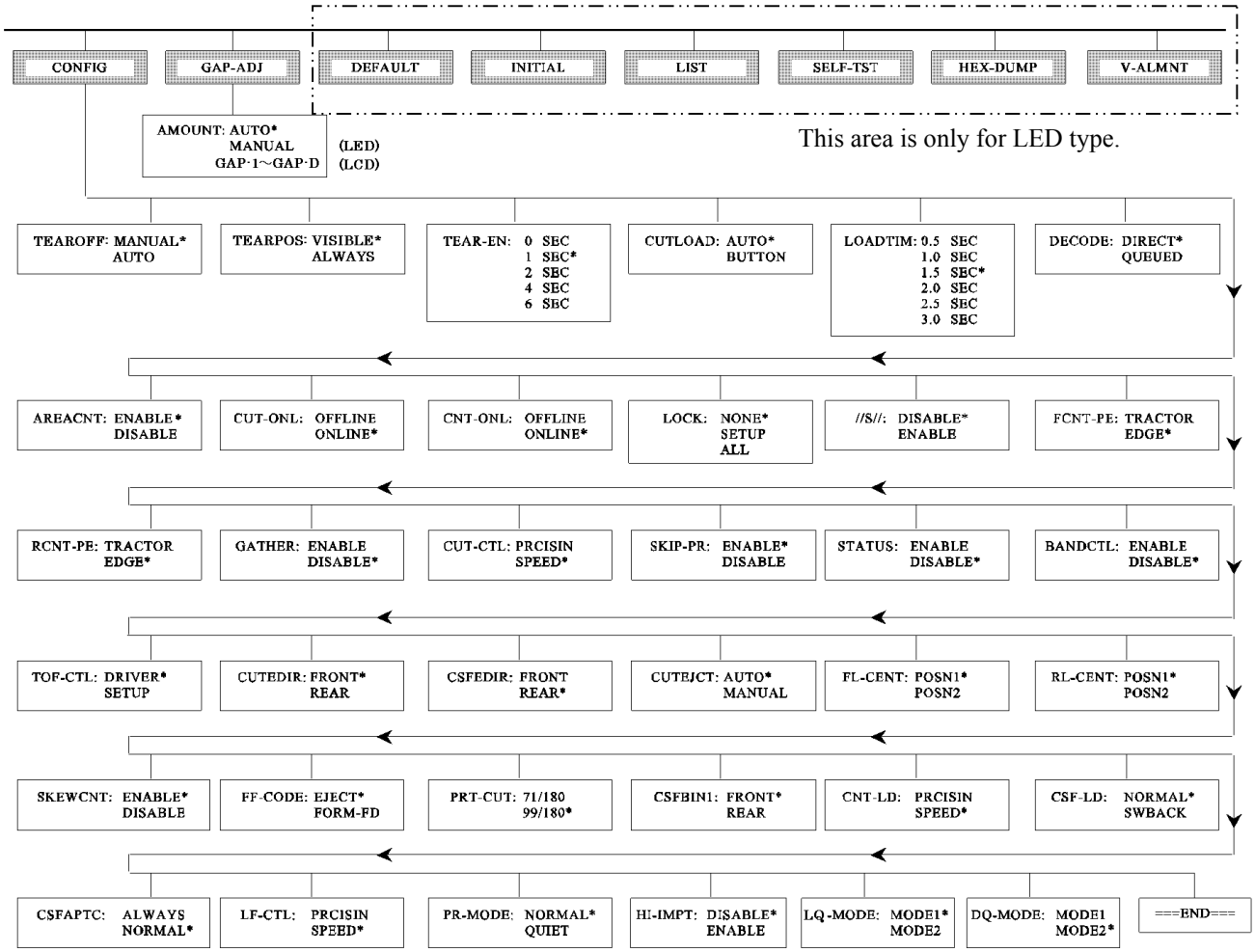
SAVE/EXIT Exit SETUP MODE.

General operation for LCD control panel.





This area is only for LCD type instead of below area.

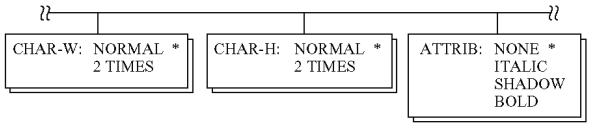


This area is only for LED type.

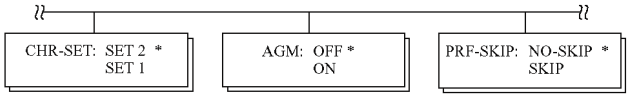
Differences in IBM Proprinter XL24E Emulation

In the IBM Proprinter XL24E emulation, MENU1 and MENU2 differ from the DPL24C PLUS emulation in the following ways:

- The following options are different:



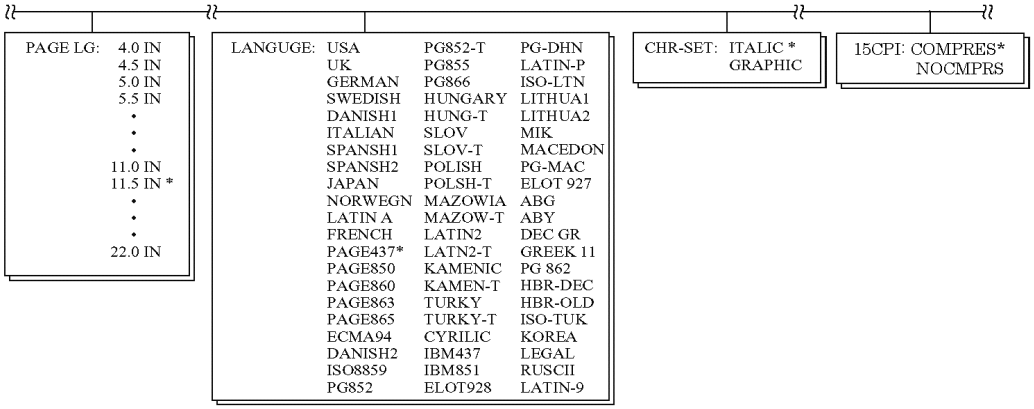
- The AGM item is provided:



Differences in Epson ESC/P2 Emulation

In the Epson ESC/P2 emulation, MENU1 and MENU2 differ from the DPL24C PLUS emulation in the following ways:

- The ZEROFNT and LF-CODE items are not defined.
- The following options are different:



ONLINE SETUP MODE

The preceding sections describe offline setup mode. This section introduces online setup mode. The tedious task of setting up printer features one-by-one from the control panel and printing and checking the desired options on paper can be avoided by using online setup mode. In online setup mode, printer features are set via the computer rather than the printer control panel.

Put the printer in online setup mode, in either of the following two ways:

- Turn the printer off and then turn the printer back on while pressing the TEAR OFF button. Hold down the button until the printer beeps.
- Issue the printer command ESC e ONLINE. This command is valid in any emulation.

Send setup data from the computer in any of the following three ways:

- Enter setup data directly from the computer keyboard before starting your job. With MS-DOS, hold down the Ctrl key and type P. Data entered from the keyboard is sent directly to the printer. When data entry is complete, hold down the Ctrl key again and type P. This method is useful when just a few settings need to be changed.
- Use an editor program to prepare a setup data file and then send the file to the printer using a command before starting your job. With MS-DOS, use the COPY command. This method is useful when settings are used repeatedly.
- Write a program that enables interactive entry of setup data on the CRT screen. This method is the most useful of the three. This printer is provided with a floppy disk which contains this program called DLMENU. For DLMENU, see the last section of chapter 2.

To exit from online setup mode, send EXIT as the last setup data.

For details of setup data and its format, refer to the programmer's manual for each emulation.

6

MAINTENANCE

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

Lubrication of the printer is usually not necessary.

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

CLEANING

The front cover, the rear stacker, and the soundproof cover or the paper table of the printer help protect 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 platen.

It is easier to clean the printer when the front cover and the rear stacker are removed.

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.

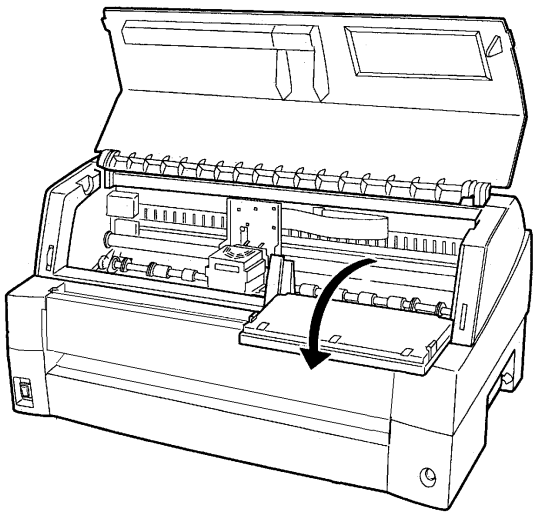
Use the following procedure to clean and vacuum the printer as required:

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 paper table, rear stacker, and the cut sheet feeder.
3. Use a soft, damp cloth to wipe the exterior of the printer, including the cover, paper table, and rear stacker. A mild detergent may be used.

   CAUTION

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

4. Open the front cover of the printer and remove the ribbon cartridge. If necessary lay down control panel. 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 ribbon cable that extends from the print head carriage.



Printer interior

5. Re-install the ribbon cartridge. Close the front cover.
6. Raise the soundproof cover or paper table and rear stacker. Vacuum the forms tractors and surrounding areas.

Cleaning the Platen

Clean the platen about once a month to remove excess ink. Use the platen cleaner recommended by your supplier and proceed as follows:

1. Apply a small amount of platen cleaner to a soft cloth. Avoid spilling platen cleaner 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.
3. To dry the platen, place a dry cloth against the platen.

REPLACING THE RIBBON

There are two ways of replacing the ribbon. You can install a new ribbon cassette in the printer or refill the old ribbon cassette with new ribbon from a ribbon sub cassette. Appendix A lists order numbers for ribbon cassettes and ribbon sub cassettes. The following procedure is for ribbon cassettes. For ribbon sub cassettes, refer to the instructions shipped with the sub cassette.

To replace the ribbon cassette:

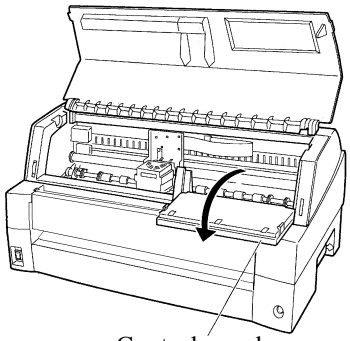
1. Turn off the printer.

   Note:

   If the power is turned off during or immediately after printing, turn on the power again. Verify that the print head has moved to the ribbon replacement position, and then turn off the power again.

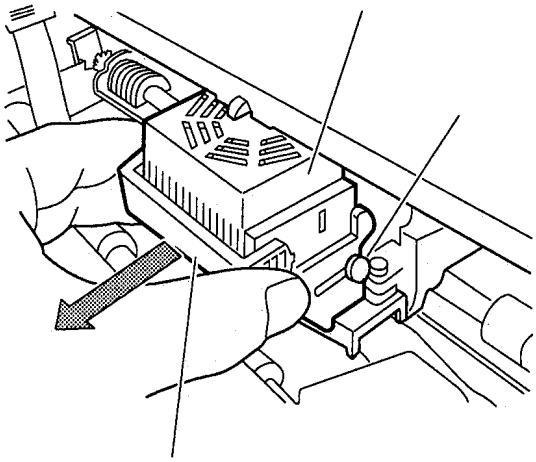
2. Open the front cover and control panel of the printer. Please make sure that the print head stops at the ribbon replacement position.

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



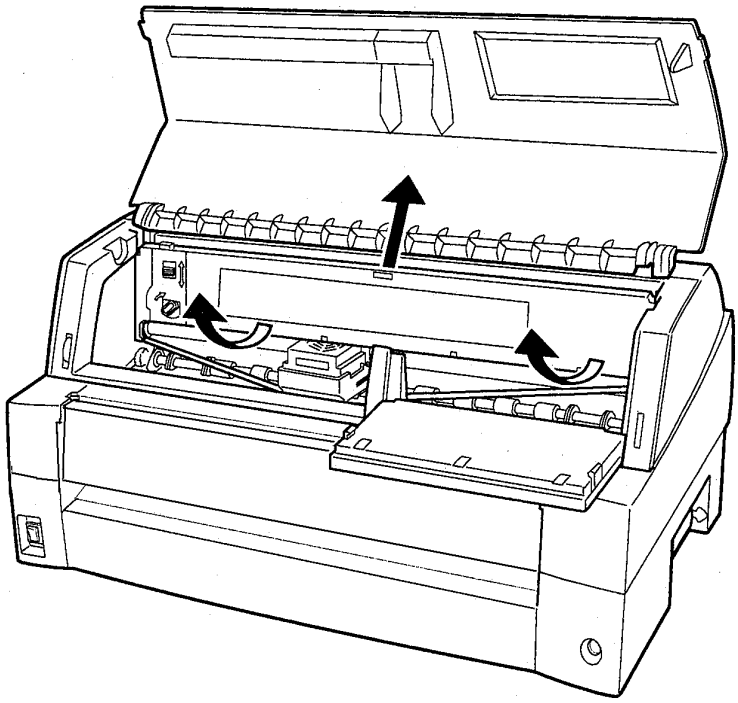
Preparing the printer to install the ribbon cartridge

3. Remove the ribbon guide.



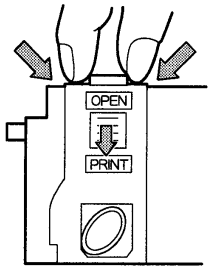
Removing the ribbon guide

4. To remove the ribbon cassette, pull the under side of ribbon cassette and carefully lift the cartridge out of the printer.



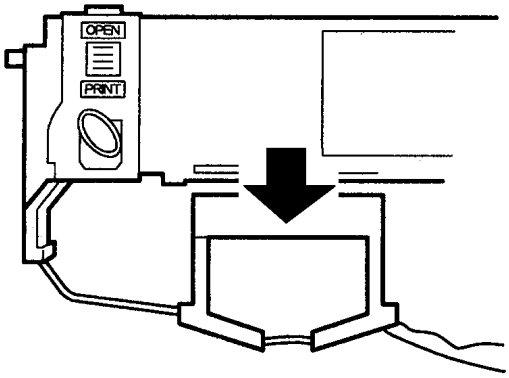
Removing the ribbon cassette

5. Remove the new ribbon cassette from its package. Push in the two ribbon release tabs. The tabs snap into the cassette and the ribbon feed mechanism engages.



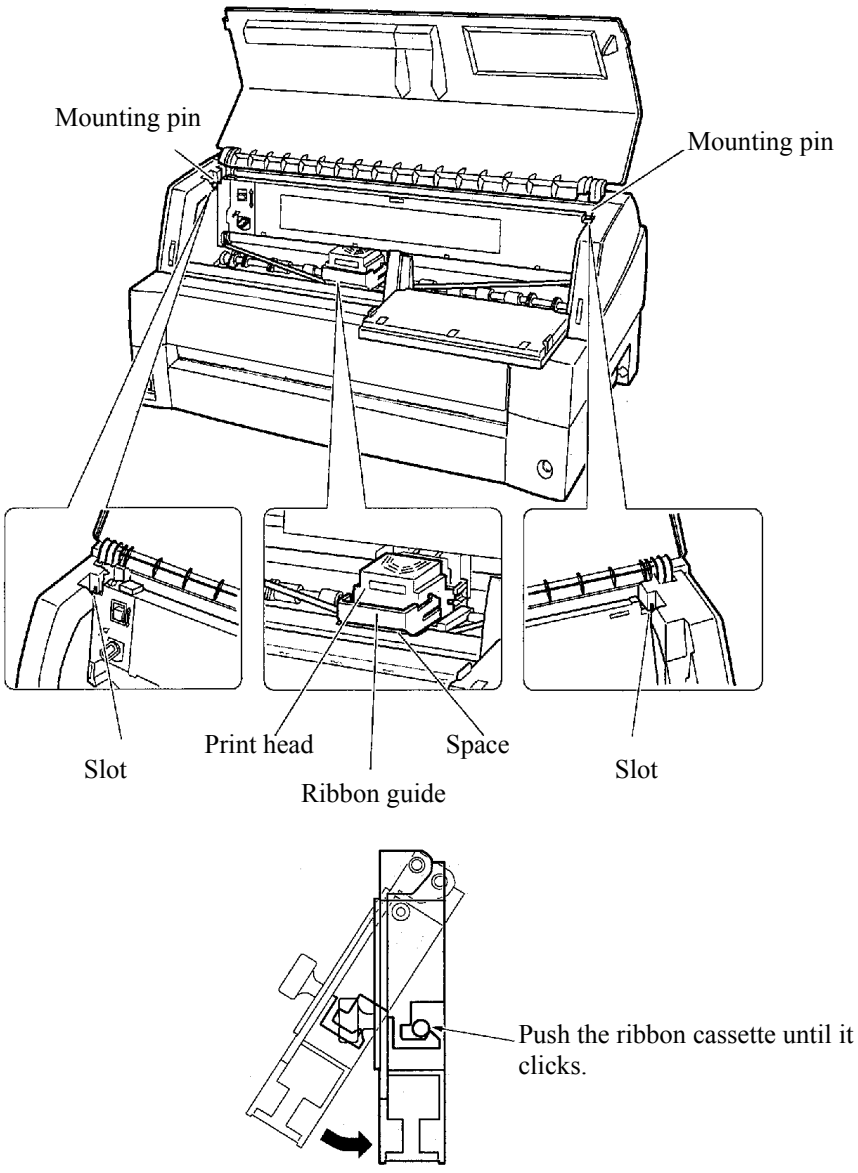
Preparing the ribbon cassette

6. Remove the ribbon guide (green part) from the ribbon cassette. Don't turn the ribbon feed knob before installation.



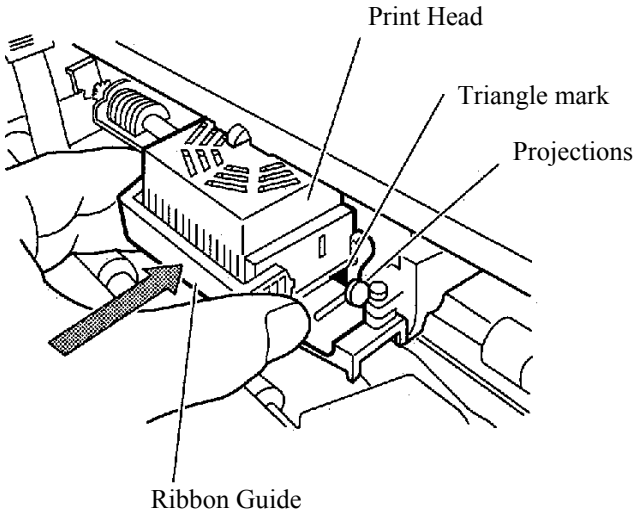
Preparing the ribbon cassette

7. Put the green ribbon guide into the space in front of print head. And then place the mounting pins (both side of ribbon cassette) on the slot of the printer cover. And then push the ribbon cassette so that the ribbon cassette is installed vertically.

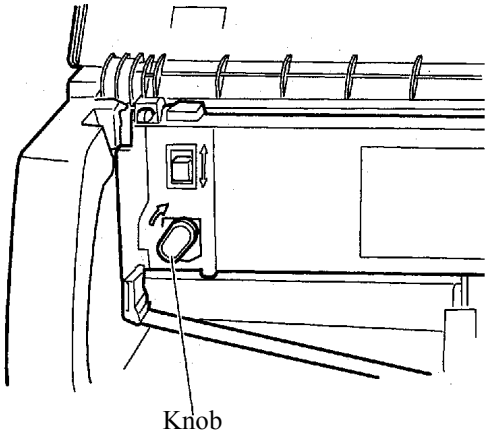


Installing the ribbon cassette

8. Attach the green ribbon guide on the print head.
   Please make sure that the ribbon slack lightly. (If the ribbon is strained, it will quirk when installation.)Push the green ribbon guide until the triangle mark "▼"meets the round projection of print head.



9. Turn the ribbon feed knob clockwise to take up any slack in the ribbon.



10. Return the control panel..

11. Close the front cover.

NOTE

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

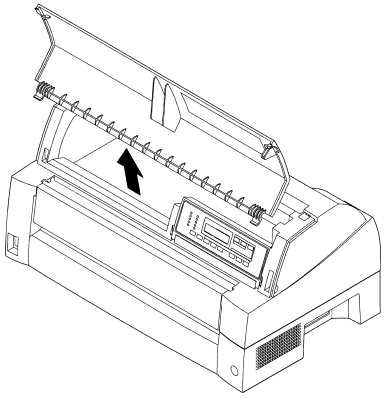
REPLACING THE PRINT HEAD

The print head is easy to replace.

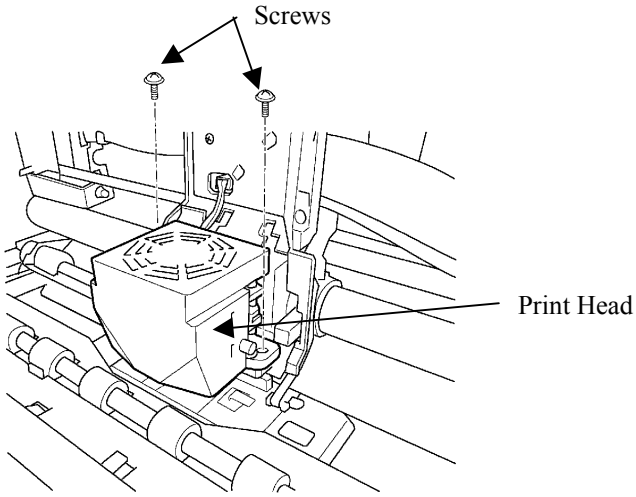
(HOT)	**CAUTION <HOT>** **The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.**

To remove the print head:

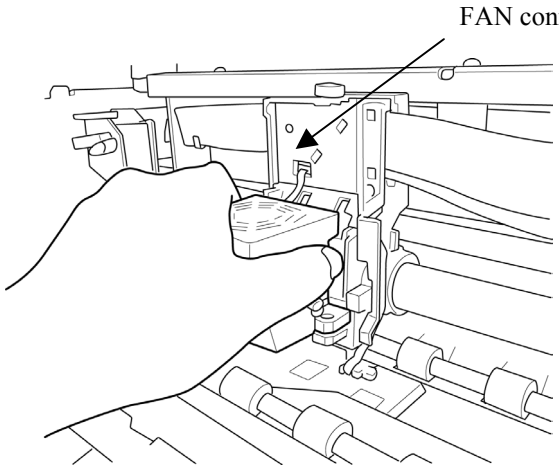
1. Turn off the printer.
2. Open the front cover of the printer and remove the ribbon cassette.
3. Please remove a front cover, during keeping the front cover aslant.

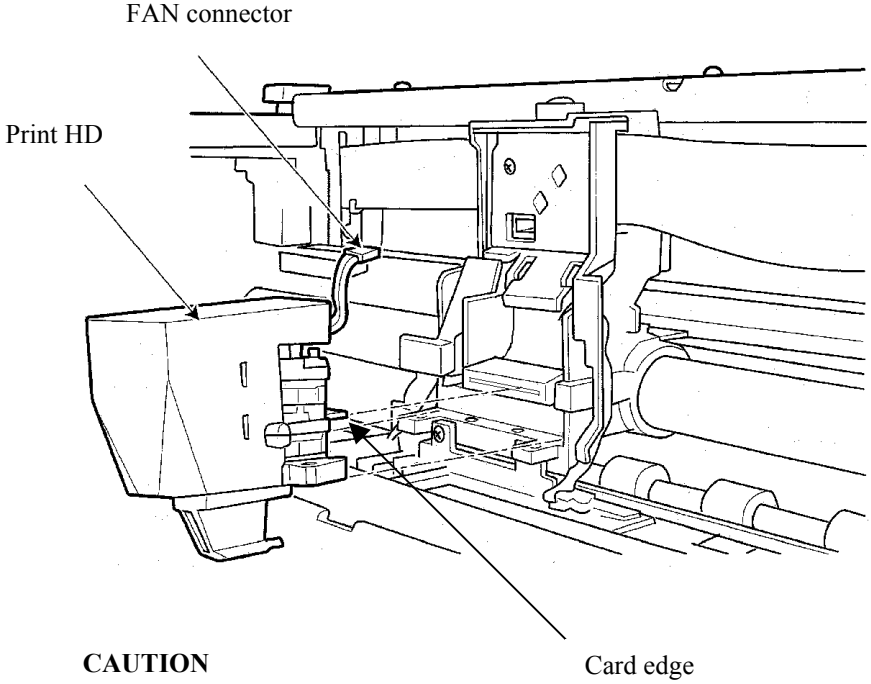


4. Remove two screws.



5. Remove the print head.



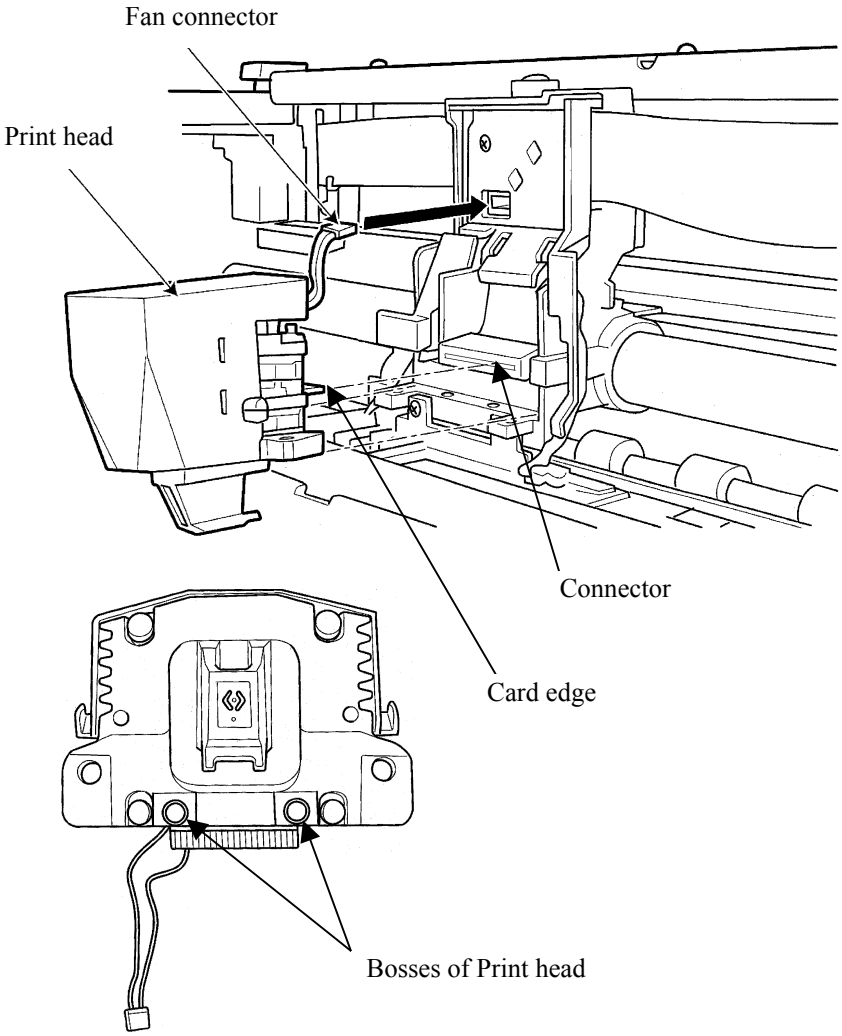


CAUTION

Be carefully to remove the card edge and FAN connector straightly.

