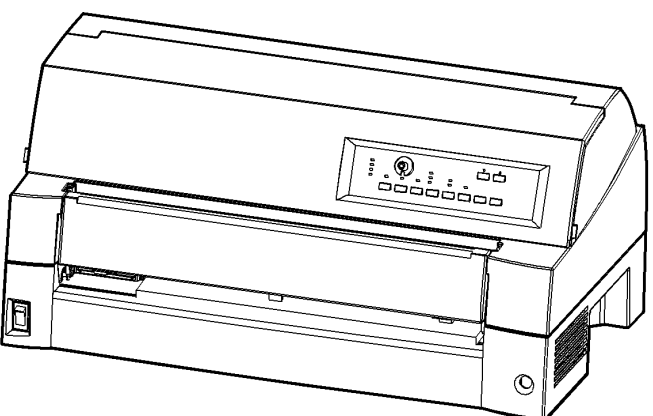
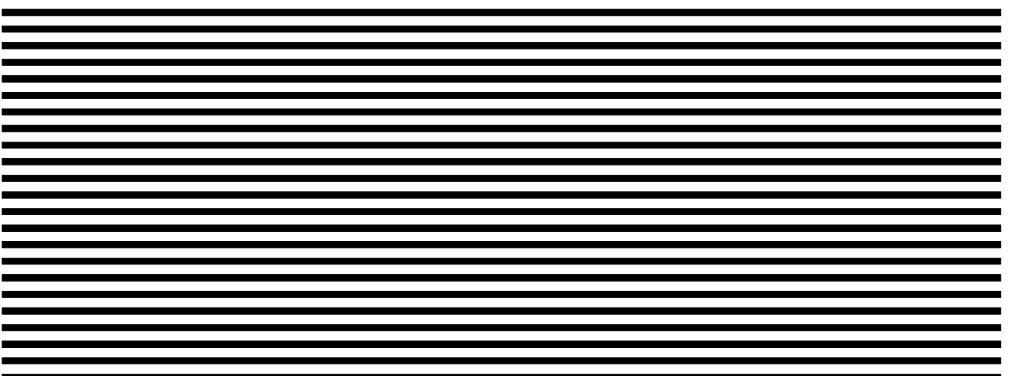
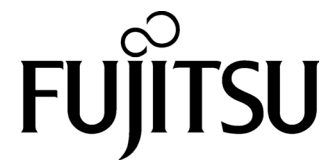


USER'S MANUAL

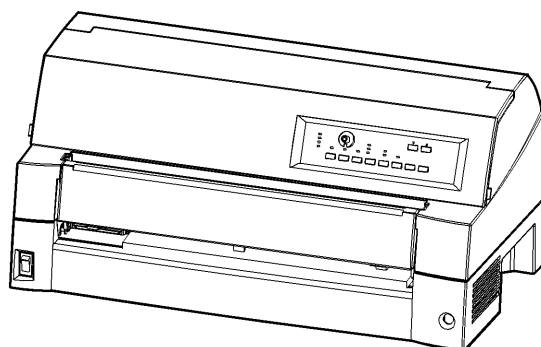


24-wire dot matrix printers

FUJITSU
DI7600



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.

FUJITSU ISOTEC reserves the right to make changes to any products described herein without further notice and without obligation.

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.

Notice for German Users

Bescheinigung des Herstellers/Importeurs

Hiermit wird bescheinigt, daß der/die/das

- M33325B

in Übereinstimmung mit den Bestimmungen der 2004/108/EC und 2006/95/EC ist.

Der Deutschen Bundespost wurde das Inverkehrbringen dieses Gerätes angezeigt und die Berechtigung zur Überprüfung der Serie auf Einhaltung der Bestimmungen eingeräumt.

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EN ISO 7779

Importer / Distributor in EU:
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Hayes Park Central, Hayes End Road, Hayes, Middlesex UB4 8FE, U.K.



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.

CE Declaration

This product sold in Europe conforms to the standard in accordance with EC Directives.

Conformity with RoHS Directive

This product conforms with the directive 2002/95/EC (RoHS Directive) and commission decisions 2005/618/EC, 2005/717/EC and 2005/747/EC.

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



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



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 from 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 cord 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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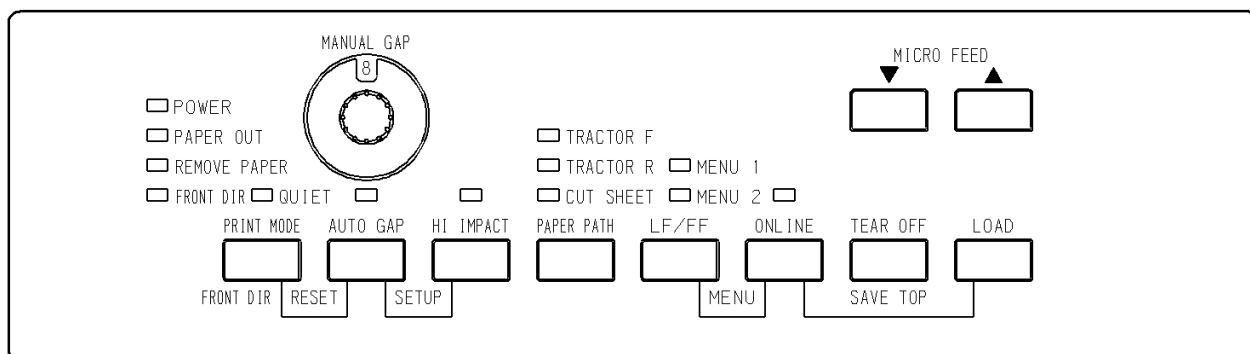
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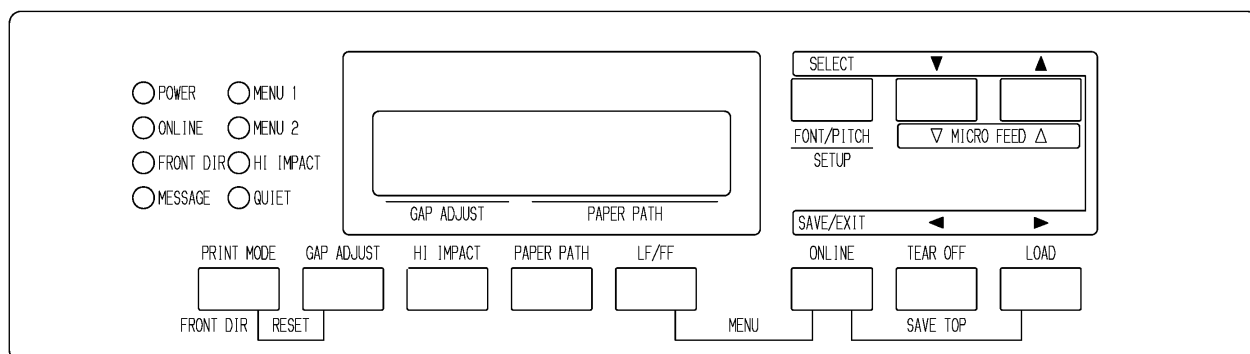
QUICK REFERENCE

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.

QUICK REFERENCE

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.

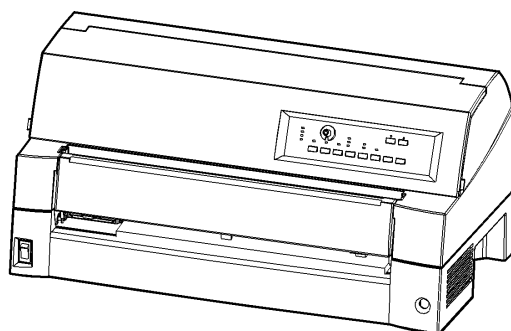
Operation	Online	Offline	Required Response
Select auto adjusting for paper thickness.	✓	✓	(LED type) Press AUTO GAP 2 second or more. So that AUTO GAP lamp lights (LCD type) Press GAP ADJUST. So that LCD display “AUTO”
Adjust for paper thickness manually	✓	✓	(LED type) Press AUTO GAP 2 second or more. 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.

QUICK REFERENCE

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.

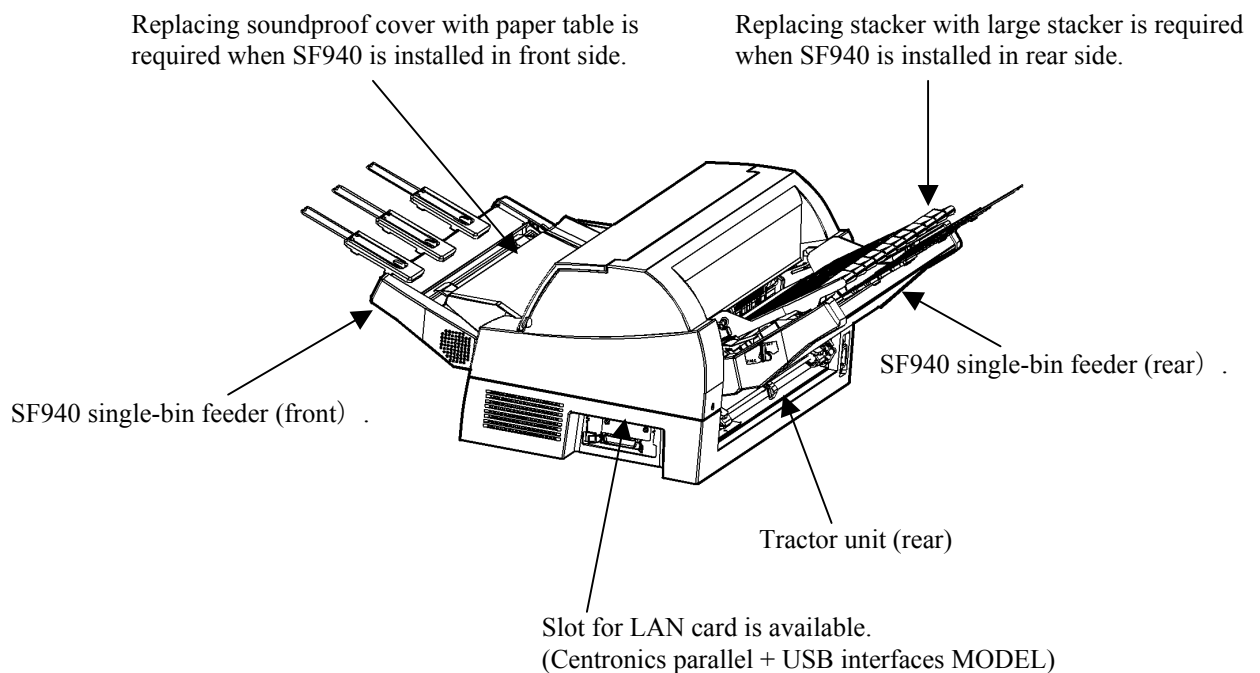
MODELS

- **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.

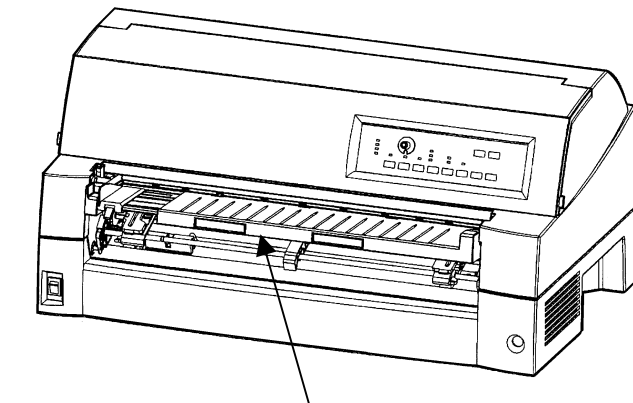
- **Cut sheet feeder.** The SF940 single-bin feeder is available as an option. Two cut sheet feeders can be installed in front of and behind the printer at the same time. A cut sheet feeder allows single cut sheets and multiple-part cut sheets to be fed automatically.
- **Tractor unit.** A second tractor 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.



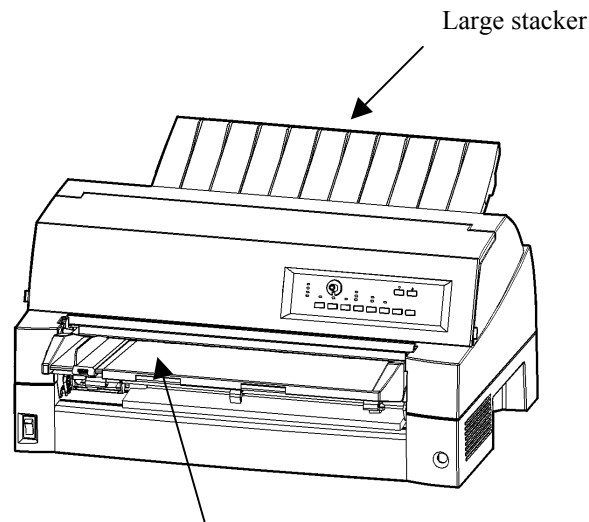
OPTIONS of DL7600 dot matrix printer

INTRODUCTION

- **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.



Small paper table



Large paper table

OPTIONS of DL7600 dot matrix printer

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.

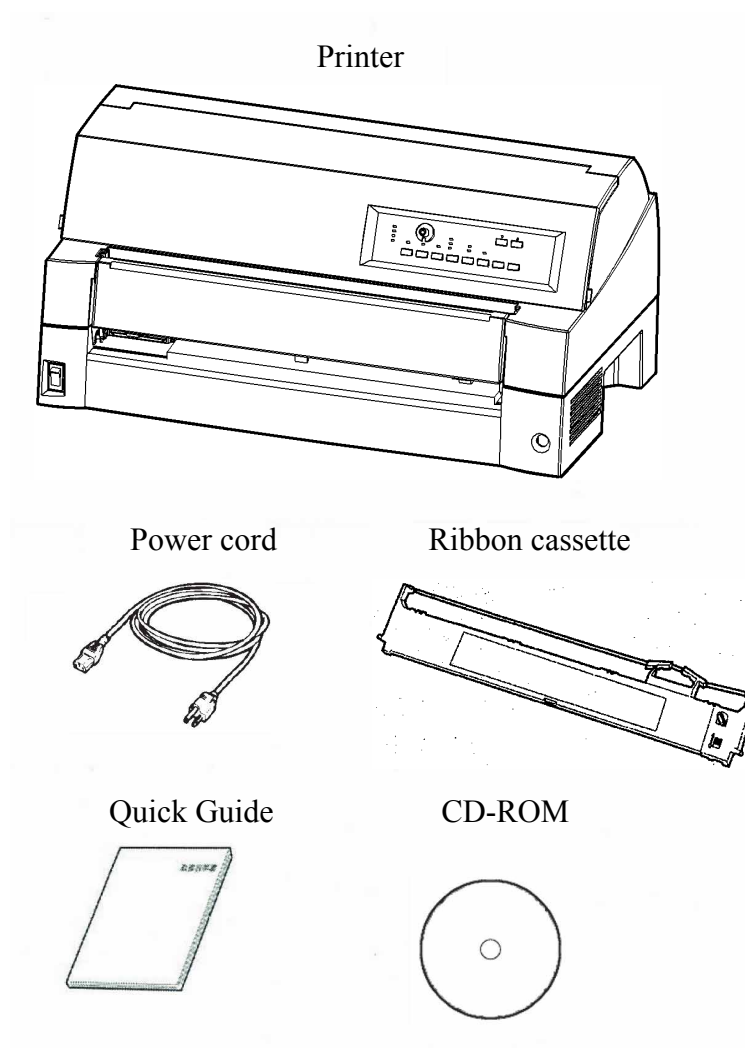
- ✓ Use only the power cord supplied with the printer or recommended by your dealer. Do not use an extension cord.
- ✓ Do not plug the printer into a power outlet that is shared with heavy industrial equipment, such as motors, or appliances, or such as copiers or coffee makers. Such equipment often emits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

UNPACKING THE PRINTER

Unpack the printer as follows:

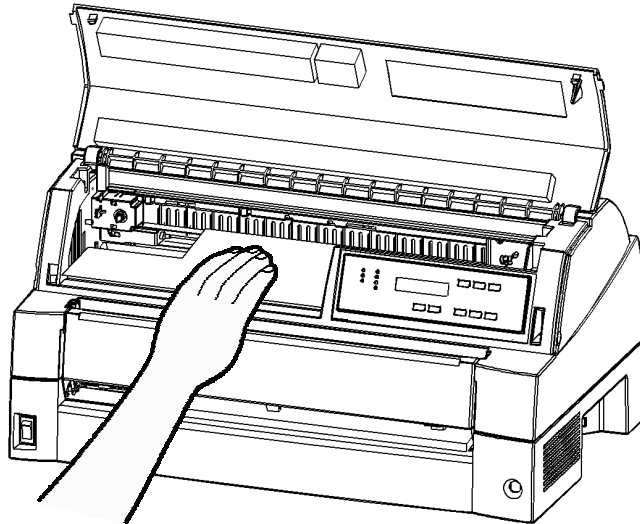
1. Open the carton and remove the printer and its components.

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

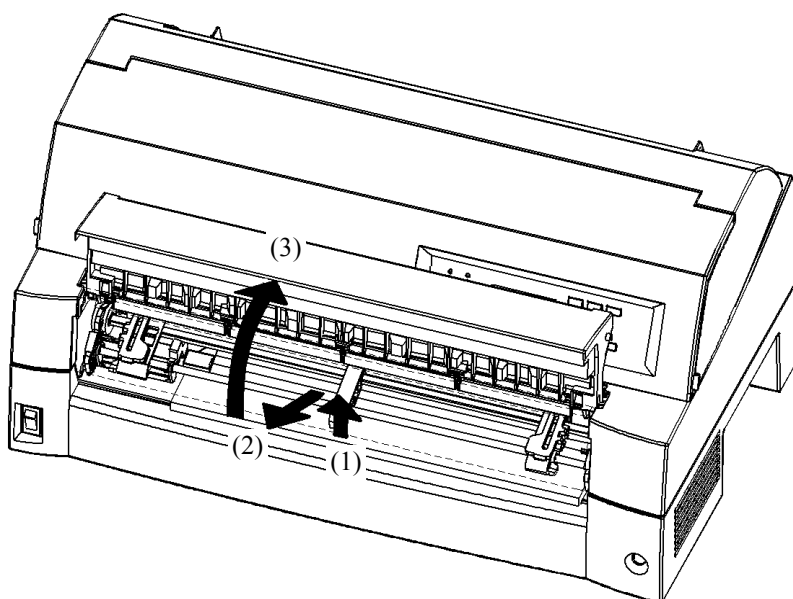
This section explains how to handling the soundproof cover, changing the tractor unit position and installing the ribbon cartridge.

Handling the soundproof cover

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

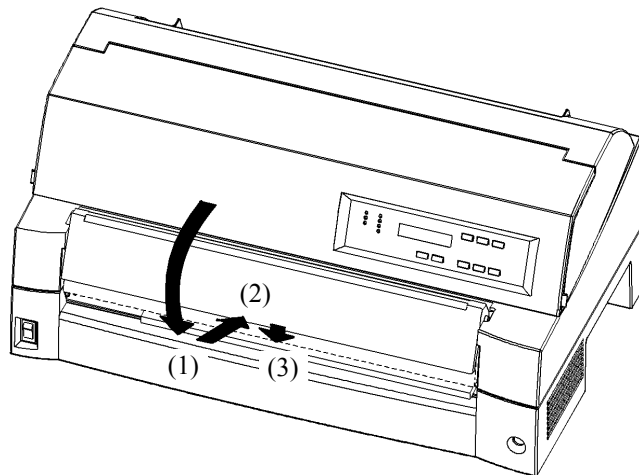
1 Open the soundproof cover.

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

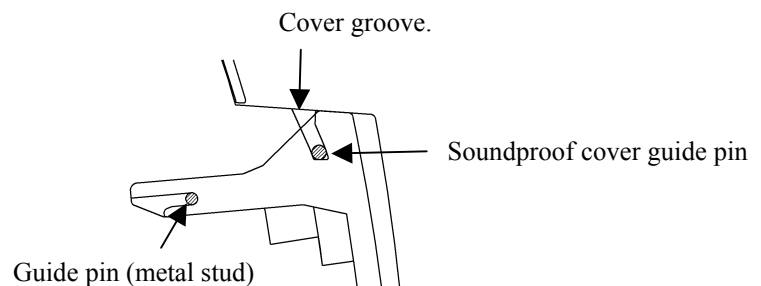


2 Close the sound proof cover.

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>

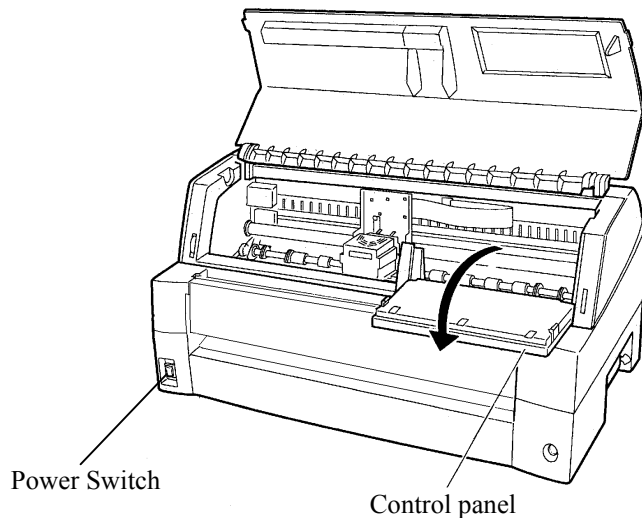
The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.

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

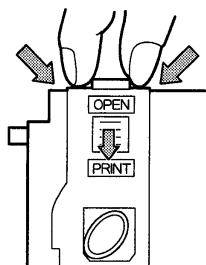
If you turn on the printer power with the top cover open, the print head does not move. Turn the printer power with the top cover closed.

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.



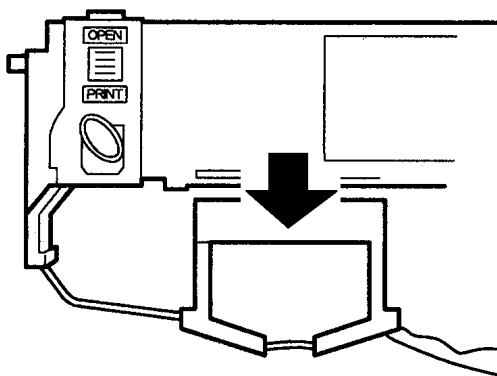
Preparing the printer to install the ribbon cartridge

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.



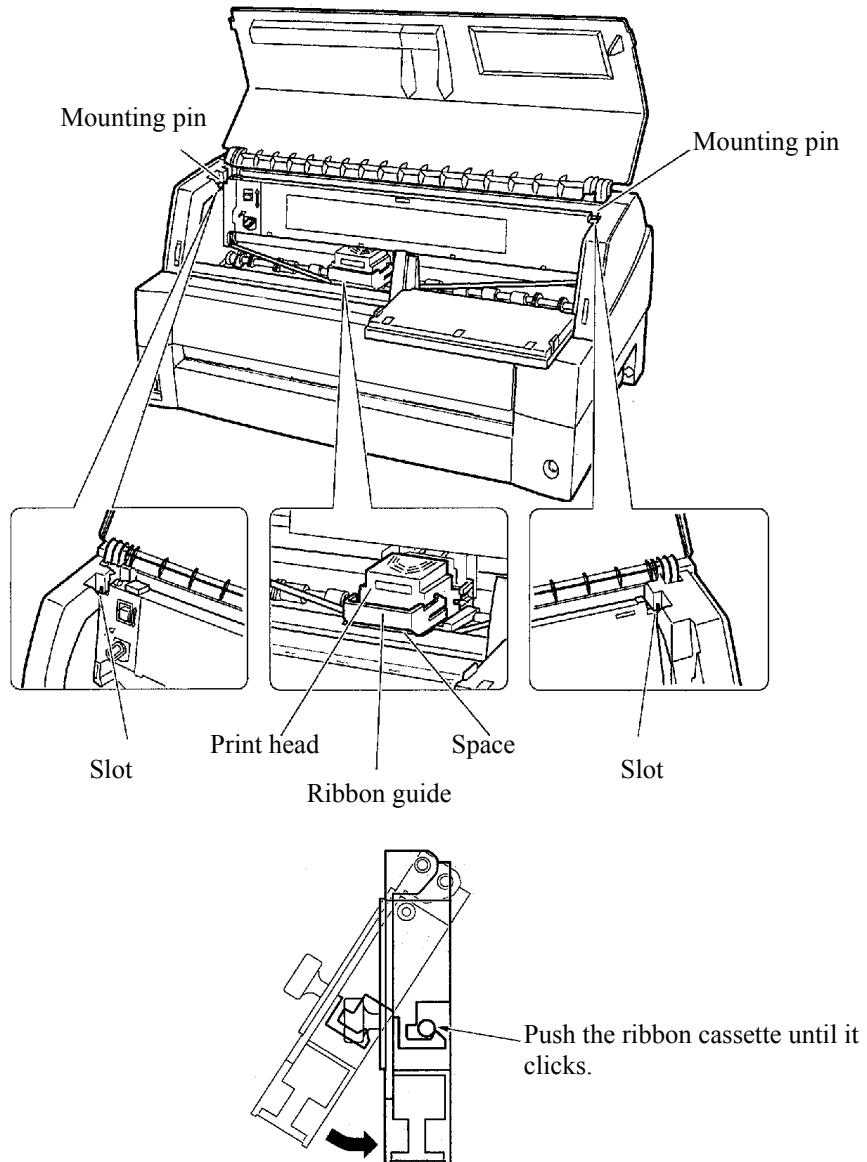
Preparing the ribbon cassette

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



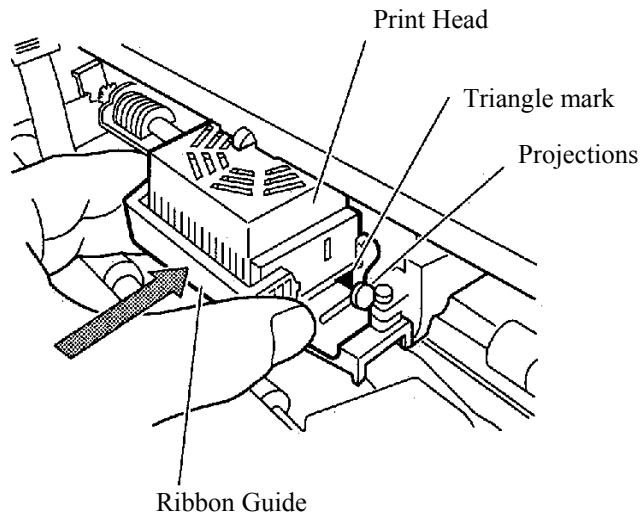
Preparing the ribbon cassette

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.

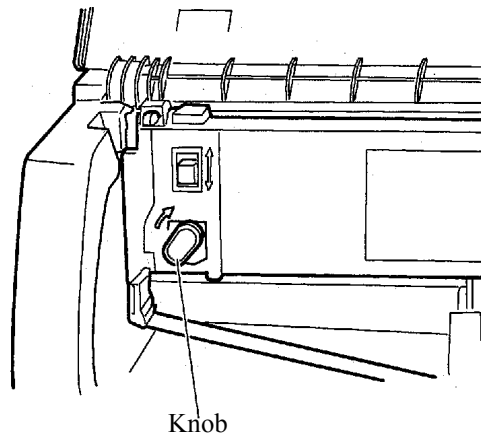


Installing the ribbon cassette

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.