To install the print head:

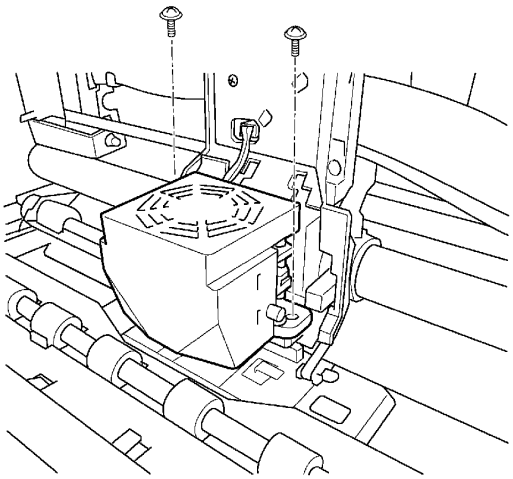
1. Connect the connector to the card edge of the print head.
2. Fit the mounting bosses of the print head into the holes on the carriage.
3. Connect the fan connector.



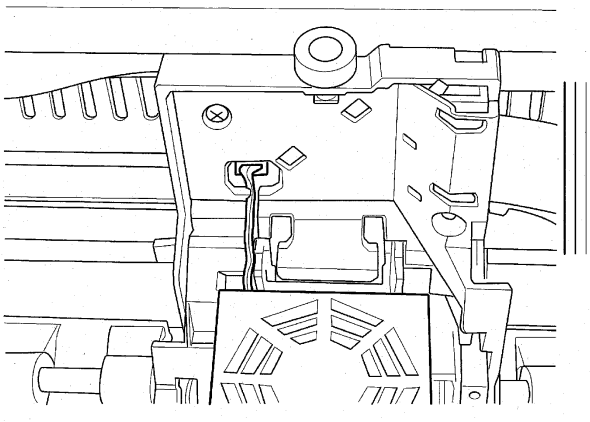
CAUTION

Be carefully to insert the card edge straightly.

4. Fix the print head by two screws..



5. Insert the fan cables under black plastic part.

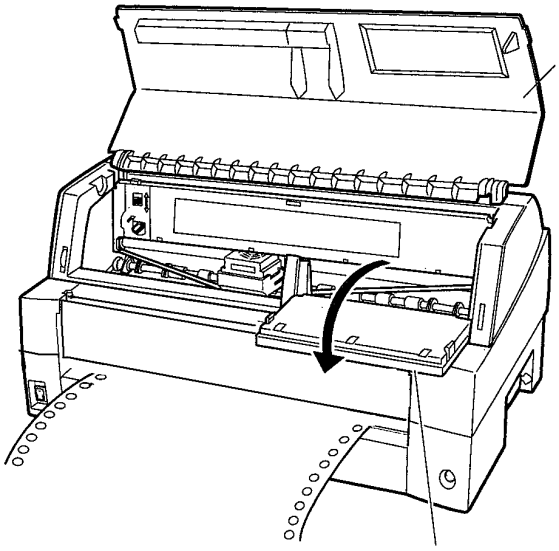


CAUTION

If the FAN cable protrude from black plastic part. FAN cable may be damaged by ribbon feed mechanism on left side frame.

Opening and closing the control panel

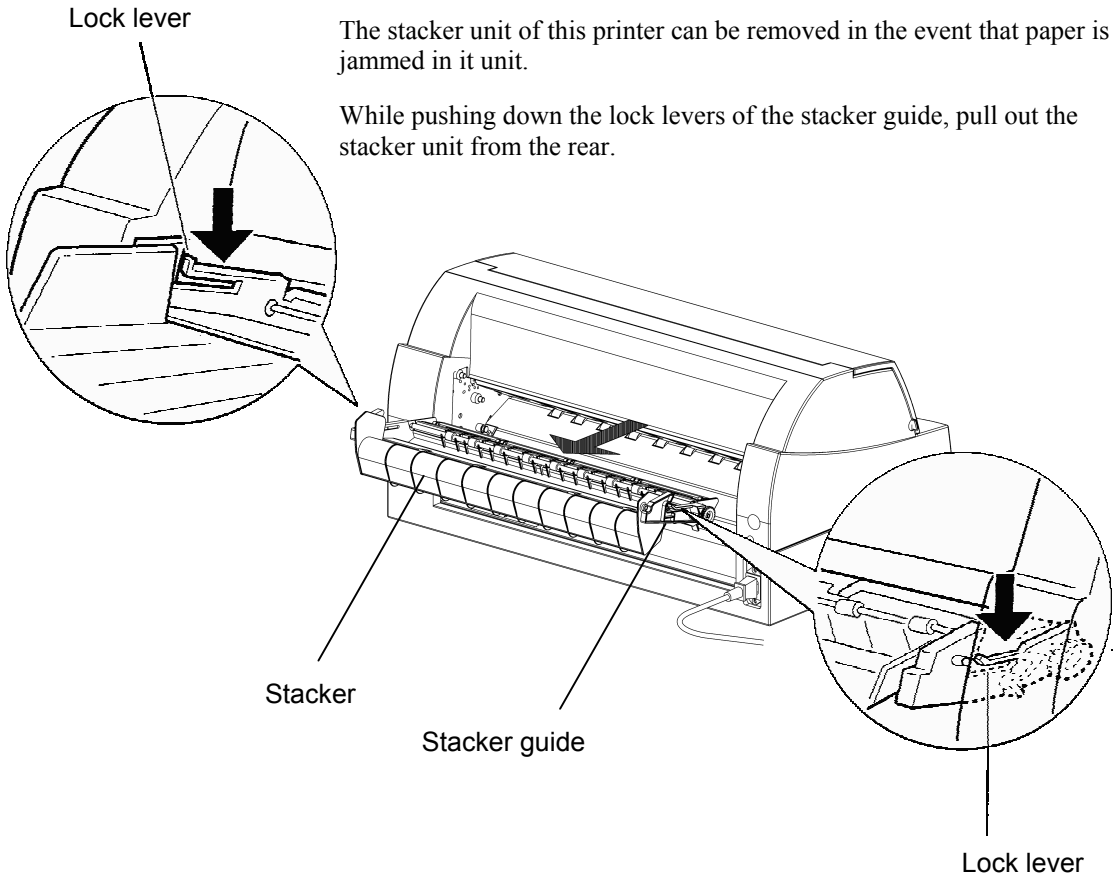
The control panel of this printer can be pulled down toward the front as necessary, such as when jammed paper must be removed.



Removing the stacker unit

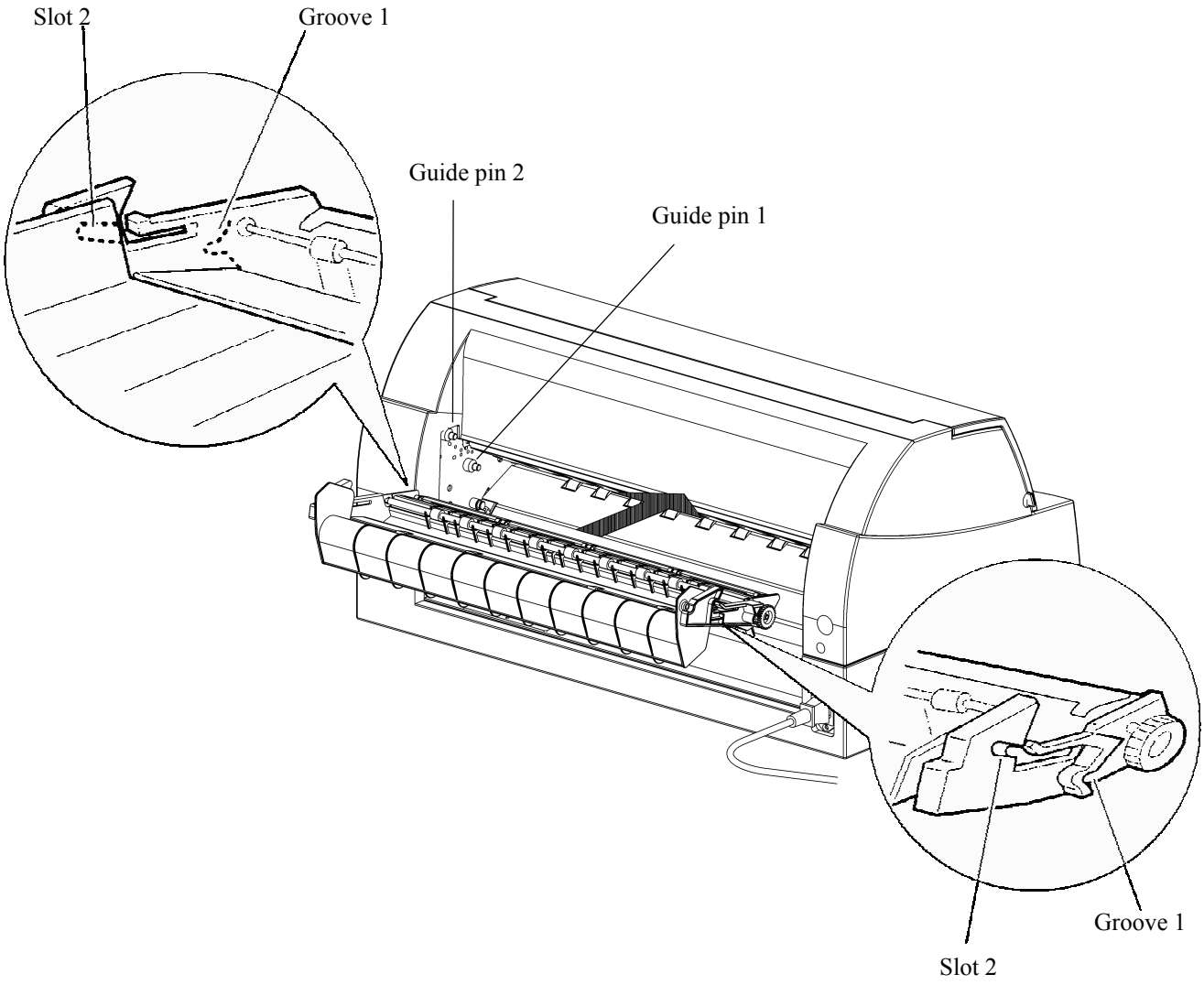
The stacker unit of this printer can be removed in the event that paper is jammed in it unit.

While pushing down the lock levers of the stacker guide, pull out the stacker unit from the rear.



Mounting the stacker unit

Position groove 1 over guide pin 1 on the right and left sides of the stacker unit. Then, push in the stacker unit until guide pin 2 is hooked onto slot 2.



7

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:

- Solving problems
- Diagnostic functions
- Getting help

SOLVING PROBLEMS

The tables in this section describe common printer problems and their solutions. The following types of problems are considered:

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

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 7.1 identifies common print quality problems and suggests solutions.

Table 7.1 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. Check ribbon wear. Replace the ribbon if necessary.
	Check the difference of thickness of medium. If auto adjustment function detects difference level of medium, it doesn't work properly. In this case you must adjust for paper thickness manually. See ADJUSTING PAPER THICKNESS in Chapter 3.
	If you adjust for paper thickness manually, tune-up as follows. **If printing is too light, decrease setting.** **If printing is dark, increase setting.** Note Printer accepts the value for paper thickness from Printer Driver or application program. In this case, check the setting of the Printer Driver or application program at your host computer. And then tune the value by way above.
Stains or smudges appear on the page.	Check ribbon wear. Replace the ribbon if necessary. 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. One or more "?" 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 2. 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. See the section **Hardware Items and Options** in Chapter 5.

Table 7.1 Print Quality Problems and Solutions (Cont.)

Problem	Solution
Characters are lost at the left or right end.	If lost area is about 10mm (3mm) from left and right edge of continuous forms(single sheet), Area-over detection control woks properly. In this case make sure that paper size, paper position, and left and right margins are properly set. Note Preprinted dark color area, shape of corner cut, paper skew may cause incorrect detection. Please don't use medium like this. If you must use medium like this absolutely, you can disable Area-over detection by using setup mode. But risk of print head broken is increase.
	Incorrect paper size selection of the Printer Driver causes right side area is lost (exactly Printer Driver divide the page by paper size setting and postpone divided right page). Please check the paper size setting.
Printing is vertically misaligned (jagged).	Use the printer's V-ALMNT function to check the vertical print alignment. If necessary, adjust the print alignment. See the section **Using the Diagnostic Functions** in Chapter 5.
	Smaller adjustment for paper thickness causes vertically misalignment too. Please refer to Printing is too light or too dark.
The top margin is wrong.	The top margin is the sum of the top-of-form setting, the software-specified top margin, and the printer's TOP-MRG setting. Proceed as follows: • Make sure that the top-of-form setting is correct. The factory default is 25.4 mm (1 inch). See the section **Changing Top-of Form** in Chapter 5. • Check the software-specified top margin. Refer to your software documentation. • Check the printer's TOP-MRG setting. See the section **MENU1 and MENU2 Items and Options** in Chapter 5.

Table 7.1 Print Quality Problems and Solutions (Cont.)

Problem	Solution
Lines are double spaced instead of single spaced.	Check the line spacing setting in your software. Change the CR-CODE setting in the printer setup mode to CR ONLY. See the section **MENU1 and MENU2 Items and Options** in Chapter 5.
The printer overprints on the same line.	Change the CR-CODE setting in the printer setup mode to CR & LF. See the section **MENU1 and MENU2 Items and Options** in Chapter 5.
The next print line starts where the previous line ended instead of at the left margin.	Change the LF-CODE setting in the printer setup mode to LF & CR. See the section **MENU1 and MENU2 Items and Options** in Chapter 5.
The top of form of continuous form displaces gradually.	Variation of the top of form is saturated in a few pages and displacement is about 1mm or less. In this case adjust value is prepared in setup mode. See ADJUST Items and Options and search <FCNTADJ> or <RCNTADJ>.
	Variation of the top of form isn't saturated. In this case setting of page length isn't correct. Make sure that page length setting equal actual page length exactly. In general page length of continuous form is multiple of 0.5inch. Anyway don't set page length of continuous forms using mm unit.

Paper Handling Problems

Table 7.2 describes common paper handling problems and suggests solutions. See Chapter 3 for detailed procedures on loading and using paper.

Table 7.2 Paper Handling Problems and Solutions

Problem	Solution
Paper cannot be loaded or fed.	Make sure that the paper path indicator (FRONT TRACTOR, REAR TRACTOR, CUT SHEET) lights correctly. Press the PAPER PATH button to select the paper path. Make sure that the paper covers the paper-out sensor, i.e., the left paper edge is within 52 mm for single sheets or 41 mm for continuous forms from the left edge of the platen. (This problem cannot occur if you use the forms tractor unit or insert a single sheet with its left edge in contact with the left paper guide.) Make sure that the tractor unit is correctly installed and that the tractor shaft gear engages the platen shaft gear. If you are using a cut sheet feeder, make sure that the bin lever is set to the "CLOSED" position. (The bin lever is on the left side of the feeder.) If you are using a cut sheet feeder, make sure that the feeder is firmly mounted on the printer and the cable is correctly connected.
Paper manually loaded is ejected without printing	If you are using the paper skew detection (option), adjust the paper guide on the paper table for the print start position and correctly slide the sheet along the guide.

Table 7.2 Paper Handling Problems and Solutions (Cont.)

Problem	Solution
Paper jams while loading.	Turn off the printer and remove the jammed paper. Remove any obstructions from the paper path. If you are using a cut sheet feeder, make sure that the bin lever is set to the "CLOSED" position. (The bin lever is on the left side of the feeder.) Make sure that the paper is not folded, creased, or torn. Reload the paper. Make sure that the paper table is in normal mode. Set the paper table to normal mode.
Paper jams while printing.	Turn off the printer and remove the jammed paper. Remove any obstructions from the paper path. For continuous forms, make sure that the incoming and outgoing paper stacks are correctly placed. Paper should feed straight. Make sure that the paper table is in normal mode. Set the paper table to normal mode. If you are using a cut sheet feeder, make sure that the bin lever is set to the "CLOSED" position. (The bin lever is on the left side of the feeder.) 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.

Operating Problems

Table 7.3 identifies common operating problems and suggests solutions. If you cannot resolve a problem, contact your dealer.

Table 7.3 Operating Problems and Solutions

Problem	Solution
The power does not turn on.	Make sure that the "I" on the printer power switch is depressed. Make sure that the power cord is securely connected to both the printer and the outlet. Make sure that the power outlet is functional. Turn the power off. Wait 100 seconds and then turn the printer on again. If the printer still has no power, contact your dealer.
The printer is on but it will not print.	Make sure that the printer is online. Make sure that the interface cable is securely connected to both the printer and the computer. If the red PAPER OUT indicator is lit, load paper. Run the printer self-test (see Chapter 5). If the self-test executes normally, the problem is caused by the interface, the computer, incorrect printer settings, or incorrect software settings. 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 2. Make sure that the front cover is completely closed. 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. See the section **Hardware Items and Options** in Chapter 5.
The cut sheet feeder does not operate.	Make sure that the cut sheet feeder is firmly mounted on the printer. Make sure that the cable is correctly connected.
The FRONT DIR indicator blinks.	Remove the printed sheet of paper from the paper table.

Printer Failures

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

- Stop printing
- Beep four times
- Turn the ONLINE indicator off

The control panel displays alarms. The meanings of alarms can be checked in the following table.

Alarm display function(LED)

This printer has a function for distinguishing between alarms by using the blinking of individual lamps on the control panel.

From the combination of blinking lamps in an alarm state, the meaning of the alarm can be determined as shown in the following table.

Lamp / Alarm name	PAPER OUT	REMOVE PAPER	FRONT DIR	QUIET	AUTO GAP	HI IMPACT	TRACTOR F	TRACTOR R	CUT SHEET	MENU1	MENU2	ONLINE	Condition of occurrence
LRES alarm	◎	◎					◎						LRES could not be detected during the space initial operation.
Space problem alarm	◎	◎						◎					The shield board could not be detected normally by the LRES sensor.
Fan alarm	◎	◎							◎				The cooling fan could not rotate.
Fire check alarm SP motor	◎	◎								◎			Abnormally high current of motor driver was detected.
Fire check alarm Ribbon motor	◎	◎									◎		Abnormally high current of motor driver was detected.
HCPP (cut sheet or continuous forms paper switching) alarm	◎		◎					◎					Switching between cut sheet paper and continuous forms paper was not possible.
Fire check alarm LF motor	◎		◎						◎				Abnormally high current of motor driver was detected.
Fire check alarm CSF motor	◎		◎							◎			Abnormally high current of motor driver was detected.
Overload alarm	◎			◎			◎						An overload occurred during printing, and second pass printing was performed. However, the power source voltage was not restored.
Low voltage alarm	◎			◎				◎					The power source voltage dropped below the specified level when no printing was in progress.
Fire check alarm Print Head	◎			◎					◎				Abnormally long driving of print head driver was detected.
Over voltage alarm	◎			◎						◎			Over voltage of power source was detected.
APTC gap alarm	◎				◎		◎						During the APTC operation, paper was detected immediately after the start of approach motion, or no paper was detected.
APTC home position sensor alarm	◎				◎			◎					During the APTC operation, no reference position was detected.
ROM/RAM alarm	◎					◎	◎						A sum-check error or read/write error occurred, or no CG-ROM is mounted.

◎: Blinking

Blank: Off

Alarm display function(LCD)

This printer has a function for distinguishing between alarms by using the blinking of message lamp and LCD on the control panel.

Alarm name	Message Lamp	LCD	Condition of occurrence
LRES alarm	◎	FATAL! LRES ALARM	LRES could not be detected during the space initial operation.
Space problem alarm	◎	FATAL! SPACE ALARM	The shield board could not be detected normally by the LRES sensor.
Fan alarm	◎	FATAL! FAN ALARM	The cooling fan could not rotate.
Fire check alarm SP motor	◎	FATAL! SPM ALARM	Abnormally high current of motor driver was detected.
Fire check alarm Ribbon motor	◎	FATAL! RBFM ALARM	Abnormally high current of motor driver was detected.
HCPP (cut sheet or continuous forms paper switching) alarm	◎	FATAL! HCPP ALARM	Switching between cut sheet paper and continuous forms paper was not possible.
Fire check alarm LF motor	◎	FATAL! LFM ALARM	Abnormally high current of motor driver was detected.
Fire check alarm CSF motor	◎	FATAL! CSFM ALARM	Abnormally high current of motor driver was detected.
Overload alarm	◎	FATAL! OVERLOAD ALARM	An overload occurred during printing, and tripartite printing was performed. However, the power source voltage was not restored.
Low voltage alarm	◎	FATAL! LOW VOLT ALARM	The power source voltage dropped below the specified level when no printing was in progress.
Fire check alarm Print Head	◎	FATAL! HEAD ALARM	Abnormally long driving of print head driver was detected.
High voltage alarm	◎	FATAL! HIGH VOLT ALARM	Over voltage of power source was detected.
APTC gap alarm	◎	FATAL! APTC GAP ALARM	During the APTC operation, paper was detected immediately after the start of approach motion, or no paper was detected.
APTC home position sensor alarm	◎	FATAL! APTC HPS ALARM	During the APTC operation, no reference position was detected.
ROM/RAM alarm	◎	FATAL! ROM/RAM ALARM	A sum-check error or read/write error occurred, or no CG-ROM is mounted.

◎: Blinking

Blank: Off

Responses to alarm occurrences

Your first response to each alarm should be as described in the following table.

Problem	Solution
LRES alarm	Remove any paper dust, which may cause problems in carriage operation.
Space problem alarm	Same solution same as above should be done. Check adjustment for paper thickness. Smaller setting causes spacing problem.
Fan alarm	Remove any dust of ventilation near the Fan motor.
APTC gap alarm	Check the paper thickness (0.04 to 0.65 mm). Check whether the paper has different thicknesses or whether the paper has filing holes.

For problems other than the above, request your printer dealer to make repairs.

Especially Fire Check is happen, please refrain using printer.

DIAGNOSTIC FUNCTIONS

The printer diagnostic functions are SELF-TST, HEX-DUMP, and V-ALMNT.

- SELF-TST 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 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.
- V-ALMNT allows you to check and, if necessary, correct the printer's vertical print alignment.

For details on using these functions, all of which are available in the printer setup mode, see the section **Using the Diagnostic Functions** in Chapter 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 of manufacture. 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, see the section **Printing a List of Selected Options** in Chapter 5.

8

INSTALLING OPTIONS

The installation of options allows you to expand the capabilities of your printer. Options available for the printer include:

- LAN card
- Cut sheet feeder
- Tractor unit
- Large stacker
- Large Paper Table

The LAN card is a user installable option, but can be installed only on a printer model with the parallel and USB interfaces. For information on the installation procedure, refer to the manual that comes with the LAN card.

Options can be purchased from your dealer. Order numbers for options are given in Appendix A.

INSTALLING THE CUT SHEET FEEDER

This chapter describes what to do after installing cut sheet feeder.

A cut sheet feeder (SF940) allows you to automatically feed single sheets. It can be mounted on the front or the rear of the printer.

When attaching the cut sheet feeder to the front of the printer, removing the tractor and replacing soundproof cover with large or small paper table are necessary (See “INSTALLING THE PAPER TABLE” on page 8-11).

When attaching the cut sheet feeder to the rear of the printer, replacing the stacker with large stacker is necessary (See “INSTALLING THE LARGE STACKER” on page 8-9).

For both front and rear, the cut sheet feeder can handle a max. of 5-ply multipart media.

When installing the front and rear cut sheet feeders, the printer assigns the first bin to the front feeder. You can change the assignment using set up mode.

WARNING (Electric shock)

Before mounting or removing the cut sheet feeder, turn off the power switches of the personal computer and the printer and remove the power plug from the outlet. Otherwise, you may receive electric shock.

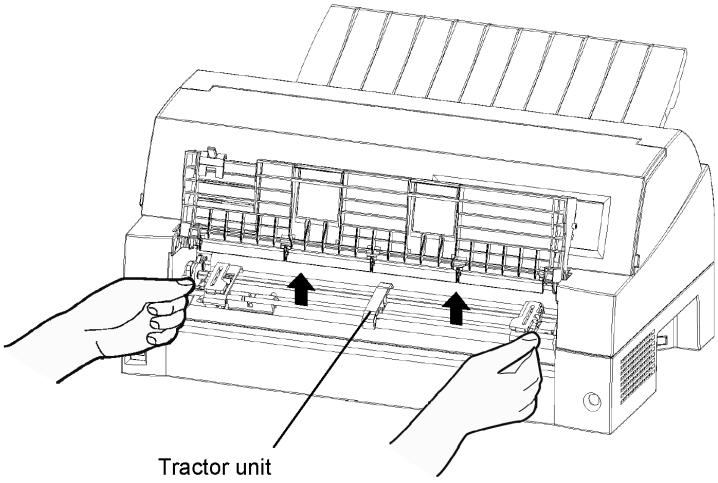
Installing on the front side of the printer

1. **Turn off the printer power.**

   Confirm that the printer power is turned to the O side.

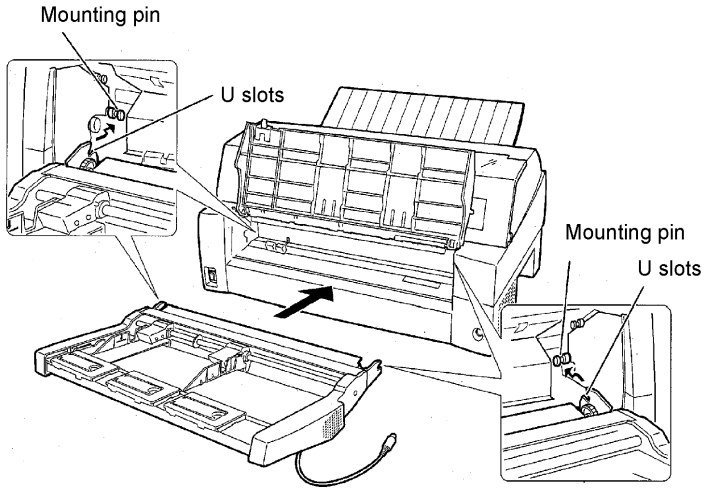
2. **Removing the tractor unit**

   Raise the paper table and remove the tractor unit. (For details on mounting and removing the tractor unit, see "Selecting the Tractor Unit Position" on page 2-10.)

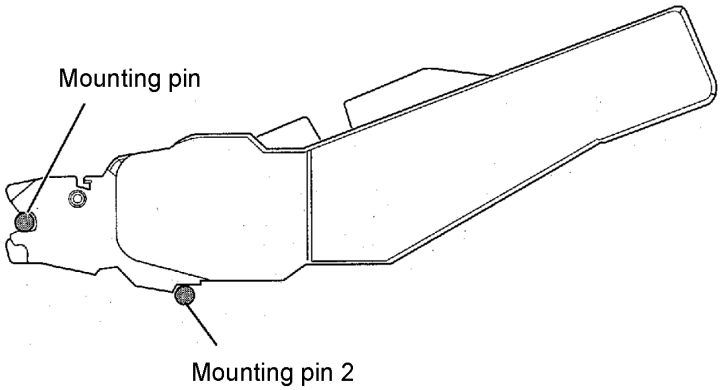


3. **Installing the cut sheet feeder**

   Adjust the U slots made on both sides of the cut sheet feeder to the mounting pins inside the printer and lower the cut sheet feeder slowly.



   Check that the cut sheet feeder frame is correctly mounted on mounting pin 2.



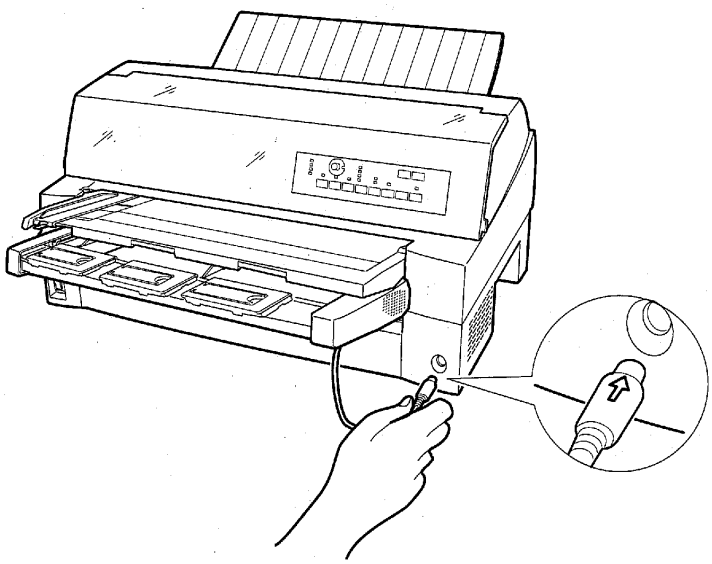
4. Replacing the paper table

Be sure to replace the paper table. (Same way as "Close the soundproof cover" on page 2-6.)

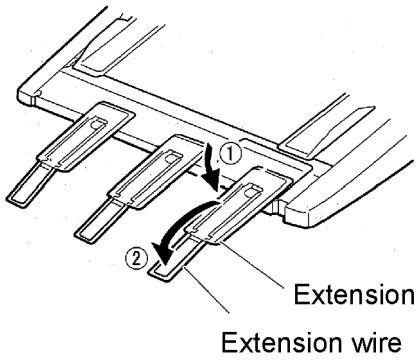
If the paper table is incorrectly set, a paper jam may occur.

5. Connecting the cable

Connect the cut sheet feeder cable to the connector on the front right of the printer. Insert the cable with the connector arrow mark up.



6. **Extend the extension and extension wire in the order from (1) to (2) according to the size of the paper to be used.**



Installing on the rear side of the printer

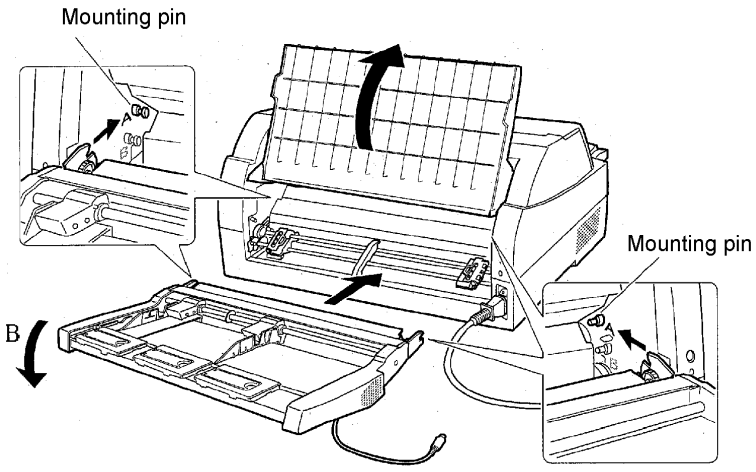
Before mounting the cut sheet feeder, turn off the printer power.

1. **Turn off the printer power.**

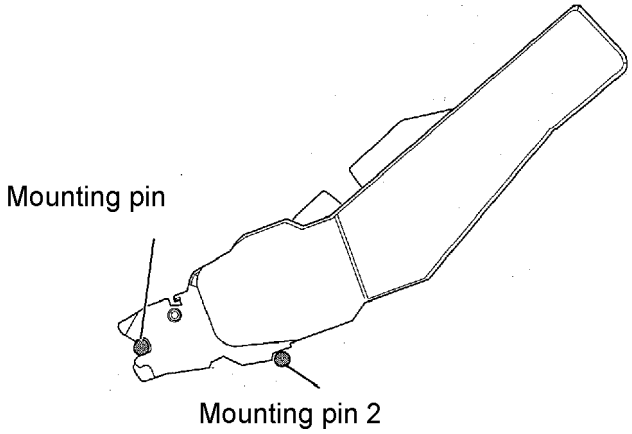
   Confirm that the printer power is turned to the O side.

2. **Installing the cut sheet feeder**

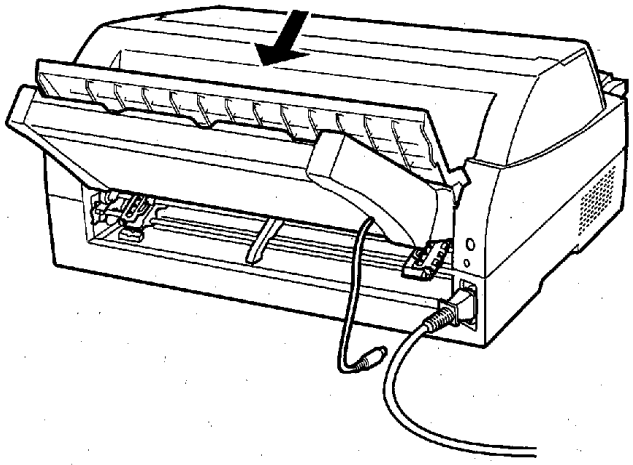
   Open the rear stacker. Hold both sides of the cut sheet feeder and adjust the U slots made on both side of the cut sheet feeder to the mounting pins inside the printer. (Attach the slots with the letter A of the cut sheet feeder adjusted to that on the printer side.) Then, lower the cut sheet feeder like it turns in the direction of arrow B, using the mounting pins as supporting points.



Check that the cut sheet feeder frame is correctly mounted on mounting pin 2.

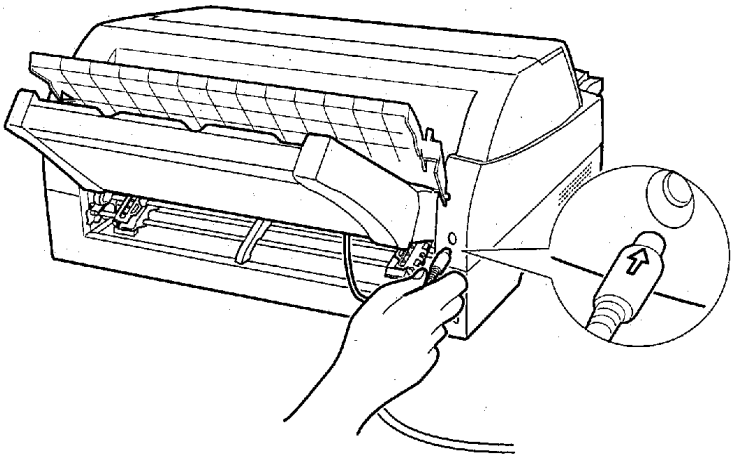


3. **Close the rear stacker.**

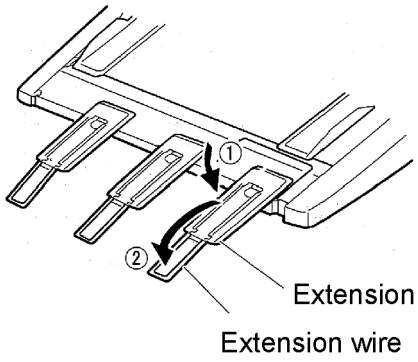


4. Connecting the cable

Connect the cut sheet feeder cable to the connector on the rear right of the printer. Insert the cable with the connector arrow mark up.



5. Extend the extension and extension wire in the order from (1) to (2) according to the size of the paper to be used



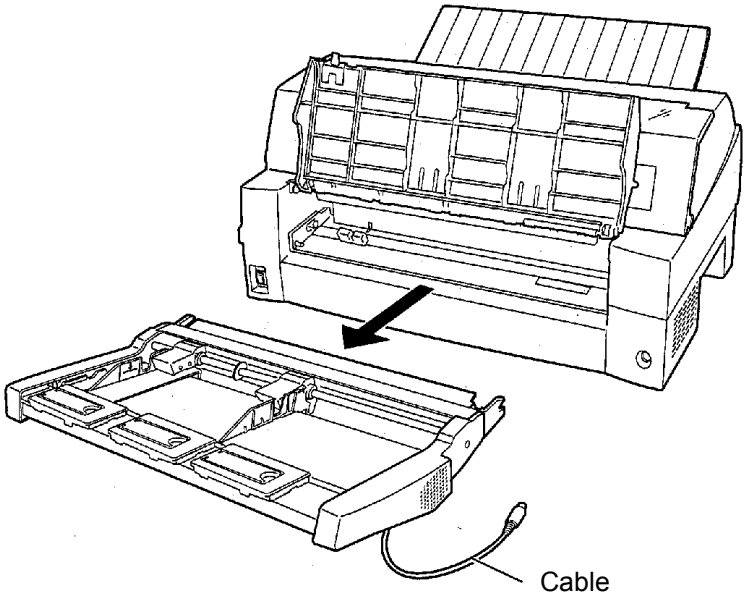
Removing the Cut Sheet Feeder

Before removing the cut sheet feeder, disconnect the cable.

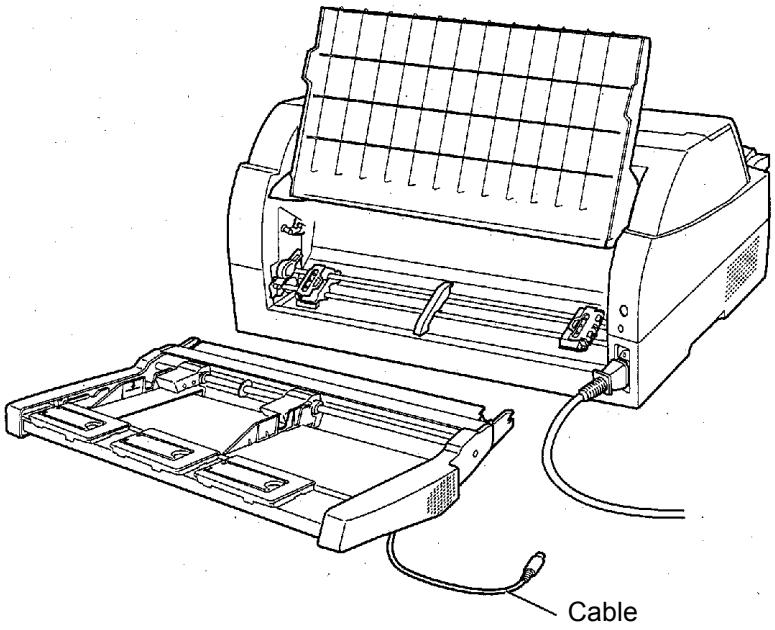
WARNING (Electric shock)

Before mounting or removing the cut sheet feeder, turn off the power switches of the personal computer and the printer and remove the power plug from the outlet. Otherwise, you may receive electric shock.

When mounted on the front side of the printer



When mounted on the rear side of the printer



INSTALLING THE TRACTOR UNIT

A tractor unit is supplied as standard equipment attached to the front of the printer.

This unit may also be attached to the rear of the printer for rear feeding of continuous forms.

For details on removing and mounting the tractor unit, see “Selecting the Tractor Unit Position” on page 2-10.

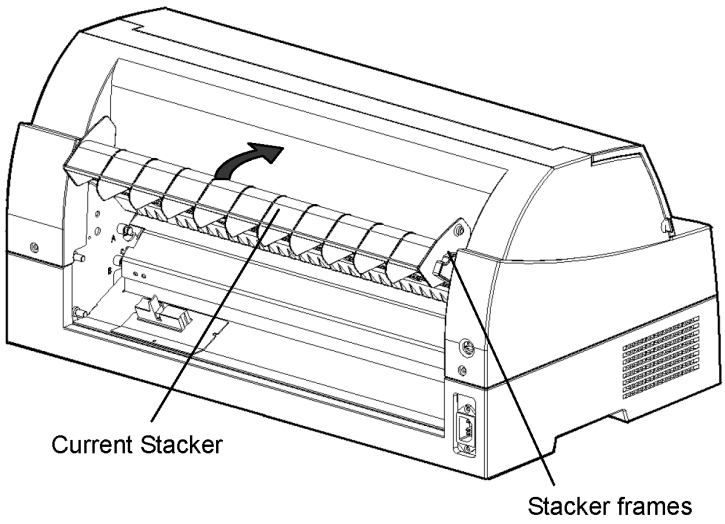
INSTALLING THE LARGE STACKER

To continuously stack cut sheets or eject long cut sheets to the rear, mount the large stacker.

Also, if a cut sheet feeder is mounted at the rear, the stacker must be replaced with the large stacker even if cut sheets need not be continuously stacked.

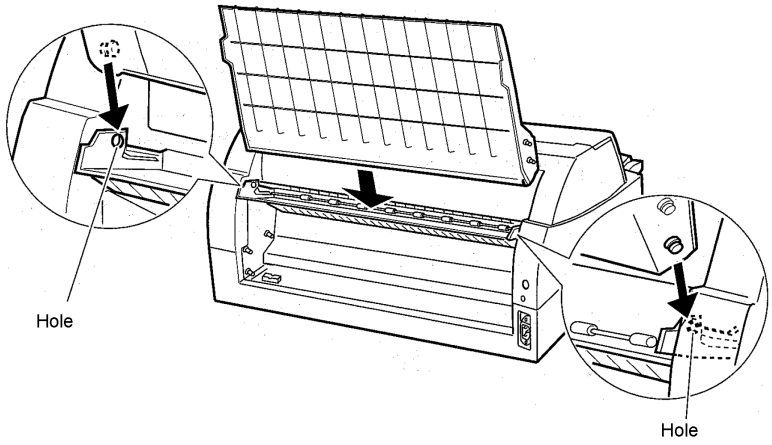
1 Removing the current stacker

1. Lift up the current stacker in the direction indicated by the arrow.
2. With the stacker in the condition described in step 1, push out the right and left stacker frames to separate them from the protrusions on the stacker plate.



2 Mounting the rear stacker

At the rear of the printer, push the protrusions on both sides of the rear stacker into the holes inside the rear stacker guide as shown in the following figure.

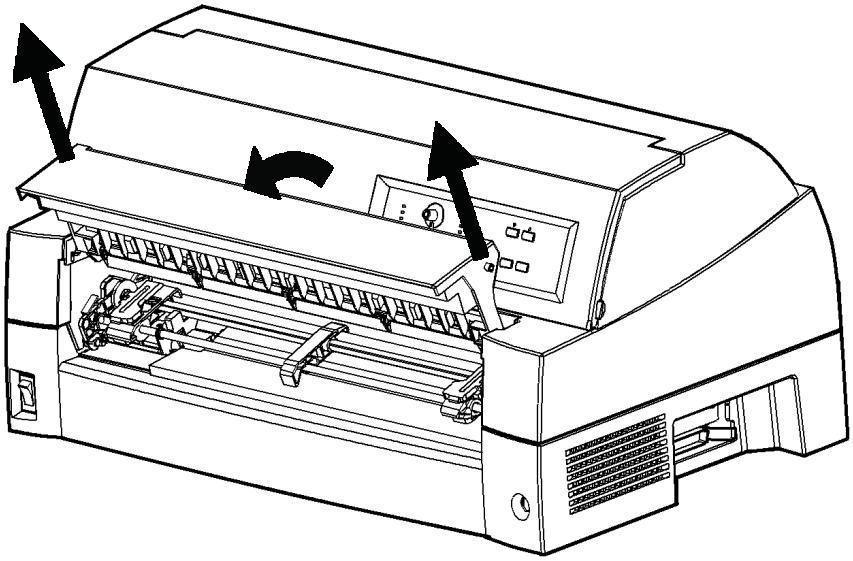


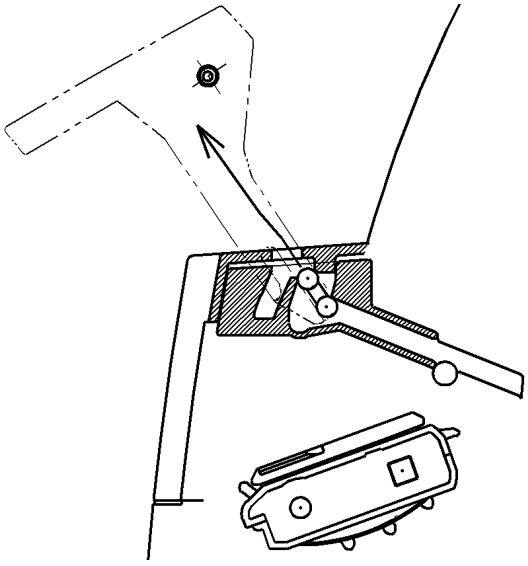
INSTALLING THE PAPER TABLE

To use cut sheets or Cut Sheet Feeder, mount the large or small paper table.

1 Removing the soundproof cover

After opening the soundproof cover and adjusting it to a tilted position, remove the soundproof cover by pulling it to separate the left and right protrusions on the soundproof cover ends from the grooves on the cover.

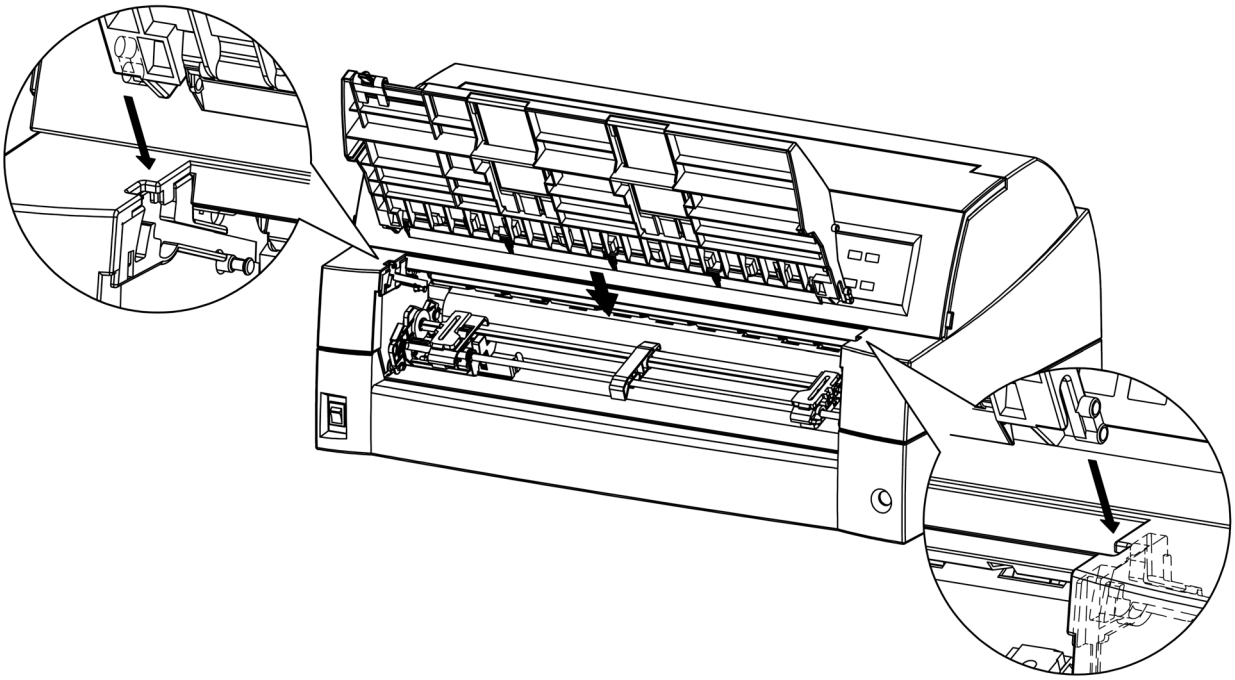


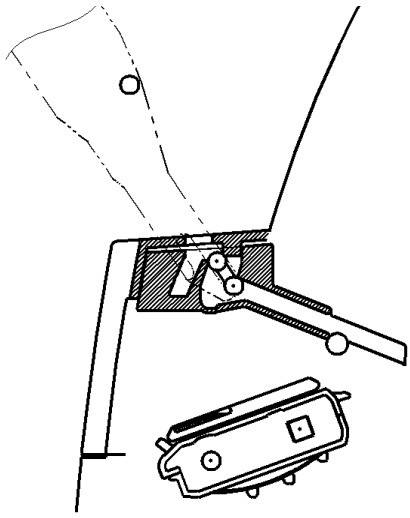


2 Installing the Paper Table

Insert and push the left and right protrusions on the paper table ends into the grooves on the cover as shown in the following figure. Set the paper table in the normal position. (See "Setting the paper table" in Chapter 2.)

The paper table can be opened or closed in the same way as the removed soundproof cover.





Make sure the protrusions are inserted completely as right figure.

A

SUPPLIES AND OPTIONS

This appendix 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 cassette	
Black ribbon	CA05463-D807
Ribbon sub cassette	
Black ribbon	CA05463-D877
Print head	KA02033-E223

OPTIONS

Options	Order Number	Description
LAN card	KA02039-C130	Installable only on a printer model with the parallel and USB interfaces.
Cut sheet feeder (SF940)	KA02027-D750	
Tractor Unit	KA02038-E650	
Large Stacker	KA02038-D160	
Large paper table	KA02038-D150	
Small paper table	KA02039-D150	

B

PRINTER AND PAPER SPECIFICATIONS

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

It also gives detailed paper specifications.