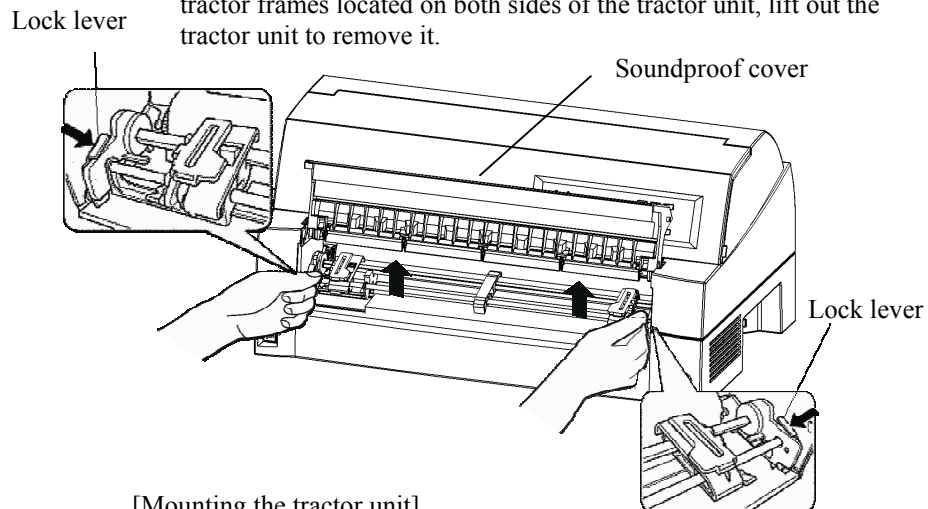
See “SELECTING PAPER PATH” in Chapter 3.

Mounting and removing the tractor unit

Tractor unit at the front

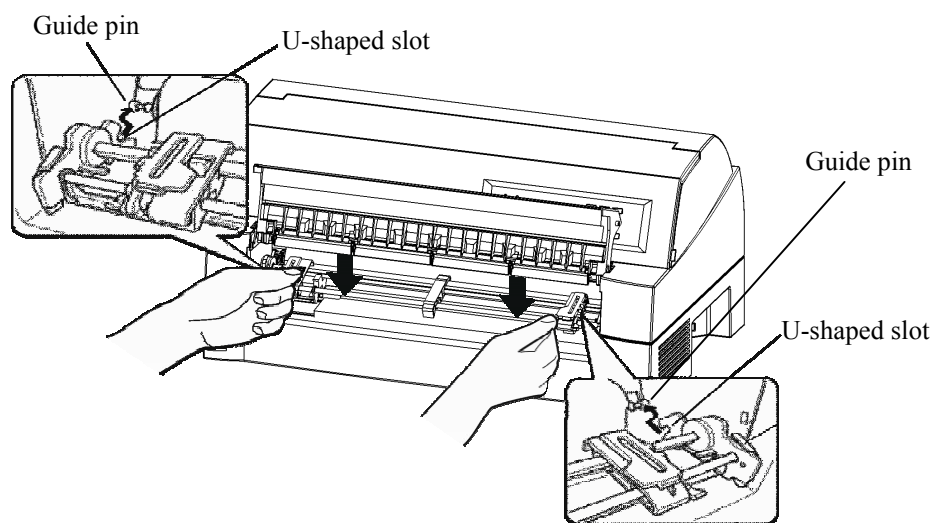
[Removing the tractor unit]

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.

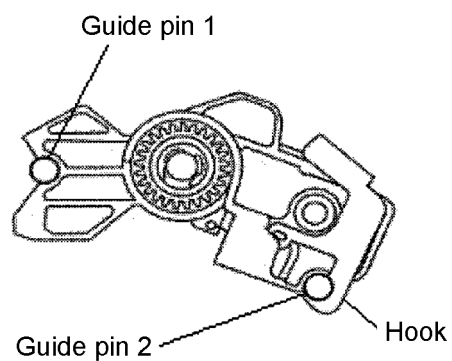


[Mounting the tractor unit]

- 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.)



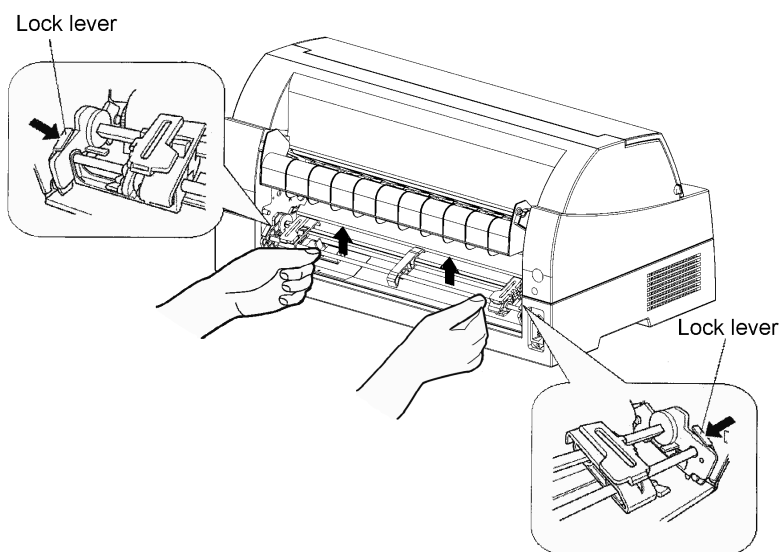
- 3) Verify that the hooks on both sides of the tractor unit are securely hooked onto guide pin 2 as shown in the following figure.



Tractor unit at the rear

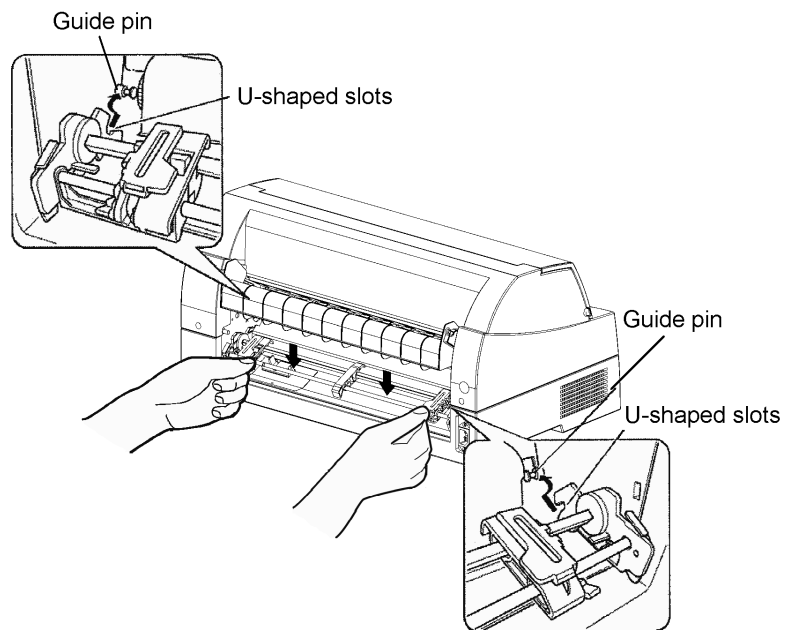
[Removing the tractor unit]

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.

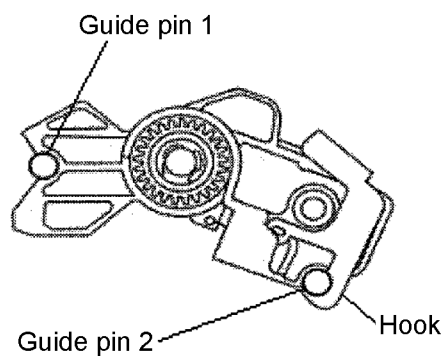


[Mounting the tractor unit]

- 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.)



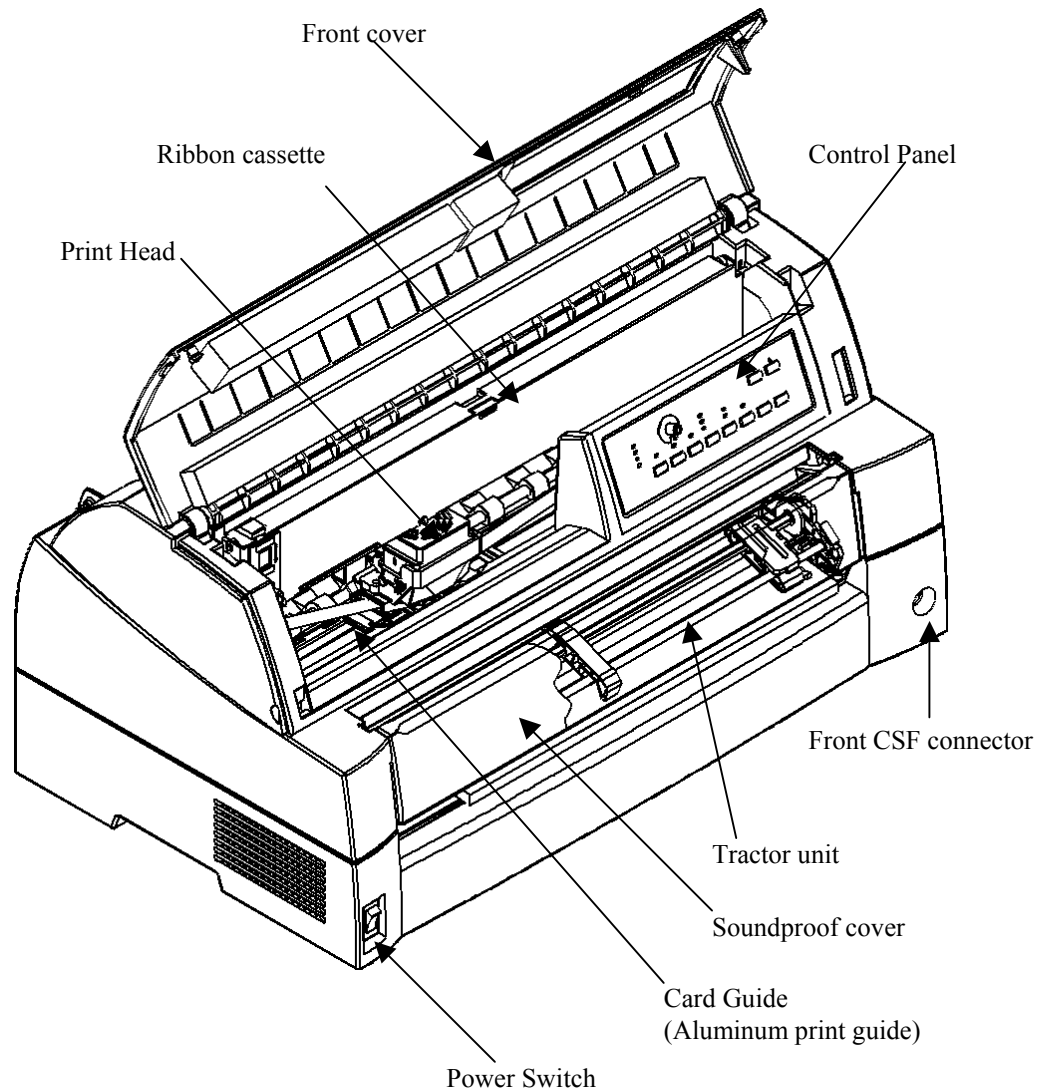
- 3) Verify that the hooks on both sides of the tractor unit are securely hooked onto guide pin 2 as shown in the following figure.



GETTING ACQUAINTED WITH YOUR PRINTER

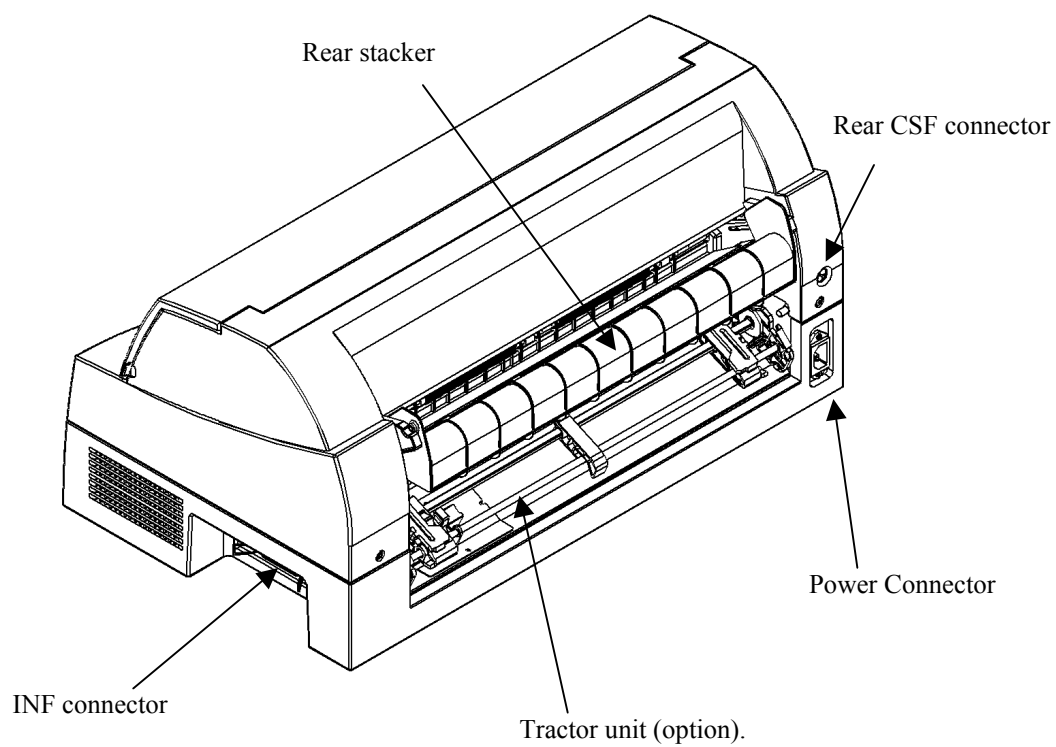
Now that your printer is assembled, take a moment to become familiar with its major parts.

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)

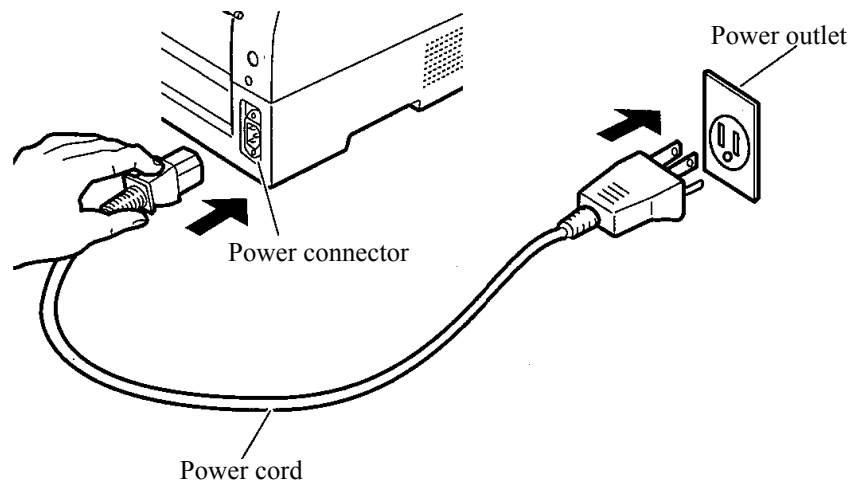
CONNECTING THE POWER CORD

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.

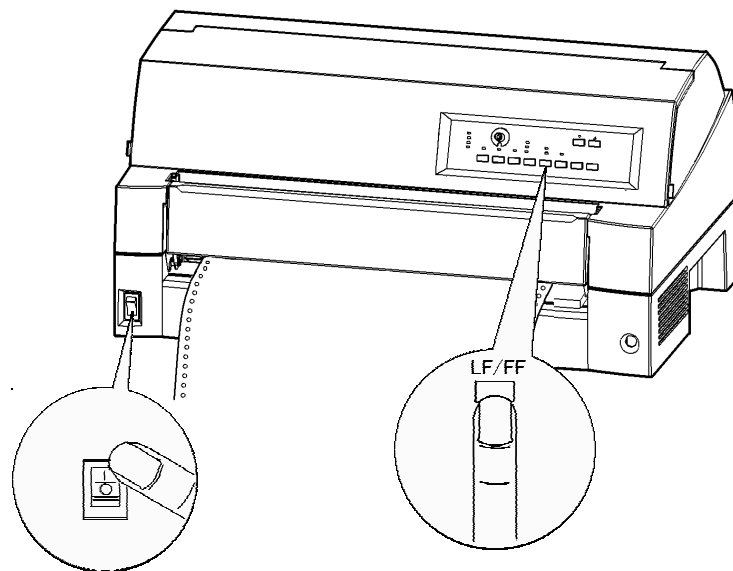
To print a self-test page, make sure that continuous forms are loaded.

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.

- 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:

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

## 1. Software specification

40100-4047 (01A) 0391XX

## 2. Emulations

3. Repeat printing

LOG ; 00 00 00 00 00 00 00

**Sample self-test page**

- ## NOTE

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, EAN example:
Code 3 of 9,
Industrial 2 of 5,
Interleaved 2 of 5,
Matrix 2 of 5,
UPC type A,Code 128
12345670

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.

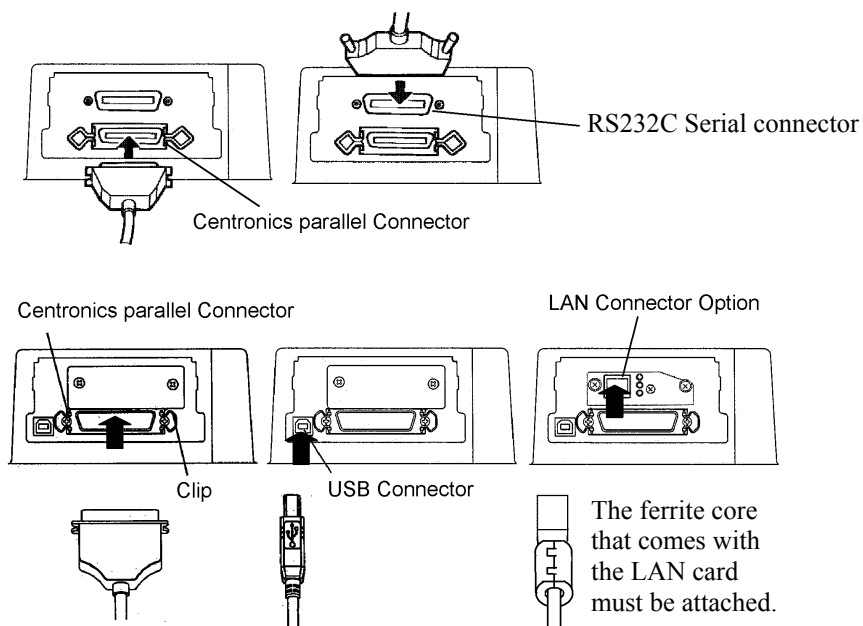
## Selecting a LAN cable

- ✓ 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.

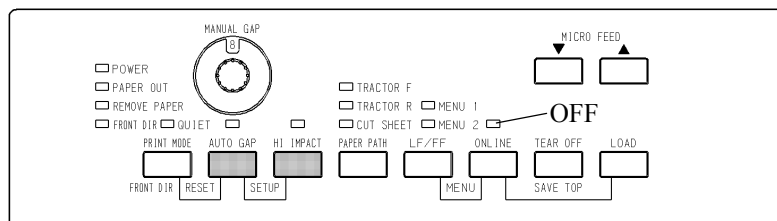
To select an emulation, proceed as follows(LED):

**1. Turn the printer on and load continuous 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.**

\*\*\* OFFLINE SETUP MODE \*\*\*

- The left end of the head guide indicates the option to be selected.
- The selected option is underlined.
- "SAVE&END" function must be selected to exit setup mode.
- Following list shows how buttons function in setup mode:

| BUTTON  | ACTION on <<FUNCTION>> menu | ACTION on <ITEM> menu                       |
|---------|-----------------------------|---------------------------------------------|
| ONLINE  | Reprint <<FUNCTION>> menu   | Select option & return to <<FUNCTION>> menu |
| MICRO↓  | Select function             | Select option & print next item             |
| MICRO↑  | Select function             | Select option & print previous item         |
| LOAD    | Move cursor to the right    | Move cursor right to the next option        |
| TEAROFF | Move cursor to the left     | Move cursor left to the previous option     |

<<FUNCTION>> menu

Function

<<FUNCTION>>

SAVE&END MENU1 MENU2 HARDWRE ADJUST CONFIG GAP-ADJ DEFAULT LIST SELF-TST

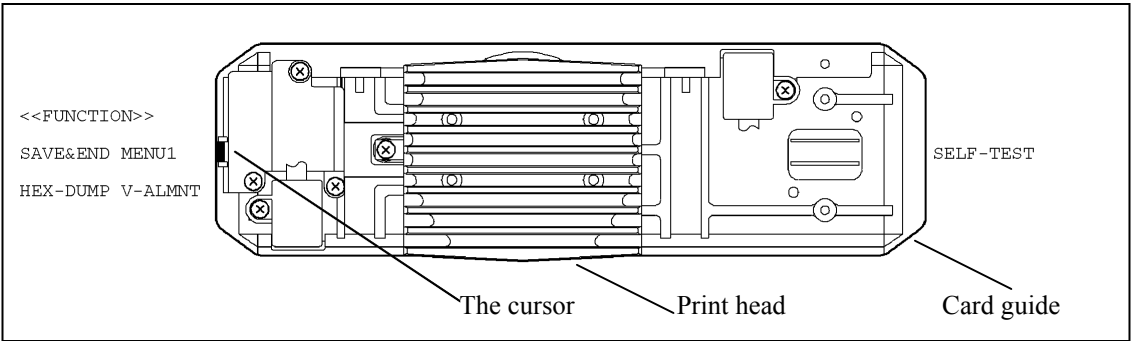
HEX-DUMP V-ALMNT INITIAL

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> | <u>DPL24C+</u> | 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.

## 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)<br>Continuous forms: 102 mm (4 in) or greater        |
| Width     | Single sheets: 55 to 420 mm (2.16 to 16.5 in)<br>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)<br>1 to 5-copies (Cut sheet feeder)              |

**Note:**

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

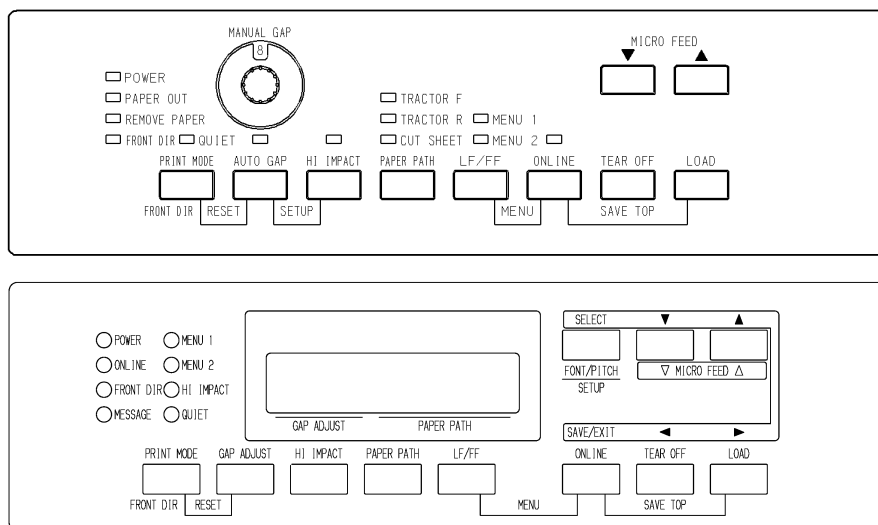
### OVERVIEW OF PAPER OPERATIONS

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<br>Stop/resume printing   | Press ONLINE to place the printer online or offline.<br>Press ONLINE to stop or resume printing.                                                                                                                        |
| LOAD        | Load/unload paper<br><br>Save adjusted load point | Press LOAD to load paper or to retract continuous forms to the “park position.”<br>Press LOAD and ONLINE simultaneously to permanently store a load position adjusted by micro feeding immediately after loading paper. |
| LF/FF       | Form feed<br><br>Line feed                        | Press and hold LF/FF to execute a form feed. Continuous forms are fed forward by one page. Single sheets are ejected.<br>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<br>MODE/<br>FRONT DIR | Select cut<br>sheet ejection                   | Press PRINT MODE/FRONT DIR at Offline to<br>select a direction of ejecting cut sheet. <ul style="list-style-type: none"><li>• Front ejection – FRONT indicator lights. It<br/>blinks when paper is ejected to<br/>the paper table prompting the<br/>user to remove the paper.</li><li>• Rear ejection – FRONT indicator does not<br/>light.</li></ul> When you save your setting in the setup mode, it<br>becomes the new default. The default setting is<br>invoked whenever you turn on the printer. |
| ▲ MICRO                     | Micro Feed                                     | Press ▲MICRO/▼MICRO to feed paper by 1/180<br>inch in the direction of the arrow.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ▼ MICRO                     |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (LED)<br>AUTO GAP           | Select paper<br>thickness<br>control mode      | Select paper thickness control mode.<br>AUTO GAP — AUTO GAP indicator lights.<br>Manual Gap — AUTO GAP indicator doesn't<br>lights.<br>The Manual Gap dial is enabled.                                                                                                                                                                                                                                                                                                                                 |
| (LED)<br>MANUAL<br>GAP DIAL | Select paper<br>Thickness at<br>MANUAL<br>MODE | Select the paper thickness at MANUAL MODE.<br>Auto Gap is usually used. Auto Gap is used for<br>printing on paper of different thicknesses.                                                                                                                                                                                                                                                                                                                                                            |
| (LCD)<br>GAP<br>ADJUST      | Select paper<br>Thickness                      | Select the paper thickness as follows.<br>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

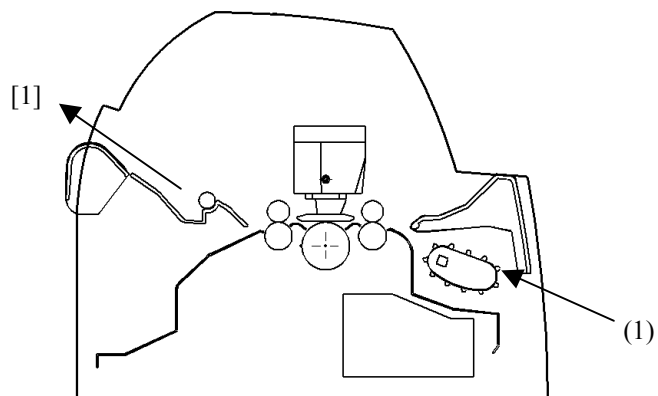
————▶ : Continuous forms

(n) : Input

[n] : Output

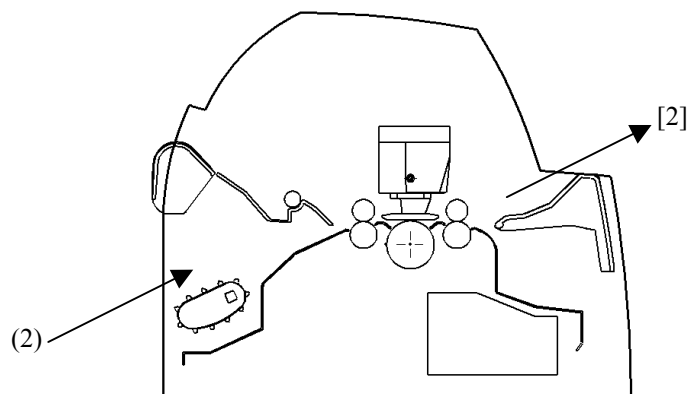
#### With front tractor

(1) Front tractor → Print → Rear eject



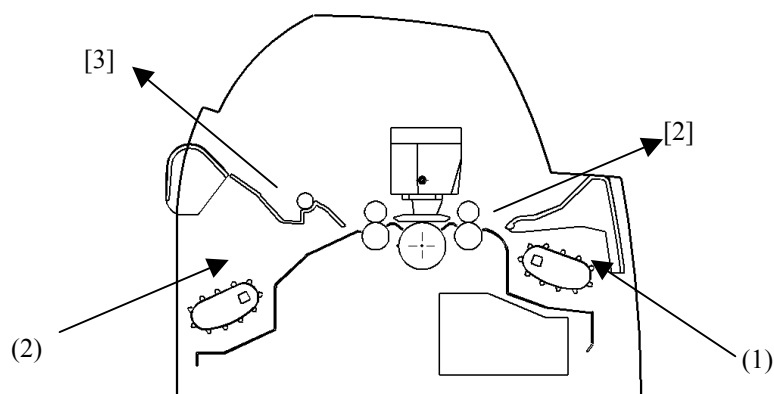
#### With rear tractor

(2) Rear tractor → Print → Front eject



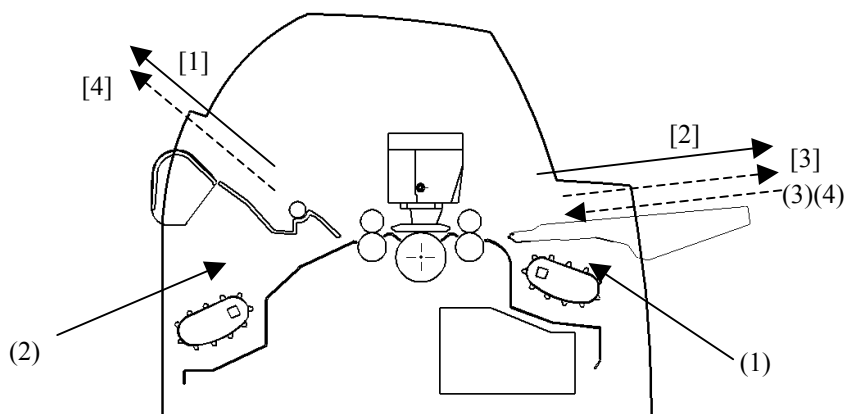
***With front and rear tractors (either optional)***