PHYSICAL SPECIFICATIONS

Dimensions

Height: 290 mm (11.4 in)

Width: 600 mm (23.6 in)

Depth: 350 mm (13.8 in)

Weight: 22.5 kg (50 lb)

AC power requirements

M33325A: 100 to 120 VAC ±10%; 50/60 Hz
M33325B: 220 to 240 VAC ±10%; 50/60 Hz

Power consumption

Model:M33325A
Average 485 VA
Maximum 820 VA
Model:M33325B
Average 360 VA
Maximum 810 VA

Heat generation Average 980 kJ/h

Interface Centronics parallel and RS-232C serial
Centronics parallel and USB and LAN (option).

Data buffer size 0, 256, 2K, 8K, 24K, 32K, 96K, or 128K bytes

Download buffer Maximum 128K bytes
(128K minus data buffer size)

Operating 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 56 dB (A)
ISO 7779 (Bystander Position-Front)
(Letter MODE 2)

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 × vertical	
Letter (10 cpi):	36 × 24 dots	
Letter (12 cpi):	30 × 24 dots	
Report:	18 × 24 dots	
Draft:	9 × 24 dots	(MODE 1)
	12 × 24 dots	(MODE 2)
High-speed draft:	9 × 24 dots	
Paper handling		
Standard:	Common push tractor on front.	
	(Moving tractor unit to rear is possible)	
	Paper loading by LOAD button Advancing perforations to tear-off edge by TEAR OFF button	
	Parking continuous forms is available.	
Optional:	Paper Table for friction-feed (cut sheets).	
	Cut sheet feeder(for front or rear)	
	Tractor unit (for 2nd tractor)	
Paper type	1 to 5-copies for cut sheet feeder	
	1 to 9-copies for tractor and paper table	
Paper size		
Continuous Width:	102-420 mm (4-16.5 in)	
Length:	102 mm (4 in) or greater	
Cut sheets (Paper table) Width:	55-420 mm (2.16-16.5 in)	
Length:	70-420 mm (2.76-16.5 in)	
(Cut sheet feeder)		
Width:	100-420 mm (4-16.5 in)	
Length:	70-420 mm for front cut sheet feeder (2.76-16.5 in)	
	100-420 mm for front cut sheet feeder (4-16.5 in)	

Note:

To use cut sheets, the optional paper table is required. More over, to use cut sheets exceeding 297 mm in length, the optional large paper table and large stacker are required. For detail see Chapter 3.

Paper thickness	Up to 0.65 mm (0.026 inch)
Page 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.
DPL24C+/XL24E:	3, 3.5, 4, 5, 5.5, 6, 7, 8, 8.5, 11, 11.6, 12, 14, or 18 inches
ESC/P2:	4, 4.5, 5, 5.5, ..., 11, 11.5, ..., 22 inches
Number of copies	Up to 8, including the original Up to 9, including the original (At HI IMPACT mode)
Paper stack	
Cut sheet	100 sheets (A4 size, 1p, 55 kg/m^2) (The stack of cut sheets may decrease, depending upon the various paper conditions such as quality, the extent of curl, and storage environment.)
Command sets (emulations)	
Resident	Fujitsu DPL24C PLUS IBM Proprinter XL24E Epson ESC/P2
Character sets	
DPL24C+/XL24E:	• IBM PC character sets 1 and 2 (code pages 437) • IBM PS/2 character sets (code pages and other national character sets (57 + 2 languages in total) • Fujitsu character sets (691 characters)
ESC/P2:	• Italic character set Graphics character sets 1 and 2 • IBM PS/2 character sets (code pages) and other national character sets (61 + 2 languages in total)

Fonts

Resident	Nineteen fonts available
Bit map:	Courier 10, Pica 10, OCR-B 10, OCR-A 10 , Prestige Elite 12, Boldface PS, Correspondence, Compressed, Draft, and High-speed Draft.
Scalable:	Courier, Timeless, and Nimbus Sans ®; each in normal, bold, and italic styles
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.
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:	232 cpl
18 cpi:	244 cpl
20 cpi:	272 cpl
	cpi: characters per inch
	cpl: characters per line

Note

Draft has 2 modes as follows. (Default setting is mode2)
To select these mode see chapter 5 and search <DQ-MODE>
MODE1: Draft is replaced with hi-speed Draft for high speed printing.
MODE2: Draft is printing as Draft.

PERFORMANCE SPECIFICATIONS

Print speed

	10 cpi	12 cpi	
Letter:	180 cps	216 cps	(MODE 1)
	125 cps	150 cps	(MODE 2)
Report:	360 cps	432 cps	
Correspondence:	360 cps	432 cps	
Draft:	720 cps	864 cps	(MODE 1)
	540 cps	648 cps	(MODE 2)
Hi-speed draft:	720 cps	864 cps	

cpi: characters per inch
cps: characters per second

Line feed speed 50 ms per line at 6 lines per inch

Form feed speed 9 inches per second

Ribbon life Up to 18 million characters

Certification

Safety:

Model	Regulation	Country
M33325A	UL60950-1 United States (for 100 to 120 VAC)	United States
	CSA C22.2 No. 60950-1 (for 100 to 120 VAC)	Canada
M33325B	EN 60950-1 (for 220 to 240 VAC)	Germany

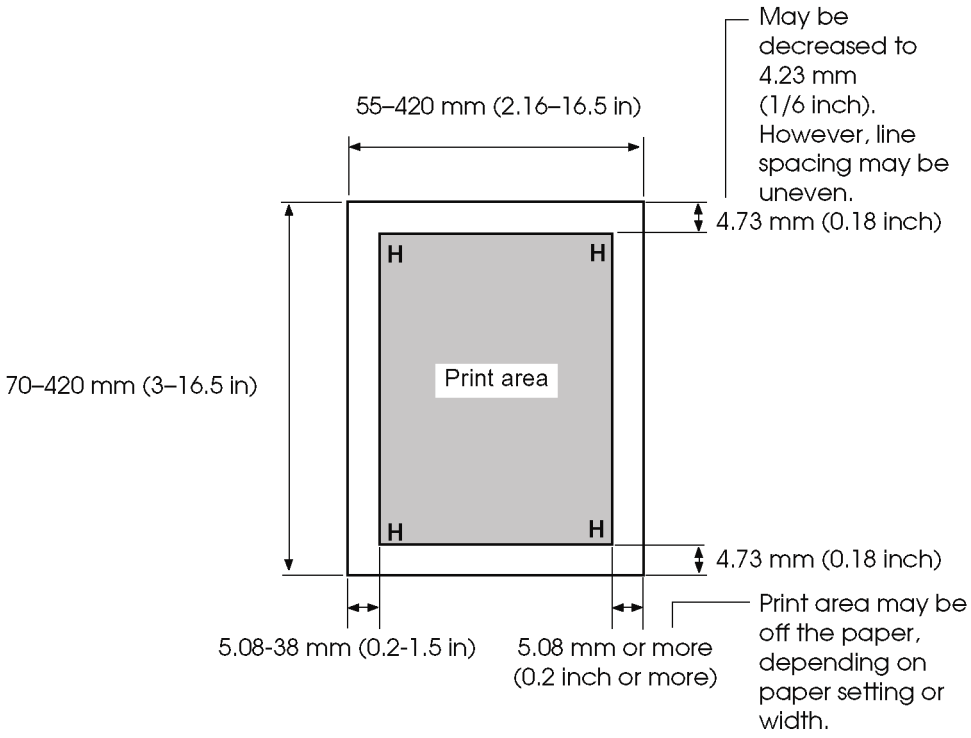
RFI regulation:

Model	Regulation	Country
M33325A	Class B of FCC Part 15B (for 100 to 120 VAC)	United States

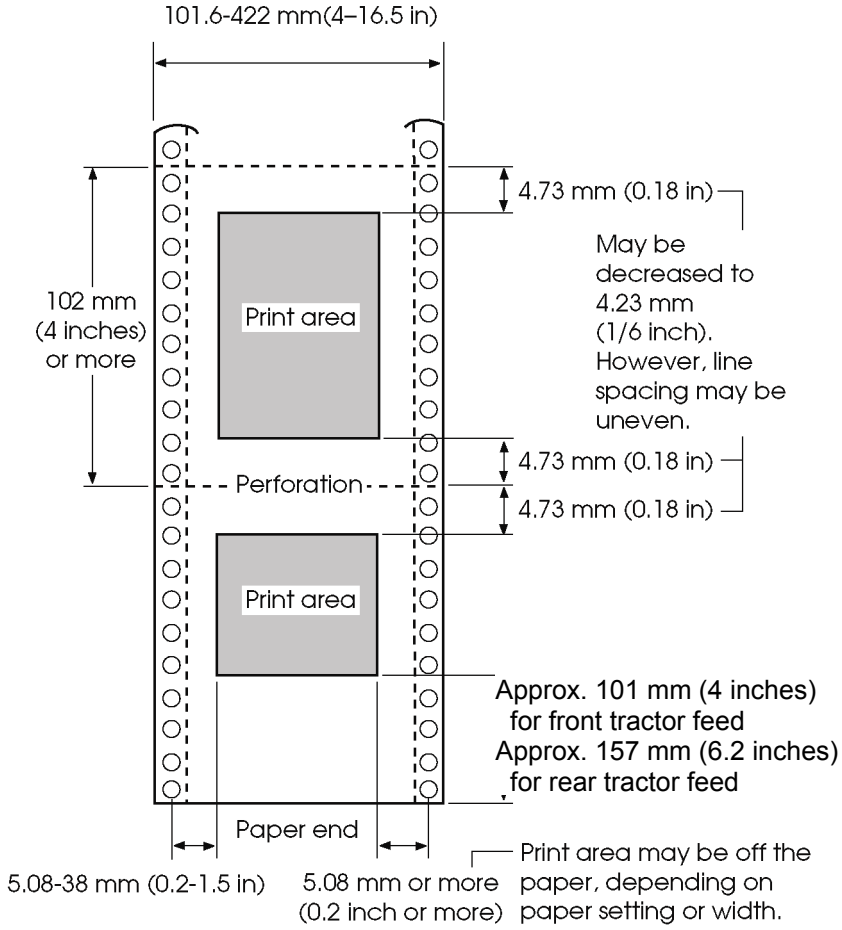
PAPER SPECIFICATIONS

Print Area

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



Print area for single sheets

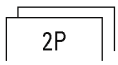
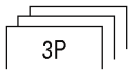
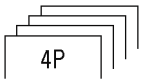
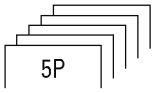
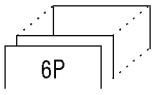


Print area for continuous forms

Paper Thickness

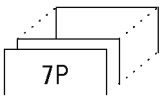
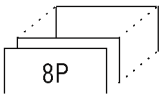
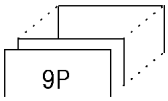
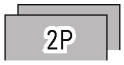
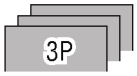
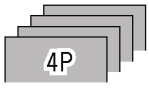
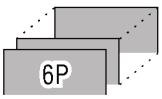
Paper thickness is given by the weight of the paper in either grams per square meter (g/m^2) or in pounds per bond (lbs/bond). The following table shows the allowable paper thickness for one-part paper or for each sheet of multipart paper. The total thickness must not exceed 0.65 mm (0.026 inch).

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.

Type of Paper	Number of Parts	Thickness
One-part	Single	47-81 g/m^2 (40-70 kg or 12-22 lb)
Carbonless		
	Top	40-64 g/m^2 (34-55 kg or 11-17 lb)
	Bottom	40-81 g/m^2 (34-70 kg or 11-22 lb)
	Top	40-50 g/m^2 (34-43 kg or 11-13 lb)
	Middle	40-50 g/m^2 (34-43 kg or 11-13 lb)
	Bottom	40-81 g/m^2 (34-70 kg or 11-22 lb)
	Top	40 g/m^2 (34 kg or 11 lb)
	Middle (2-3p)	40 g/m^2 (34 kg or 11 lb)
	Bottom	40-81 g/m^2 (34-70 kg or 11-22 lb)
	Top	40 g/m^2 (34 kg or 11 lb)
	Middle (2-4p)	40 g/m^2 (34 kg or 11 lb)
	Bottom	40-64 g/m^2 (34-55 kg or 11-17 lb)
	Top	40 g/m^2 (34 kg or 11 lb)
	Middle (2-5p)	40 g/m^2 (34 kg or 11 lb)
	Bottom	40-64 g/m^2 (34-55 kg or 11-17 lb)

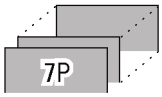
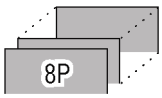
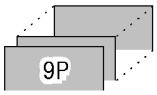
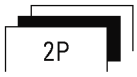
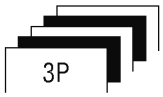
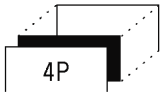
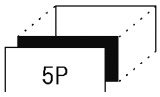
kg: Weight in kilograms of 1000 sheets of 788 × 1091 mm paper (1.16 g/m^2)

lb: Weight in pounds of 500 sheets of 17 × 22 inch paper (3.76 g/m^2)

Type of Paper	Number of Parts	Thickness
Carbonless		
	Top Middle (2-6p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
	Top Middle (2-7p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
	Top Middle (2-8p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
Carbon-backed	*Do not use in high humidity environments.*	
	Top Bottom	40-64 g/m^2 (34-55 kg or 11-17 lb) 40-81 g/m^2 (34-70 kg or 11-22 lb)
	Top Middle Bottom	40-52 g/m^2 (34-45 kg or 11-14 lb) 40-52 g/m^2 (34-45 kg or 11-14 lb) 40-81 g/m^2 (34-70 kg or 11-22 lb)
	Top Middle (2-3p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-81 g/m^2 (34-70 kg or 11-22 lb)
	Top Middle (2-4p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
	Top Middle (2-5p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)

kg: Weight in kilograms of 1000 sheets of 788 × 1091 mm paper (1.16 g/m^2)

lb: Weight in pounds of 500 sheets of 17 × 22 inch paper (3.76 g/m^2)

Type of Paper	Number of Parts	Thickness
Carbon-backed	*Do not use in high humidity environments.*	
	Top Middle (2-6p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
	Top Middle (2-7p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
	Top Middle (2-8p) Bottom	40 g/m^2 (34 kg or 11 lb) 40 g/m^2 (34 kg or 11 lb) 40-64 g/m^2 (34-55 kg or 11-17 lb)
Carbon-interleaved	*Avoid using carbon-interleaved single sheets.*	
	Top Carbon Bottom	35-52 g/m^2 (30-45 kg or 9-14 lb) Counted as one sheet 35-81 g/m^2 (30-70 kg or 9-22 lb)
	Top Carbon Middle Carbon Bottom	35-46 g/m^2 (30-40 kg or 9-12 lb) Counted as one sheet 35-46 g/m^2 (30-40 kg or 9-12 lb) Counted as one sheet 35-64 g/m^2 (30-55 kg or 9-17 lb)
	Top Carbon Middle (3,5P) Carbon (4,6P) Bottom	35-46 g/m^2 (30-40 kg or 9-12 lb) Counted as one sheet 35-46 g/m^2 (30-40 kg or 9-12 lb) Counted as one sheet 35-64 g/m^2 (30-55 kg or 9-17 lb)
	Top Carbon Middle (3,5,7P) Carbon (4,6,8P) Bottom	35-46 g/m^2 (30-40 kg or 9-12 lb) Counted as one sheet 35-46 g/m^2 (30-40 kg or 9-12 lb) Counted as one sheet 35-64 g/m^2 (30-55 kg or 9-17 lb)

kg: Weight in kilograms of 1000 sheets of 788 × 1091 mm paper (1.16 g/m^2)

lb: Weight in pounds of 500 sheets of 17 × 22 inch paper (3.76 g/m^2)

C

COMMAND SETS

This appendix describes printer commands and their parameters.

This printer has three resident command sets:

- Fujitsu DPL24C PLUS (native command set for Fujitsu DL series printers)
- IBM Proprinter XL24E
- Epson ESC/P2

Separate programmer s manuals are available for these emulations. See Appendix A for order information.

Select the same emulation on the printer and in your software. If your software emulations include DPL24C PLUS, select DPL24C PLUS for optimum performance.

FUJITSU DPL24C PLUS

This section describes the printer commands for the DPL24C PLUS command set which is the native command set of this printer. See the Programmer's Manual (DPL24C PLUS) for detailed information on using these commands.

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
Italic printing on	ESC 4
Italic printing off	ESC 5
Select character style and screening	ESC e S (n_1) (n_2)
n_1= 0:Normal	
1:Outline	
2:Shaded	
3:Outline and shaded	
4:Thin outline	
5:Thin shaded	
6:Thin outline and shaded	
n_2= 0:Transparent	
1:Light dot matrix	
2:Heavy dot matrix	
3:Vertical bars	
4:Horizontal bars	
5:Slants	
6:Back slants	
7:Lattice	
One-line double width characters on	SO or ESC SO
One-line double width characters off	DC 4
Double width characters on/off	ESC W (n)
(on: n = 1, off: n = 0)	

Function	Command
Double-height characters on/off (on: n = 1, off: n = 0) This command does not adjust the line spacing.	ESC V (n)
Multiwidth and height printing n = 0: Not adjusted 1: Character pitch multiplied 2: Line spacing multiplied 3: Character pitch and line spacing multiplied h_1: Tens digit of horizontal multiple h_2: Units digit of horizontal multiple v_1: Tens digit of vertical multiple v_2: Units digit of vertical multiple ($0 \leq h_1h_2$ or $v_1v_2 \leq 11$)	ESC u (n) (h_1) (h_2) (v_1) (v_2)
Condensed characters on	SI or ESC SI
Condensed characters off	DC2
Subscript or superscript printing on (subscript: n = 1, superscript: n = 0)	ESC S (n)
Subscript and superscript printing off	ESC T
Select underline type n = 0:Single line 1:Bold single line 2:Extremely bold single line 3:Double line 4:Bold double line 5:Extremely bold double line	ESC e U (n)
Underline on/off (on: n=1, off: n=0)	ESC- (n)
Overline on/off (on: n=1, off: n=0)	ESC e o (n)

Function	Command
Select printing style 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 4:Condensed 8:Shadow 16:Bold 32:Double width 64:Proportional	ESC ! (n)
Select image overlay type This command allows you to overlay a pattern on characters. n= 1:Light dot matrix 2:Heavy dot matrix 3:Vertical bars 4:Horizontal bars 5:Slants 6:Back slants 7:Lattice	ESC e I (n)
Image overlay printing on/off (on:n=1, off: n=0)	ESC e L (n)
Horizontal Control	
Space	SP
Backspace	BS
Carriage return	CR
Elite pitch (12 cpi)	ESC M
Pica pitch (10 cpi)	ESC P
Proportionally spaced characters on/off (on:n=1, off: n=0)	ESC p (n)
Set character pitch to (n-1)/120 inch ($1 \leq n \leq 127$)	ESC US (n)
Set character pitch to n/180 inch ($0 \leq n \leq 255$)	ESC h (n)

Function	Command
Set character offset to n/120 inch Cancelled by CR or ESC x. $(0 \leq n \leq 63)$ $(64 \leq n \leq 127)$	ESC DC1 (n)
Set character pitch to n/360 inch $(0 \leq n_1\, n_2\, n_3 \leq 999)$ n_1, n_2, and n_3 are the hundreds, tens, and units digits.	ESC e H (n_1) (n_2) (n_3)
Vertical Control	
Line feed	LF
Reverse line feed	LF ESC
Form feed	FF
Advance paper n/180 inch $(0 \leq n \leq 255)$	ESC J (n)
Reverse paper n/180 inch $(0 \leq n \leq 255)$	ESC j (n)
Advance paper n/360 inch $(0 \leq n_1\, n_2\, n_3 \leq 999)$ n_1, n_2, and n_3 are the hundreds, tens, and units digits.	ESC e J (n_1) (n_2) (n_3)
Reverse paper n/360 inch $(0 \leq n_1\, n_2\, n_3 \leq 999)$ n_1, n_2, and n_3 are the hundreds, tens, and units digits.	ESC e j (n_1) (n_2) (n_3)
Set line spacing to 1/8 inch (8 lpi)	ESC 0
Set line spacing to n/180 inch $(0 \leq n \leq 255)$	ESC 3 (n)
Set line spacing to 7/60 inch	ESC 1
Set line spacing to n/60 inch $(0 \leq n \leq 127)$	ESC A (n)
Set line spacing to 1/6 inch (6 lpi) or to the value set with the ESC A command. The preset line spacing command is ESC A (n).	ESC 2
Set line spacing to n/360 inch $(0 \leq n_1\, n_2\, n_3 \leq 999)$ n_1, n_2, and n_3 are the hundreds, tens, and units digits.	ESC e V (n_1) (n_2) (n_3)
Set line spacing to n/360 inch $(1 \leq n \leq 255)$	FS 3 (n)

Function	Command
Tabulation	
Horizontal tab execution	HT
Set horizontal tabs	ESC D (n_1) ... (n_k)
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. ($1 \leq n \leq 255$) ($1 \leq k \leq 255$)	NUL
Move to print column n ($1 \leq n \leq 255$)	ESC HT (n)
Move dot column n/360 inch ($n = n_1 + n_2 \times 256$) The value below is for 136-column printers. ($0 \leq n_1 \leq 255$) ($0 \leq n_2 \leq 19$) ($0 \leq n_2 \times 256 + n_1 \leq 4895$)	ESC $ (n_1) (n_2)
Horizontal relative move by n/360 inch ($-999 \leq n_1\, n_2\, n_3 \leq +999$) n_1, n_2, and n_3 are the hundreds, tens, and units digits of the distance.s is a plus or minus (+ or -) sign.	ESC e R (s) (n_1) (n_2) (n_3)
Vertical tab execution	VT
Set vertical tabs	ESC B (n_1) ... (n_k)
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. ($1 \leq n \leq 255$) ($1 \leq k \leq 64$)	NUL
Move to line n ($1 \leq n \leq 255$)	ESC VT (n)
Page Formatting	
Set right margin ($0 \leq n \leq 255$)	ESC Q (n)
Set left margin ($0 \leq n \leq 255$)	ESC 1 (n)
Set perforation skip by n lines ($1 \leq n \leq 127$)	ESC N (n)
Perforation skip off	ESC O
Set page length to n lines ($1 \leq n \leq 127$)	ESC C (n) or ESC FF (n)

Function	Command
Set page length to n inches $(1 \leq n \leq 22)$	ESC C NUL (n) or ESC e C NUL (n) or ESC FF NUL (n)
Set page length to n/360 inch $(n = n_1 \times 256 + n_2)$ $(0 \leq n_1\ n_2 \leq 255)$ $(1 \leq n_1 \leq 256 + n_2 \leq 7920)$	ESC e f (n_1) (n_2)
Character Set Control	
Select character set 1 Appendix E gives the character sets	ESC 7
Select character set 2 Appendix E gives the character sets.	ESC 6
Select international character set n = 0:USA 1:France 2:Germany 3:United Kingdom 4:Denmark 1/Norway 5:Sweden/Finland 6:Italy 7:Spain 8:Denmark 2	ESC R (n)
Clear print buffer	CAN
Select printer	DC1
Deselect printer (ignore input)	DC3
Force most significant bit to 1	ESC >
Force most significant bit to 0	ESC =
Cancel control over most significant bit	ESC #

<table>
<tr><th>Function</th><th>Command</th></tr>
<tr><td>Select code table
n = 0:Code page 437
1:Code page 850
2:Code page 860
3:Code page 863
4:Code page 865
5:ISO 8859-1/ECMA 94
Select extended character by character number
($0 \leq n_1\, n_2\, n_3 \leq 664$)
n_1, n_2, and n_3 are the hundreds, tens, and units digits.</td><td>ESC e C (n)

ESC e E
(n_1) (n_2) (n_3)</td></tr>
<tr><td>Word Processing
Line justification on
Automatically center printing
Reset word processing features</td><td>
ESC m
ESC c
ESC x</td></tr>
<tr><td>Font Selection and Downloading
Select font m with source and style set by n
• m (bits 0 and 1: Font device selection)
<table><tr><th>Bit 1</th><th>Bit 0</th><th>Selection of font</th></tr><tr><td>0</td><td>0</td><td>Resident font</td></tr><tr><td>0</td><td>1</td><td>Downloaded font</td></tr><tr><td>1</td><td>0</td><td>Resident font</td></tr></table>• m (bits 2 and 3: Print quality specification
<table><tr><th>Bit 3</th><th>Bit 2</th><th>Print quality</th></tr><tr><td>0</td><td>0</td><td>Original quality of font</td></tr><tr><td>0</td><td>1</td><td>Letter quality (360 dpi)</td></tr><tr><td>1</td><td>0</td><td>Correspondence quality (180 dpi)</td></tr><tr><td>1</td><td>1</td><td>Draft quality (120 dpi)</td></tr></table></td><td>
ESC % (m) (n)</td></tr>
</table>