- (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



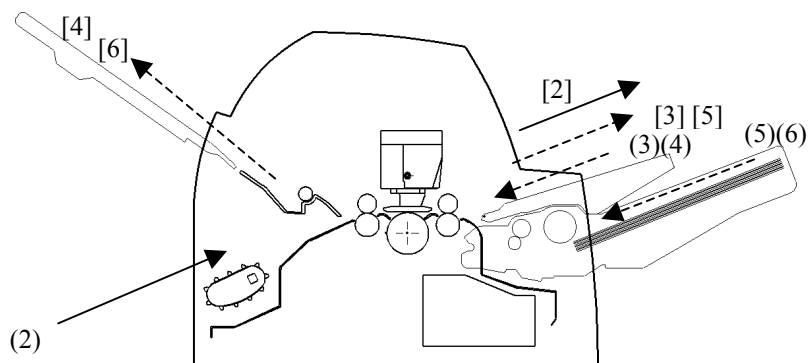
**NOTE**

**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).**

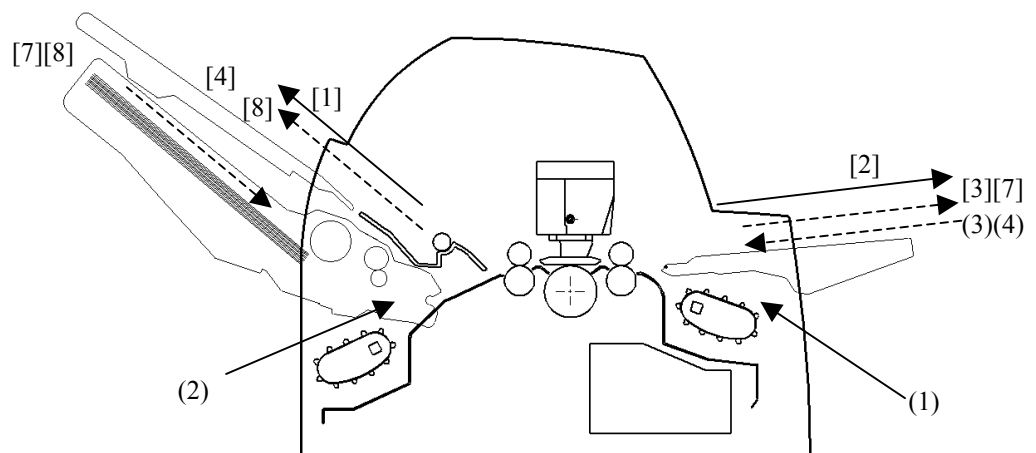
- (2) Rear tractor → Print → Front eject
- (3) Paper table → Print → Paper table
- (4) Paper table → Print → Rear stacker
- (5) Front cut sheet feeder → Print → Paper table
- (6) Front cut sheet feeder → Print → Rear stacker



**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.

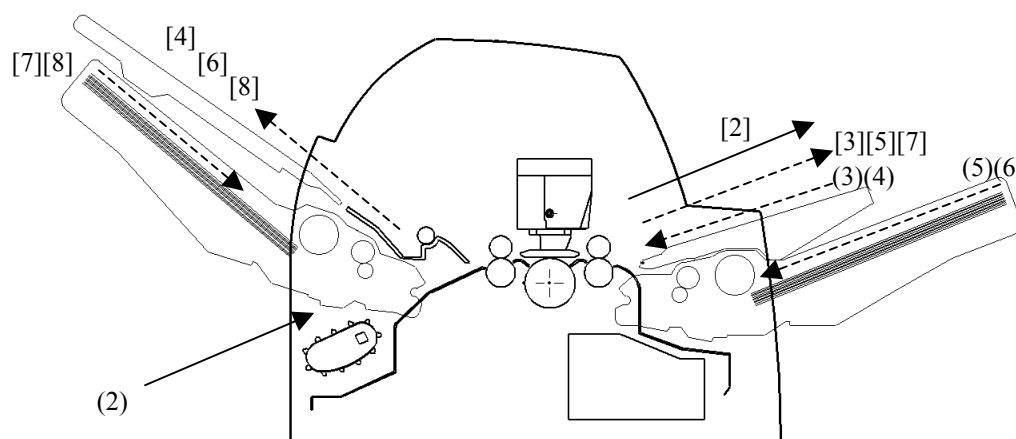
- (1) Front tractor → Print → Rear eject
- (2) Rear tractor → Print → Front eject
- (3) Paper table → Print → Paper table
- (4) Paper table → Print → Rear stacker
- (7) Rear cut sheet feeder → Print → Paper table
- (8) Rear cut sheet feeder → Print → Rear stacker



**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.

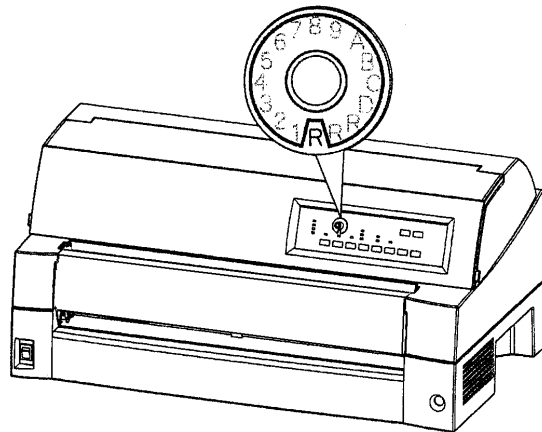
When printing thin paper, multipart copy paper, or large size paper, frequently remove the paper from the rear stacker or the paper table.

## 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<br>(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

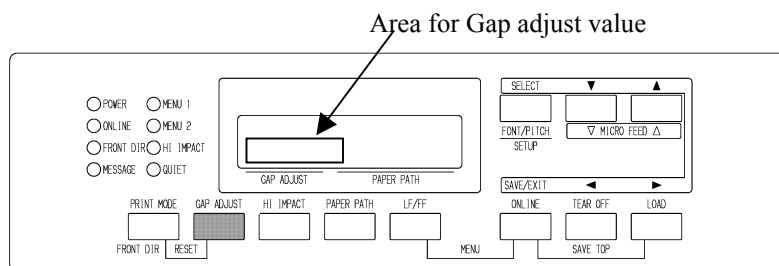
**If printing is messy, the ribbon misfeeds, or the paper jams, move the lever one setting higher.**

## 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<br>(Including the Original) *1 | Setting *2       |
|-------------------------------------------------|------------------|
| 1 copy                                          | <b>GAP-1</b>     |
| 2 copies                                        | <b>GAP-2</b>     |
| 3 copies                                        | <b>GAP-3</b>     |
| 4 copies                                        | <b>GAP-4</b>     |
| 5 copies                                        | <b>GAP-5</b>     |
| 6 copies                                        | <b>GAP-6</b>     |
| 7 copies                                        | <b>GAP-7</b>     |
| 8 copies                                        | <b>GAP-8</b>     |
| 9 copies, Envelopes                             | <b>GAP-9</b>     |
| Slips                                           | <b>GAP-A,B,C</b> |
| Ribbon replacement                              | <b>GAP-D</b>     |

\*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

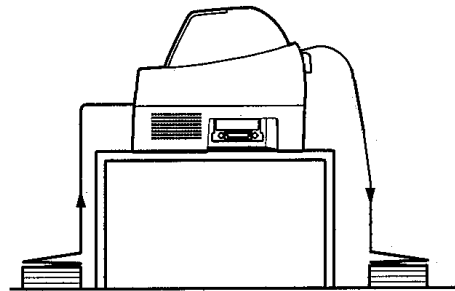
**If printing is messy, the ribbon misfeeds, or the paper jams, move the lever one setting higher.**

## **USING CONTINUOUS FORMS**

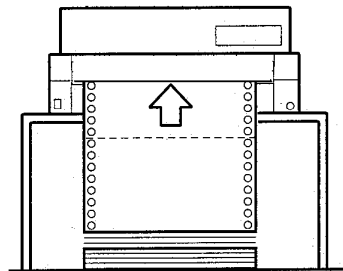
Continuous forms paper, fanfolded at the horizontal perforations, is ideal for printing rough drafts and long files. The paper is fed into the printer using the forms tractors.

### **Positioning the Paper Stack**

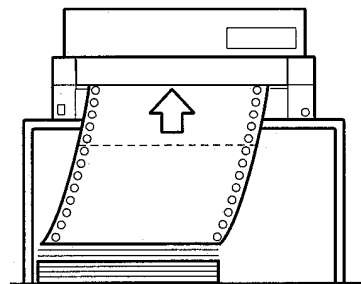
Place the stack of continuous forms paper directly below the rear of the printer or below the front of the printer. After the paper is installed in the printer, the paper path should look like this:



**Good placement**



**Bad placement**



**Placement of continuous forms**

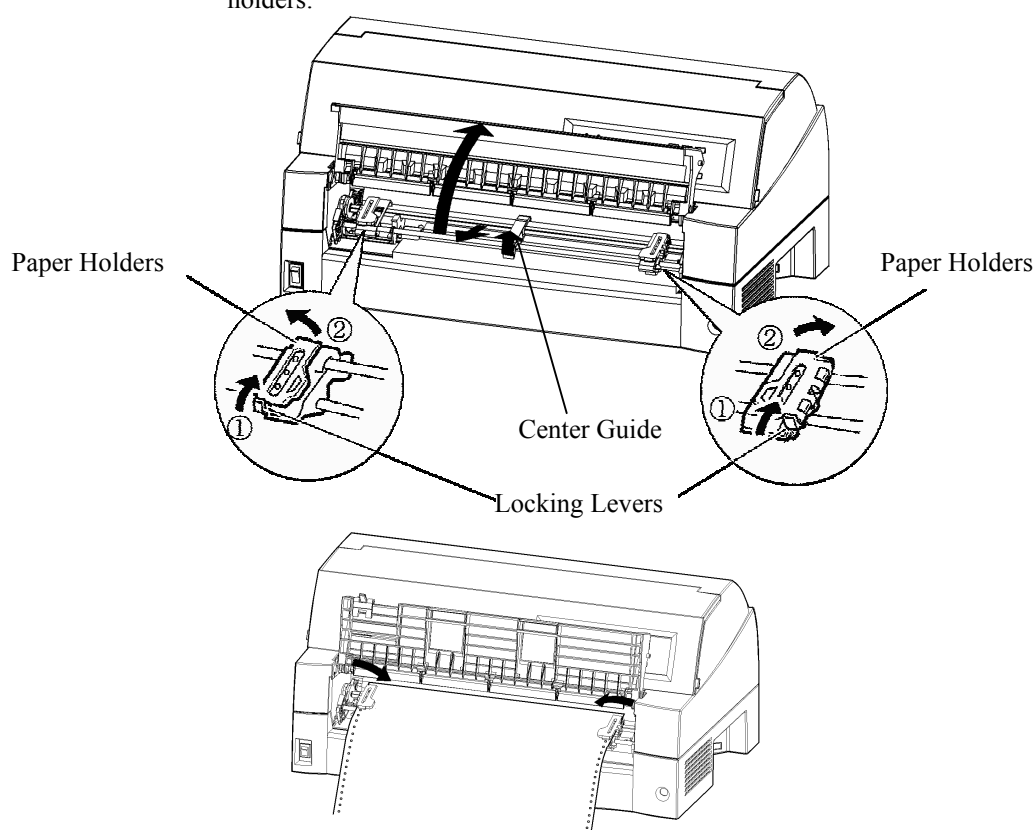
## **Loading Continuous Forms (Front Feed)**

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.

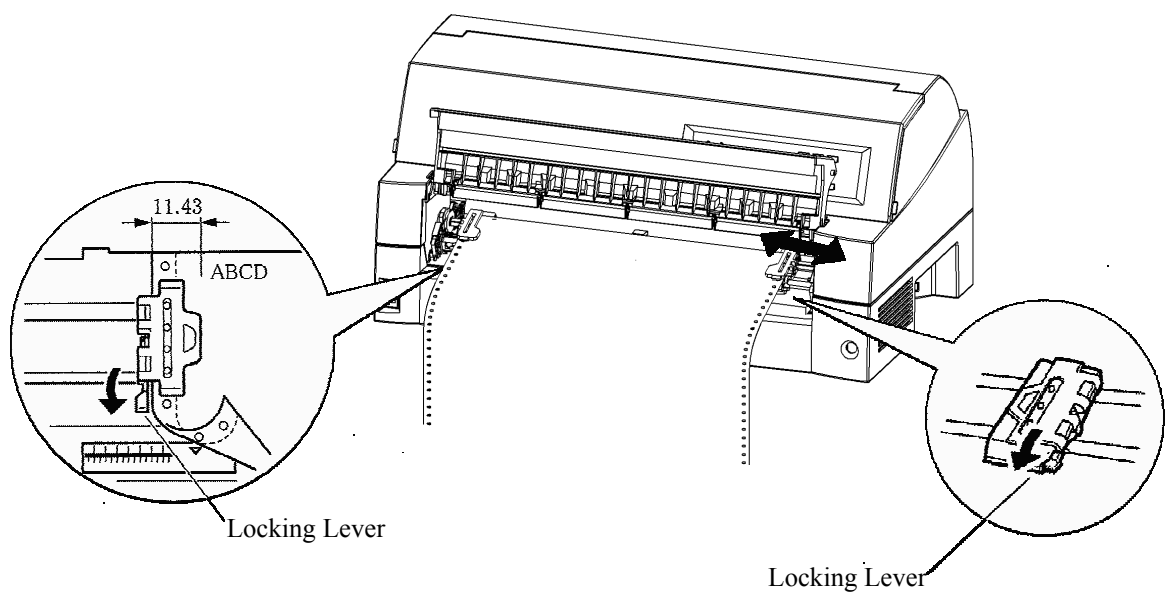


***Set the continuous forms to front tractors***

6. Adjust the left margin.

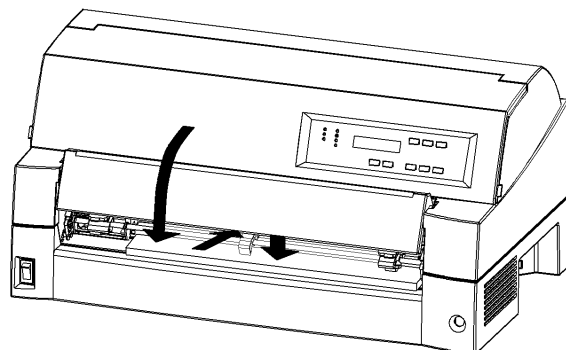
Below the left tractor, there is a tractor guide, short inch-based ruler graduated in 10 columns per inch. Use the ruler to help position the tractor. When the paper edge is positioned to the zero line, the left margin is 12 mm (0.5 inch) including perforation area and the arrow indicates the location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

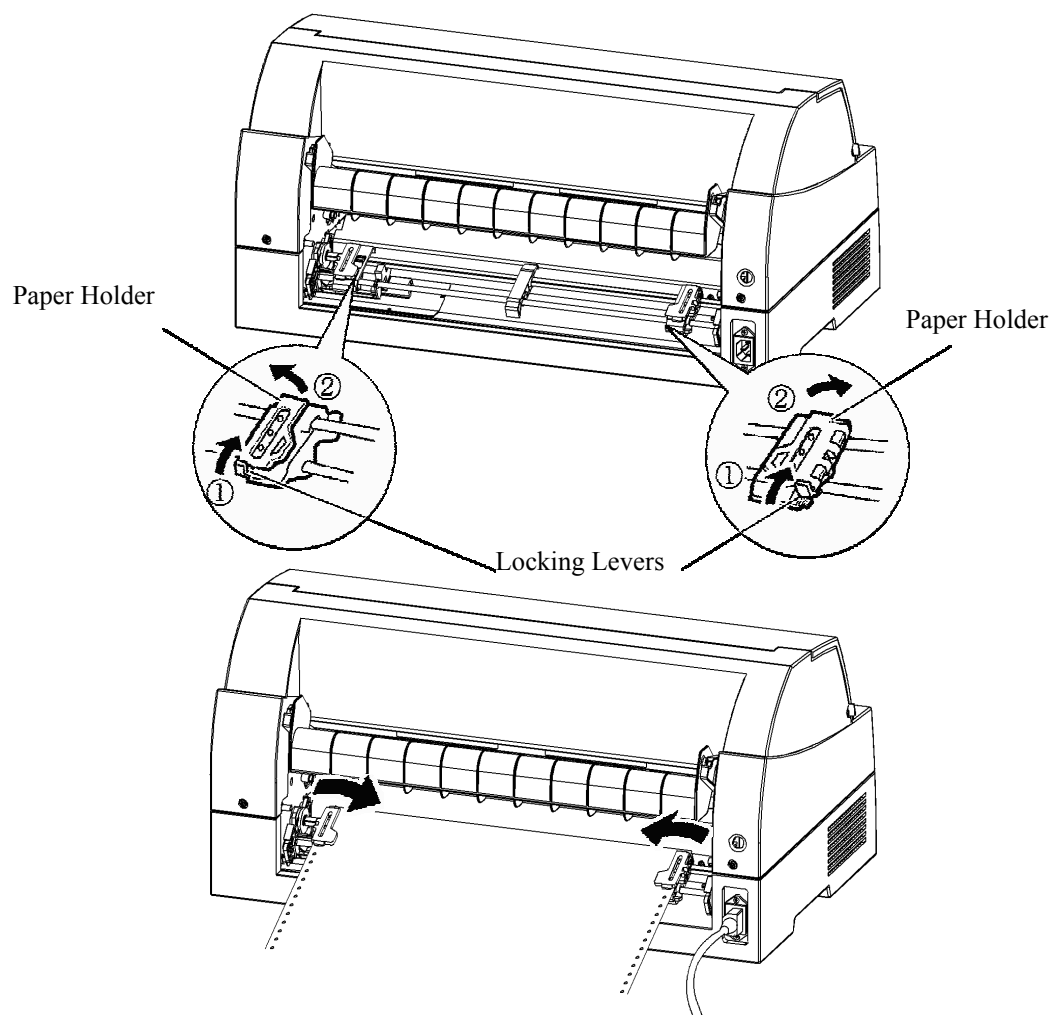
## Loading Continuous Forms (Rear Feed)

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.

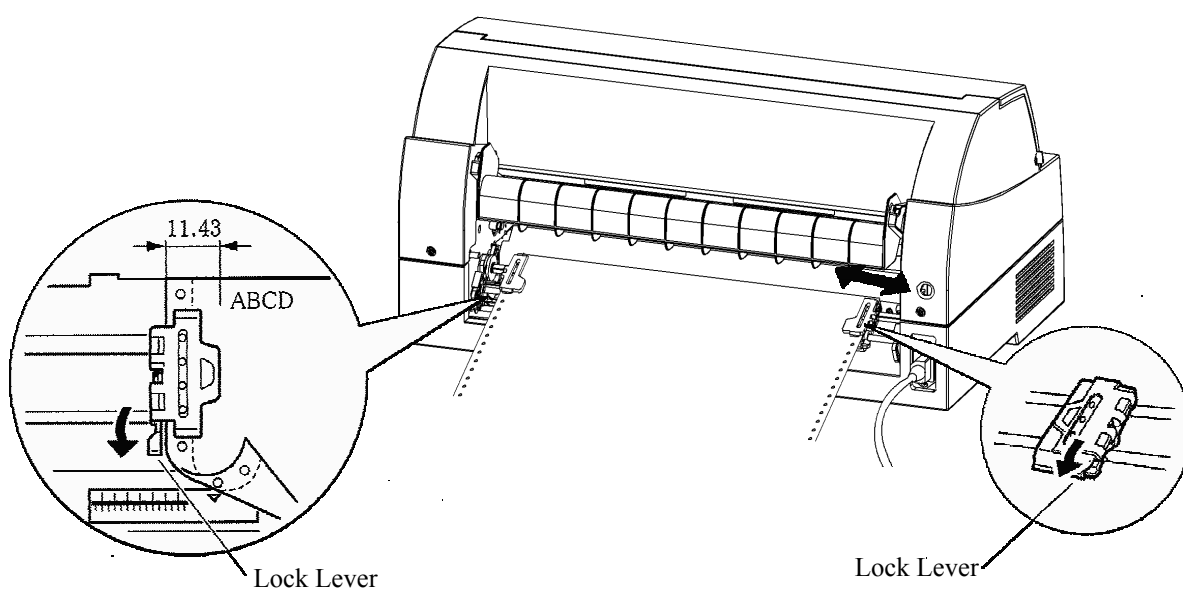
1. Release the tractor locking levers by pulling them up(①). Open the tractor paper holders. See the following figure(②).
2. Position the tractors and center guide.
3. Fit the paper feed holes onto the left and right tractor pins. Adjust the right tractor to the width of the form. Close the paper holders.



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:

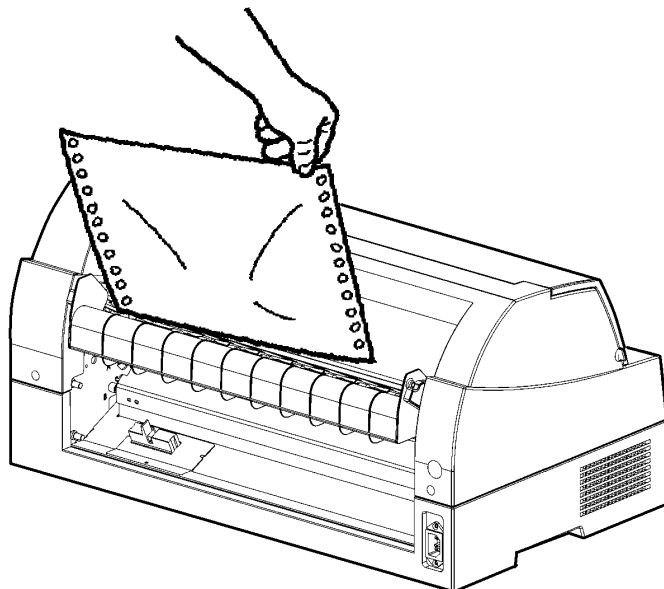
1. Press the TEAR OFF button. The bottom perforation of the last page advances to the tear-off edge. If you specified TEAR OFF: AUTO using the HARDWARE function in setup mode, the paper automatically advances to the tear-off edge at the end of each job (or when the printer has printed all the data received).

### **NOTE**

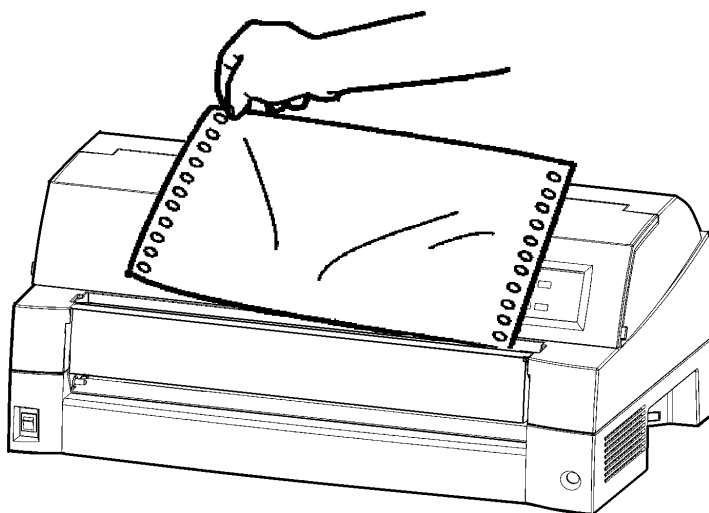
**If the bottom perforation of your paper is not positioned at the tear-off edge, the length of your paper may not be specified correctly in your software or the printer setup mode.**

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.

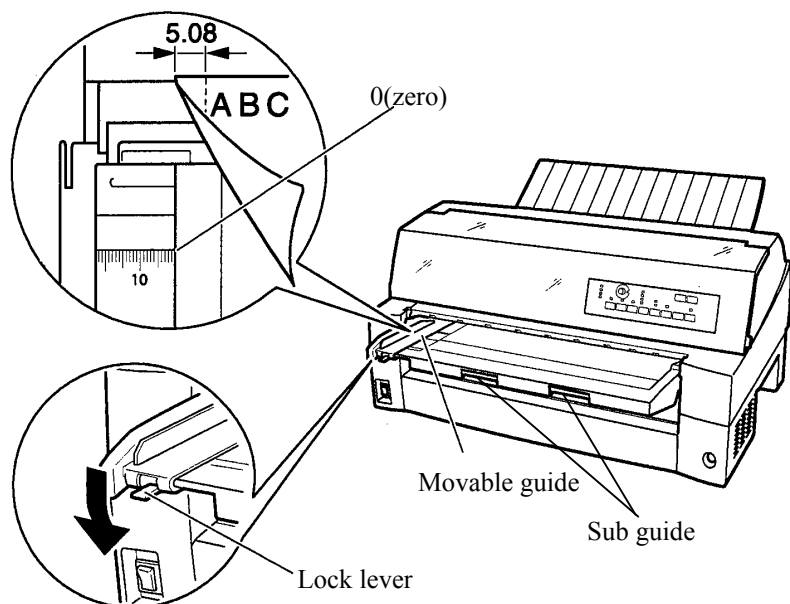
On the left hand side of the paper table, a scale graduated in units of 1 [mm]. When the paper guide is positioned at scale 0 [mm], the left margin is 5 mm (0.2 inch).

Push the lock lever down to secure the guide.

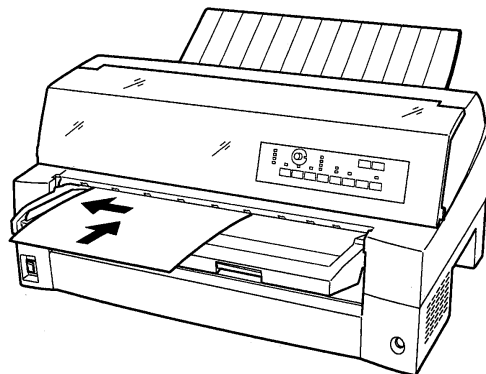
5. Pull the sub guide out as required to accommodate the paper size.

#### 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**

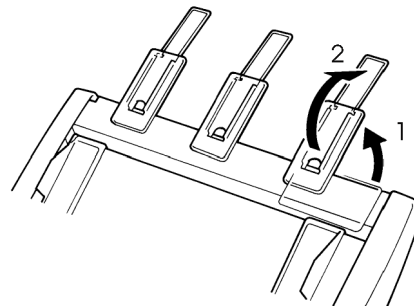
**Do not open the front cover during printing. With the cover open detection option installed, the printer never prints while the front cover is open. Close the front cover to perform printing.**

## 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.

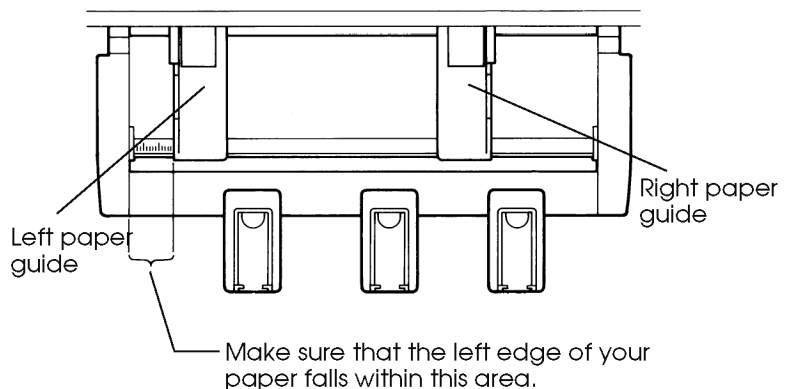
1. Two steps of extension are available for supporting long sheets of paper.



### Steps of extension

2. Adjust the left margin.

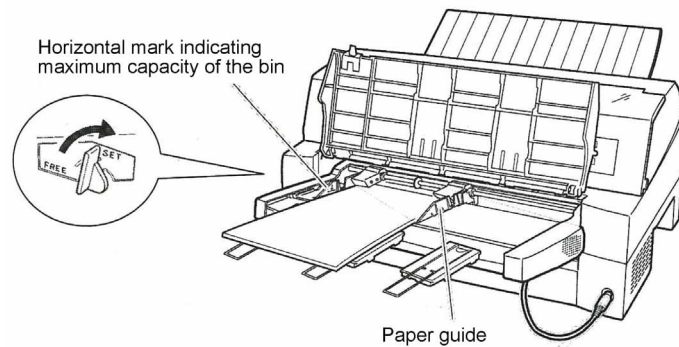
To help align the left paper guide, use the inch-based ruler located behind the paper guides. The ruler is graduated in 10 columns per inch. For example, setting the left paper guide 12.7 mm (0.5 inch) from the left gives a left margin of 6.3 mm (0.25 inch) plus the left margin specified by your software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



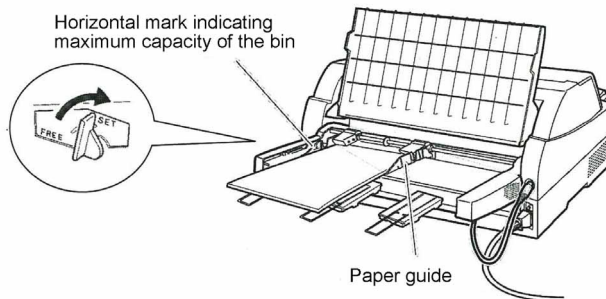
- Slide the right paper guide until the distance between the two guides is the approximate width of your paper.
3. Manually fan the stack of paper and place it in the paper bin.

### 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.

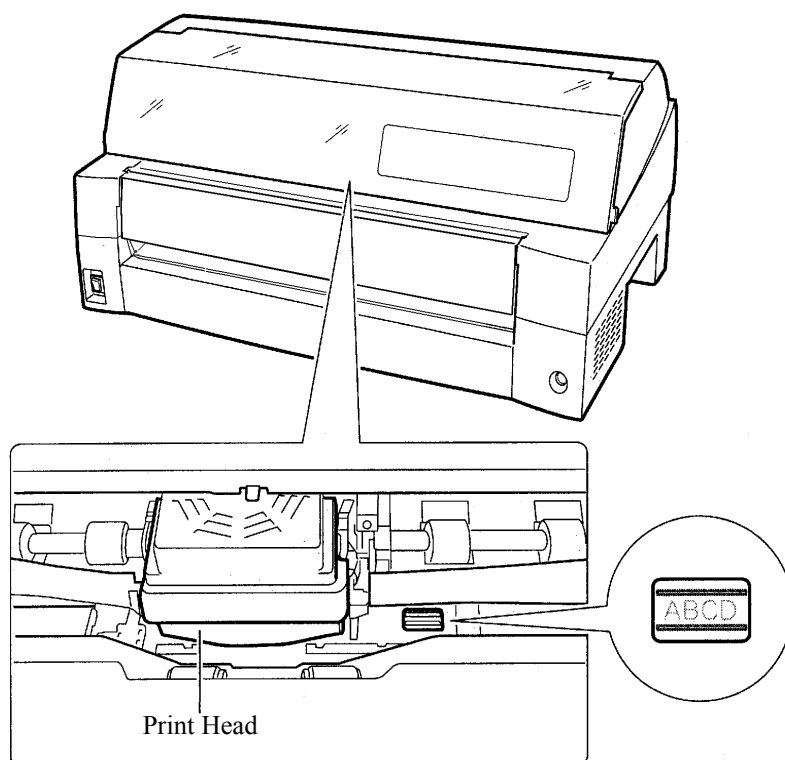
Remember that the top-of-form will differ from the original setting.

#### 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.

## PRINTING

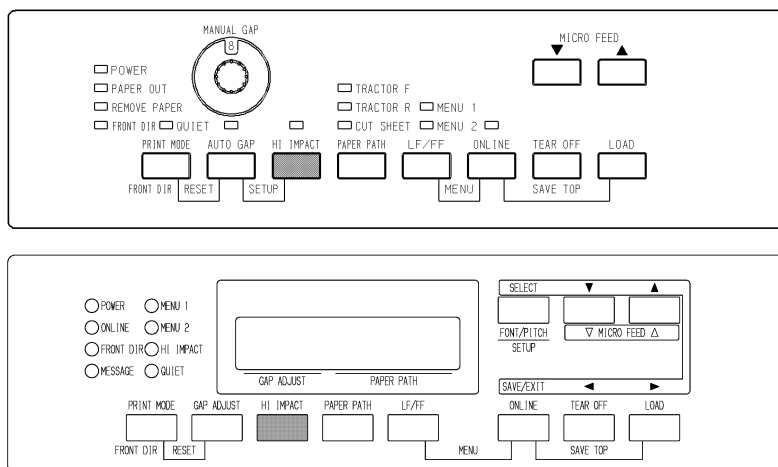
This chapter describes the following everyday printing operations:

- 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.

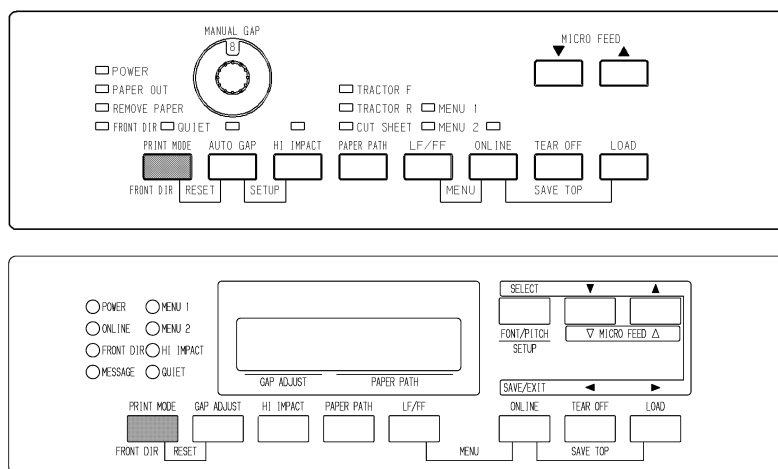
The consecutive dots are omitted (LQ).

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.

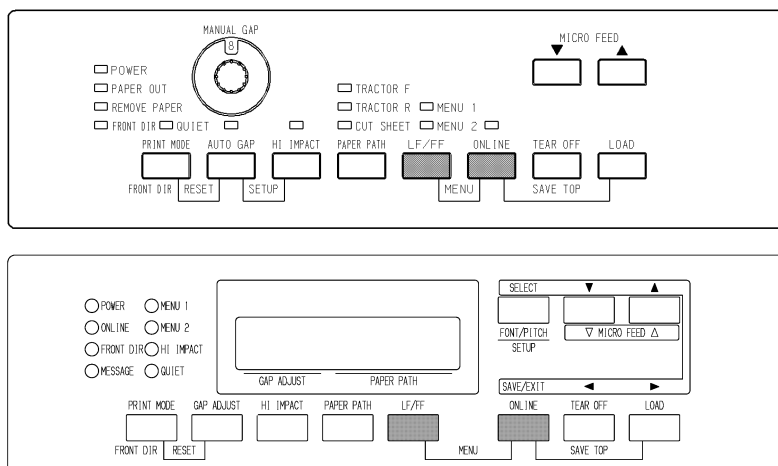
### Using Commercial Software

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.

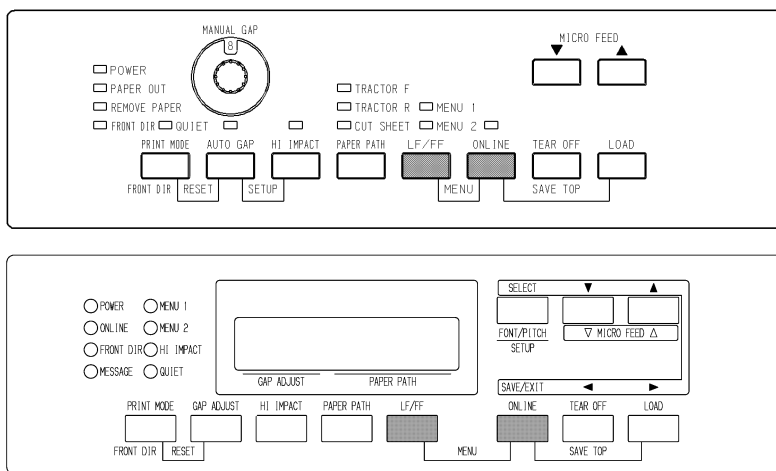
### NOTE

**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.

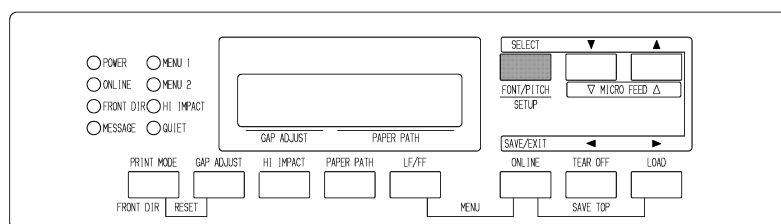


3. Press the ONLINE button to return online. You are ready to print using the selected menu.

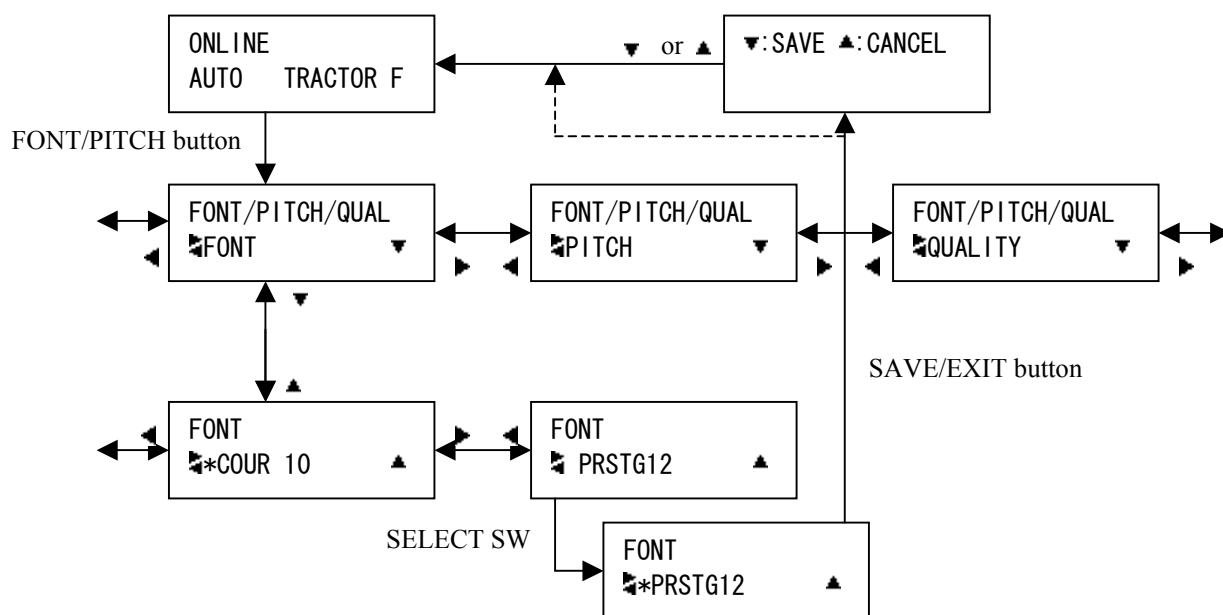
## Using the Control Panel (LCD type only)

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

## 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:**

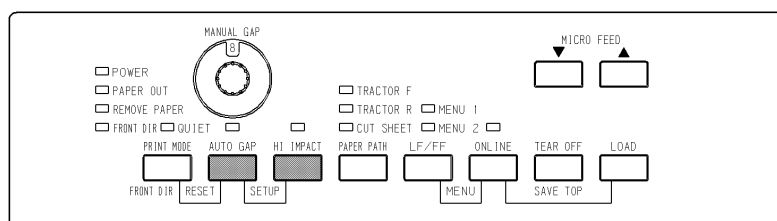
*Once you are familiar with setup mode, you may want to use the flowchart at the end of this chapter for quick reference. The flowchart lists all printer setup functions, items, and options.*

## 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:

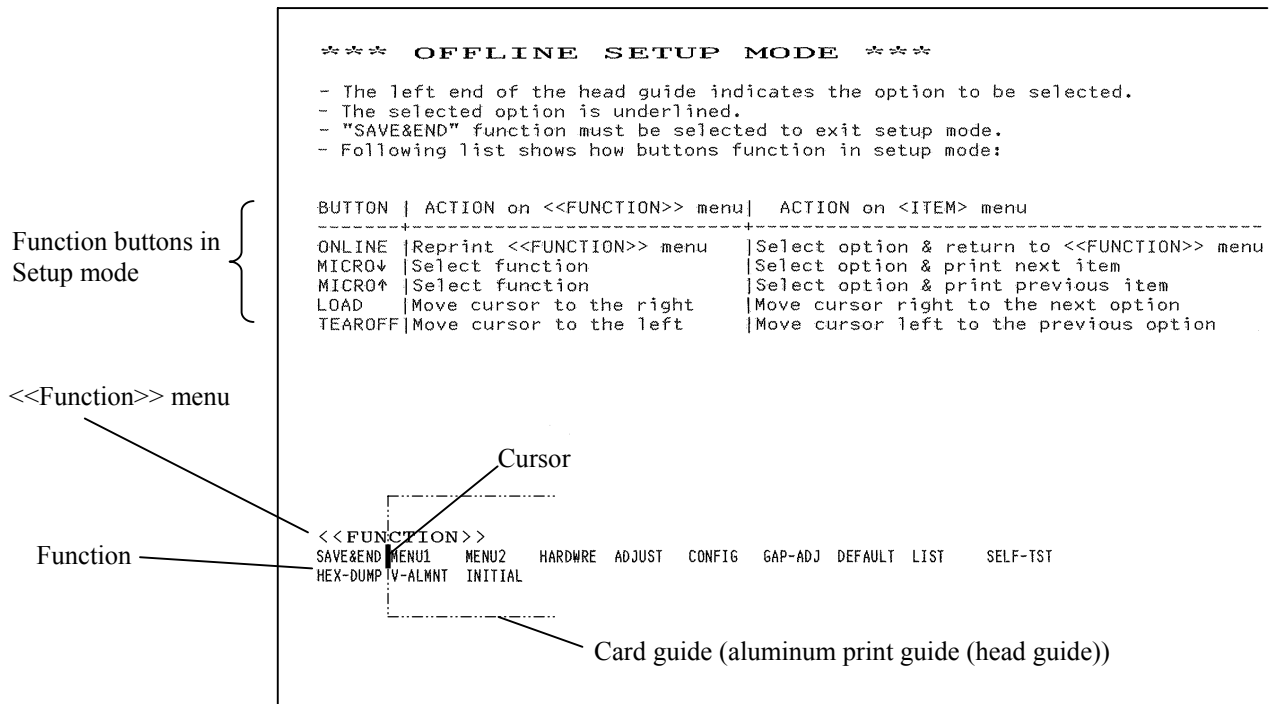
1. Make sure that front continuous forms paper is loaded and press the PAPER PATH button to select the appropriate paper path.  
  
If continuous forms paper is fed from the rear or a CSF is mounted, the printer does not enter SETUP mode.
2. Press the ONLINE button to place the printer offline.
3. Press 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> <u>DPL24C+</u> XL24E ESC/P2       |         |         |         |         |         |         |         |         |        |
| <FONT >                                      |         |         |         |         |         |         |         |         |        |
| <u>COUR 10</u>                               | 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> <u>LETTER</u> 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 >>     |          |              | << Menu 2 settings >>     |          |              |
| Func.                     | Item     | Option       | Func.                     | Item     | Option       |
| MENU1                     | EMULATE  | DPL24C+      | MENU2                     | EMULATE  | DPL24C+      |
| MENU1                     | FONT     | COUR 10      | MENU2                     | FONT     | COUR 10      |
| MENU1                     | QUALITY  | LETTER       | MENU2                     | QUALITY  | LETTER       |
| MENU1                     | PITCH    | 10 CPI       | MENU2                     | PITCH    | 10 CPI       |
| MENU1                     | LINE SP  | 6 LPI        | MENU2                     | LINE SP  | 6 LPI        |
| MENU1                     | CHAR-W   | NORMAL       | MENU2                     | CHAR-W   | NORMAL       |
| MENU1                     | CHAR-H   | NORMAL       | MENU2                     | CHAR-H   | NORMAL       |
| MENU1                     | ATTRIB   | NONE         | MENU2                     | ATTRIB   | NONE         |
| MENU1                     | PAGE LG  | 11.0 IN      | MENU2                     | PAGE LG  | 11.0 IN      |
| MENU1                     | LFT-END  | 1 COLM       | MENU2                     | LFT-END  | 1 COLM       |
| MENU1                     | TOP-MRG  | 1 LINE       | MENU2                     | TOP-MRG  | 1 LINE       |
| MENU1                     | LANGUAGE | PAGE437      | MENU2                     | LANGUAGE | PAGE437      |
| MENU1                     | CHR-SET  | SET2         | MENU2                     | CHR-SET  | SET2         |
| MENU1                     | PRF-SKP  | NO-SKIP      | MENU2                     | PRF-SKP  | NO-SKIP      |
| MENU1                     | WIDTH    | 13.6 IN      | MENU2                     | WIDTH    | 13.6 IN      |
| MENU1                     | ZEROFNT  | NO-SLSH      | MENU2                     | ZEROFNT  | NO-SLSH      |
| MENU1                     | DC3-CDE  | ENABLE       | MENU2                     | DC3-CDE  | ENABLE       |
| MENU1                     | CR-CODE  | CR ONLY      | MENU2                     | CR-CODE  | CR ONLY      |
| MENU1                     | LF-CODE  | LF & CR      | MENU2                     | LF-CODE  | LF & CR      |
| MENU1                     | RGHTEND  | WRAP         | MENU2                     | RGHTEND  | WRAP         |
| MENU1                     | ==END==  |              | MENU2                     | ==END==  |              |
| << Hardware settings >>   |          |              | << Config settings >>     |          |              |
| Func.                     | Item     | Option       | Func.                     | Item     | Option       |
| HARDWRE                   | PPR-OUT  | DETECT       | CONFIG                    | TEAROFF  | MANUAL       |
| HARDWRE                   | PRT-DIR  | BI-DIR       | CONFIG                    | TEARPOS  | VISIBLE (*2) |
| HARDWRE                   | BUZZER   | ON           | CONFIG                    | CUTLOAD  | AUTO         |
| HARDWRE                   | WORD-LG  | 8 BIT        | CONFIG                    | LOADTIM  | 1.5 SEC      |
| HARDWRE                   | BUFFER   | 8KBYTE       | CONFIG                    | DECODE   | DIRECT       |
| HARDWRE                   | INTRFCE  | AUTO-2S      | CONFIG                    | AREACNT  | DISABLE      |
| HARDWRE                   | FORMAT   | 8NONE 1 (*1) | CONFIG                    | CUT-ONL  | ONLINE       |
| HARDWRE                   | BAUD-RT  | 9600 (*1)    | CONFIG                    | CNT-ONL  | ONLINE       |
| HARDWRE                   | PROTCL   | XON/XOF (*1) | CONFIG                    | LOCK     | NONE         |
| HARDWRE                   | DSR      | IGNORE (*1)  | CONFIG                    | /S//     | DISABLE      |
| HARDWRE                   | DUPLEX   | FULL (*1)    | CONFIG                    | FCNT-PE  | EDGE         |
| HARDWRE                   | CTS      | DETECT (*1)  | CONFIG                    | RCNT-PE  | EDGE         |
| HARDWRE                   | CD       | IGNORE (*1)  | CONFIG                    | GATHER   | DISABLE      |
| HARDWRE                   | ==END==  |              | CONFIG                    | CUT-CTL  | SPEED        |
| << Adjust settings >>     |          |              | CONFIG                    | SKIP-PR  | ENABLE       |
| Func.                     | Item     | Option       | CONFIG                    | STATUS   | DISABLE      |
| ADJUST                    | FCNTORG  | 1.8/6IN      | CONFIG                    | BANDCTL  | DISABLE      |
| ADJUST                    | FCNTFIN  | 0 /180       | CONFIG                    | TOF-CTL  | DRIVER       |
| ADJUST                    | RCNTORG  | 1.8/6IN      | CONFIG                    | CUTEDIR  | FRONT        |
| ADJUST                    | RCNTFIN  | 0 /180       | CONFIG                    | CSPEDIR  | REAR         |
| ADJUST                    | FCUTORG  | 1.8/6IN      | CONFIG                    | CUTEJCT  | AUTO         |
| ADJUST                    | FCUTFIN  | 0 /180       | CONFIG                    | FL-CENT  | POSN1        |
| ADJUST                    | RCUTORG  | 1.8/6IN      | CONFIG                    | RL-CENT  | POSN1        |
| ADJUST                    | RCUTFIN  | 0 /180       | CONFIG                    | SKENCNT  | ENABLE       |
| ADJUST                    | CNT-LFT  | 0 /90        | CONFIG                    | FF-CODE  | EJECT        |
| ADJUST                    | CUT-LFT  | 0 /90        | CONFIG                    | PRT-CUT  | 99/180       |
| ADJUST                    | FCNTADJ  | 0 /360       | CONFIG                    | CSFBINI  | FRONT        |
| ADJUST                    | RCNTADJ  | 0 /360       | CONFIG                    | CNT-LD   | SPEED        |
| ADJUST                    | FCNTAJL  | 0 /360       | CONFIG                    | CSF-LD   | NORMAL       |
| ADJUST                    | RCNTAJL  | 0 /360       | CONFIG                    | CSFAPTC  | NORMAL       |
| ADJUST                    | CUT-ADJ  | 0 /360       | CONFIG                    | LF-CTL   | SPEED        |
| ADJUST                    | FCSFADJ  | 0 /360       | CONFIG                    | PR-MODE  | NORMAL       |
| ADJUST                    | RCSFADJ  | 0 /360       | CONFIG                    | HI-IMPT  | DISABLE      |
| ADJUST                    | ==END==  |              | CONFIG                    | LQ-MODE  | MODE1        |
| << Gap Adjust settings >> |          |              | CONFIG                    | DQ-MODE  | MODE2        |
| Func.                     | Item     | Option       | CONFIG                    | ==END==  |              |
| GAP-ADJ                   | AMOUNT   | AUTO         | << Gap Adjust settings >> |          |              |
| GAP-ADJ                   | ==END==  |              | Func.                     | Item     | Option       |

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

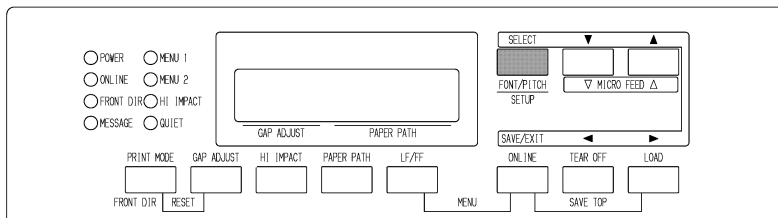
\*2 TEAR-EN is printed when AUTO option is selected for TEAROFF.