<table>
<tr><th>Function</th><th>Command</th></tr>
<tr><td>
• n (bit 0 to 2: Specification of font number)
(1) Resident fonts
<table>
<tr><th>n</th><th>m (bit 1, 0) = 0, 0</th><th>m (bit 1, 0) = 1, 0</th></tr>
<tr><td>0</td><td>Courier 10</td><td>OCR-B</td></tr>
<tr><td>1</td><td>Prestige elite 12</td><td>OCR-A</td></tr>
<tr><td>2</td><td>Draft</td><td></td></tr>
<tr><td>3</td><td>Compressed</td><td></td></tr>
<tr><td>4</td><td>Boldface PS</td><td></td></tr>
<tr><td>5</td><td>Pica 10</td><td></td></tr>
<tr><td>6</td><td>Correspondence</td><td></td></tr>
<tr><td>7</td><td>High-speed draft</td><td></td></tr>
</table>
(2) Downloaded fonts
n = 0: Downloaded font 0
1: Downloaded font 1
</td><td></td></tr>
<tr><td>Select print quality (font attributes)
n = 0:Letter (360 × 180 dpi)
1:Correspondence (180 × 180 dpi)
2:Draft (120 × 180 dpi)
3:High-speed Draft (90 × 180 dpi)</td><td>ESC e q (n)</td></tr>
<tr><td>Select spacing mode (font attributes)
n = 0:Fixed pitch font
1:Proportional spacing font</td><td>ESC e s (n)</td></tr>
<tr><td>Select character pitch (n/360 inch, font attributes)
$(0 \leq n_1 \leq 255)$ $(1 \leq n_2 \leq 255)$
$(n = n_1 \times 256 + n_2)$
Ex.n = 36: 10 pitch
30: 12 pitch
24: 15 pitch
21: 17 pitch</td><td>ESC e p (n_1) (n_2)</td></tr>
<tr><td>Condense/enlarge vertically (font attributes)
n = 1:Executed
0:Not executed</td><td>ESC e A (n)</td></tr>
<tr><td>Select point size (n/1200 inch, font attributes)
$(0 \leq n_1 \leq 255)$ $(0 \leq n_2 \leq 255)$
$(n = n_1 \times 256 + n_2)$
Ex. n =166: 10 point</td><td>ESC e v (n_1) (n_2)</td></tr>
</table>

Function	Command
Select character style (font attributes) n = 0:Upright 1:Italic	ESC e i (n)
Select stroke weight (font attributes) n = 249:-7 (reserved) 251:-5 (reserved) 253:-3 (light) 0:0 (medium) 3:3 (bold) 5:5 (black) 7:7 (ultrablack)	ESC e w (n)
Select typeface (font attributes) n = 1:Pica 3:Courier (bitmap) 4:Nimbus Sans 5:Timeless 6:Gothic 8:Prestige 23:Boldface 130:OCR-A 131:OCR-B 134:Courier (scalable)	ESC e t (n)
Select font by I.D. (font attributes)	ESC e F (n)

n	Quality	Spacing	Pitch	Point	Typeface
1	LQ	Fixed	10 cpi	12 pt	Courier (bitmap)
2	LQ	Fixed	12 cpi	10 pt	Prestige
3	LQ	PS	-	12 pt	Boldface
4	LQ	Fixed	10 cpi	12 pt	Pica
9	LQ	Fixed	10 cpi	12 pt	OCR-A
10	LQ	Fixed	10 cpi		OCR-B
32	LQ	Fixed	10 cpi	12 pt	Courier (bitmap)
34	LQ	Fixed	12 cpi	12 pt	Gothic
128	LQ	PS	-	11pt	Timeless
129	LQ	PS	-	10 pt	Timeless Italic
130	LQ	PS	-	10 pt	Timeless Bold
132	LQ	PS	-	10 pt	Nimbus Sans ®
133	LQ	PS	-	10 pt	Nimbus Sans ® Italic
134	LQ	PS	-	10 pt	Nimbus Sans ® Bold
140	LQ	Fixed	10 cpi	10 pt	Courier (scalable)
141	LQ	Fixed	10 cpi	10 pt	Courier Bold (scalable)
142	LQ	Fixed	10 cpi	10 pt	Courier Italic (scalable)

<table>
<tr><th>Function</th><th>Command</th></tr>
<tr><td>Copy resident font to download area
m = 0:Courier 10
1:Prestige Elite 12
2:Draft
3:Compressed
4:Boldface PS
5:Pica 10
6:Correspondence
7:High-speed Draft
n = 0:Downloaded font 0
1:Downloaded font 1</td><td>ESC : NUL (m) (n)</td></tr>
<tr><td>Create download font
• m (bits 4 and 5: Specifies the quality of characters to be registered)
<table>
<tr><th>Bit 5</th><th>Bit 4</th><th>Font quality selection</th></tr>
<tr><td>0</td><td>1</td><td>Letter (360 dpi)</td></tr>
<tr><td>1</td><td>0</td><td>Correspondence (180 dpi)</td></tr>
<tr><td>1</td><td>1</td><td>Draft (120 dpi)</td></tr>
</table>
• m (bit 0: Specifies external font number to be registered)
<table>
<tr><th>Bit 0</th><th>Font number selection</th><th>Remarks</th></tr>
<tr><td>0</td><td>Downloaded font 0</td><td>At power on, resident font 0 is automatically downloaded.</td></tr>
<tr><td>1</td><td>Downloaded font 1</td><td>At power on, resident font 1 is automatically downloaded.</td></tr>
</table>
• m (bits 1, 2, 3, 6, 7) Not used (don’t care)
• Cs (Download start character, ASCII code)
• Ce (Download end character, ASCII code)
<table>
<tr><td>Decimal</td><td>00 ≤ Cs, Ce < 255</td></tr>
<tr><td>Hex</td><td>00 ≤ Cs, Ce ≤ FF</td></tr>
</table>
Precaution: Ce ≥ Cs
• data (More than one byte of data containing bit map data)
(Reserved)</td><td>ESC & (m) (Cs) (Ce) (data)

ESC e D (data);</td></tr>
</table>

Function	Command
Bit Image Graphics	
Graphics type m graphics	ESC * (m)
	(n_1) (n_2) (data)
Graphics type m graphics	ESC e b (m)
	(n_1) (n_2) (data) or
	ESC e B (m)
	(n_1) (n_2) (data)
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)
360 dot per inch 24-pin graphics	FS Z (n_1) (n_2) (data)
Cut Sheet Feeder Control	
Feed a sheet from bin 1	ESC EM 1
Feed a sheet from bin 2	ESC EM 2
Feed a sheet from bin 3	ESC EM E
Eject a page from the printer	ESC EM R
Select bin 1 for following pages	/ / 1 / /
Select bin 2 for following pages	/ / 2 / /
Select bin 3 for following pages	/ / E / /
Initialize Printer	
Reset printer	ESC @
Reset printer	ESC CR P
Initialize printer	ESC SUB I

Function	Command
Bar Code Printing Print bar code b: Total number of parameters R: (fixed) c: Type of bar code	ESC DC4 (b) R (c) (w) (h) (a) (ch_1) ... (ch_n)

ASCII	Decimal	Hex	Type
1	49	31	Codabar (nw-7)
2	50	32	EAN 13
3	51	33	EAN 8
4	52	34	Code 3 of 9
5	53	35	Industrial 2 of 5
6	54	36	Interleaved 2 of 5
7	55	37	Matrix 2 of 5
A	65	41	UPC type A
B	66	42	Code 128
a	97	61	UPC type A with checkdigit printing

w: Width of narrow bar in 1/1440-inch units
h: Height of bar code
a: Defines check characters and OCR characters
ch_1 ... ch_n: Bar code characters

NOTE

When EAN13, UPC type A, or UPC type A with checkdigit printing is selected as the type of barcode, printing the barcode from the left (from the first dot) will cause the omission of a flag character that should by printed on the lower left or middle left of it. Therefore, when printing these types of barcode, leave two or more spaces open from the left.

See the next page for details of the Bar Code Command.

Bar Code Printing Control

ASCII : ESC + DC4 + b + R + c + w + a + ch1 … + chn
Hexadecimal : 1B + 14 + b + 52 + c + w + a + ch1 … + chn
Decimal : 27 + 20 + b + 82 + c + w + a + ch1 … + chn

(1) Function

(a) Instructs the printing of bar codes according to the different specifications of this command.

(2) Valid range of parameters

(a) **b** (Specification of number of bytes) = Actual number of data + 6

(b) **R** (Fixed)

ASCII : R
Hexadecimal : 82
Decimal : 52

(c) **C** (Specifies the type of bar code to be printed. No printing is done if any value other than the following is specified.)

C			Type of bar code
ASCII	**Decimal**	**Hexadecimal**	
1	49	31	Codabar (nw-7)
2	50	32	EAN 13
3	51	33	EAN 8
4	52	34	Code 3 of 9
5	53	35	Industrial 2 of 5
6	54	36	Interleaved 2 of 5
7	55	37	Matrix 2 of 5
A	65	41	UPC type A
B	66	42	CODE 128
a	97	61	UPC type A with check character

(d) **w** (Specify the width of the narrow bar of the bar code to be printed in units of 1/1440.)
Specify the "Logical value" to be printed (in units of 1/1440).
Actual printing: The printer prints with the width given in the following table in units of 1/180 inches.

w	Width of narrow bar
1 ~ 19	2 Dots (2/180 inches)
20 ~ 27	3 Dots (3/180 inches)
28 ~	4 Dots (4/180 inches)

(e) **h** (Specify the height of the bar code to be printed in units of 1/1440 taking the narrow bar width as the reference.)

Height of bar code $\fallingdotseq$ (parameter w) × (parameter h) [in units of 1/1440]
Height of bar code $\leq$ 11 Inches

Actual printing: The printing is done with the following initial values if the bar code height is less than or equal to 24 dots taking 1 dot equal to 1/180 inches of the printing unit of the printer.

The following values are the standard heights for the respective bar code standards. Enter the value so that the height is ≤ 23/180 if the standard is correct.

Narrow bar width	EAN 13/UCP-A	EAN 8	Others
2 Dots (16/1440)	162 Dots (1296/1440)	130 Dots (1040/1040)	108 Dots (864/1440)
3 Dots (24/1440)	234 Dots (1872/1440)	187 Dots (1496/1040)	135 Dots (1080/1440)
4 Dots (32/1440)	312 Dots (2496/1440)	249 Dots (1992/1040)	162 Dots (1296/1440)

Figures in parentheses ( ) are values converted to units of 1/1440.

(f) **a** (Bits 2~0: Specifications related to the check and OCR characters.)

Bit	Content of specification	value	Content of setting
0	Check character Additional specification * 1	0	Added
		1	Not added
1	Specification of OCR character printing (OCR-B is taken as the standard)	0	Printed
		1	Not printed
2	Printing position of EAN, UPC flag character	0	To the left of the bar code
		1	To the bottom left of the bar code

*1: The specification becomes invalid for the following bar codes:
Codabar … Always the non-additional code is set.
EAN, UPC … Always the additional code is set.

*2: The flag character is printed when Bit 1 = 0.

(g) (ch1) … (chn)

The data and the printable character set are listed below.

Type of bar code	Usable character set	Data count
Codabar	Numerals: 0 ~ 9 Symbols; + -, $/: Start, Stop: A,a,B,b,C,c,D,d, T,t,N,n,*,E,e	1 ≤ n ≤ 64 Includes Start and Stop
EAN 13	Numerals: 0 ~ 9	Fixed at n=12
EAN 8	Numerals: 0 ~ 9	Fixed at n=7
Code 3 of 9	Numerals: 0 ~ 9 Alphabets: A ~ Z: Symbols: +-,$/%SPACE Start, Stop:*	Check character Additional code 1 ≤ n ≤ 63
Industrial 2 of 5	Numerals: 0 ~ 9	Check character Non-additional code 1 ≤ n ≤ 64
Interleaved 2 of 5	Numerals: 0 ~ 9	
Matrix 2 of 5	Numerals: 0 ~ 9	
UPC Type A	Numerals: 0 ~ 9	Fixed at n=11
UPC Type A with check character	Numerals: 0 ~ 9	Fixed at n=11
Code 128	ASCII Code Start code: A, B, C Code set C: 0 ~ 9	Check character Additional code 1 ≤ n ≤ 63 Check character Non-additional code 1 ≤ n ≤ 64 Code set C: 2n

Function	Command
Print Option Control	
Friction feed selection	/ / F / /
Rear tractor feed selection	/ / T / /
Front tractor feed selection	/ / M / /
Cut sheet feed selection	/ / S / /
Host controlled paper path control n = "F" :Friction "T" :Rear Tractor "M" : Front Tractor	ESC e T (n)
Automatic paper thickness control	ESC e P (n_1) (n_2) (n_3) (n_4)
Miscellaneous	
Sound bell	BEL
Enable paper-out sensor	ESC 9
Ignore paper-out sensor	ESC 8
Typewriter mode on/off (on:n=1, off: n=0)	ESC i (n)
Move print head to home position	ESC <
Unidirectional printing on/off (on:n=1, off: n=0)	ESC U (n)
Select CR code definition n = 0:CR = CR only 1:CR = CR + LF	ESC e r (n)
Select LF code definition n = 0:LF = LF only 1:LF = LF + CR	ESC e l (n)
Enter online setup mode	ESC e ONLINE (data)
Move print head (unit: 1/180 inch) ($0 < n_1 < 255$) ($0 < n_2 < 255$)	ESC e h (n_1) (n_2)

Factory Default Settings

The following table describes the printer commands used to control options of the items that can be selected in printer setup mode. Command parameters are omitted

Item	Selectable options in setup mode	Command
Emulate	DPL24C+, XL24E, ESC/P2	Controllable in online setup mode
Font	COUR 10, PRSTG 12, COMPRSD, BOLDFCE, PICA 10, CORRESP, COUR-N, COUR-B, COUR-I, TIMLS-N, TIMLS-B, TIMLS-I, N.SAN-N, N.SAN-B, N.SAN-I. OCR-B, OCR-A, DOWNLD 0, DOWNLD 1	ESC e t ESC e F ESC %
Quality	LETTER, REPORT, DRAFT, HI-DRFT	ESC e q
Pitch	2.5, 3, 5, 6, 10, 12, 15, 17, 18, 20 CPI or PROP SP	ESC e p ESC e H ESC h ESC US ESC M ESC P ESC p ESC i ESC e s
Line space	1, 2, 3, 4, 5, 6, 7, 8, LPI	ESC e V ESC 0 ESC 1 ESC 2 ESC 3 ESC A
Character width	NORMAL, 2 TIMES, 4 TIMES	ESC W SO or ESC SO (DC4) ESC u ESC !
Character height	NORMAL, 2 TIMES, 4 TIMES	ESC V ESC u

Underline: Factory default

( ): Cancel command

Item	Selectable options in setup mode	Command
Attributes	NONE, ITALICS, CONDNSD, SHADOW, BOLD	ESC 4 (ESC 5) SI or ESC SI (DC2) ESC E (ESC F) ESC G (ESC H) ESC e i ESC !
Page length	3.0, 3.5, 4.0, 5.0, 5.5, 6.0, 7.0, 8.0, 8.5, 11.0, 11.6, 12.0, 14.0, 18.0 IN	ESC C NUL ESC e C NUL ESC FF NUL ESC C ESC e C ESC FF
Left end	1 , 2, 3, ... , 41 COLM	Controllable in online setup mode
Top margin	1 , 2, 3, ... , 10 LINE	Controllable in online setup mode
Language	USA, UK, GERMAN, FRENCH, ITALIAN, SPANISH, SWEDISH, FINNISH, DANISH1, DANISH2, NORWEGN, PAGE437, PAGE850, PAGE860, PAGE863, PAGE865 ISO8859, ECMA94	ESC R ESC e C
	PG852, PG852-T, PG855, PG866, HUNGARY, HUNG-T, SOLV, SOLV-T, POLISH, POLSH-T, MAZOWIA, MAZOW-T, LATIN7, LATIN2, LATN2-T, KAMENIC, KAMEN-T, TURKY, TURKY-T, CYRILIC, IBM437, IBM851, ELOT928, PG-DHN, LATIN-P, ISO-LTN, LITHUA1, LITHUA2, MIK, MACEDON, ABG, ABY, PG-MAC, ELOT927, DEC-GR, GREEK 11, PG862, HBR-OLD, HBR-DEC, ISO-TUK, RUSCII, LATIN-9 , WCP1250, WCP1251, WCP1252	Uncontrollable by commands but controllable in online setup mode

Underline: Factory default

( ): Cancel command

Item	Selectable options in setup mode	Command
Character set	SET 1, SET2	ESC7 ESC6
Perfora-tion skip	SKIP, NO-SKIP	ESC N (ESC O)
Paper width	8.0 IN, 11.0 IN, 11.4 IN, 13.6IN, (8.0 IN is default for 80-column printer, and 13.6 IN is default for 136-column printer)	Controllable in online setup mode
Zero font	NO-SLSH, SLASH	Controllable in online setup mode
DC3	ENABLE, DISABLE	Controllable in online setup mode
CR code	CR-ONLY, CR & LF	ESC e r
LF code	LF-ONLY, LF & CR	ESC e l
Right end wrap	WRAP, OVR-PRT	Controllable in online setup mode
Paper-out	CNTONLY, DETECT, IGNORE	ESC 9 (ESC 8)
Print direction	BI-DIR, UNI-DIR	ESC U
Print mode	NORMAL, QUIET	Controllable in online setup mode
High Impact	DISABLE, ENABLE	Controllable in online setup mode

Underline: Factory default

( ): Cancel command

IBM PROPRINTER XL24E EMULATION

This section describes the printer commands for the IBM Proprinter XL24E emulation. Asterisks in the "Function" column indicate extended commands that are not supported by the original printer.

<table>
<tr><th>Function</th><th>Command</th></tr>
<tr><td>Print Mode Control</td><td></td></tr>
<tr><td>Double-strike (bold) printing on</td><td>ESC G</td></tr>
<tr><td>Double-strike (bold) printing off</td><td>ESC H</td></tr>
<tr><td>Emphasized (shadow) printing on</td><td>ESC E</td></tr>
<tr><td>Emphasized (shadow) printing off</td><td>ESC F</td></tr>
<tr><td>One-line double-width characters on</td><td>SO or ESC SO</td></tr>
<tr><td>One-line double-width characters off</td><td>DC4</td></tr>
<tr><td>Double-width characters on/off
(on: n = 1, off: n = 0)</td><td>ESC W (n)</td></tr>
<tr><td>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:
<table>
<tr><th>m_3</th><th>Height</th><th>Spacing</th></tr>
<tr><td>0</td><td>Unchanged</td><td>Unchanged</td></tr>
<tr><td>1</td><td>Normal</td><td>Unchanged</td></tr>
<tr><td>2</td><td>Double</td><td>Unchanged</td></tr>
<tr><td>16</td><td>Unchanged</td><td>Single</td></tr>
<tr><td>17</td><td>Normal</td><td>Single</td></tr>
<tr><td>18</td><td>Double</td><td>Single</td></tr>
<tr><td>32</td><td>Unchanged</td><td>Double</td></tr>
<tr><td>33</td><td>Normal</td><td>Double</td></tr>
<tr><td>34</td><td>Double</td><td>Double</td></tr>
</table>
m_4 controls character width:
<table>
<tr><th>m_3</th><th>Height</th></tr>
<tr><td>0</td><td>Unchanged</td></tr>
<tr><td>1</td><td>Normal</td></tr>
<tr><td>2</td><td>Double</td></tr>
</table></td><td>ESC [@ (n_1)(n_2)
(m_1) ... (m_4)</td></tr>
</table>

Function	Command
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)
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)
Vertical Control	
Line feed	LF
Form feed	FF
Advance papern/216 inch ($1 \leq n \leq 255$)	ESC J (n)
Advance papern/180 inch (in AG mode) ($1 \leq n \leq 255$)	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)
Set line spacing to n/180 inch (in AG mode) ($0 \leq n \leq 255$)	ESC 3 (n)
Preset line spacing to n/72 inch ($1 \leq n \leq 255$)	ESC A (n)
Preset line spacing to n/60 inch (in AG mode) ($1 \leq n \leq 255$)	ESC A (n)
Set line spacing to 1/6 inch or to the value preset by line spacing command ESC A (n)	ESC 2

Function	Command
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 [\ (m_1) (m_2) (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 ($0 \leq n_1, n_2 \leq 255$) ($n = n_1 + n_2 \times 256$)	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

Function	Command
Character Set Control	
Select character set 1	ESC 7
Select character set 2	ESC 6
Print $n_1 + n_2 \times 256$ characters from all-character set (chars.: codes of characters to print, $0 \leq$ chars. ≤ 255)	ESC \ $(n_1)(n_2)$ (chars.)
Print a character from all-character set (char.: a code of character to print, $0 \leq$ char. ≤ 255)	ESC ^ (char.)
Select code page table n ($0 \leq n_1, n_2 \leq 255$) ($n = n_1 + n_2 \times 256$)	ESC [T $(n_1)(n_2)$ 0 0 $(c_1)(c_2)$
Clear input buffer	CAN
Select printer	DC1
Deselect printer (ignore input)	ESC Q #

c_1	c_2	Code page ID
0	0	Ignore command
1	181	Code page 437
3	82	Code page 850
3	92	Code page 860
3	95	Code page 863
3	97	Code page 865

Function	Command
Downloading	
Select resident or downloaded font	ESC I (n)
Ex.n = 0:Resident Draft	
2:Resident Courier	
4:Downloaded Draft	
6:Downloaded Courier	ESC = (n_1) (n_2)
Create download font	ID (m_1) (m_2) (data)
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 (in AG mode only)	ESC * (m) (c_1) (c_2) (data)
Cut Sheet Feeder Control	
Feed a sheet from bin 1	ESC EM 1
Feed a sheet from bin 2	ESC EM 2
Feed a sheet from bin 3	ESC EM E
Eject a page from the printer	ESC EM R
Select bin 1 for following pages	/ / 1 / /
Select bin 2 for following pages	/ / 2 / /
Select bin 3 for following pages	/ / E / /
Change bins at next page	/ / C / /
Print Option Control	
Friction feed selection	/ / F / /
Rear tractor feed selection	/ / T / /
Front tractor feed selection	/ / M / /
Cut sheet feed selection	/ / S / /
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
Enter online setup mode	ESC e ONLINE (data)
Select default settings	ESC [K (n_1)(n_2) (i) (ID) (p_1)(p_2)

EPSON ESC/P2 EMULATION

This section describes the printer commands for the Epson ESC/P2 emulation. Asterisks in the "Function" column indicate extended commands that are not supported by the original printer.

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
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)	

Function	Command
Select line $n_1 = 3$, $n_2 = 0$, $d_1 = 1$ $d_2 = 0$: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 6 or 7:Double-dotted line	ESC (- $(n_1)(n_2)$ (d_1) (d_2) (d_3)
Select printing style 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	ESC ! (n)
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)

Function	Command
Set character pitch to $(n_1 + n_2 \times 256)/360$ inch $(0 \leq n_1 \leq 255)$ $(0 \leq n_2 \leq 4)$	ESC c $(n_1)(n_2)$
Select character pitch (specify unit of 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	ESC D
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. $(1 \leq n \leq 255)$ $(1 \leq k \leq 32)$	(n_1)... (n_k) NUL
Move print position n/120 inch (for draft)(*1) or n/180 inch (for letter)(*1) right from left margin $(n = n_1 + n_2 \times 256)$	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 $(n = n_1 + n_2 \times 256)$	ESC \ $(n_1)(n_2)$
Vertical tab execution	VT

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. ($1 \leq n \leq 255$) ($1 \leq k \leq 16$)	ESC B (n_1)... (n_k) NUL
Move to dot line $(d_1 + d_2 \times 256)/360^{(*1)}$ inch $n_1 = 2$, $n_2 = 0$ ($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$)	ESC (V (n_1) (n_2) (d_1) (d_2)
Vertical relative move by $(d_1 + d_2 \times 256)/360^{(*1)}$ Inch $n_1 = 2$, $n_2 = 0$ ($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$) $-32768 \leq d_1 + d_2\ 256 \times 32768$	ESC (v (n_1) (n_2) (d_1) (d_2)
Page Formatting	
Set right margin to column n ($1 \leq n \leq 255$)	ESC Q (n)
Set left margin to column n ($0 \leq n \leq 255$)	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 ($0 \leq t_1 \leq 255$) ($0 \leq t_2 \leq 127$) • Bottom margin = $(b_1+b_2 \times 256)/360^{(*1)}$ inch ($0 \leq b_1 \leq 255$) ($0 \leq b_2 \leq 127$)	ESC (c (n_1) (n_2) (t_1) (t_2) (b_1) (b_2)
Set perforation skip by n lines ($1 \leq n \leq 127$)	ESC N (n)
Perforation skip off	ESC O
Set page length to n lines ($1 \leq n \leq 127$)	ESC C (n)
Set page length to n inches ($1 \leq n \leq 22$)	ESC C NUL (n)
Set page length to $(d_1 + d_2 \times 256)/360^{(*1)}$ inch $n_1 = 2$, $n_2 = 0$ ($0 \leq d_1 \leq 255$) ($0 \leq d_2 \leq 127$)	ESC (C (n_1) (n_2) (d_1) (d_2)

*1 The value depends on the pitch set by the ESC (U command. The default is 1/360 inch.

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	

Function	Command
Assign a character set to active character set number 0 to 3 $n_1 = 3, n_2 = 0$ d_1 =0:Active character set number 0 1:Active character set number 1 2:Active character set number 2 3:Active character set number 3 d_2 =0:Italic 1:PC 437 (USA) 3:PC 850 (Multilingual) 7:PC 860 (Portugal) 8:PC 863 (Canada-French) 9:PC 865 (Norway) $d_3 = 0$	ESC (t (n_1) (n_2) (d_1) (d_2) (d_3)
Print $n_1 + n_2 \times 256$ characters from all-character set $(0 \leq n_1 \leq 255)$ $(0 \leq n_2 \leq 127)$ $(0 \leq n_1 + n_2 \times 256 \leq 255)$ (0 character codes $\leq$ 254)	ESC (^ (n_1)(n_2) (character codes)
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 #
Font Selection and Downloading	
Select font n = 0:Resident character set 1:Downloaded character set	ESC % (n)
Select letter or draft quality n = 0:Draft 1:Letter	ESC x (n)

Function	Command
Select type style • Bitmap font: n = 0:Courier 1:Courier 2:Courier 3:Prestige 4:Courier 5:OCR-B 6:OCR-A 7:Courier 8:Courier 9:Courier • Scalable font: n = 0:Timeless 1:Nimbus Sans ® 2:Courier 3:Timeless 4:Timeless 5:Timeless 6:Timeless 7:Timeless 8:Timeless 9:Timeless	ESC k (n)
Set scalable font mode • m sets character pitch. m = 0:Keep previous pitch 1:Set proportional space mode m ≥ 5:Select character pitch (m/360 inch) (Reset proportional space mode) • n_1 and n_2 set point size of font. Point size = $(n_1 + n_2 \times 256) \times 0.5$ point $(0 \leq n_1 \leq 255)$ $(0 \leq n_2 \leq 127)$	ESC X m $(n_1)(n_2)$
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)

* Indicates extended commands not supported by the original printer.

Function	Command
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)
Select raster image graphics	ESC (G (n_1)(n_2) (d)
$n_1 = 1$, $n_2 = 0$	
d= 1: Raster image graphics mode	
Print raster image graphics	ESC . (c)(v) (h) (m) (n_1)(n_2) (data)
Cut Sheet Feeder Control	
Feed a sheet from bin 1	ESC EM 1
Feed a sheet from bin 2	ESC EM 2
Feed a sheet from bin 3	ESC EM E
Eject a page from the printer	ESC EM R
Select bin 1 for following pages	/ / 1 / /
Select bin 2 for following pages	/ / 2 / /
Select bin 3 for following pages	/ / E / /
Change bins at next page	/ / C / /
Print Option Control	
Friction feed selection	/ / F / /
Rear tractor feed selection	/ / T / /
Front tractor feed selection	/ / M / /
Cut sheet feed selection	/ / S / /
Miscellaneous	
Sound the bell	BEL
Move print head to home position	ESC <
Unidirectional printing on/off	ESC U (n)
(on:n = 1, off:n = 0)	
Initialize printer	ESC @
Enter online setup mode	ESC e ONLINE (data)

INTERFACE INFORMATION

D

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 receives data.

This appendix 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 appendix. To simply connect your printer to your computer, follow the instructions in Chapter 2.

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 at the printer side should be a shielded, Amphenol DDK 57FE-30360 or equivalent.

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	Direction	Description
1	19	$\overline{\text{Data Strobe}}$ ($\overline{\text{DSTB}}$)	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 $\overline{\text{Data Strobe}}$ signal and must stay high for at least 1 μs after the rising edge.
10	28	$\overline{\text{Acknowledge}}$ ($\overline{\text{ACK}}$)	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	Direction	Description
13	–	Select (SLCT)	Output	This signal is high when the printer is online.
14	–	$\overline{\text{Auto Feed XT}}$	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	–	+5 V	Output	+5 V source (up to 300 mA)
19-30	–	Signal Ground	–	Twisted pair return lines
31	–	$\overline{\text{Input Prime (INPRM)}}$		If this signal is low for more (INPRM) than 50 μs, the printer is reset to the initial condition and is placed online.
32	–	$\overline{\text{Fault}}$	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 3.3 kΩ resistor
36	–	$\overline{\text{SLCT-IN}}$	Input	Not used

Nibble Mode

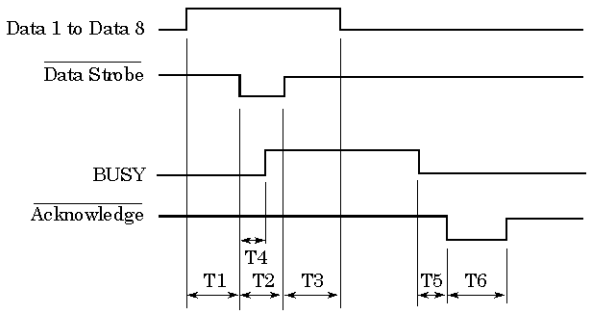
Pin numbers 2 to 9, 15 to 31, and 33 to 35 are the same as the conventional mode.

Pin No.	Return Pin No.	Signal Name	Direction	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 $\overline{\text{Data Available}}$ signal.
13	–	X Flag	Output	Reverse data transfer phase: Data bit 1, then data bit 5

Pin No.	Return Pin No.	Signal Name	Direction	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	–	$\overline{\text{Data Available}}$	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 Active	Input	This signal goes high to cause the printer to enter the reverse data transfer phase (nibble mode).

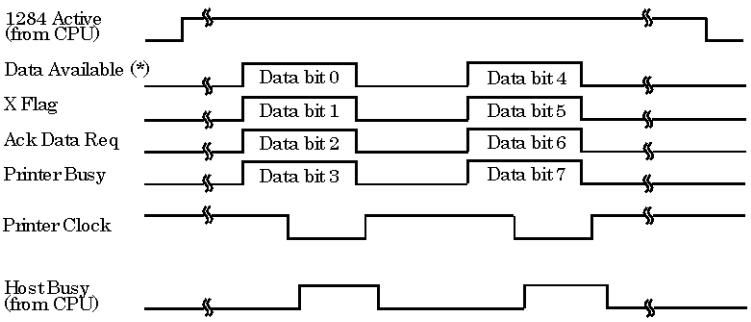
Data Transmission Timing

In unidirectional mode (conventional Centronics interface), this printer guarantees the received data when the Data and Data Strobe signals from the computer have the following timing with respect to the Busy and Acknowledge signals from the printer.



T1, T2, T3 > 1 µs
T4 < 1 µs
0 µs < T5 < 3 µs
2 µs < T6 < 6 µs

In bidirectional mode (nibblemode), this printer can send data to the computer. Data is sent in units of four bits (nibble) using four output signal lines as data paths. The following outlines one byte of data sent during reverse data transfer phase in nibble mode.



* Data Available is assigned for the cable.

SERIAL INTERFACE

RS-232C is the standard serial interface for data terminal equipment. The cable connector at the printer side should be a D-subminiature Cannon or Cinch DB-25P male connector or equivalent that conforms to EIA standards.

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	Direction	Description
1	FG	–	Frame Ground
2	TD	Output	This pin carries information from the printer to the computer.
3	RD	Input	Received Data. This pin carries information from the computer to the printer.
4	RTS	Output	Request To Send. Spaces are sent when the printer is ready to transmit data.
5	CTS	Input	Clear To Send. Spaces are sent when the computer is ready to receive data.
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	SG	–	Signal Ground (common return)
8	CD	Input	Carrier Detect. Spaces are sent when the computer allows the printer to receive data.
11	RC	Output	Reverse Channel. This signal is used instead of the DTR signal in the RC protocol. Spaces are sent when the printer is ready to receive or transmit data.
20	DTR	Output	Data Terminal Ready. Spaces are sent when the printer has been powered on and is ready to receive or transmit data.

Serial Options

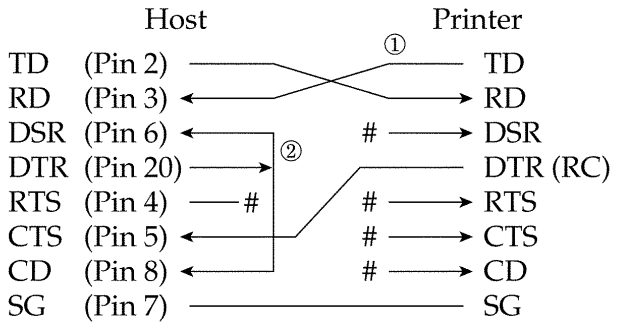
The serial options for the computer and the printer must match. Use the printer control panel, the computer operating system, or your software to change options specified as "selectable."

Transmission mode:	Asynchronous, full duplex, or half duplex (selectable)
Speed:	150, 300, 600, 1200, 2400, 4800, 9600, or 19200 baud (selectable)
Data bits:	7 or 8 bits (selectable)
Parity bit:	Odd, even, mark, space, or none (selectable)
Start bit:	1 bit
Stop bit:	1 or 2 bits (selectable)
Protocol:	XON/XOFF (DC1/DC3), DTR (Data Terminal Ready), or RC (Reverse Channel) (selectable)
Buffer size:	256, 2K, 8K, 24K, 32K, 96K, or 128K bytes (selectable)

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 HARDWRE function (see Chapter 5).

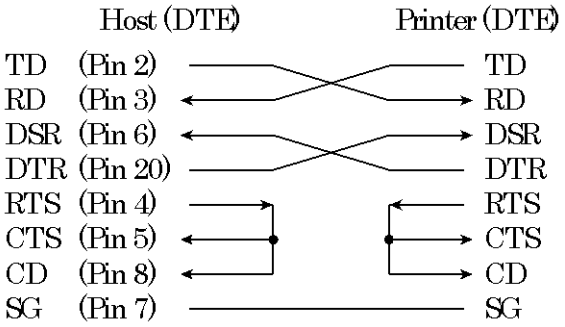
DSR-disabled control offers simpler cabling and communication than does DSR-enabled control. DSR-disabled control can be used to interface with an IBM PC and most other personal computers. With DSR-disabled control, the input control signals DSR, CTS, and CD are always considered high, regardless of 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.



# indicates an open wire.
Wire q is unnecessary for the DTR (or RC) protocol.
Some computers may not require wire w.

DSR-enabled control enables communication using an RS-232C interface. The CTS and DSR input control signals are enabled; CD is ignored. DSR must be high when the printer receives data. If the printer has data to be transmitted to the computer, the printer transmits the data when both DSR and CTS are high.

When using DSR-enabled control, use a straight-through cable to connect to a DCE (data communications equipment) device. Use a null-modem cable to connect to a DTE (data terminal equipment) device, as shown below.



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, and RC. If you computer documentation does not recommend a particular protocol, try DTR. The following table describes the three protocols.

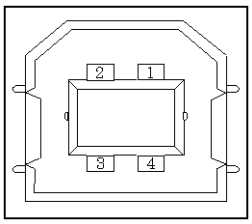
Protocol	Description
XON/XOFF (DC1/DC3)	When the printer is ready to receive data, it sends the XON (DC1) code (hex 11). When fewer than 255 bytes of space remain in the buffer (or when the printer is taken offline), the printer sends the XOFF (DC3) code (hex 13). (When the input buffer is configured 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 20 is used to control the flow of data rather than transmission of a character code. When the printer is ready to receive data, pin 20 is high. When fewer than 255 (63) bytes of space remain in the buffer (or when the printer is taken offline), pin 20 is low. The computer must stop transmitting data within 255 (63) characters of DTR being low, or information may be lost.
RC	The RC protocol is the same as the DTR protocol, except that the Reverse Channel signal (pin 11) is used instead of the Data Terminal Ready signal (pin 20).

USB INTERFACE

Cable

This printer supports the USB 1.1 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 line name	Function
1	vbus	Power supply
2	D-	Data transfer
3	D+	Data transfer
4	GND	Signal ground
Shell	Shield	

- Connector specification

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

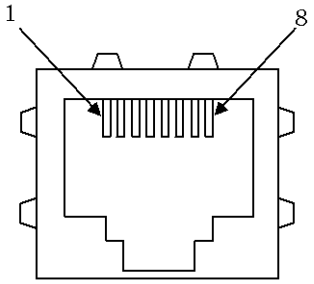
- Transmission mode — Full speed (Maximum 12 Mbps +0.25%)

LAN INTERFACE

Cable

This printer supports the 10Base-T and 100Base-TX cables.

Connector pin alignment



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	–	–	–

E

CHARACTER SETS

CHARACTER SETS 1 AND 2 (DPL24C PLUS AND IBM XL24E EMULATION)

Below are character sets 1 and 2 of Code Page 437, available in the DPL24C PLUS command set and the IBM Proprinter XL24E emulation. Characters enclosed in boxes differ for sets 1 and 2. Characters in set 2 also vary with the national character set.

Code Page 437 is for the USA character set.

Code Page 437 Character Set 1

LNH	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	@	P	`	p	NUL	DLE	á	▒	└	╨	α	≡
1	SOH	DC1	!	1	A	Q	a	q	SOH	DC1	í	▓	┴	╤	ß	±
2	STX	DC2	"	2	B	R	b	r	STX	DC2	ó	▓	┬	╥	Γ	≥
3	ETX	DC3	#	3	C	S	c	s	ETX	DC3	ú	▓	├	╙	π	≤
4	EOT	DC4	$	4	D	T	d	t	EOT	DC4	ñ	▓	─	╘	Σ	⌠
5	ENQ	NAK	%	5	E	U	e	u	ENQ	NAK	Ñ	▓	┼	╒	σ	⌡
6	ACK	SYN	&	6	F	V	f	v	ACK	SYN	ª	▓	╞	╓	µ	÷
7	BEL	ETB	'	7	G	W	g	w	BEL	ETB	º	▓	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	▓	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	HT	EM	⌐	▓	╔	┘	Θ	∙
A	LF	SUB	*	:	J	Z	j	z	LF	SUB	¬	▓	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	▓	╦	╫	δ	√
C	FF	FS	,	<	L	\	l	|	FF	FS	¼	▓	╠	╪	∞	n
D	CR	GS	-	=	M	]	m	}	CR	GS	¡	▓	═	▄	ø	2
E	SO	RS	.	>	N	^	n	~	SO	RS	«	▓	╬	▌	ε	■
F	SI	US	/	?	O	_	o	DEL	SI	US	»	▓	╧	▀	∩	SP

Code Page 437 Character Set 2

LNH	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	SOH	DC1	!	1	A	Q	a	q	ü	æ	í	▓	┴	╤	ß	±
2	STX	DC2	"	2	B	R	b	r	é	Æ	ó	▓	┬	╥	Γ	≥
3	♥	DC3	#	3	C	S	c	s	â	ô	ú	▓	├	╙	π	≤
4	♦	DC4	$	4	D	T	d	t	ä	ö	ñ	▓	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	▓	┼	╒	σ	⌡
6	♠	SYN	&	6	F	V	f	v	å	û	ª	▓	╞	╓	µ	÷
7	BEL	ETB	'	7	G	W	g	w	ç	ù	º	▓	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	▓	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	▓	╔	┘	Θ	∙
A	LF	SUB	*	:	J	Z	j	z	è	Ü	¬	▓	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	▓	╦	╫	δ	√
C	FF	FS	,	<	L	\	l	|	î	£	¼	▓	╠	╪	∞	n
D	CR	GS	-	=	M	]	m	}	ì	¥	¡	▓	═	▄	ø	2
E	SO	RS	.	>	N	^	n	~	Ä	₧	«	▓	╬	▌	ε	■
F	SI	US	/	?	O	_	o	DEL	Å	ƒ	»	▓	╧	▀	∩	SP

ITALIC AND GRAPHICS CHARACTER SETS (ESC/P2 EMULATION)

The following shows character sets available in the Epson ESC/P2 emulation. Characters differ in codes 128 to 255 (hex 80 to FF).

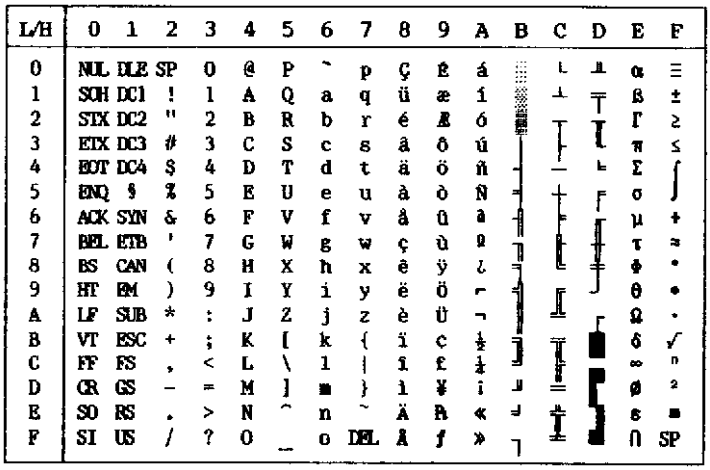
Italic Character Set

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

Graphics Character Set 1

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	@	P	`	p	NUL	DLE	á	▒	└	╨	α	≡
1	SOH	DC1	!	1	A	Q	a	q	SOH	DC1	í	▒	┴	╤	ß	±
2	STX	DC2	"	2	B	R	b	r	STX	DC2	ó	▒	┬	╥	Γ	≥
3	ETX	DC3	#	3	C	S	c	s	ETX	DC3	ú	▒	├	╙	π	≤
4	EOT	DC4	$	4	D	T	d	t	EOT	DC4	ñ	▒	─	╘	Σ	⌠
5	ENQ	§	%	5	E	U	e	u	ENQ	NAK	Ñ	▒	┼	╒	σ	⌡
6	ACK	SYN	&	6	F	V	f	v	ACK	SYN	ª	▒	╞	╓	µ	÷
7	BEL	ETB	'	7	G	W	g	w	BEL	ETB	º	▒	╟	╫	τ	≈
8	BS	CAN	(	8	H	X	h	x	BS	CAN	¿	▒	╚	╪	Φ	°
9	HT	EM	)	9	I	Y	i	y	HT	EM	⌐	▒	╔	┘	Θ	∙
A	LF	SUB	*	:	J	Z	j	z	LF	SUB	¬	▒	╩	┌	Ω	·
B	VT	ESC	+	;	K	[	k	{	VT	ESC	½	▒	╦	█	δ	√
C	FF	FS	,	<	L	\	l	|	FF	FS	¼	▒	╠	▌	∞	ⁿ
D	CR	GS	-	=	M	]	m	}	CR	GS	¡	▒	═	▐	Ø	²
E	SO	RS	.	>	N	^	n	~	SO	RS	«	▒	╬	▄	ε	■
F	SI	US	/	?	O	_	o	DEL	SI	US	»	▒	╧	▀	∩	SP

Graphics Character Set 2



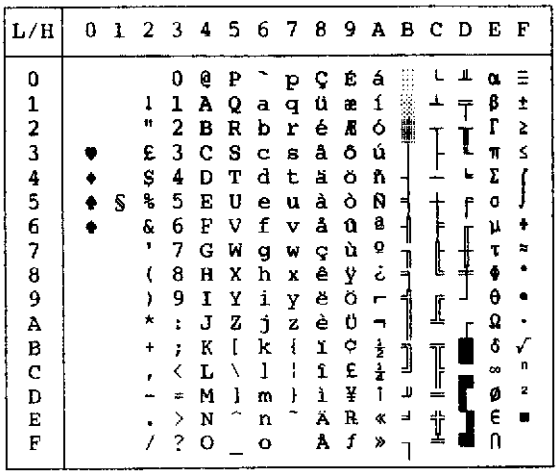
L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	@	P	`	p	Ç	É	á	▒	└	╨	α	≡
1	SOH	DC1	!	1	A	Q	a	q	ü	æ	í	▒	┴	╤	ß	±
2	STX	DC2	"	2	B	R	b	r	é	Æ	ó	▒	┬	╙	Γ	≥
3	ETX	DC3	#	3	C	S	c	s	â	ô	ú	▒	├	╘	π	≤
4	EOT	DC4	$	4	D	T	d	t	ä	ö	ñ	▒	─	╒	Σ	⌠
5	ENQ	§	%	5	E	U	e	u	à	ò	Ñ	▒	┼	╓	σ	⌡
6	ACK	SYN	&	6	F	V	f	v	å	û	ª	▒	╞	╫	µ	÷
7	BEL	ETB	'	7	G	W	g	w	ç	ù	º	▒	╟	╪	τ	≈
8	BS	CAN	(	8	H	X	h	x	ê	ÿ	¿	▒	╚	┘	Φ	°
9	HT	EM	)	9	I	Y	i	y	ë	Ö	⌐	▒	╔	┌	Θ	∙
A	LF	SUB	*	:	J	Z	j	z	è	Ü	¬	▒	╩	▌	Ω	·
B	VT	ESC	+	;	K	[	k	{	ï	¢	½	▒	╦	▐	δ	√
C	FF	FS	,	<	L	\	l	|	î	£	¼	▒	═	∞	ⁿ
D	CR	GS	-	=	M	]	m	}	ì	¥	¡	▒	╬	▄	ø	²
E	SO	RS	.	>	N	^	n	~	Ä	₧	«	▒	╧	▀	ε	■
F	SI	US	/	?	O	_	o	DEL	Å	ƒ	»	▒	╨	▀	∩	SP

NATIONAL CHARACTER SETS (ALL EMULATIONS)

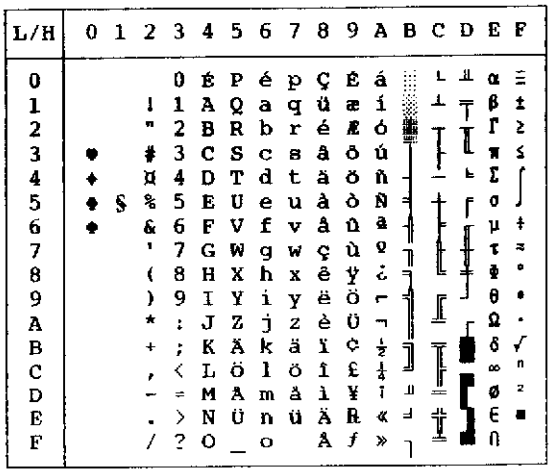
Below are the 52 national character sets available for all emulations of this printer. These character sets support different characters and symbols specific to different languages. Note that these tables are for Courier 10, a resident font, and that some national character sets do not have some characters and symbols whose use depends on resident fonts. For details, see the table at the end of this appendix.

When the following character sets are used with the Epson ESC/P2 emulation, the printing of FFh code characters is not supported.
ECMA94, ISO8859, ISO-LTN, ISO-TUK, CYRILIC, LATIN-9

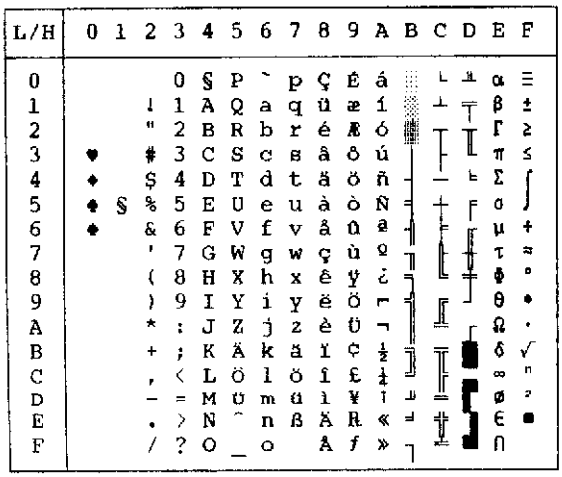
UK (British English)



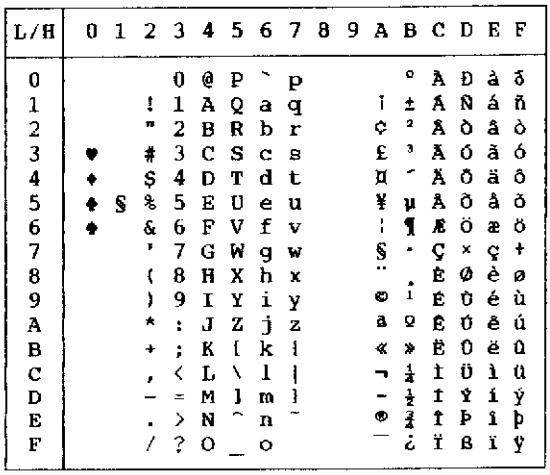
SWEDISH (Swedish)



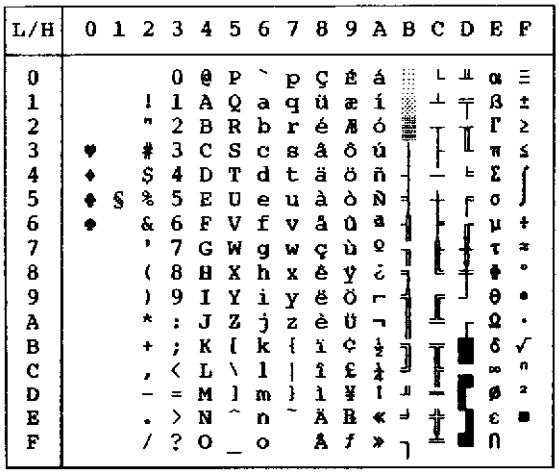
GERMAN (German)



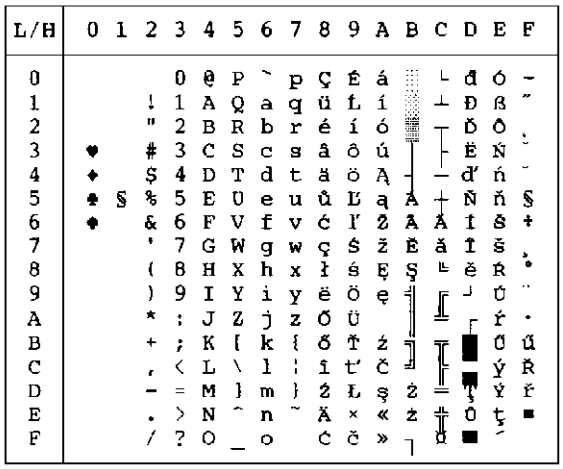
ISO8859/ECMA94 (ISO 8859-1/ECMA94)