### Printout of factory defaults using LIST

## ENTERING SETUP MODE(LCD)

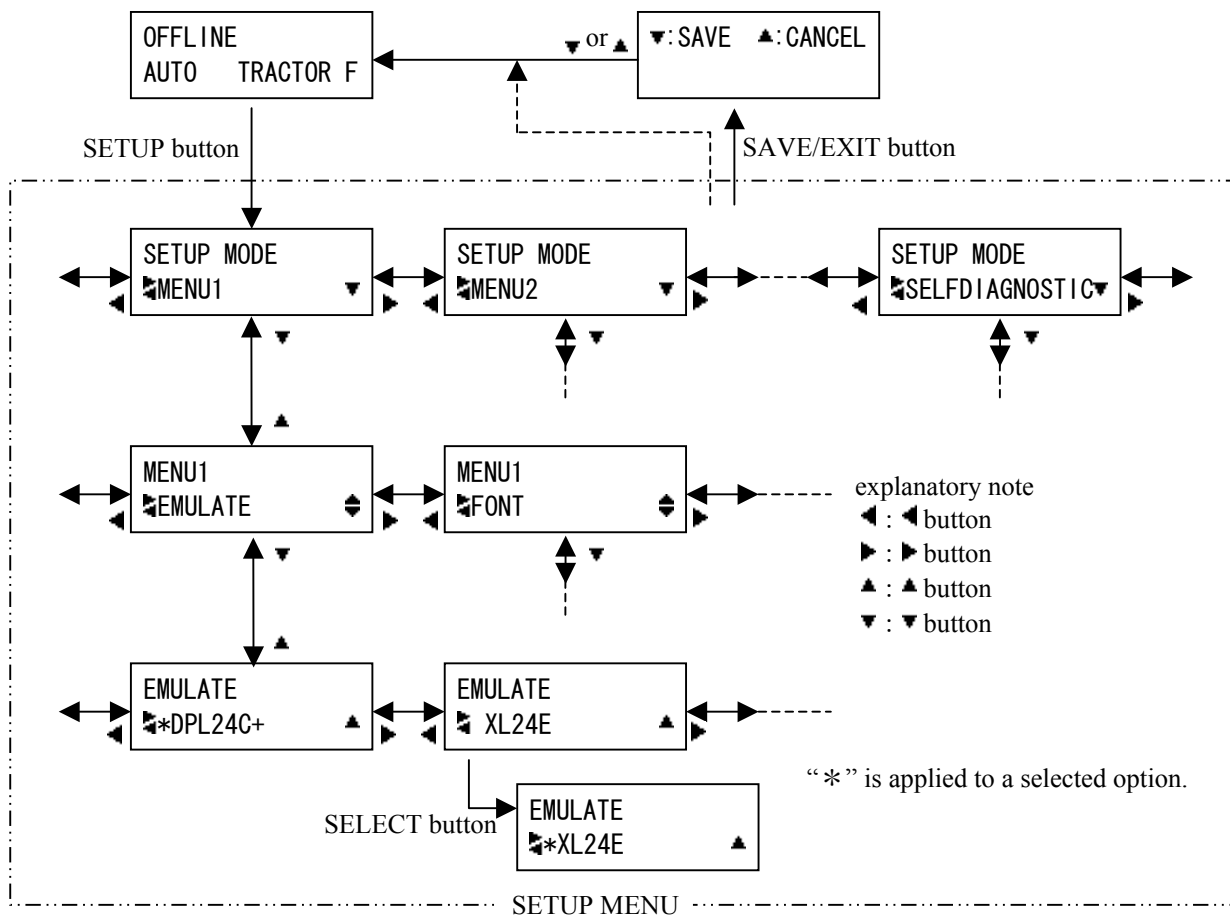
To enter setup mode, follow these steps:

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 | <p>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.</p> <p>See the section <b>MENU1 and MENU2 Items and Options</b> later in this chapter.</p> |
| MENU2    | None    | <p>If you use MENU2, the emulation selected for MENU 2 must be the same as the emulation selected in your software.</p> <p>See the section <b>MENU1 and MENU2 Items and Options</b> later in this chapter.</p>                                                                                                                                                                                                                                       |

**Table 5.3 Required Options (Cont.)**

| Function | Item                                                       | Option                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HARDWRE  | FORMAT<br>BAUD-RT<br>PROTOCL<br>DSR<br>DUPLEX<br>CTS<br>CD | <p>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.</p> <p>See the section <b>Hardware Items and Options</b> later in this chapter.</p>                      |
| ADJUST   | None                                                       | <p>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).</p> <p>See the section <b>Print Position Adjustment Items and Options</b> later in this chapter.</p> |
| CONFIG   | None                                                       | <p>You can change the printer's primary configuration.</p> <p>See the section <b>Configuration Items and Options</b> later in this chapter.</p>                                                                                                                                                                                                                                           |
| GAP-ADJ  | None                                                       | <p>If you adjust the gap manually or fix the gap, change the setting.</p> <p>See the section <b>Print Head Gap Adjustment Items and Options</b>.</p>                                                                                                                                                                                                                                      |

## **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 <b>Selecting an Emulation</b> in Chapter 2 for information on selecting an emulation.                                                                                                             |
|                       | <u>DPL24C+</u><br><br>XL24E<br>ESC/P2 | Fujitsu DL-series printers<br>(DPL24C PLUS command set)<br><br>IBM Proprinter XL24E printers Epson printers using the ESC/P2 command set<br><br><b>NOTE: When you change the emulation, all MENU1 or MENU2 options are reset to the factory defaults for that emulation.</b> |
| <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.                                                                                                      |
|                       | <u>COUR 10</u>                        | <b>Courier, 10cpi</b>                                                                                                                                                                                                                                                        |
|                       | PRSTG12                               | <b>Prestige Elite, 12cpi</b>                                                                                                                                                                                                                                                 |
|                       | COMPRSD                               | Compressed font, 15,17,and 18cpi                                                                                                                                                                                                                                             |
|                       | BOLDFCE                               | <b>Boldface, Proportional</b>                                                                                                                                                                                                                                                |
|                       | PICA 10                               | <b>Pica, 10cpi</b>                                                                                                                                                                                                                                                           |
|                       | CORRESP                               | Correspondence, 10cpi                                                                                                                                                                                                                                                        |
|                       | OCR-B                                 | <b>OCR-B, 10cpi</b>                                                                                                                                                                                                                                                          |
|                       | OCR-A                                 | <b>OCR-A, 10cpi</b>                                                                                                                                                                                                                                                          |
|                       | COUR-N                                | Courier Normal, 10cpi                                                                                                                                                                                                                                                        |
|                       | COUR-B                                | <b>Courier Bold, 10cpi</b>                                                                                                                                                                                                                                                   |
|                       | COUR-I                                | <i>Courier Italic, 10cpi</i>                                                                                                                                                                                                                                                 |
|                       | N.SAN-N                               | <b>Nimbus Sans Normal, Prop.</b>                                                                                                                                                                                                                                             |
|                       | N.SAN-B                               | <b>Nimbus Sans Bold, Prop.</b>                                                                                                                                                                                                                                               |
|                       | N.SAN-I                               | <i>Nimbus Sans Italic, Prop.</i>                                                                                                                                                                                                                                             |

**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><br>(continued) | TIMLS-N<br>TIMLS-B<br>TIMLS-I | <b>Timeless Normal, Prop.</b><br><b>Timeless Bold, Prop.</b><br><i>Timeless Italic, Prop.</i>                                                                                                                                                                       |
|                       | DOWNLD#                       | Font 0 or font 1 in the printer's download RAM<br>See Appendix F for font examples.                                                                                                                                                                                 |
| <QUALITY>             | <u>LETTER</u>                 | Select the print quality that most often meets your needs.<br><br>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<br>(characters per horizontal inch)<br><br>If 15cpi is selected at ESC/P2 emulation, font size is compressed and DQ and HDQ printing is done at LQ speed.<br><br>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<br>(lines per vertical inch)<br><br><b>6 lpi</b> <b>3 lpi (double spacing)</b><br>ABCD      ABCD<br>ABCD      ABCD<br>ABCD      ABCD<br>ABCD      ABCD<br>ABCD      ABCD                                                          |
| <CHAR-W>              | <u>NORMAL</u> | Change also the pitch 2 TIMES or 4 TIMES is selected.<br><br>Standard character width<br><b>ABCD</b>                                                                                                                                                                    |
|                       | 2 TIMES       | Double character width<br><b>ABCD</b>                                                                                                                                                                                                                                   |
|                       | 4 TIMES (*1)  | Quadruple character width<br><b>ABCD</b>                                                                                                                                                                                                                                |

**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.                                          |
|                       | <u>NORMAL</u> | Standard character height<br><b>ABCD abcd</b>                                                            |
|                       | 2 TIMES       | Double character height<br><b>ABCD abcd</b>                                                              |
|                       | 4 TIMES (*1)  | Quadruple character height<br><b>ABCD abcd</b>                                                           |
| <ATTRIB>              |               | Selects an attribute to add emphasis to your documents.<br>Only one attribute may be selected at a time. |
|                       | <u>NONE</u>   | <b>Standard characters<br/>(no attributes)</b>                                                           |
|                       | ITALICS       | <b><i>Italic printing</i></b>                                                                            |
|                       | CONDNSD (*1)  | <b>Condensed printing</b>                                                                                |
|                       | SHADOW        | <b>Double printing<br/>with a slight<br/>horizontal offset</b>                                           |
|                       | BOLD          | <b>Double printing at<br/>the same position</b>                                                          |

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

NOTES:

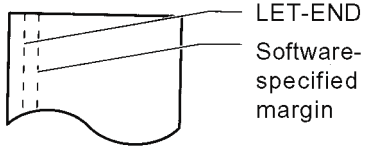
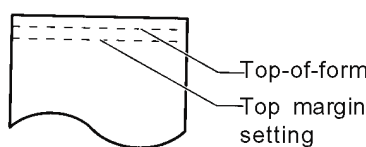
- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

| MENU1 and MENU2 Items | Options                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <PAGE LG>             | <p>## IN</p> <p>LINE</p>                                | <p>Specifies the length of the page in inches.</p> <p>For DPL24C PLUS and IBM XL24E emulations:</p> <p>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</p> <p>For Epson ESC/P2 emulation: 4.0, 4.5, 5.0, ..., <u>11.0</u>, 11.5, ..., 22.0 inches</p> <p>Selecting the page length by specifying number of lines per page (default: 66 lines per page) Selecting this option displays the &lt;PG LX10&gt; and &lt;PG LX1&gt;. Use in combination the &lt;PG LX10&gt; to set the tens value of the lines-per-page setting, and the &lt;PG LX1&gt; to set the ones value of the lines-per-page setting.</p> |
| <PG LX10>             | Tens value setting for setting number of lines per page | <p>0 LINE, 10 LINE, 20 LINE, 30 LINE 40 LINE, 50 LINE, <u>60 LINE</u>, 70 LINE 80 LINE, 90 LINE</p> <ul style="list-style-type: none"> <li>• The LINE setting depends on the line spacing setting 'LINE SP'.</li> <li>• 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).</li> </ul>                                                                                                                                                                                                                                                                                                                    |
| <PG LX1>              | Ones value setting for setting number of lines per page | <p>0 LINE, 1 LINE, 2 LINE, 3 LINE 4 LINE, 5 LINE, <u>6 LINE</u>, 7 LINE 8 LINE, 9 LINE</p> <ul style="list-style-type: none"> <li>• The LINE setting depends on the line spacing setting 'LINE SP'.</li> <li>• 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).</li> </ul>                                                                                                                                                                                                                                                                                                                             |

**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>             | ## COLM | <p>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.</p> <p>Column <u>1</u>, 2, 3, ..., 41</p>                                                                                                                                                                                                                                                                   |
| <TOP-MRG>             | ## LINE | <p>Specifies the number of space lines for the top margin. The resultant blank space is the &lt;TOP-MRG&gt; setting minus 1 line.</p> <p>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 &lt;TOP-MRG&gt;.</p> <p><u>1</u>, 2, 3, 4, 5, 6, 7, 8, 9, or 10 lines</p>  |

**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                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <LANGUAGE>            |                | Selects a language. Appendix E shows the character sets for each language.<br><br>Two-pass means that diacritical marks are printed separately from their letters and that letters are printed without any reduction.<br><br>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<br>(Same as code page 437)                                                                                                                                                                                                                                                                                                                           |
|                       | UK             | British English                                                                                                                                                                                                                                                                                                                                                       |
|                       | GERMAN         | German                                                                                                                                                                                                                                                                                                                                                                |
|                       | SWEDISH        | Swedish                                                                                                                                                                                                                                                                                                                                                               |
|                       | <u>PAGE437</u> | 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><br>(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.

| <b>MENU1 and MENU2 Items</b> | <b>Options</b> | <b>Description</b> |
|------------------------------|----------------|--------------------|
| <LANGUAGE><br>(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><br>(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:

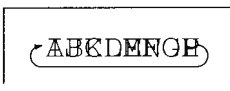
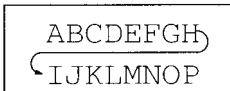
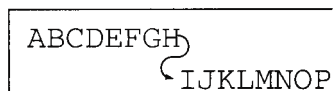
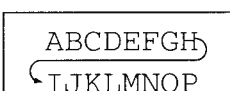
- Underlined options are the factory defaults.
- Asterisks identify items and options that differ for the IBM XL24E and Epson ESC/P2 emulations. The notes are defined at the end of the table.

| MENU1 and MENU2 Items | Options                                                                           | Description                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <PRF-SKP>             | <div>SKIP</div> <div><u>NO-SKIP</u></div>                                         | <p>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.</p> <p>One inch is skipped around the perforation.</p> <p>The perforation is not skipped. Printing continues in the bottom margin of the page.</p> |
| <WIDTH>               | <div><u>13.6 IN</u></div> <div>11.4 IN</div> <div>11.0 IN</div> <div>8.0 IN</div> | <p>13.6-inch page width</p> <p>11.4-inch page width</p> <p>11-inch page width</p> <p>8-inch page width</p>                                                                                                                                                                                                                                                      |
| <ZEROFNT> (*2)        | <div><u>NO-SLSH</u></div> <div>SLASH</div>                                        | <p>Specifies whether to print the number zero with a slash. This is useful to distinguish the capital letter “O” from the number “0”.</p> <p>Invalid for some soft fonts.</p> <p>0</p> <p>ø</p>                                                                                                                                                                 |

**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><br>(*4)     | <u>ENABLE</u><br><br>DISABLE      | Enables the DC1 and DC3 codes.<br>Any data received between DC3 and the next DC1 is ignored.<br><br>Disables the DC1 and DC3 codes. These codes are then ignored.                                                                                                                 |
| <CR-CODE>             | <u>CR ONLY</u><br><br>CR & LF     | No line feed is added to a carriage return.<br><br><br>A line feed is added to each carriage return.<br> |
| <LF-CODE><br>(*2)     | LF ONLY<br><br><u>LF &amp; CR</u> | No carriage return is added to a line feed.<br><br><br>A carriage return is added to each line feed.<br> |

Note

The default value of <LF-CODE> changes with the selected emulations as follows.

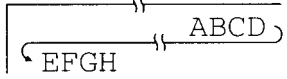
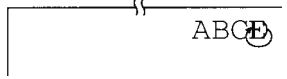
"LF&CR" is a default value in the DPL24C+ emulations.

"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>             | <u>WRAP</u>    | End-of-line wrap. Causes a carriage return plus a line feed.<br>                                                                         |
|                       | OVR-PRT        | Characters are overprinted at the end of a line.<br>                                                                                   |
| <15CPI><br>(*3)       | <u>COMPRES</u> | 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)<br>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 HARDWARE, ADJUST, CONFIG, and GAP-ADJ functions. The INITIAL function can reset those options which are handled by the HARDWARE, ADJUST, CONFIG, and GAP-ADJ functions.

## CHANGING HARDWARE OPTIONS

The HARDWARE 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 HARDWARE 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 HARDWARE Items and Options**

NOTE: Underlined options are the factory defaults.

| HARDWARE Items | Options       | Description                                                                                                                                                  |
|----------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <PPR-OUT>      |               | Specifies how the printer responds when you run out of paper.                                                                                                |
|                | CNTOONLY      | 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 HARDWARE Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

| HARDWARE Items | Options       | Description                                                                                                                                                                                               |
|----------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <PRT-DIR>      | <u>BI-DIR</u> | 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>       | <u>ON</u>     | Enables or disables the printer status buzzer.<br>Buzzer on (recommended).<br>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.                                                                                    |
|                | <u>8 BIT</u>  | 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.                                                                                                                                             |
|                |               | <b>Print buffer</b> <b>Download buffer</b>                                                                                                                                                                |
|                | NONE          | 0 byte      128K bytes                                                                                                                                                                                    |
|                | 256BYTE       | 256 bytes      127.75K bytes                                                                                                                                                                              |
|                | 2KBYTE        | 2K bytes      126K bytes                                                                                                                                                                                  |
|                | <u>8KBYTE</u> | 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><br>(continued) |                                                                                                   | <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li><b>0BYTE option is recommended only for graphics application.</b></li> <li><b>With 128KB selected, the printer cannot accept any download font data.</b></li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <INTRFCE>               | PARALEL<br>SERIAL<br>USB<br><u>AUTO-2S</u><br>AUTO-4S<br>AUTO-6S<br>AUTO10S<br>AUTO15S<br>AUTO20S | <p>Selects the type of the interface to the computer.</p> <p>Centronics parallel interface</p> <p>RS-232C serial interface</p> <p>USB interface</p> <p>Auto interface selection mode</p> <ul style="list-style-type: none"> <li>Both interfaces are ready for communication.</li> <li>Specify the timing regarding the selected interface as being inactive.</li> </ul> <p>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.</p> <p>To switch the interface to something other than the optional LAN interface, do either of the following:</p> <ul style="list-style-type: none"> <li>To return the setup mode to "INTERFCE" under "HARDWRE," remove the LAN card.</li> <li>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."</li> </ul> |

**Table 5.5 HARDWARE Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

| HARDWARE Items                                                                                                                                                                                                                                                                                                                                                                       | Options        | Description                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------|
| <b>Serial Interface or USB interface Items.</b> The following <FORMAT> to <DUPLEX> items are not printed when you select the PARALLEL option for the <INTRFC> 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>                                                                                                                                                                                                                                                                                                                                                                             |                | <b>Number of data bits</b> <b>Parity bit</b> <b>Number of stop bits</b>                                        |
|                                                                                                                                                                                                                                                                                                                                                                                      | <u>8NONE 1</u> | 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            | The baud rate is in bps (bits per second).<br>Select the same baud rate as 600 used by your computer or modem. |
|                                                                                                                                                                                                                                                                                                                                                                                      | 300            |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      | 600            |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      | 1200           |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      | 2400           |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      | 4800           |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      | <u>9600</u>    |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      | 19200          |                                                                                                                |
|                                                                                                                                                                                                                                                                                                                                                                                      |                |                                                                                                                |

**Table 5.5 HARDWRE Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

| HARDWRE Items | Options                          | Description                                                                                                                                                                                                                              |
|---------------|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <PROTOCL>     | <u>XON/XOF</u><br>DTR<br>REV-CHL | Indicates data transmission protocol.<br>The DC1 and DC3 codes are used.<br>The Data Terminal Ready signal is used.<br>The Reverse Channel signal is used.                                                                               |
| <DSR>         | <u>IGNORE</u><br>DETECT          | DSR is ignored by the printer.<br>DSR is detected by the printer.                                                                                                                                                                        |
| <DUPLEX>      | <u>FULL</u><br>HALF              | Simultaneous data transmission occurs in opposite directions.<br>Data transmission occurs in either direction, but not simultaneously.                                                                                                   |
| <CTS>         | IGNORE<br><u>DETECT</u>          | CTS is ignored by the printer.<br>CTS is detected by the printer.                                                                                                                                                                        |
| <CD>          | <u>IGNORE</u><br>DETECT          | CD is ignored by the printer.<br>CD is detected by the printer.                                                                                                                                                                          |
| <==END==>     |                                  | (LED only)<br>Indicates the end of the HARDWRE item list. Press the ▼ button to print the first item, which is <PPR-OUT>.<br>Press the ▲ button to print the previous item.<br>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<br><u>1.8/6 IN</u><br>:<br>6/6 IN<br>:<br>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.<br><br>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>    | <u>0/180</u> , ..., 29/180                               | Fine-tunes the top-of-form position for front continuous forms.<br><br>Increases top-of-form in increments of 1/180 inch (0.14 mm).                                                                                                                                                   |
| <RCNTORG>    | 1/6 IN<br><u>1.8/6 IN</u><br>:<br>6/6 IN<br>:<br>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.<br><br>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>    | <u>0/180</u> , ..., 29/180                               | Fine-tunes the top-of-form position for rear continuous forms.<br><br>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<br><u>1.8/6 IN</u><br>:<br>6/6 IN<br>:<br>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.<br><br>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>    | <u>0/180</u> , ..., 29/180                               | Fine-tunes the top-of-form position for front single sheets.<br><br>Increases top-of-form in increments of 1/180 inch (0.14 mm).                                                                                                                                                   |
| <RCUTORG>    | 1/6 IN<br><u>1.8/6 IN</u><br>:<br>6/6 IN<br>:<br>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.<br><br>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>    | <u>0/180</u> , ..., 29/180                               | Fine-tunes the top-of-form position for rear single sheets.<br><br>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, ..., <u>0/90</u> , ..., 10/90                                      | Fine-tunes the left print start position for continuous forms.<br>Moves the position left or right in increments of 1/90 inch (0.28 mm). |
| <CUT-LFT>    | -10/90, ..., <u>0/90</u> , ..., 10/90                                      | Fine-tunes the left print start position for single sheets.<br>Moves the position left or right in increments of 1/90 inch (0.28 mm).    |
| <FCNTADJ>    | -14/360, -9/360, -4/360, <u>0/360</u><br>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, <u>0/360</u><br>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, <u>0/360</u><br>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, -<br>4/360, <u>0/360</u><br>4/360, 9/360,<br>14/360,<br>GRAPHIC(*1) | Compensates for the forms feed error accumulated through feeding of rear continuous forms. (Last page)                                                                                                                                                                                      |
| <CUT-ADJ>    | -14/360, -9/360, -<br>4/360, <u>0/360</u><br>4/360, 9/360,<br>14/360,<br>GRAPHIC(*1) | Compensates the line spacing pitch on the basis of the spacing error accumulated for feeding single sheets by 10 inches.<br><br>Decreases or increases in increments of 1/360 inch in total.                                                                                                |
| <FCSFADJ>    | -14/360, -9/360, -<br>4/360, <u>0/360</u><br>4/360, 9/360,<br>14/360,<br>GRAPHIC(*1) | Compensates the line spacing pitch on the basis of the spacing error accumulated for feeding single sheets by 10 inches.<br><br>Decreases or increases in increments of 1/360 inch in total.<br><br>This option is available only when paper is being loaded in the front cut sheet feeder. |
| <RCSFADJ>    | -14/360, -9/360, -<br>4/360, <u>0/360</u><br>4/360, 9/360,<br>14/360,<br>GRAPHIC(*1) | Compensates the line spacing pitch on the basis of the spacing error accumulated for feeding single sheets by 10 inches.<br><br>Decreases or increases in increments of 1/360 inch in total.<br><br>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<br>Items | Options | Description                                                                                                                                                                                                                                                          |
|-----------------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <==END==>       |         | <p>(LED only)</p> <p>Indicates the end of MENU1 items.</p> <p>Press the ▼ button to print the first item, &lt;FCNTORG&gt;. Press the ▲ button to print the previous item, &lt;RCSFADJ&gt;. Press the ONLINE button to reprint the &lt;&lt;FUNCTION&gt;&gt; menu.</p> |

\*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.                                                                                             |
|              | <u>MANUAL</u> | 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>                                                                                      | <u>VISIBLE</u> | Tear off position.<br><br>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.<br><br><b>Note: For both settings, tear off positioning will fail if the page length setting does not match the actual perforation spacing.</b> |
| The following <TEAR-EN> item is printed when TEAROFF:AUTO is specified for the <TEAROFF> item. |                |                                                                                                                                                                                                                                                                                                                       |
| <TEAR-EN>                                                                                      | 0 SEC          | Tear off enabled time (offset time).<br><br>The offset time is from when data transfer stops to when the printer performs automatic tear off feed.<br><br>If the printer receives data again within the offset time, the printer does not perform automatic tear off feed.                                            |
|                                                                                                | <u>1 SEC</u>   |                                                                                                                                                                                                                                                                                                                       |
|                                                                                                | 2 SEC          |                                                                                                                                                                                                                                                                                                                       |
|                                                                                                | 4 SEC          |                                                                                                                                                                                                                                                                                                                       |
|                                                                                                | 6 SEC          |                                                                                                                                                                                                                                                                                                                       |

**Table 5.7 CONFIG Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

| CONFIG Items                                                                                   | Options                                      | Description                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <TEAR-EN><br>(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>                                                                                      | <u>AUTO</u>                                  | Single sheet auto loading.<br><br>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>                                                                                      | 0.5, 1.0, <u>1.5</u> ,<br>2.0 2.5,<br>3.0SEC | Auto load start time.<br><br>Auto loading starts when this amount of time passes after you set single sheet paper.                                                                                             |
| <DECODE>                                                                                       | <u>DIRECT</u>                                | Command decode timing.<br><br>The printer decodes certain commands immediately after receiving data.<br><br>Example:<br>ESC SUB I, ESC CR<br>P (DPL24C+) ESC<br>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>    | <u>ENABLE</u><br><br>DISABLE        | <p>Area-over detection control.</p> <p>Detects the left and right edges of paper when loading the paper. The printer does not print data beyond the edges.</p> <p>Does not detect the edges. Select this option when you are using colored or preprinted paper.</p>                                                                                                                                                                                                                         |
| <CUT-ONL>    | OFFLINE<br><br><u>ONLINE</u>        | <p>Printer status after loading paper in offline mode for single sheets.</p> <p>Remains offline after paper loading.</p> <p>Goes into online after paper loading.</p>                                                                                                                                                                                                                                                                                                                       |
| <CNT-ONL>    | OFFLINE<br><br><u>ONLINE</u>        | <p>Printer status after loading paper in offline mode for continuous forms.</p> <p>Remains offline after paper loading.</p> <p>Goes into online after paper loading.</p>                                                                                                                                                                                                                                                                                                                    |
| <LOCK>       | <u>NONE</u><br><br>SETUP<br><br>ALL | <p>Lock function of setup mode.</p> <p>Enables all buttons on the control panel.</p> <p>Disables the setup-related buttons to keep the printer from entering setup mode during the offline state.</p> <p>Disables the setup-related buttons and the MENU button.</p> <p>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.</p> |

**Table 5.7 CONFIG Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

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

**Table 5.7 CONFIG Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

| CONFIG Items | Options        | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GATHER       | ENABLE         | Setting of ribbon protective control at a line feed on continuous forms<br>The protective control is executed.                                                                                                                                                                                                                                                                                                                                                       |
|              | <u>DISABLE</u> | The protective control is not executed.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| CUT-CTL      | PRCISIN        | Setting of retracting control at canceling TEAR OFF of continuous forms.<br>The precision-prioritized retracting control is executed.<br>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. |
|              | <u>SPEED</u>   | The speed-prioritized retracting control is executed.<br>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      | <p><u>ENABLE</u></p> <p>DISABLE</p> | <p>Setting of printing speed change processing (skip)</p> <p>The skip processing is executed.</p> <p>When a certain amount of blank spaces are found in a line, it changes the printing speed for the blank spaces.</p> <p>The skip processing is not executed.</p> <p>It does not change the printing speed for the blank spaces.</p> <ul style="list-style-type: none"> <li>- 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.</li> </ul> |
| STATUS       | <p>ENABLE</p> <p><u>DISABLE</u></p> | <p>Setting of the asynchronous status function</p> <p>The status information is stored in the send buffer by a nibble mode request.</p> <p>The status information is not stored in the send buffer by a nibble mode request.</p>                                                                                                                                                                                                                                                                                                                                                             |
| BANDCTL      | <p>ENABLE</p> <p><u>DISABLE</u></p> | <p>Setting of reducing backward line feeds as much as possible.</p> <p>Backward line feeds occur when printing vertical enlargement characters or multi-path characters which involve several printing paths for a print activation.</p> <p>Reduce control is performed.</p> <p>Reduce control is not performed.</p>                                                                                                                                                                                                                                                                         |

**Table 5.7 CONFIG Items and Options (Cont.)**

NOTE: Underlined options are the factory defaults.

| CONFIG Items | Options                | Description                                                                                                                                                                                                                                                                     |
|--------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TOF-CTL      | <u>DRIVER</u><br>SETUP | 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.<br>Driver specification is given priority.<br>Setup specification is given priority. |
| <CUTEDIR>    | <u>FRONT</u><br>REAR   | Selection of the eject direction of cut sheets with manually feeding of cut sheets<br>Ejected to the front.<br>Ejected to the rear.                                                                                                                                             |
| <CSFEDIR>    | FRONT<br><u>REAR</u>   | Selection of the eject direction of cut sheets with use of a CSF<br>Ejected to the front.<br>Ejected to the rear.                                                                                                                                                               |
| <CUTEJCT>    | <u>AUTO</u><br>MANUAL  | Selection for automatic ejection of cut sheets<br>Automatic ejection of cut sheets when no cut sheet is detected<br>No automatic ejection of cut sheets when no cut sheet is detected                                                                                           |
| <FL-CENT>    | <u>POSN1</u><br>POSN2  | 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)<br>Position 1: Column 31<br>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) |
|              | <u>POSN1</u>  | Position 1: Column 31                                                                                                                                   |
|              | POSN2         | Position 2: Column 42                                                                                                                                   |
| <SKEWCNT>    |               | Detection of paper feed skew                                                                                                                            |
|              | <u>ENABLE</u> | 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                                           |
|              | <u>EJECT</u>  | 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).                                                                                      |
|              | <u>99/180</u> | 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                                                                             |
|              | <u>FRONT</u>  | 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>     | PRCISIN<br><u>SPEED</u>  | Selection for the paper feeding of continuous forms paper<br>Gives a higher priority to precision.<br>Gives a higher priority to speed.                                                                                                                 |
| <CSF-LD>     | <u>NORMAL</u><br>SWBACK  | Selection of the method of feeding from the CSF<br>Feeds paper directly from the CSF hopper.<br>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>    | ALWAYS<br><u>NORMAL</u>  | Paper thickness detection with use of a CSF<br>Every sheet of paper that is fed<br>Sheet of paper that is fed immediately after the feed pin is switched                                                                                                |
| <LF-CTL>     | PRCISIN<br><u>SPEED</u>  | Selection for LF mode<br>Gives a higher priority to precision.<br>Gives a higher priority to speed.                                                                                                                                                     |
| <PR-MODE>    | <u>NORMAL</u><br>QUIET   | Selection for print mode (standard/low noise)<br>Prints in standard mode.<br>Prints in low-noise mode.                                                                                                                                                  |
| <HI-IMPT>    | <u>DISABLE</u><br>ENABLE | Selection for high printing pressure mode<br>Prints in standard pressure mode.<br>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                                                                                                                                                                                        |
|              | <u>MODE1</u> | 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.                                                                                                                                                                                                   |
|              | <u>MODE2</u> | Prints in 540CPS printing mode.                                                                                                                                                                                                   |
| <==END==>    |              | (LED only)<br>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)<br><u>AUTO</u><br>MANUAL                                                                                                            | Specifies the print head gap.<br><br>The print head gap is set automatically.<br>Turn the paper thickness dial (indicator) manually.                                                                                                     |
|               | (LCD type)<br><u>AUTO</u><br>GAP-1<br>GAP-2<br>GAP-3<br>GAP-4<br>GAP-5<br>GAP-6<br>GAP-7<br>GAP-8<br>GAP-9<br>GAP-A<br>GAP-B<br>GAP-C<br>GAP-D | The print head gap is set automatically.<br>The print head gap is set selected manual gap.                                                                                                                                               |
| <==END==>     |                                                                                                                                                | (LED only)<br>Indicates the end of the GAP-ADJ item list. Press the ▼ button to print the first item, which is <AMOUNT>.<br><br>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.