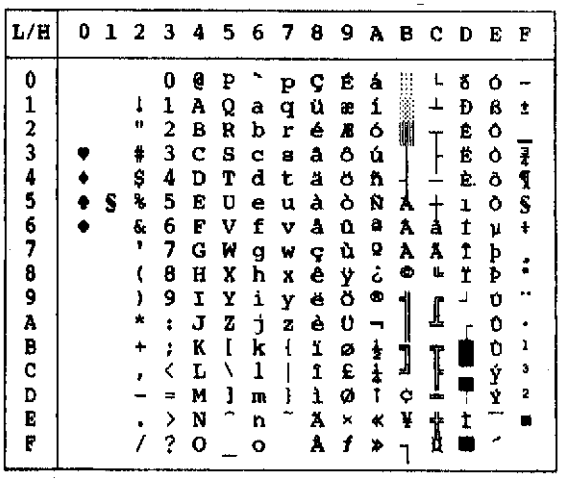
PAGE437/USA (Code Page 437/USA)



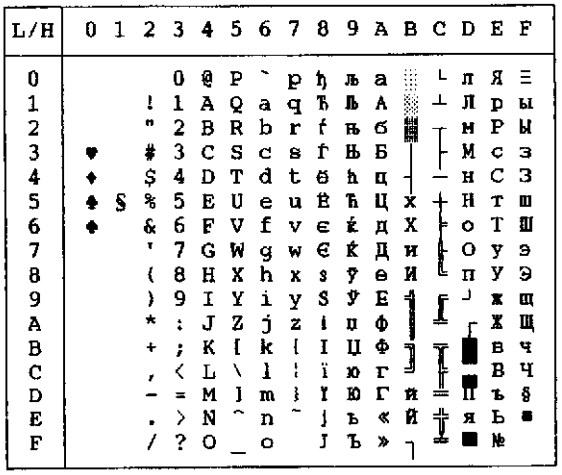
PAGE852/PG852-T (Code Page 852)



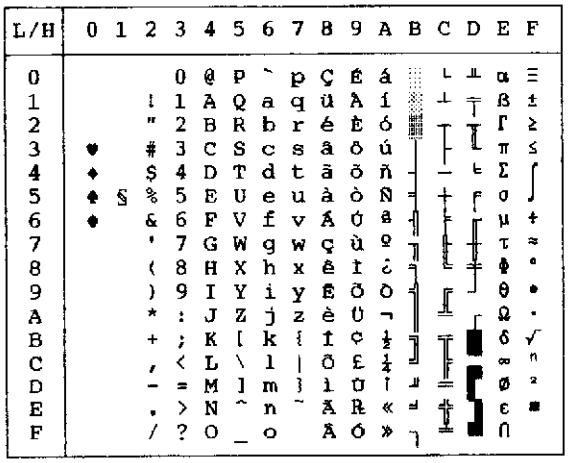
PAGE850 (Code Page 850(Multilingual))



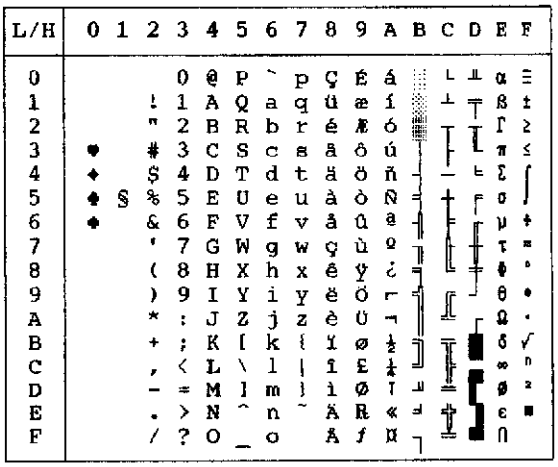
PAGE855 (Code Page 855)



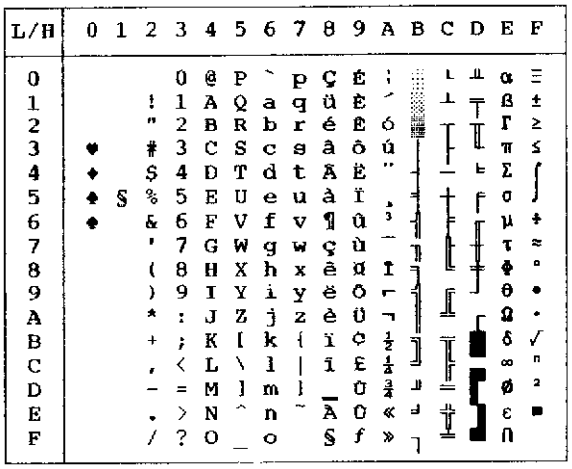
PAGE860 (Code Page 860(Portugal))



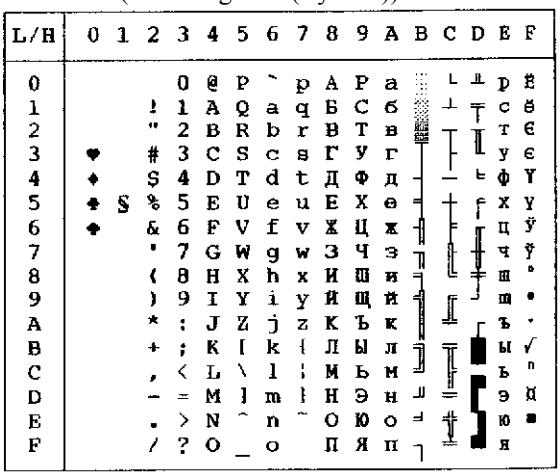
PAGE865 (Code Page 865(Nordic))



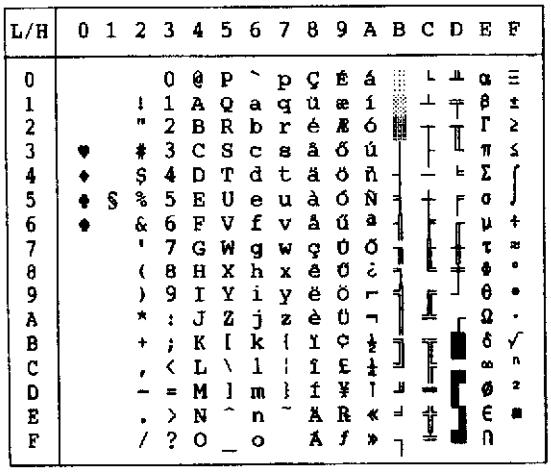
PAGE863 (Code Page 863(Canada-French))



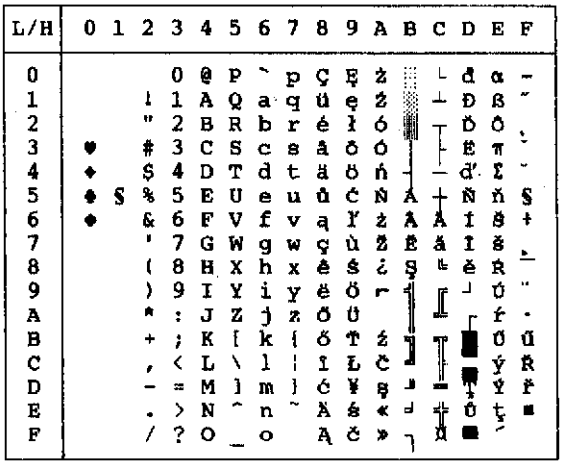
PAGE866 (Code Page 866(Cyrillic))



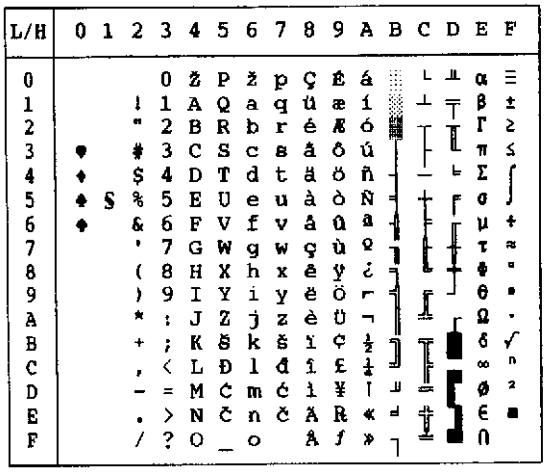
HUNGARY/HUNG-T (Hungarian)



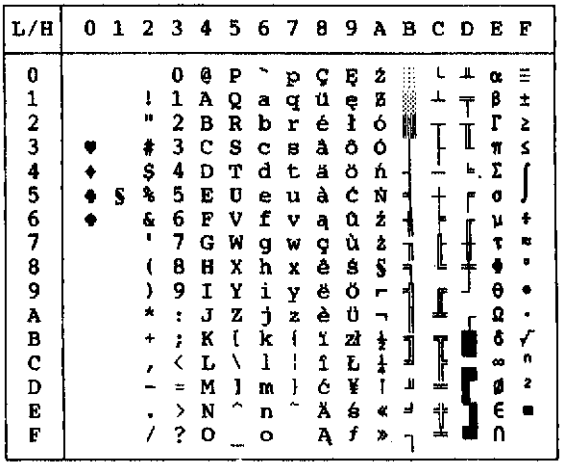
POLISH/POLSH-T (Polish)



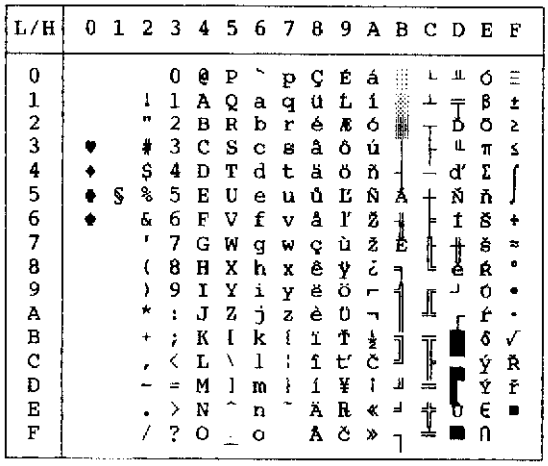
SLOV/SLOV-T (Slovenian)



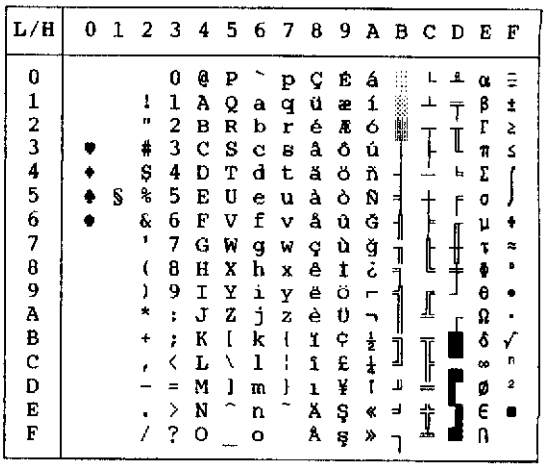
MAZOWIA/MAZOW-T (Mazowian)



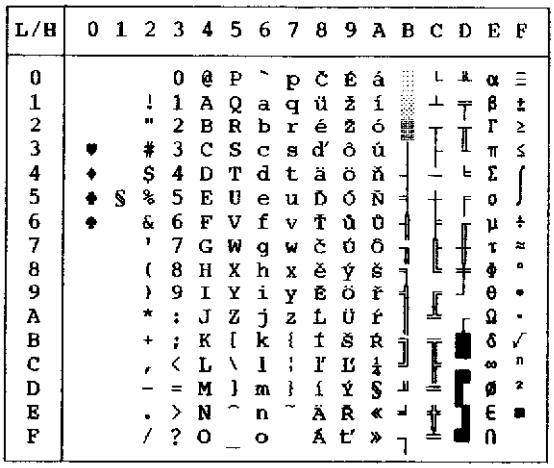
LATIN2/LATN2-T (Latin2)



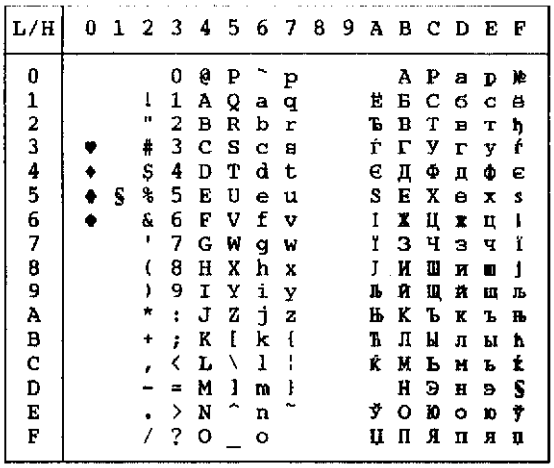
TURKY/TURKY-T (Turkish)



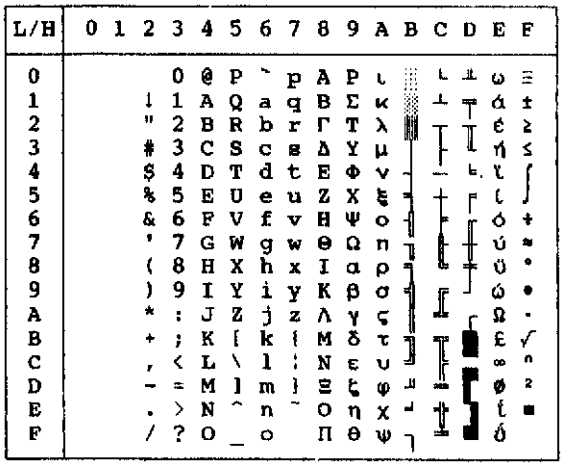
KAMENIC/KAMEN-T (Kamenicky)



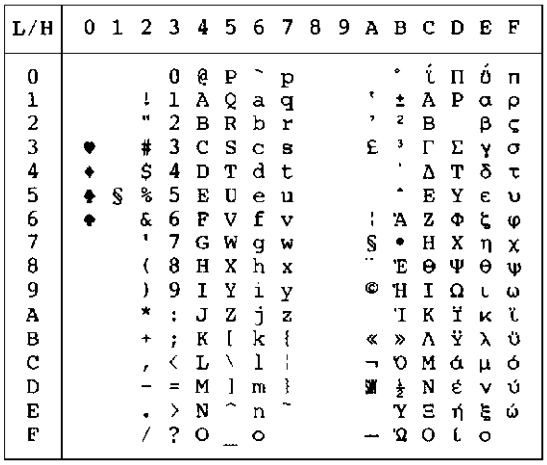
CYRILIC (Cyrillic)



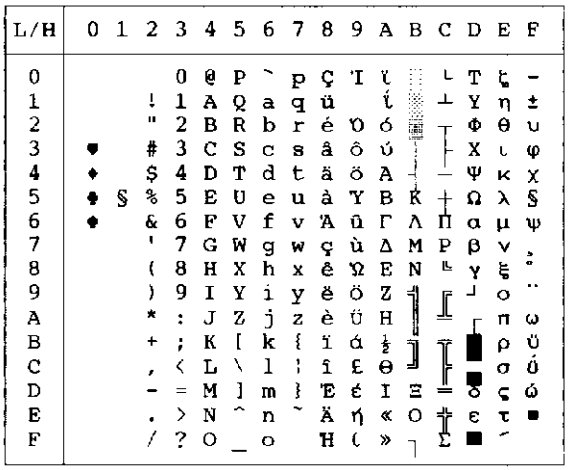
IBM437 (IBM 437)



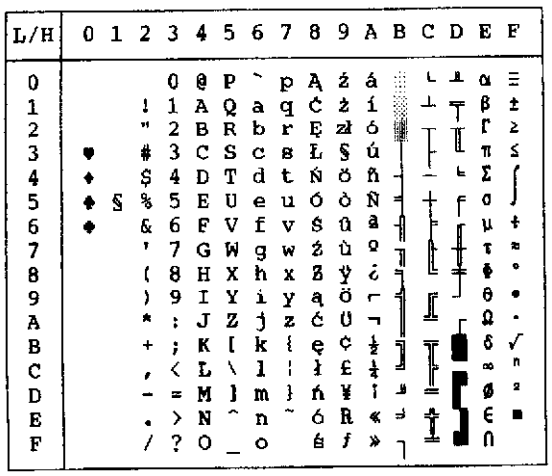
ELOT928 (ELOT 928)



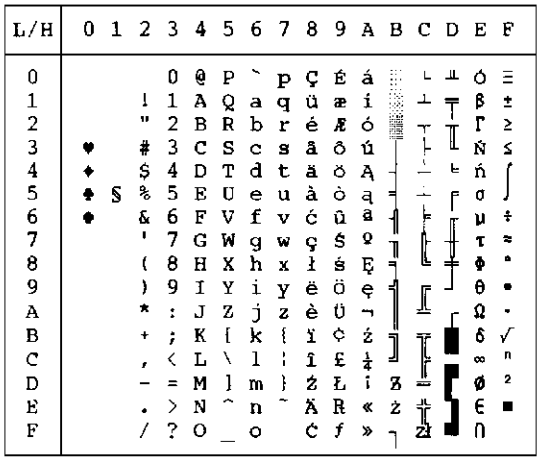
IBM851 (IBM 851)



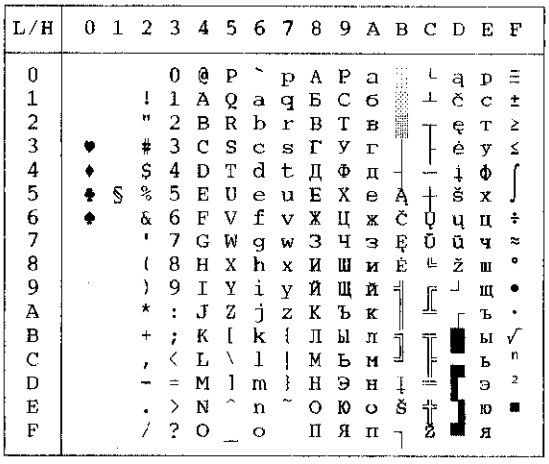
PG-DHN (Code Page DHN)



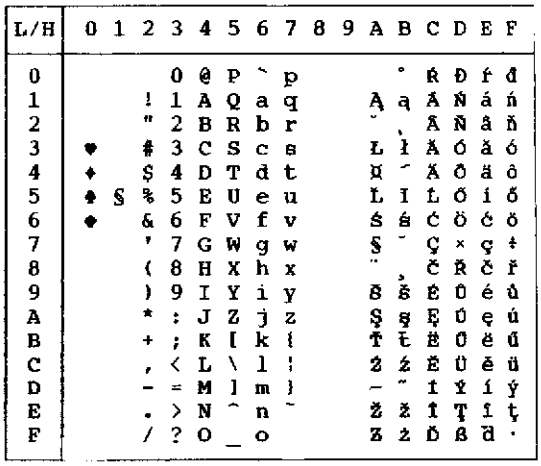
LATIN-P (Latin Polish)



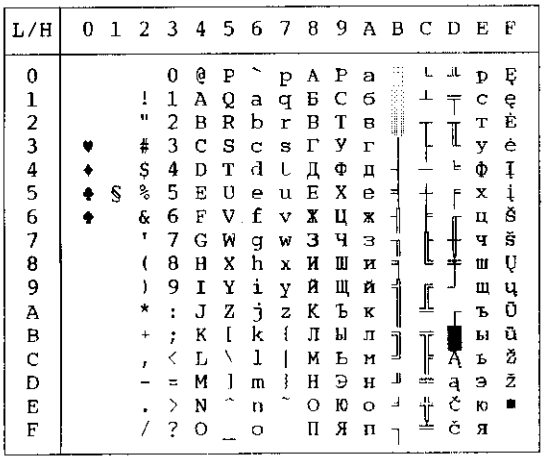
LITHUA1 (Lithuanian 1)



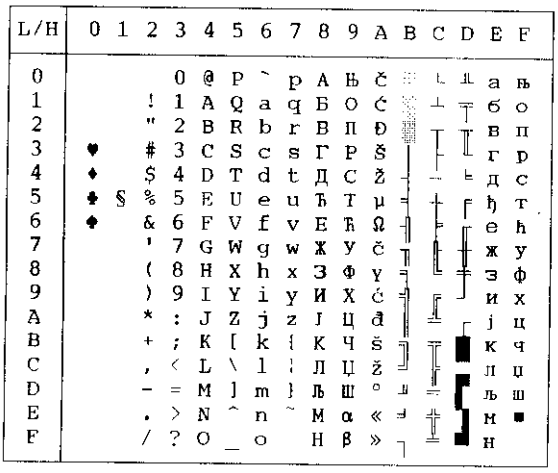
ISO-LTN (ISO Latin)



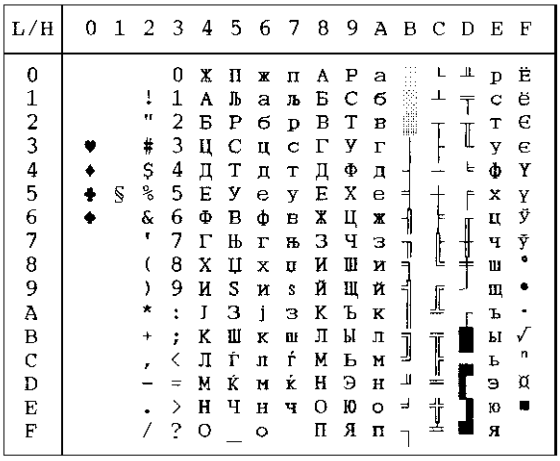
LITHUA2 (Lithuanian 2)



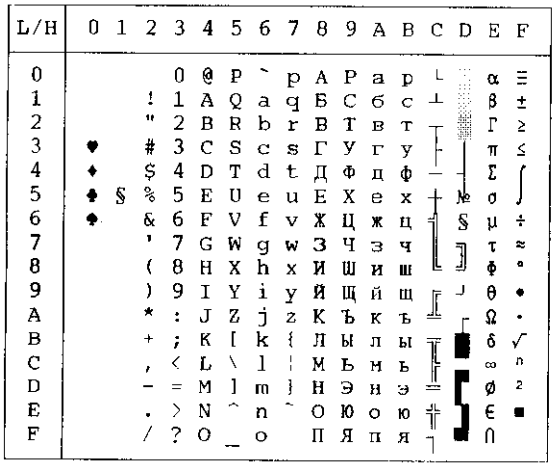
MACEDON (Macedonian)



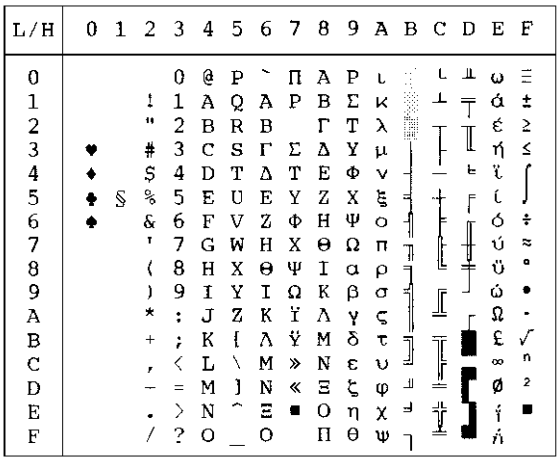
PG-MAC



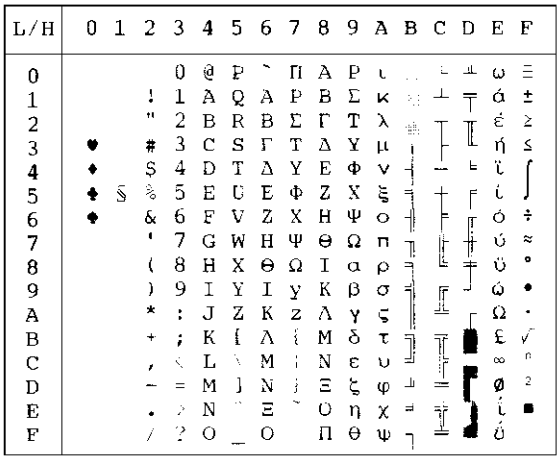
MIK



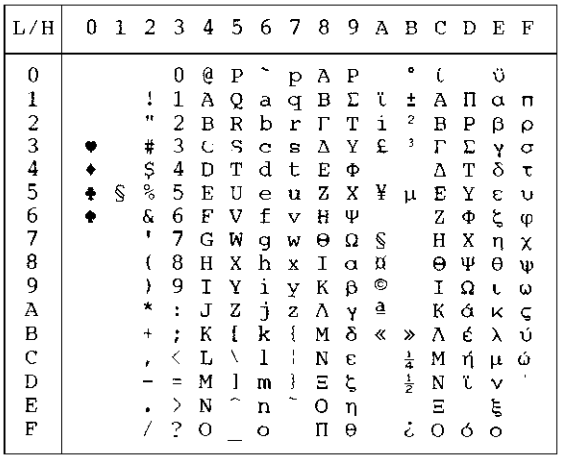
ELOT 927



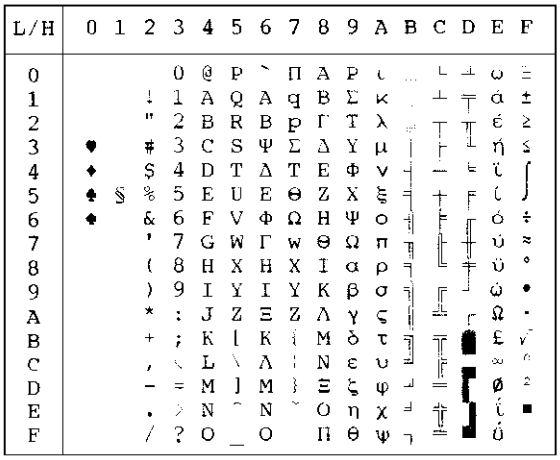
ABG



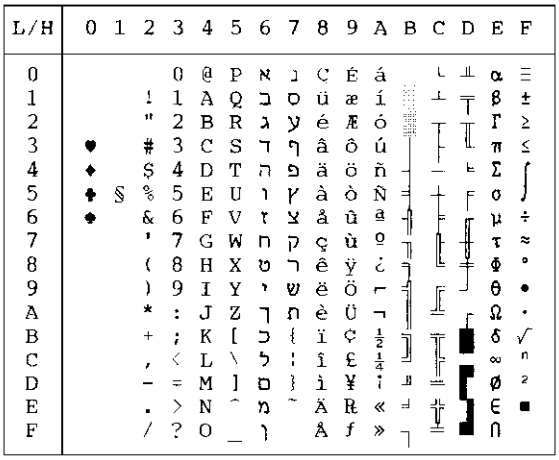
DEC GR



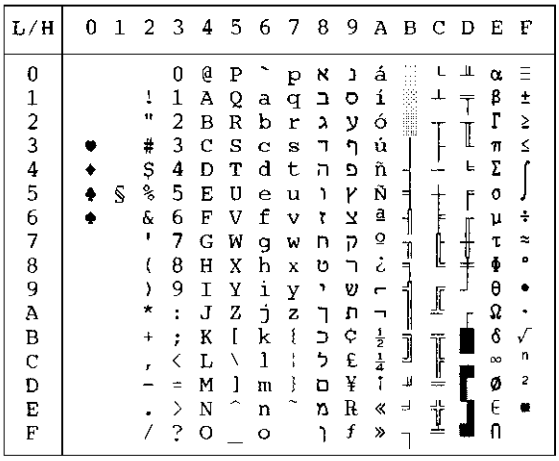
ABY



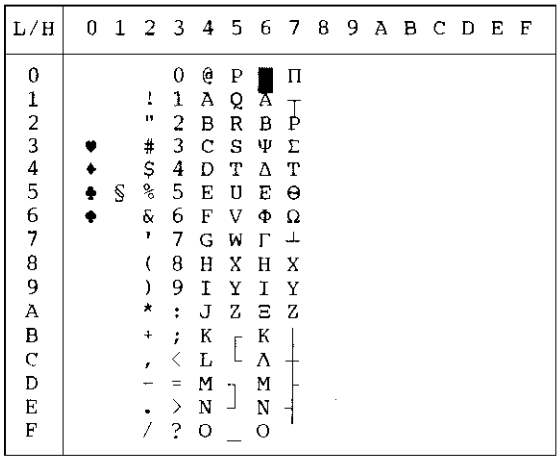
HBR-OLD



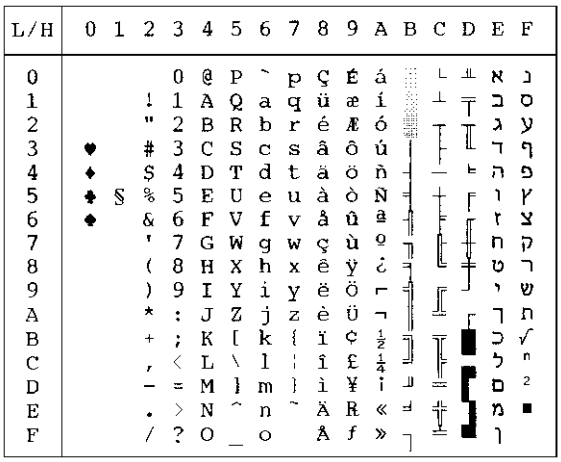
PAGE 862 (Code Page 862)



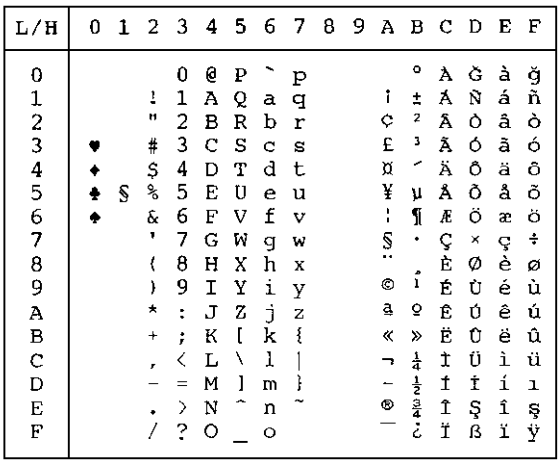
GREEK 11



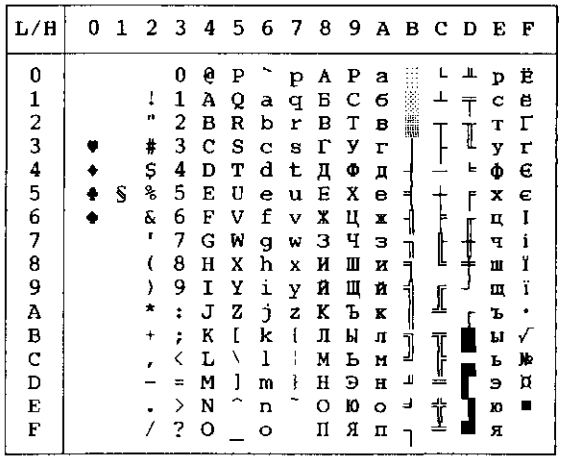
HBR-DEC



ISO-TUK



RUSCII



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WCP1250 (Windows – 1250)

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WCP1251 (Windows – 1251)

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WCP1252 (Windows – 1252)

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NATIONAL CHARACTER SETS (DPL24C PLUS AND IBM XL24E EMULATION)

The following character sets differ from those of Code Page 437 (USA), available in the DPL24C PLUS command set and the IBM Proprinter XL24E emulation.

FRENCH (French)

L/H	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
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5	♣	§	%	5	E	U	e	u	à	ò	Ñ	▒	┼	╒	σ	⌡
6	♠		&	6	F	V	f	v	å	û	ª	▒	╞	╓	µ	÷
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ITALIAN (Italian)

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4	♦		$	4	D	T	d	t	ä	ö	ñ	▒	─	╘	Σ	⌠
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	▒	┼	╒	σ	⌡
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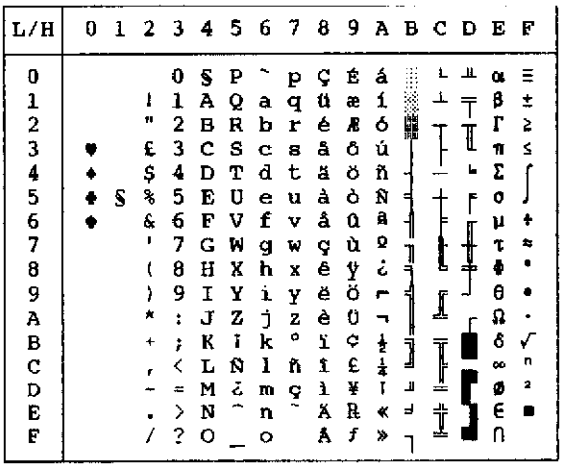
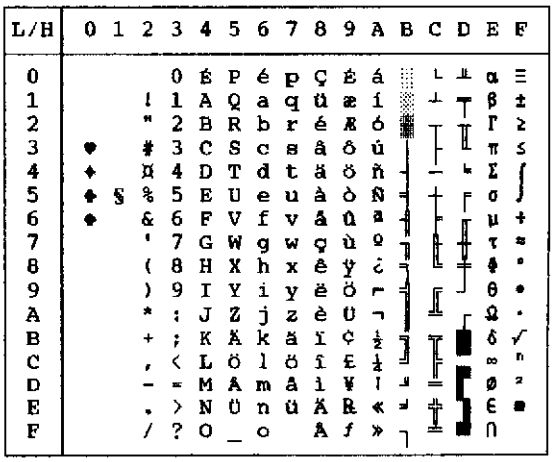
F			/	?	O	_	o		Å	ƒ	»	▒	╧	▒	∩	

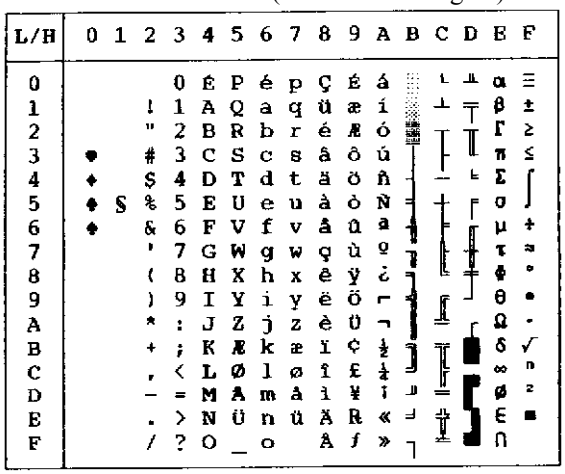
SPANISH (Spanish)



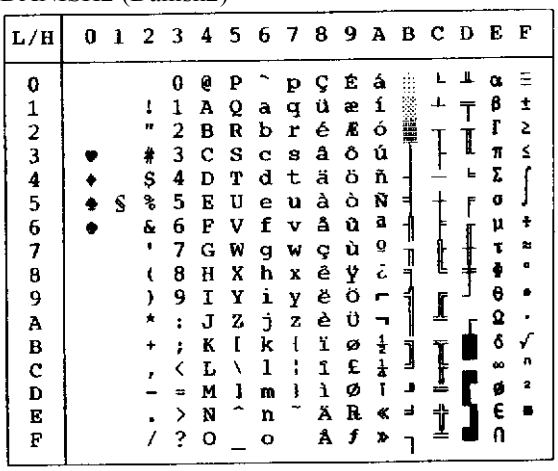
FINNISH (Finnish)



DANISH1/NORWEGN (Danish1/Norwegian)



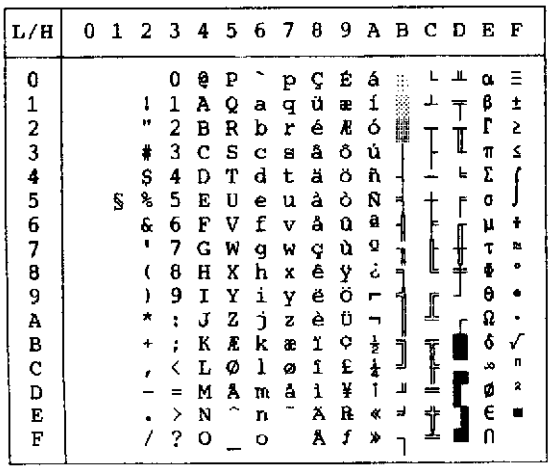
DANISH2 (Danish2)



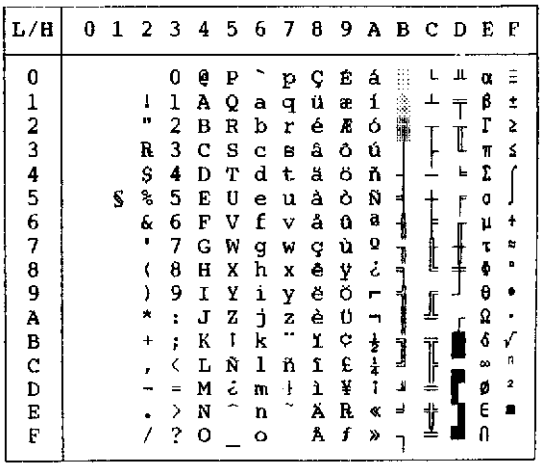
NATIONAL CHARACTER SETS (ESC/P2 EMULATION)

The following character sets differ from the graphics character sets available in the Epson ESC/P2 emulation.

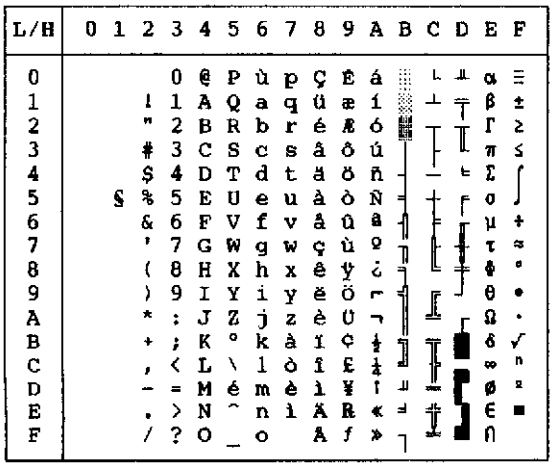
DANISH1 (Danish1)



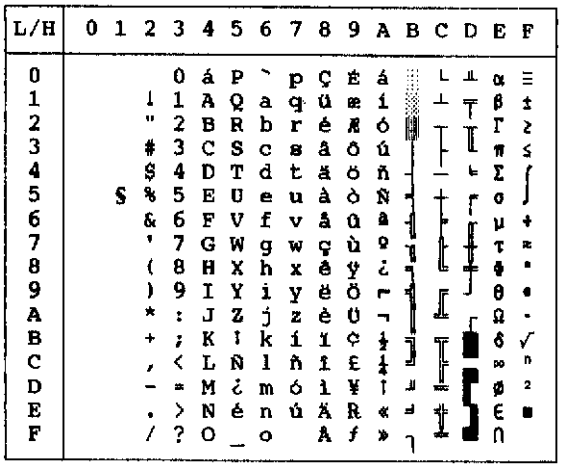
SPANSH1 (Spanish1)



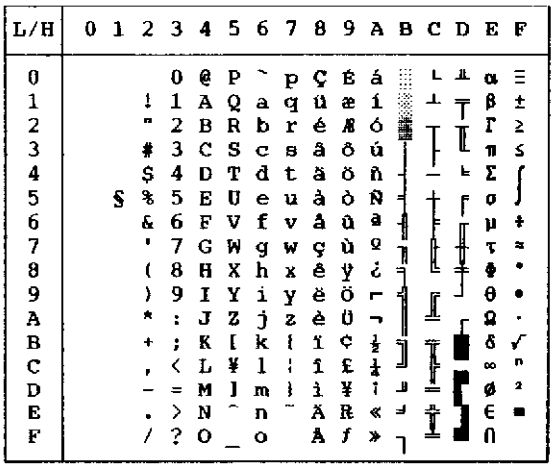
ITALIAN (Italian)



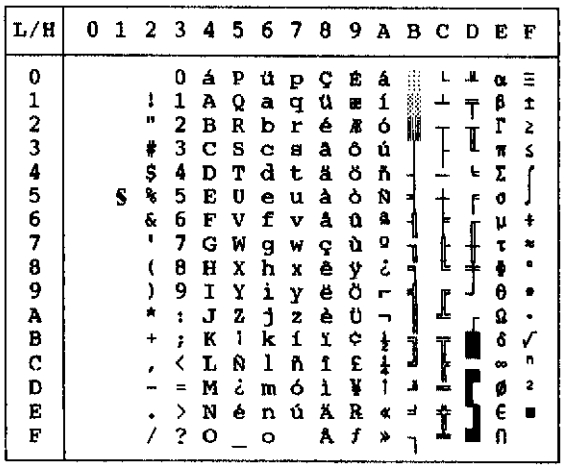
SPANSH2 (Spanish2)



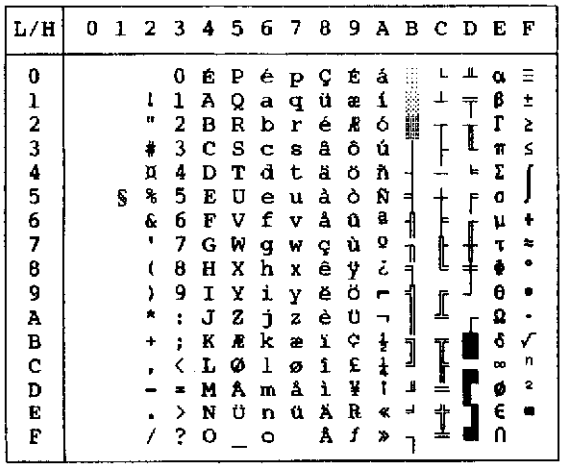
JAPAN (Japanese)



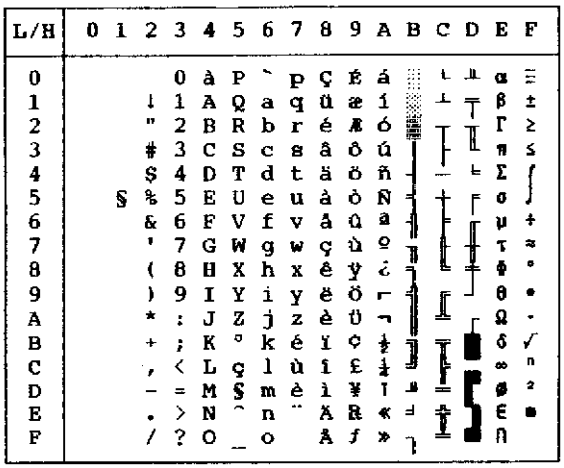
LATIN A (Latin American)



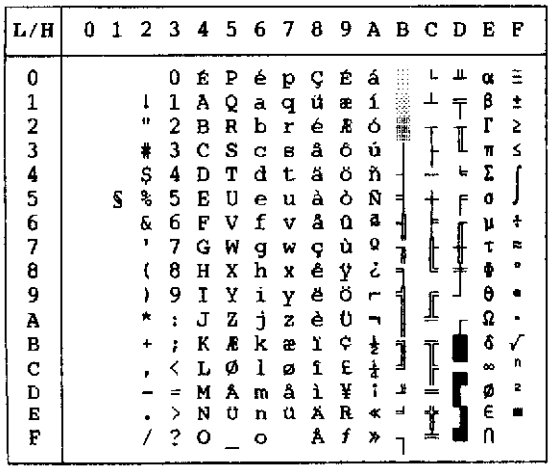
NORWEGN (Norwegian)



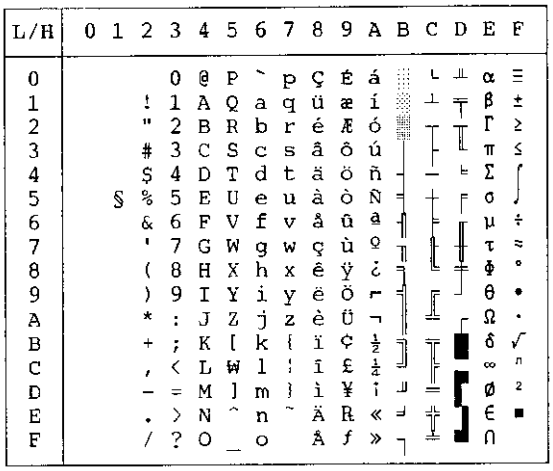
FRENCH (French)



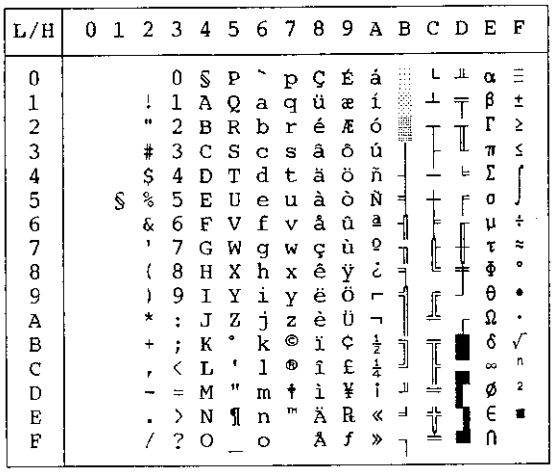
DANISH2 (Danish2)



KOREA



LEGAL



NATIONAL CHARACTER SETS AND SUPPORTED RESIDENT FONTS (ALL EMULATIONS)

In all emulations, this printer supports 52 national character sets for characters and symbols specific to different languages. Some national character sets, however, do not have some characters and symbols and may not be usable, depending on resident fonts. The following tables show which of the resident fonts are supported for each national character set:

Resident font		Courier 10	Elite 12	Compress	Draft	Bold PS	Pica 10	Courier scalable **	Timeless **	Nimbus Sans **	Correspondence	OCR-B	OCR-A
National character set	Name in setup menu												
USA *	USA	√	√	√	√	√	√	√	√	√	√	√	√
United Kingdom	UK	√	√	√	√	√	√	√	√	√	√	√	
German	GERMAN	√	√	√	√	√	√	√	√	√	√	√	
Swedish	SWEDISH	√	√	√	√	√	√	√	√	√	√	√	
ISO 8859-1	ISO8859	√	√	√	√	√	√	√	√	√	√	√	
ECMA94	ECMA94	√	√	√	√	√	√	√	√	√	√	√	
Code Page 437*	PAGE437	√	√	√	√	√	√	√	√	√	√	√	√
Code Page 850	PAGE850	√	√	√	√	√	√	√	√	√	√	√	
Code Page 852	PAGE852	√	√	√	√	√	√	√	√	√	√		
Code two-pass	PAGE852-T	√	√	√	√	√	√	√	√	√	√		
Code Page 855	PAGE855	√	√	√			√	√	√	√			
Code Page 860	PAGE860	√	√	√	√	√	√	√	√	√	√	√	
Code Page 863	PAGE863	√	√	√	√	√	√	√	√	√	√	√	
Code Page 865	PAGE865	√	√	√	√	√	√	√	√	√	√	√	
Code Page 866	PAGE866	√	√	√			√	√	√	√			

(Continued on the next page)

* USA is the same as Code Page 437.
** Upright, italic, and bold available
√ : Supported

Resident font		Courier 10	Elite 12	Compress	Draft	Bold PS	Pica 10	Courier scalable **	Timeless **	Nimbus Sans **	Correspondence	OCR-A	OCR-B
National character set	Name in setup menu												
Hungarian	HUNGARY	√	√	√	√	√	√	√	√	√	√		
Hungarian two-pass	HUNG-T	√	√	√	√	√	√	√	√	√	√		
Slovenian	SLOV	√	√	√	√	√	√	√	√	√	√	√	
Slovenian two-pass	SLOV-T	√	√	√	√	√	√	√	√	√	√		
Polish	POLISH	√	√	√	√	√	√	√	√	√	√		
Polish two-pass	POLISH-T	√	√	√	√	√	√	√	√	√	√		
Mazowian	MAZOWIA	√	√	√	√	√	√	√	√	√	√		
Mazowian two-pass	MAZOW-T	√	√	√	√	√	√	√	√	√	√		
Latin 2	LATIN2	√	√	√	√	√	√	√	√	√	√		
Latin 2 two-pass	LATIN2-T	√	√	√	√	√	√	√	√	√	√		
Kamenicky	KAMENIC	√	√	√	√	√	√	√	√	√	√		
Kamenicky two-pass	KAMEN-T	√	√	√	√	√	√	√	√	√	√		
Turkish	TURKY	√	√	√	√	√	√	√	√	√	√		
Turkish two-pass	TURKY-T	√	√	√	√	√	√	√	√	√	√		
Cyrillic	CYRILIC	√	√	√	√			√	√	√			
IBM 437	IBM437	√	√	√	√			√	√	√			
IBM 851	IBM851	√	√	√	√			√	√	√			
ELOT 928	ELOT928	√	√	√	√			√	√	√			
Code Page DHN	PG-DHN	√	√	√	√	√	√	√	√	√	√		
Latin Polish	LATIN-P	√	√	√	√	√	√	√	√	√	√		
ISO Latin	ISO-LTN	√	√	√	√	√	√	√	√	√	√		

(Continued on the next page)

** Upright, italic, and bold available
√ : Supported

Resident font		Courier 10	Elite 12	Compress	Draft	Bold PS	Pica 10	Courier scalable **	Timeless **	Nimbus Sans **	Correspondence	OCR-B	OCR-A
National character set	**Name in setup menu**												
Lithuanian 1	LITHUA1	√	√	√	√			√	√	√			
Lithuanian 2	LITHUA2	√	√	√	√			√	√	√			
MIK	MIK	√	√	√	√			√	√	√			
Macedonian	MACEDON	√	√	√	√			√	√	√			
ABG	ABG	√	√	√	√			√	√	√			
ABY	ABY	√	√	√	√			√	√	√			
DEC Greek	DEC GR	√	√	√	√			√	√	√			
ELOT 927	ELOT 927	√	√	√	√			√	√	√			
GREEK 11	GREEK 11	√	√	√	√			√	√	√			
Code Page 862	PG 862	√	√	√	√	√	√						
Hebrew DEC	HBR-DEC	√	√	√	√	√	√						
Hebrew Old	HBR-OLD	√	√	√	√	√	√						
Code Page MAC	PG-MAC	√	√	√	√			√	√	√			
ISO Turkish	ISO-TUK	√	√	√	√	√	√	√	√	√	√		
RUSCII	RUSCII	√	√	√	√	√	√	√	√	√			
ISO8859-15	LATIN-9	√	√	√	√	√	√	√	√	√	√		
Windows Code Page 1250	WCP1250	√	√	√	√	√	√				√	√	
Windows Code Page 1251	WCP1251	√	√	√	√	√	√				√	√	
Windows Code Page 1252	WCP1252	√	√	√	√	√	√				√	√	

** Upright, italic, and bold available
√ : Supported

F

RESIDENT FONTS

This appendix provides print samples of the printer's nineteen resident fonts.

COURIER 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

PRESTIGE ELITE 12

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

DRAFT 12

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

COMPRESSED

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

PICA 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

CORRESPONDENCE 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

HIGH-SPEED DRAFT 12

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

BOLDFACE PS

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

OCR-B 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

OCR-A 10

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

COURIER (SCALABLE)

Normal

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

Bold

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

Italic

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

NIMBUS SANS ® (SCALABLE)

Normal

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

Bold

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

Italic

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

TIMELESS (SCALABLE)

Normal

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

Bold

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

Italic

The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.

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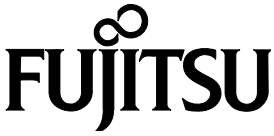

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