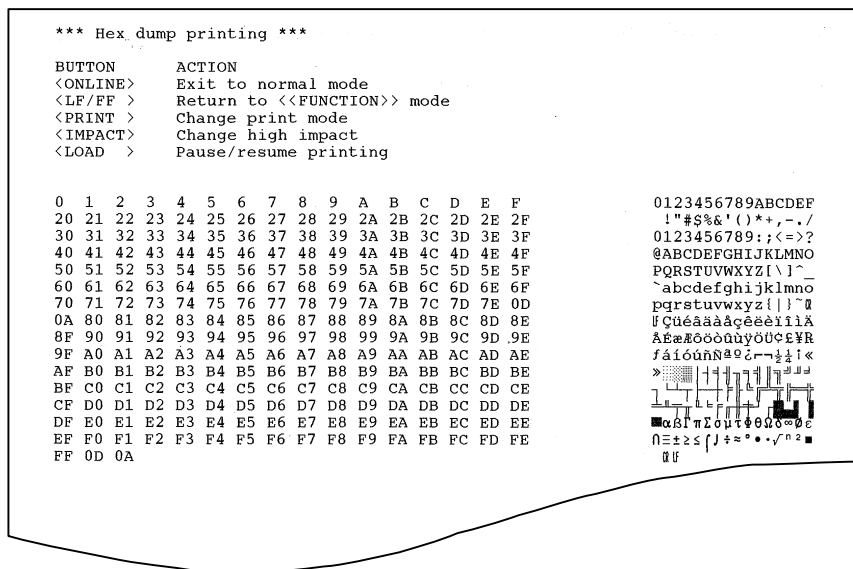
### 3. Print the hex dump.

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).



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).

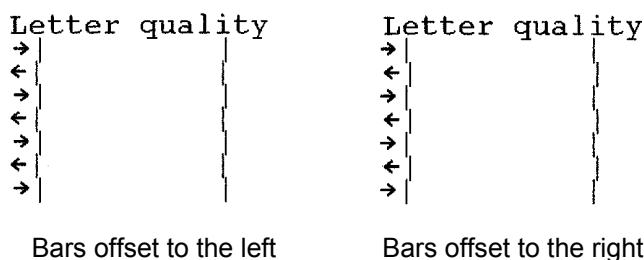
Press the SETUP button at offline state. Check that the “SETUP MODE” is displayed on LCD panel.

#### 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.)



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.

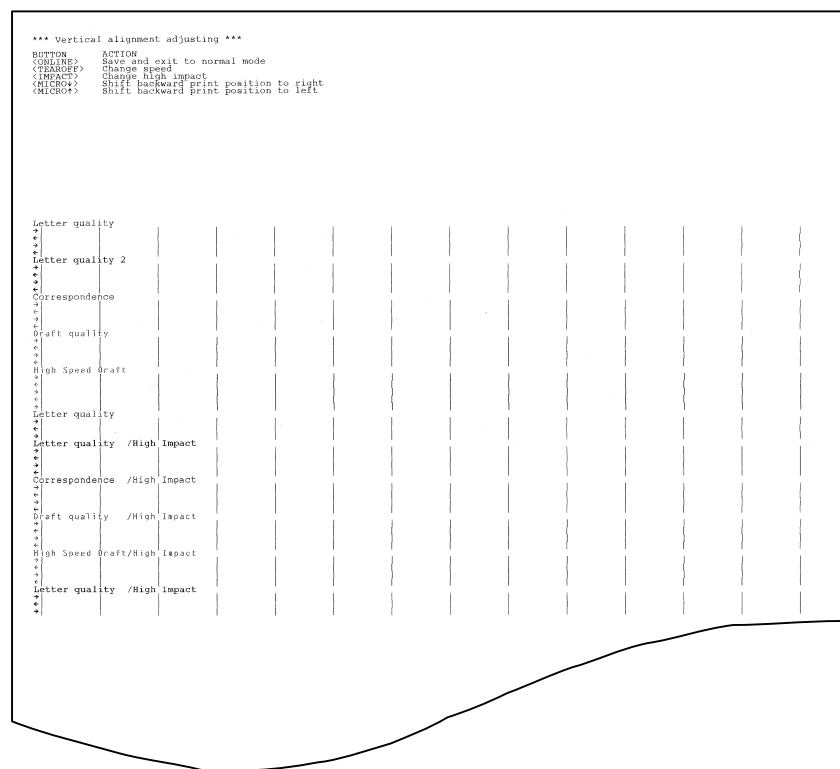
Press the HI IMPACT button to enter Hi Impact mode. Make similar adjustments.

## 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**

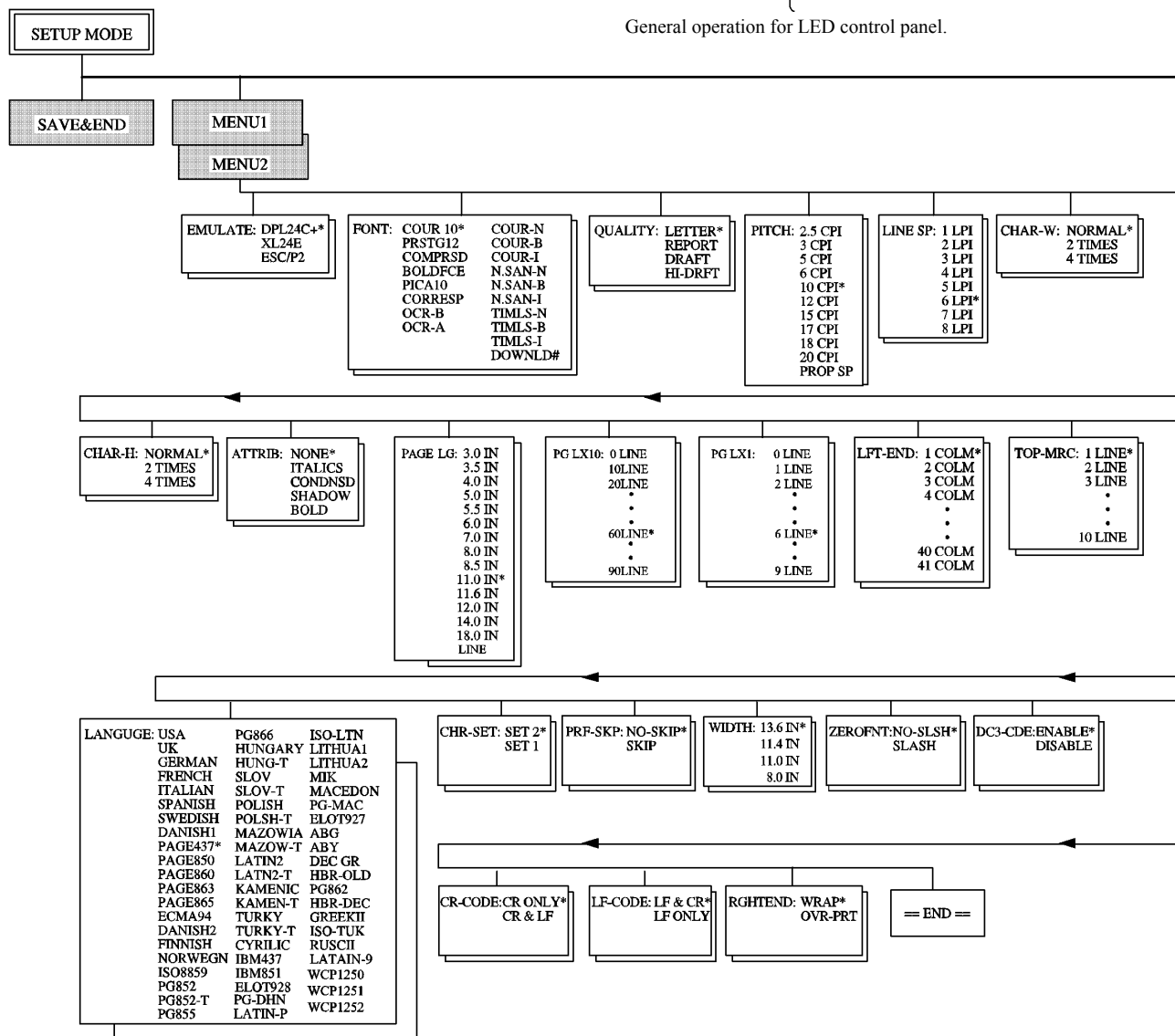
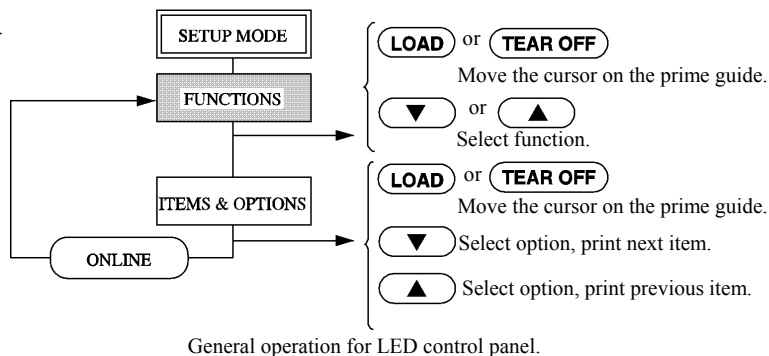
## SETUP MODE REFERENCE

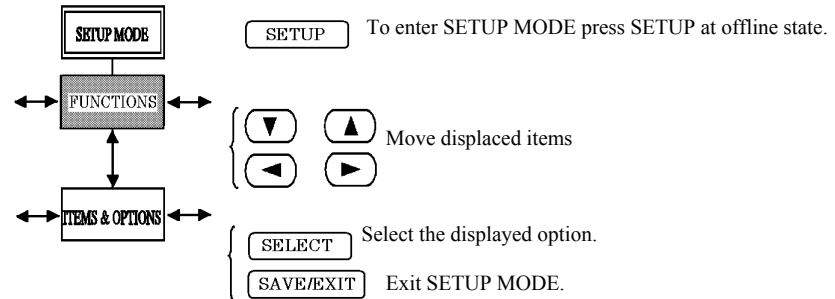
The following flowchart shows how setup mode is organized for the Fujitsu DPL24C PLUS emulation. Differences in the IBM Proprinter XL24E and Epson ESC/P2 emulations are summarized after the flowchart.

## DPL24C PLUS ORGANIZATION

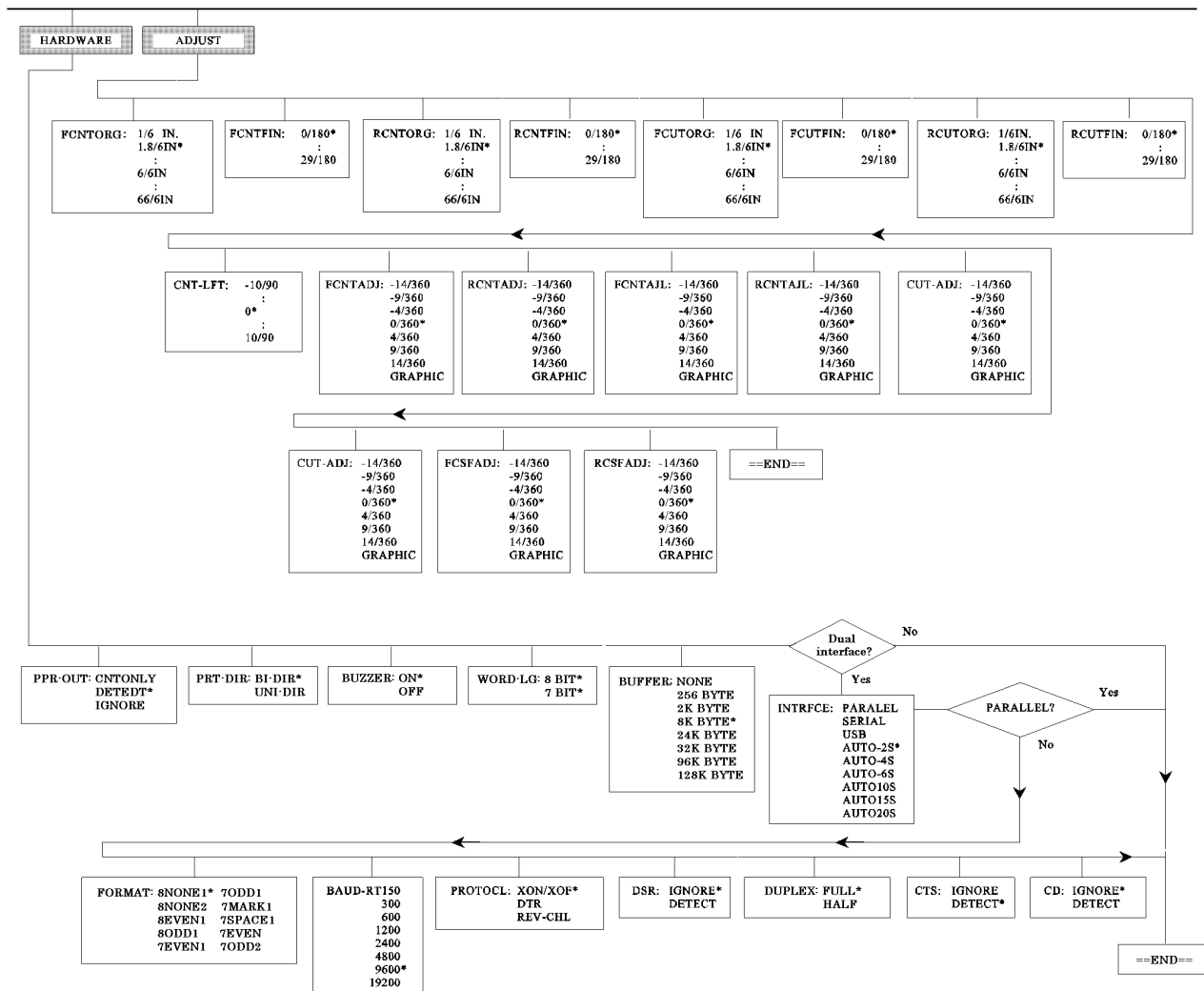
Note:

Asterisks (\*) indicate default setting at shipment.

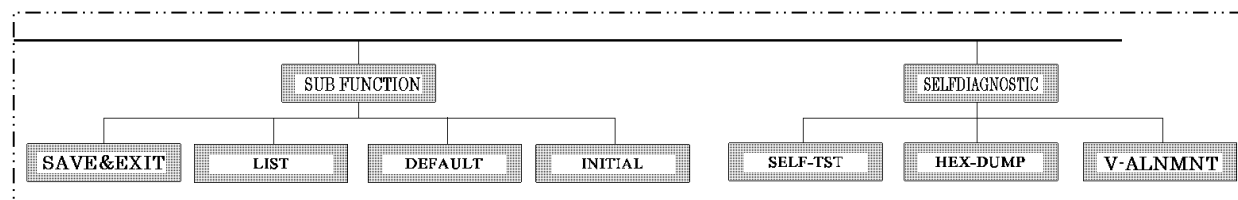




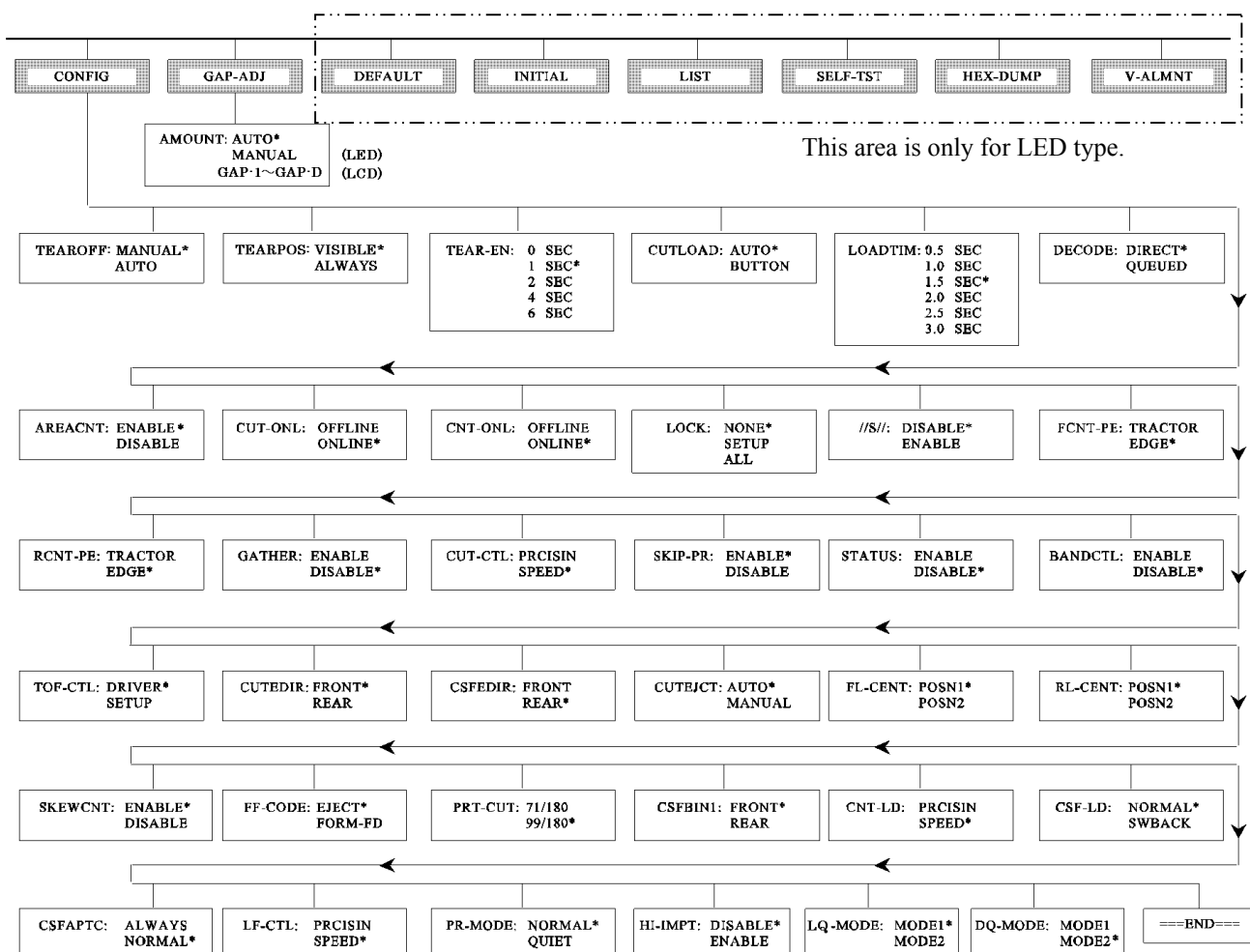
General operation for LCD control panel.



## USING SETUP MODE



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

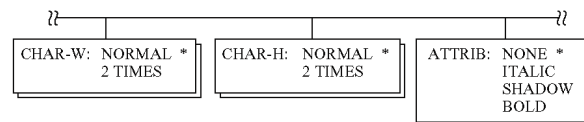


This area is only for LED type.

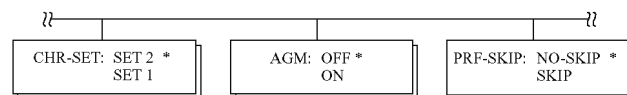
## Differences in IBM Proprinter XL24E Emulation

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

- The following options are different:



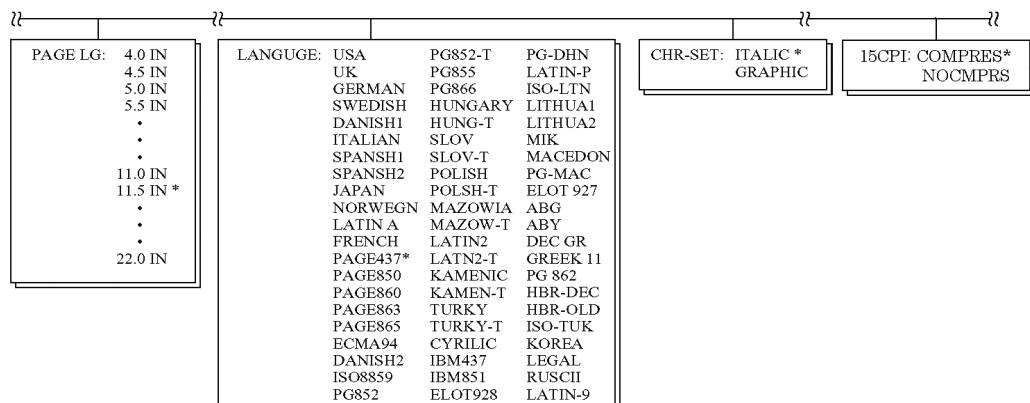
- The AGM item is provided:



## 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 ZEROFONT 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.

## 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.**

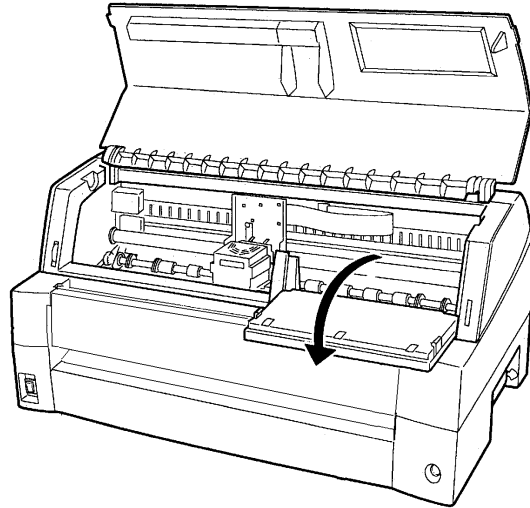
Use the following procedure to clean and vacuum the printer as required:

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:

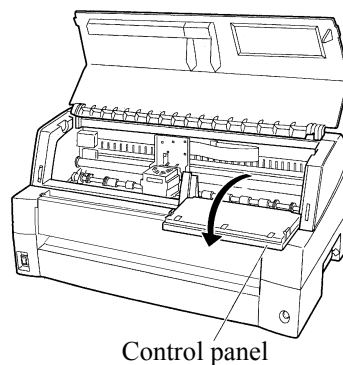
1. Turn off the printer.

**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.**

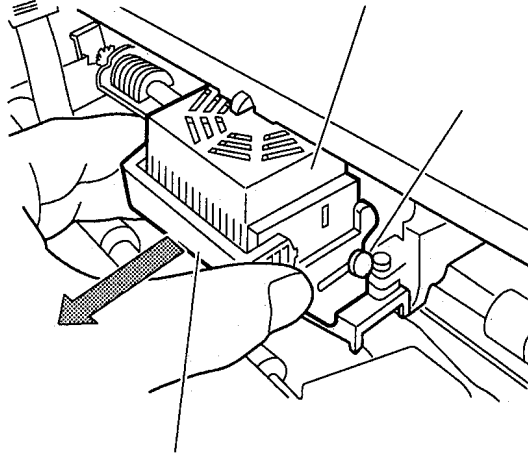
2. Open the front cover and control panel of the printer. Please make sure that the print head stops at the ribbon replacement position.

|                                                                                                    |                                                                                                                                                                      |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <br><b>(HOT)</b> | <p><b>CAUTION &lt;HOT&gt;</b></p> <p>The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.</p> |
|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|



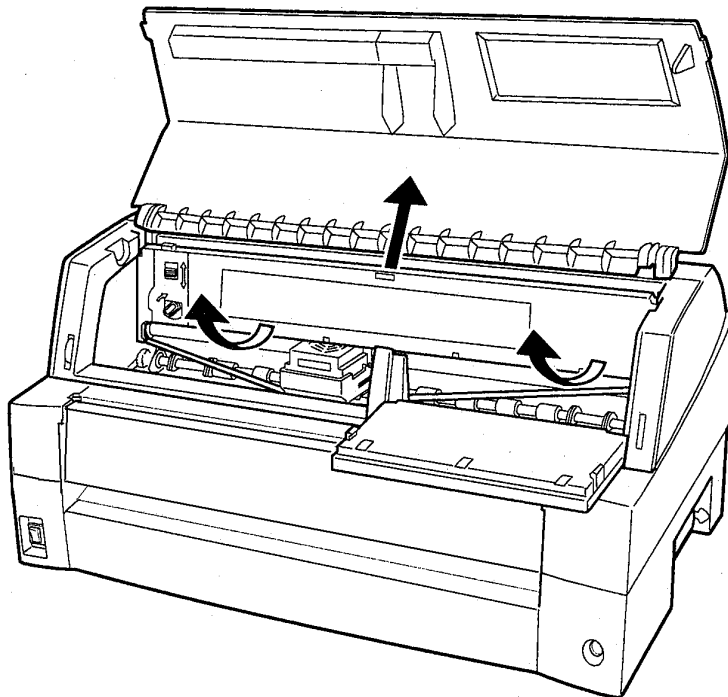
***Preparing the printer to install the ribbon cartridge***

3. Remove the ribbon guide.



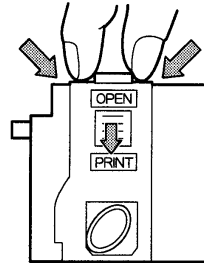
***Removing the ribbon guide***

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



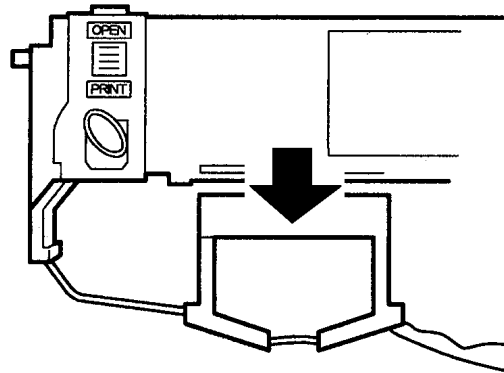
***Removing the ribbon cassette***

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.



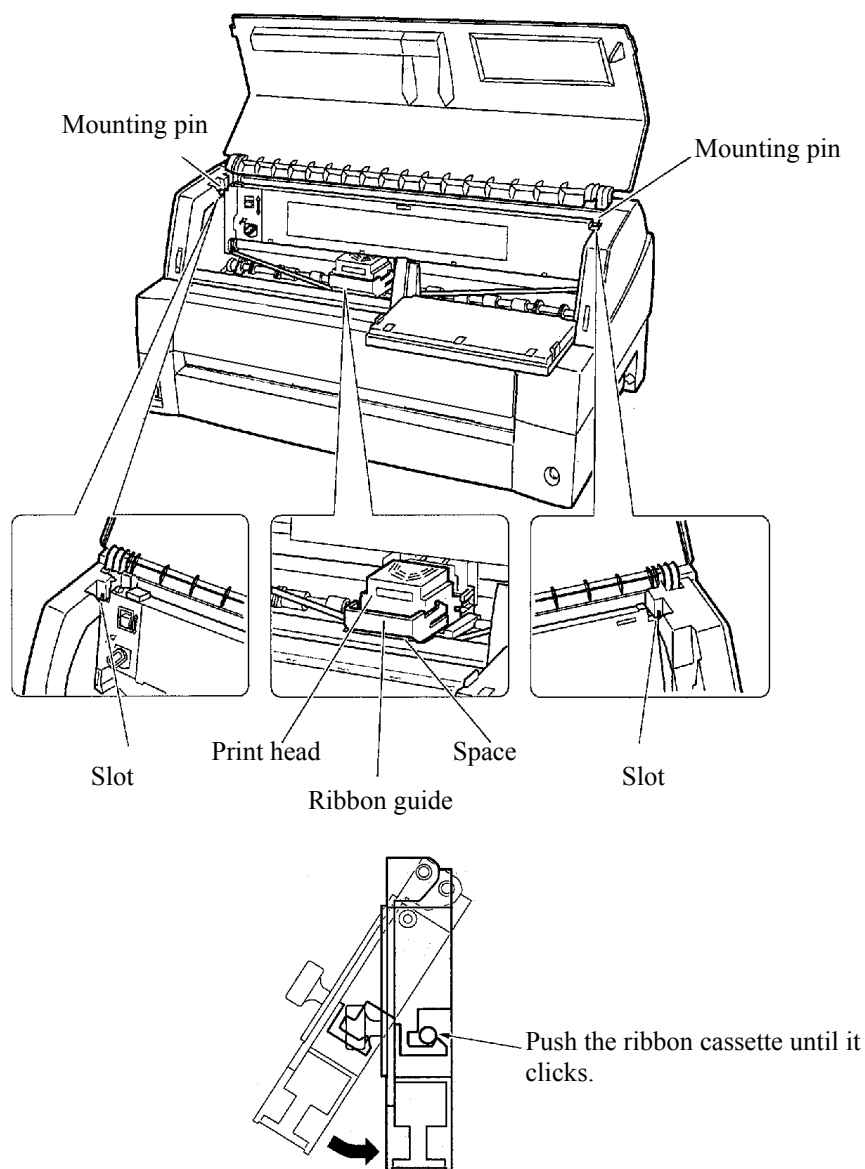
***Preparing the ribbon cassette***

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



***Preparing the ribbon cassette***

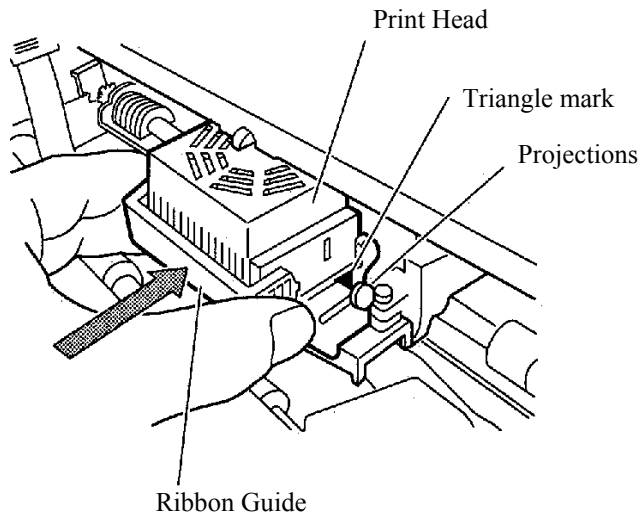
- Put the green ribbon guide into the space in front of print head. And then place the mounting pins (both side of ribbon cassette) on the slot of the printer cover. And then push the ribbon cassette so that the ribbon cassette is installed vertically.



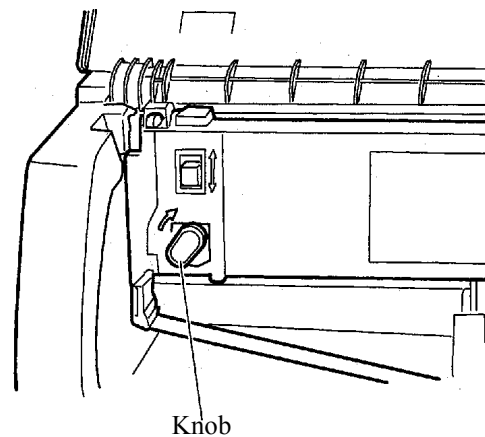
### ***Installing the ribbon cassette***

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.



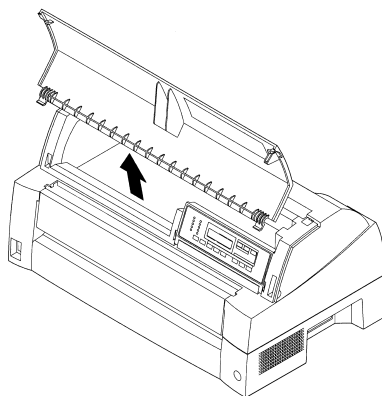
(HOT)

#### CAUTION <HOT>

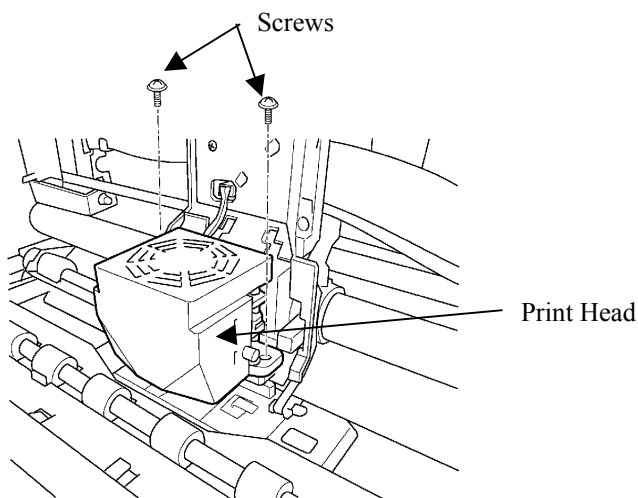
The print head and metal frame is hot during printing or immediately after printing. Do not touch them until it cools down.

To remove the print head:

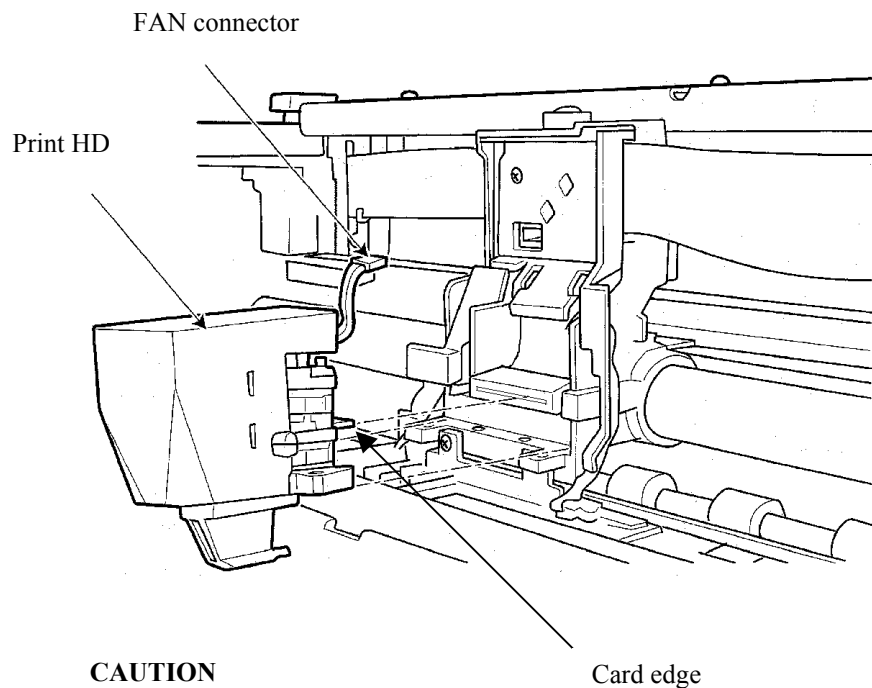
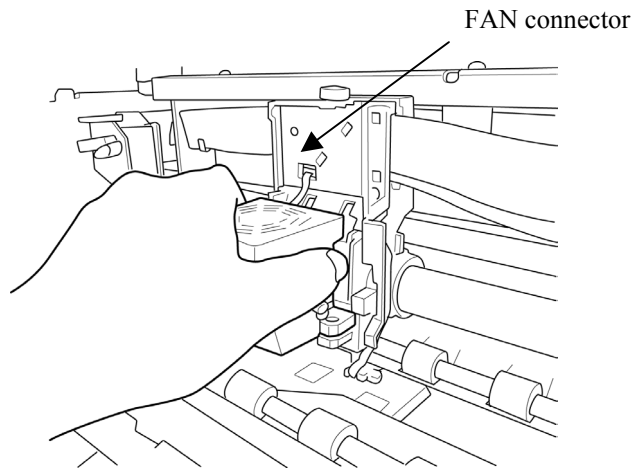
1. Turn off the printer.
2. Open the front cover of the printer and remove the ribbon cassette.
3. Please remove a front cover, during keeping the front cover aslant.



4. Remove two screws.



5. Remove the print head.

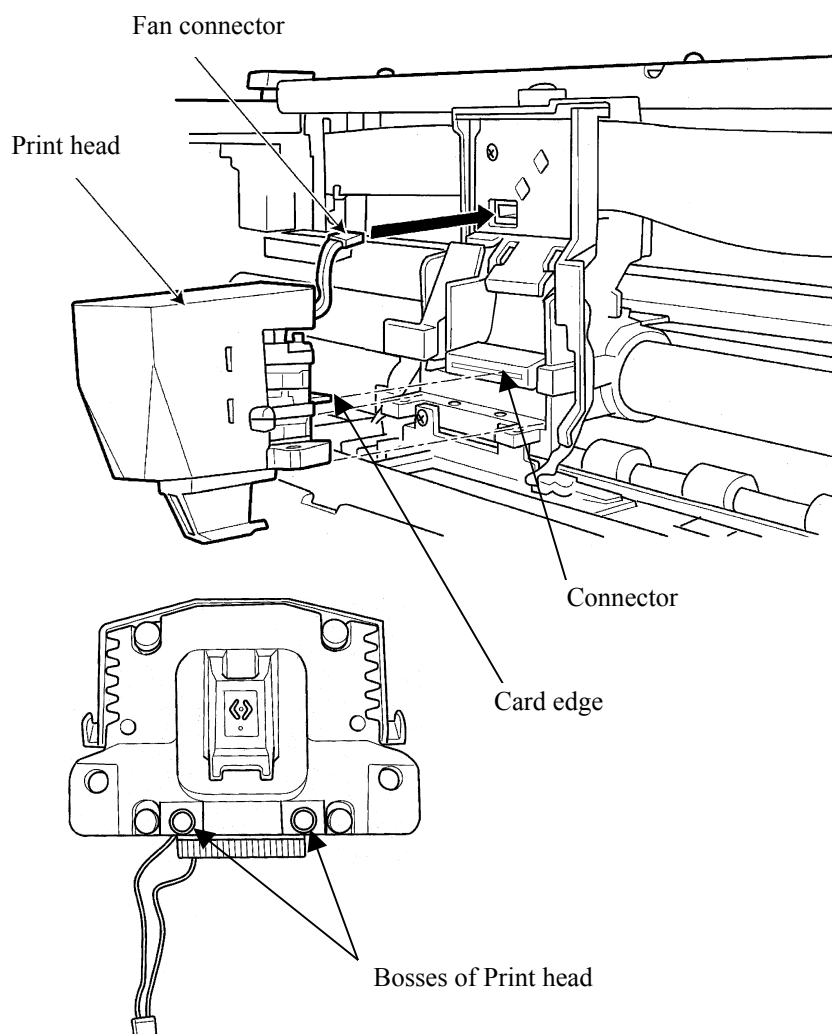


**CAUTION**

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

To install the print head:

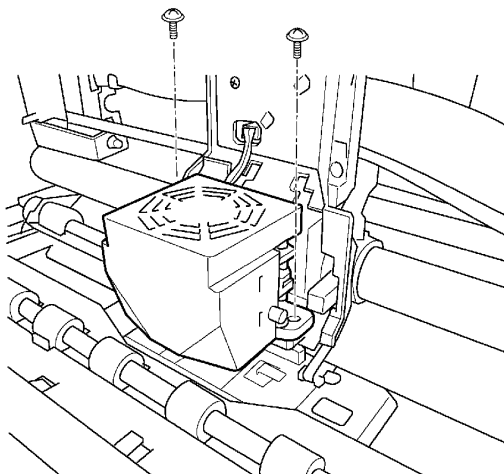
1. Connect the connector to the card edge of the print head.
2. Fit the mounting bosses of the print head into the holes on the carriage.
3. Connect the fan connector.



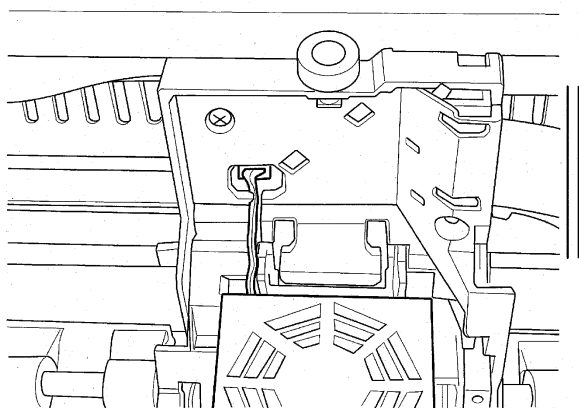
### CAUTION

*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.

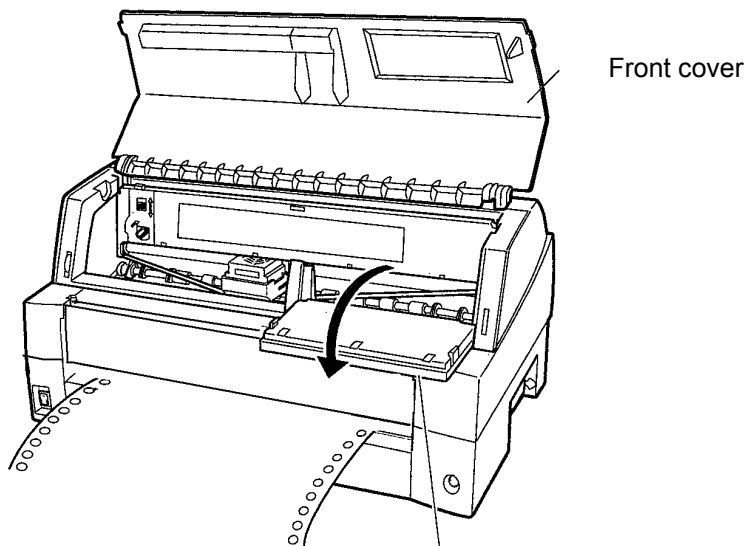


**CAUTION**

*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

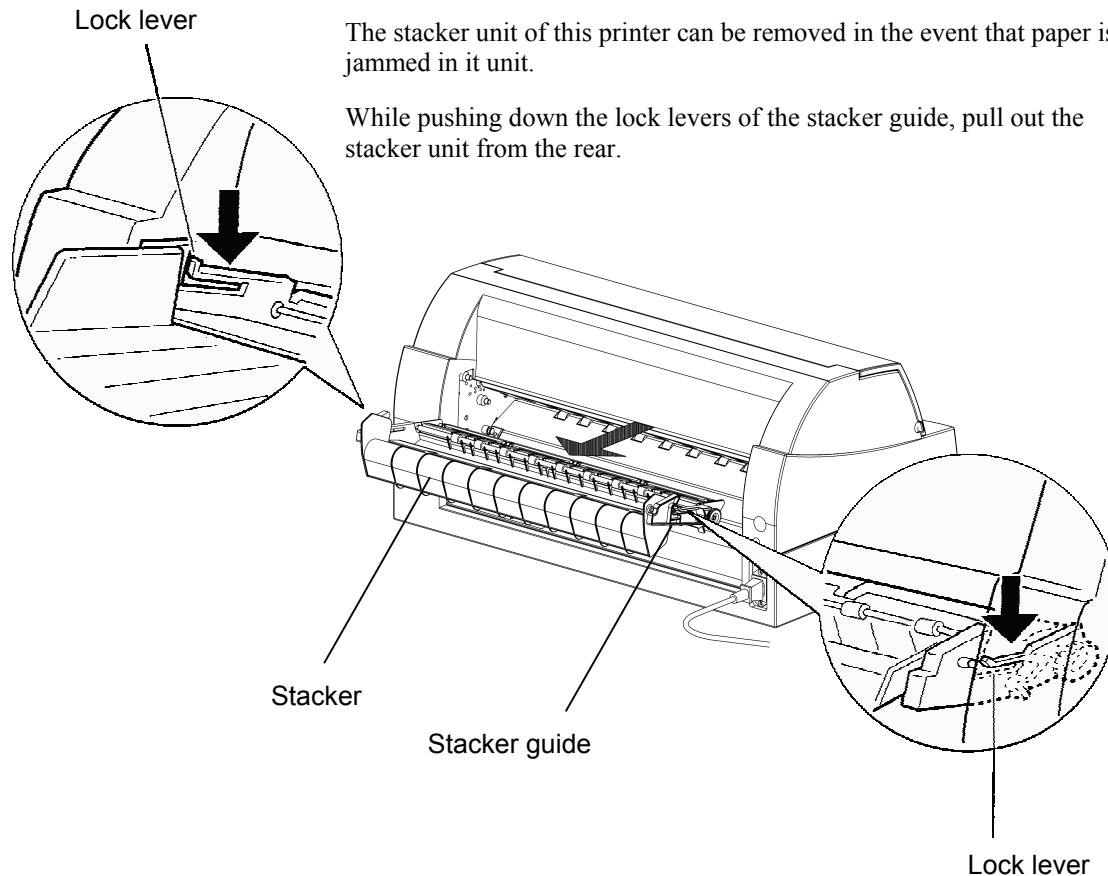
The control panel of this printer can be pulled down toward the front as necessary, such as when jammed paper must be removed.



## Removing the stacker unit

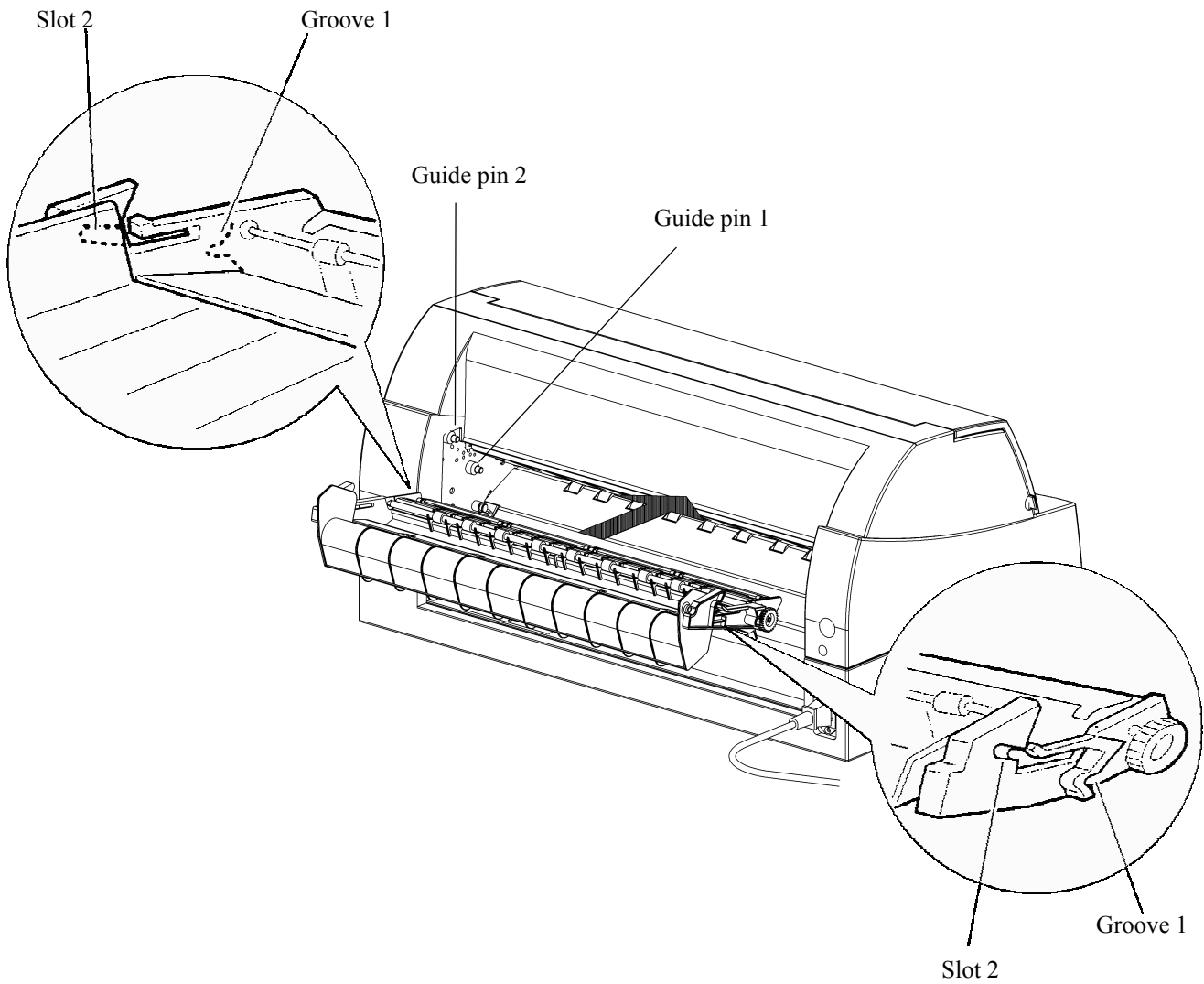
The stacker unit of this printer can be removed in the event that paper is jammed in it unit.

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.



## **MAINTENANCE**

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## 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.<br>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.<br><b>If printing is too light, decrease setting.</b><br><b>If printing is dark, increase setting.</b><br>Note<br>Printer accepts the value for paper thickness from Printer Driver or application program.<br>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.<br>Check whether the tip of the print head is dirty.<br>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.<br>Make sure that the printer emulation selected in your software is the same as the emulation selected on the printer. See the section <b>Selecting an Emulation</b> in Chapter 2.<br>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 <b>Hardware Items and Options</b> in Chapter 5. |

**Table 7.1 Print Quality Problems and Solutions (Cont.)**

| Problem                                       | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Characters are lost at the left or right end. | <p>If lost area is about 10mm (3mm) from left and right edge of continuous forms(single sheet), Area-over detection control works properly.</p> <p>In this case make sure that paper size, paper position, and left and right margins are properly set.</p> <p>Note</p> <p>Preprinted dark color area, shape of corner cut, paper skew may cause incorrect detection. Please don't use medium like this.</p> <p>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.</p>              |
|                                               | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                   |
| Printing is vertically misaligned (jagged).   | <p>Use the printer's V-ALMNT function to check the vertical print alignment. If necessary, adjust the print alignment. See the section <b>Using the Diagnostic Functions</b> in Chapter 5.</p>                                                                                                                                                                                                                                                                                                                                                                                    |
|                                               | <p>Smaller adjustment for paper thickness causes vertically misalignment too.</p> <p>Please refer to Printing is too light or too dark.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| The top margin is wrong.                      | <p>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:</p> <ul style="list-style-type: none"> <li>• Make sure that the top-of-form setting is correct. The factory default is 25.4 mm (1 inch). See the section <b>Changing Top-of-Form</b> in Chapter 5.</li> <li>• Check the software-specified top margin. Refer to your software documentation.</li> <li>• Check the printer's TOP-MRG setting. See the section <b>MENU1 and MENU2 Items and Options</b> in Chapter 5.</li> </ul> |

**Table 7.1 Print Quality Problems and Solutions (Cont.)**

| <b>Problem</b>                                                                          | <b>Solution</b>                                                                                                                                                                                                                                                                                                |
|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Lines are double spaced instead of single spaced.                                       | Check the line spacing setting in your software.<br>Change the CR-CODE setting in the printer setup mode to CR ONLY. See the section <b>MENU1 and MENU2 Items and Options</b> 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 <b>MENU1 and MENU2 Items and Options</b> 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 <b>MENU1 and MENU2 Items and Options</b> 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.<br><br>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.                    | <p>Make sure that the paper path indicator (FRONT TRACTOR, REAR TRACTOR, CUT SHEET) lights correctly.</p> <p>Press the PAPER PATH button to select the paper path.</p> <p>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.)</p> <p>Make sure that the tractor unit is correctly installed and that the tractor shaft gear engages the platen shaft gear.</p> <p>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.)</p> <p>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.</p> |
| Paper manually loaded is ejected without printing | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

**Table 7.2 Paper Handling Problems and Solutions (Cont.)**

| <b>Problem</b>                                                                                | <b>Solution</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Paper jams while loading.                                                                     | <p>Turn off the printer and remove the jammed paper. Remove any obstructions from the paper path.</p> <p>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.)</p> <p>Make sure that the paper is not folded, creased, or torn.</p> <p>Reload the paper.</p> <p>Make sure that the paper table is in normal mode. Set the paper table to normal mode.</p>                                                                     |
| Paper jams while printing.                                                                    | <p>Turn off the printer and remove the jammed paper. Remove any obstructions from the paper path.</p> <p>For continuous forms, make sure that the incoming and outgoing paper stacks are correctly placed. Paper should feed straight.</p> <p>Make sure that the paper table is in normal mode. Set the paper table to normal mode.</p> <p>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.)</p> <p>Reload the paper.</p> |
| Paper slips off the forms tractors or the perforated holes of the paper tear during printing. | <p>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.</p>                                                                                                                                                                                                                                                                                                                                             |

## 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.              | <p>Make sure that the “I” on the printer power switch is depressed.</p> <p>Make sure that the power cord is securely connected to both the printer and the outlet. Make sure that the power outlet is functional.</p> <p>Turn the power off. Wait 100 seconds and then turn the printer on again. If the printer still has no power, contact your dealer.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| The printer is on but it will not print. | <p>Make sure that the printer is online.</p> <p>Make sure that the interface cable is securely connected to both the printer and the computer.</p> <p>If the red PAPER OUT indicator is lit, load paper.</p> <p>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.</p> <p>Make sure that the printer emulation selected in your software is the same as the emulation selected on the printer. See the section <b>Selecting an Emulation</b> in Chapter 2.</p> <p>Make sure that the front cover is completely closed.</p> <p>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 <b>Hardware Items and Options</b> in Chapter 5.</p> |
| The cut sheet feeder does not operate.   | <p>Make sure that the cut sheet feeder is firmly mounted on the printer.</p> <p>Make sure that the cable is correctly connected.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 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.

| Alarm name \ Lamp                                          | 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<br>SP motor                               | ◎         | ◎            |           |       |          |           |           |           |           | ◎     |       |        | Abnormally high current of motor driver was detected.                                                                             |
| Fire check alarm<br>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<br>LF motor                               | ◎         |              | ◎         |       |          |           |           |           | ◎         |       |       |        | Abnormally high current of motor driver was detected.                                                                             |
| Fire check alarm<br>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<br>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!<br>LRES ALARM      | LRES could not be detected during the space initial operation.                                                                   |
| Space problem alarm                                           | ◎            | FATAL!<br>SPACE ALARM     | The shield board could not be detected normally by the LRES sensor.                                                              |
| Fan alarm                                                     | ◎            | FATAL!<br>FAN ALARM       | The cooling fan could not rotate.                                                                                                |
| Fire check alarm<br>SP motor                                  | ◎            | FATAL!<br>SPM ALARM       | Abnormally high current of motor driver was detected.                                                                            |
| Fire check alarm<br>Ribbon motor                              | ◎            | FATAL!<br>RBFM ALARM      | Abnormally high current of motor driver was detected.                                                                            |
| HCPP (cut sheet or continuous<br>forms paper switching) alarm | ◎            | FATAL!<br>HCPP ALARM      | Switching between cut sheet paper and continuous forms paper was not possible.                                                   |
| Fire check alarm<br>LF motor                                  | ◎            | FATAL!<br>LFM ALARM       | Abnormally high current of motor driver was detected.                                                                            |
| Fire check alarm<br>CSF motor                                 | ◎            | FATAL!<br>CSFM ALARM      | Abnormally high current of motor driver was detected.                                                                            |
| Overload alarm                                                | ◎            | FATAL!<br>OVERLOAD ALARM  | An overload occurred during printing, and tripartite printing was performed. However, the power source voltage was not restored. |
| Low voltage alarm                                             | ◎            | FATAL!<br>LOW VOLT ALARM  | The power source voltage dropped below the specified level when no printing was in progress.                                     |
| Fire check alarm<br>Print Head                                | ◎            | FATAL!<br>HEAD ALARM      | Abnormally long driving of print head driver was detected.                                                                       |
| High voltage alarm                                            | ◎            | FATAL!<br>HIGH VOLT ALARM | Over voltage of power source was detected.                                                                                       |
| APTC gap alarm                                                | ◎            | FATAL!<br>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<br>alarm                            | ◎            | FATAL!<br>APTC HPS ALARM  | During the APTC operation, no reference position was detected.                                                                   |
| ROM/RAM alarm                                                 | ◎            | FATAL!<br>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.<br>Check adjustment for paper thickness.<br>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).<br>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.**

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.

## ***TROUBLE-SHOOTING***

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- 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.

## 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.**

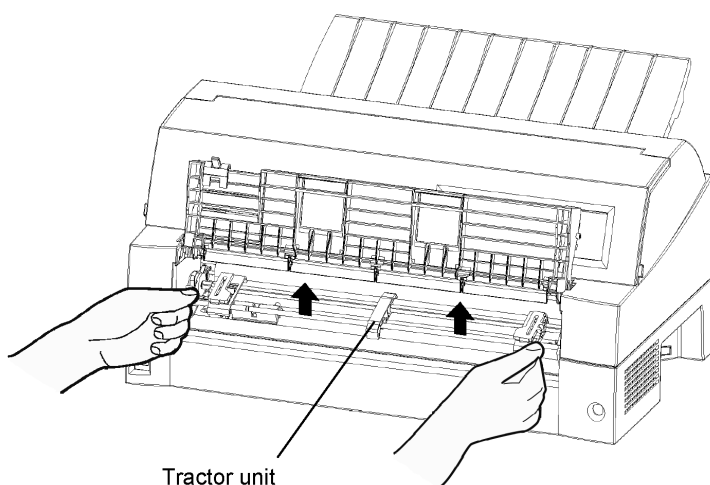
## **Installing on the front side of the printer**

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

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

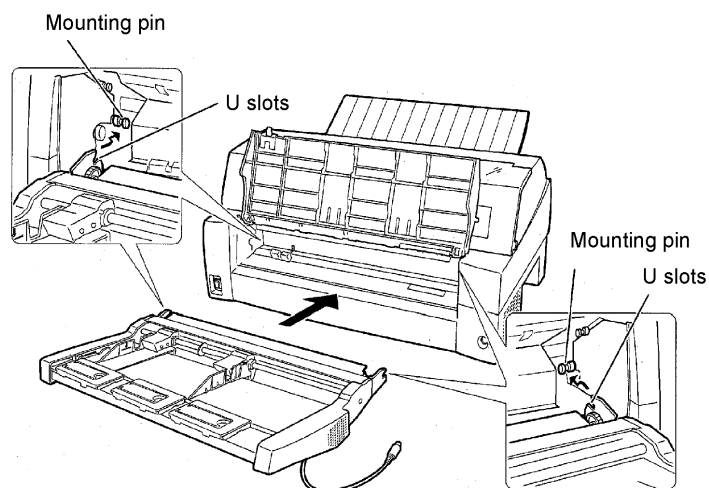
### **2. Removing the tractor unit**

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.)

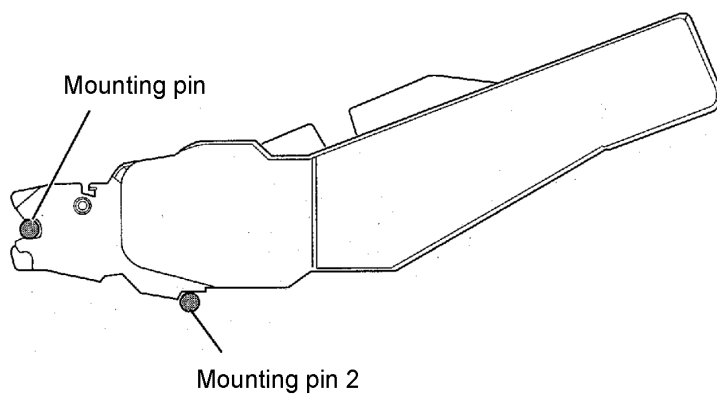


### **3. Installing the cut sheet feeder**

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.



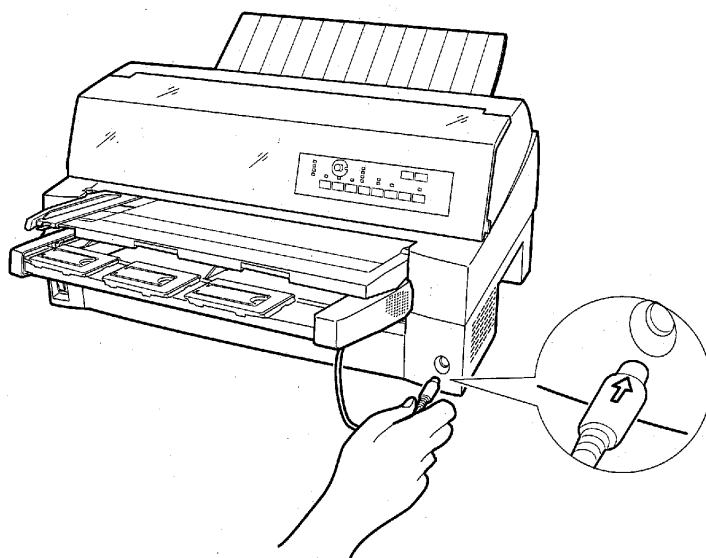
#### **4. Replacing the paper table**

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

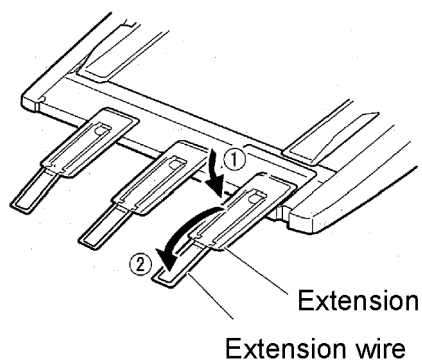
If the paper table is incorrectly set, a paper jam may occur.

#### **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

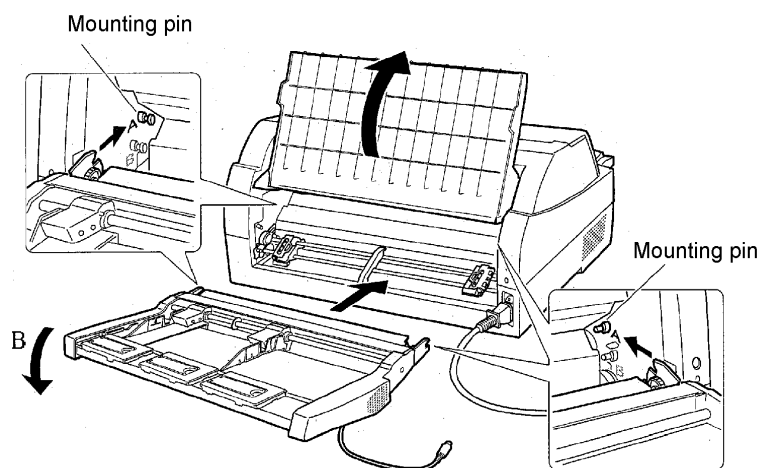
Before mounting the cut sheet feeder, turn off the printer power.

1. Turn off the printer power.

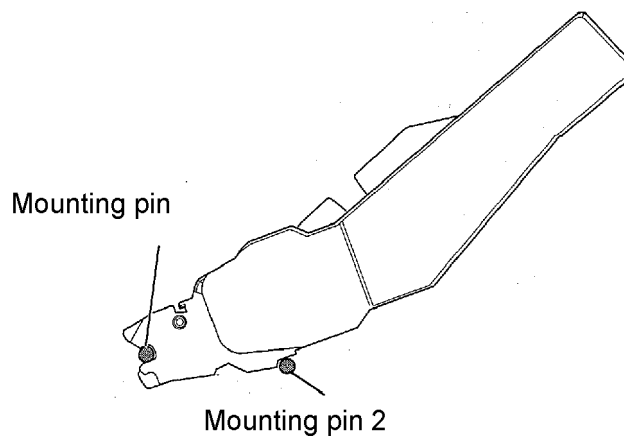
Confirm that the printer power is turned to the O side.

2. Installing the cut sheet feeder

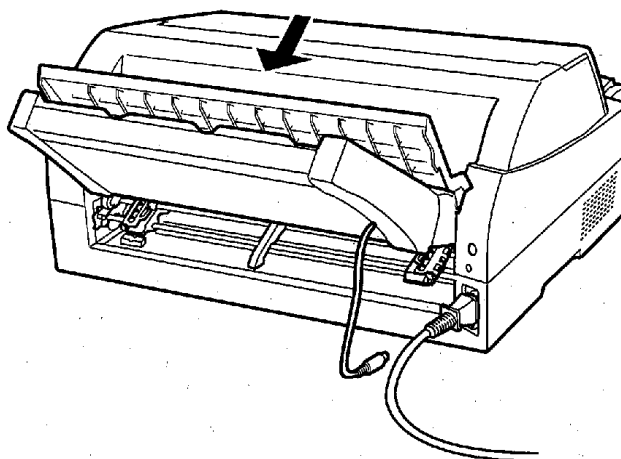
Open the rear stacker. Hold both sides of the cut sheet feeder and adjust the U slots made on both side of the cut sheet feeder to the mounting pins inside the printer. (Attach the slots with the letter A of the cut sheet feeder adjusted to that on the printer side.) Then, lower the cut sheet feeder 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.

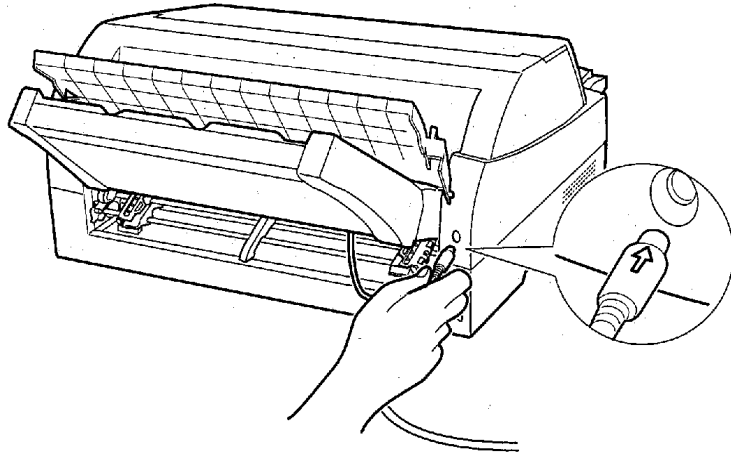


3. Close the rear stacker.

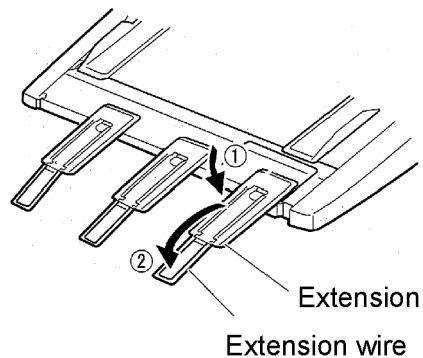


### 4. Connecting the cable

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

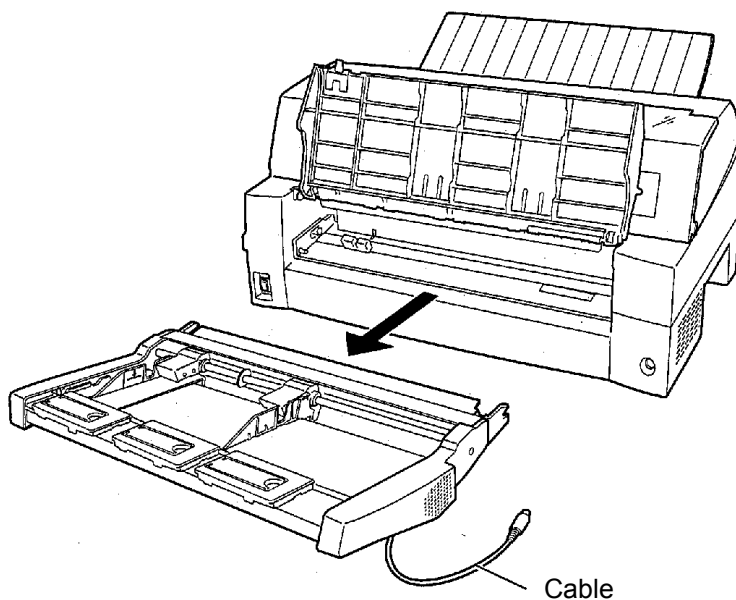
Before removing the cut sheet feeder, disconnect the cable.



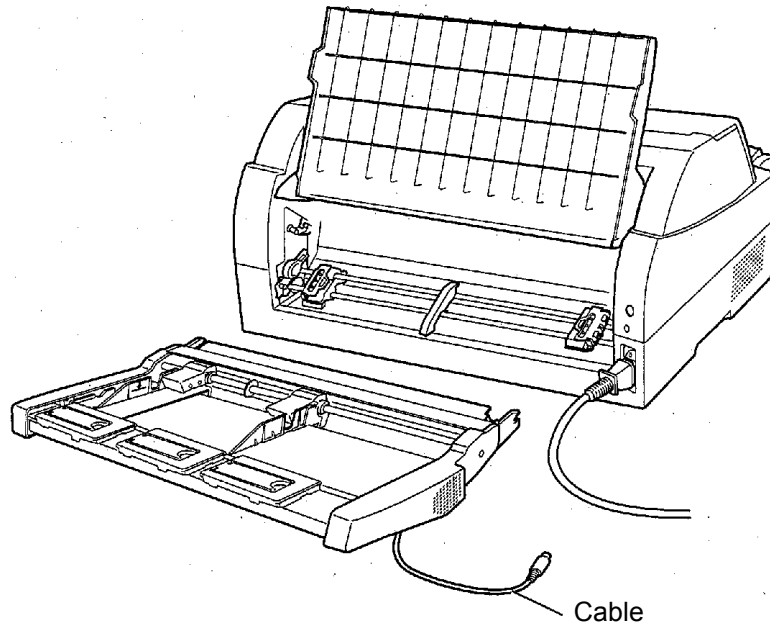
### WARNING (Electric shock)

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.

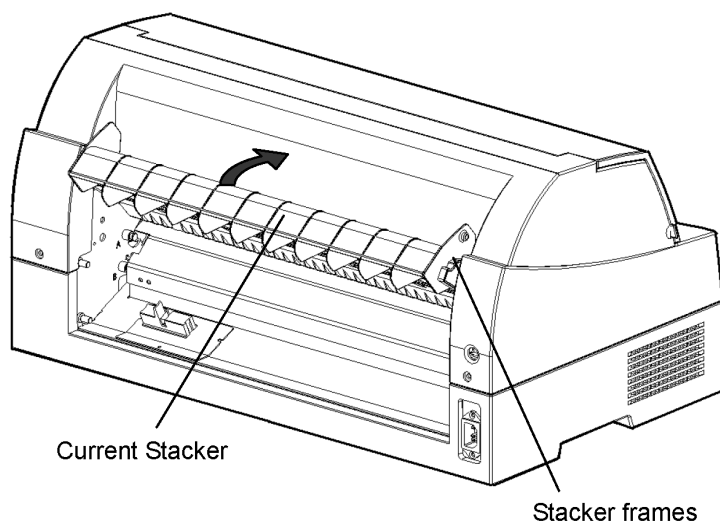
## **INSTALLING THE LARGE STACKER**

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.

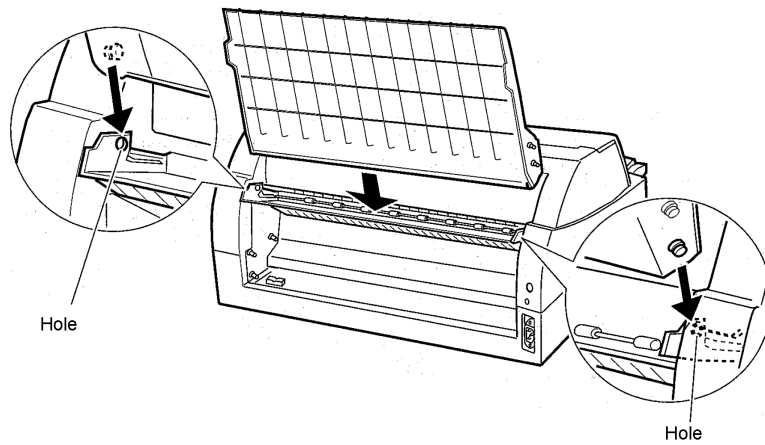
### **1 Removing the current stacker**

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.

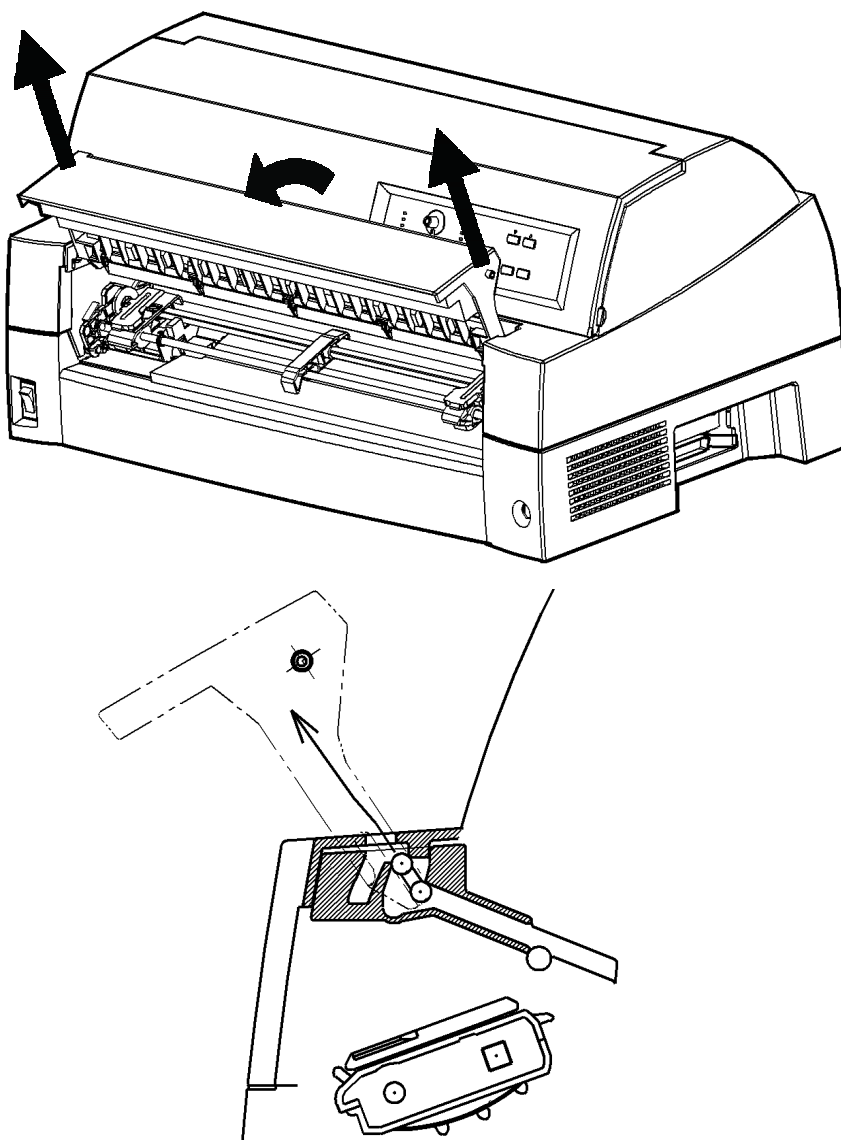


## INSTALLING THE PAPER TABLE

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

### 1 Removing the soundproof cover

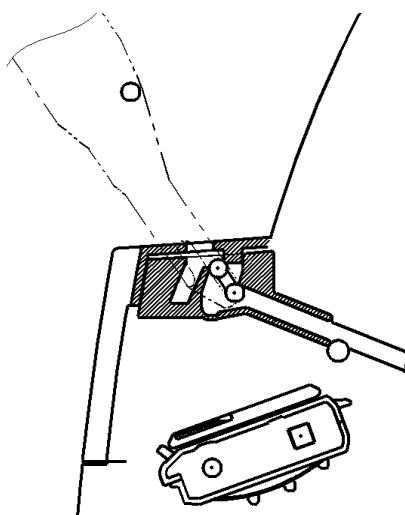
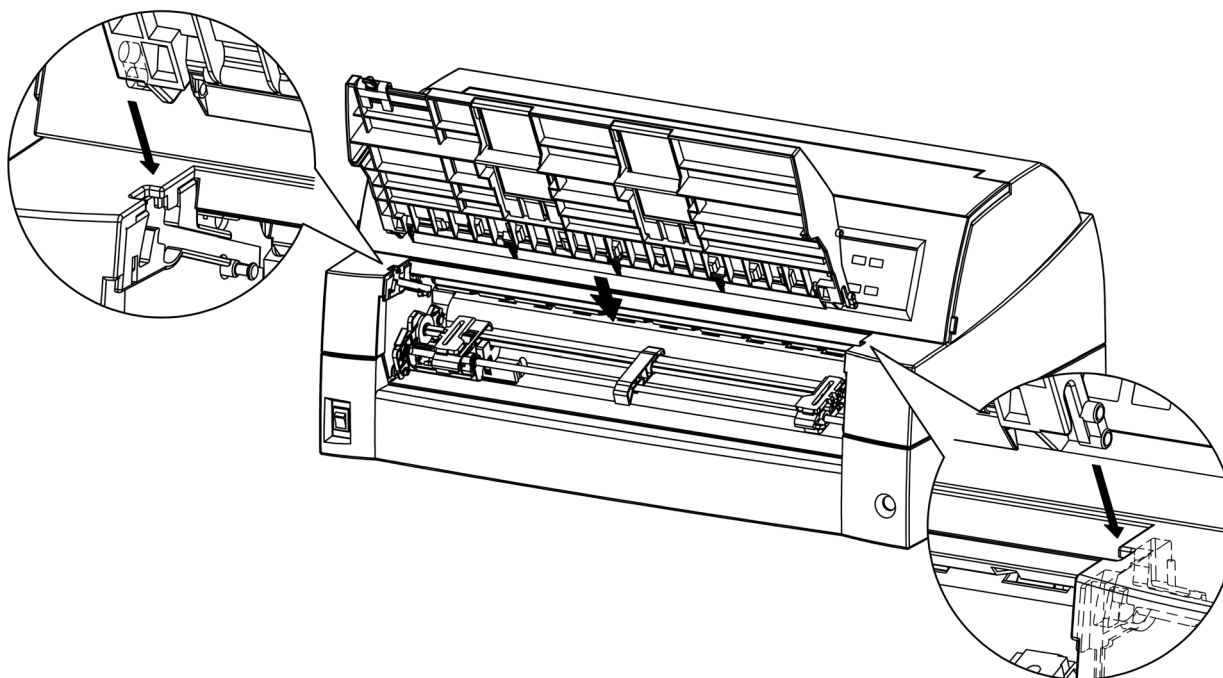
After opening the soundproof cover and adjusting it to a tilted position, remove the soundproof cover by pulling it to separate the left and right protrusions on the soundproof cover ends from the grooves on the cover.



## **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.

## 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 |                                                                           |

## ***SUPPLIES AND OPTIONS***

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## 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  $\pm 10\%$ ; 50/60 Hz

M33325B: 220 to 240 VAC  $\pm 10\%$ ; 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)

## PRINTER AND PAPER SPECIFICATIONS

---

### FUNCTIONAL SPECIFICATIONS

|                             |                                                                                                                                                                                                                 |                                                        |  |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--|
| <b>Print method</b>         | Impact dot matrix with a 0.2 mm, 24-wire head                                                                                                                                                                   |                                                        |  |
| <b>Print direction</b>      | Bidirectional logic-seeking or unidirectional seeking                                                                                                                                                           |                                                        |  |
| <b>Character cell</b>       | 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                                                                                                                                                                                                     |                                                        |  |
| <b>Paper handling</b>       |                                                                                                                                                                                                                 |                                                        |  |
| Standard:                   | Common push tractor on front.<br>(Moving tractor unit to rear is possible)<br>Paper loading by LOAD button Advancing perforations to tear-off edge by TEAR OFF button<br>Parking continuous forms is available. |                                                        |  |
| Optional:                   | Paper Table for friction-feed (cut sheets).<br>Cut sheet feeder(for front or rear)<br>Tractor unit (for 2 <sup>nd</sup> tractor)                                                                                |                                                        |  |
| <b>Paper type</b>           | 1 to 5-copies for cut sheet feeder<br>1 to 9-copies for tractor and paper table                                                                                                                                 |                                                        |  |
| <b>Paper size</b>           |                                                                                                                                                                                                                 |                                                        |  |
| Continuous                  | Width:                                                                                                                                                                                                          | 102-420 mm (4-16.5 in)                                 |  |
|                             | Length:                                                                                                                                                                                                         | 102 mm (4 in) or greater                               |  |
| Cut sheets<br>(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<br>(2.76-16.5 in) |  |
|                             |                                                                                                                                                                                                                 | 100-420 mm for front cut sheet feeder<br>(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.

|                                  |                                                                                                                                                                                                                                                                 |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Paper thickness</b>           | Up to 0.65 mm (0.026 inch)                                                                                                                                                                                                                                      |
| <b>Page length</b>               |                                                                                                                                                                                                                                                                 |
| 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                                                                                                                                                                                                                   |
| <b>Number of copies</b>          | Up to 8, including the original<br>Up to 9, including the original<br>(At HI IMPACT mode)                                                                                                                                                                       |
| <b>Paper stack</b>               |                                                                                                                                                                                                                                                                 |
| Cut sheet                        | 100 sheets (A4 size, 1p, 55 kg/m <sup>2</sup> ) (The stack of cut sheets may decrease, depending upon the various paper conditions such as quality, the extent of curl, and storage environment.)                                                               |
| <b>Command sets (emulations)</b> |                                                                                                                                                                                                                                                                 |
| Resident                         | Fujitsu DPL24C PLUS<br>IBM Proprinter XL24E<br>Epson ESC/P2                                                                                                                                                                                                     |
| <b>Character sets</b>            |                                                                                                                                                                                                                                                                 |
| DPL24C+/XL24E:                   | <ul style="list-style-type: none"><li>• IBM PC character sets 1 and 2 (code pages 437)</li><li>• IBM PS/2 character sets (code pages and other national character sets (57 + 2 languages in total))</li><li>• Fujitsu character sets (691 characters)</li></ul> |
| ESC/P2:                          | <ul style="list-style-type: none"><li>• Italic character set Graphics character sets 1 and 2</li><li>• IBM PS/2 character sets (code pages) and other national character sets (61 + 2 languages in total)</li></ul>                                             |

## PRINTER AND PAPER SPECIFICATIONS

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### Fonts

|            |                                                                                                                                             |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Resident   | Nineteen fonts available                                                                                                                    |
| Bit map:   | Courier 10, Pica 10, OCR-B 10, OCR-A 10 ,<br>Prestige Elite 12, Boldface PS,<br>Correspondence, Compressed, Draft, and<br>High-speed Draft. |
| Scalable:  | Courier, Timeless, and Nimbus Sans ®; each<br>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**

|                    |                            |
|--------------------|----------------------------|
| <b>Print speed</b> | 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<br>(for 100 to 120 VAC) | United States |
|         | CSA C22.2 No. 60950-1<br>(for 100 to 120 VAC)   | Canada        |
| M33325B | EN 60950-1<br>(for 220 to 240 VAC)              | Germany       |

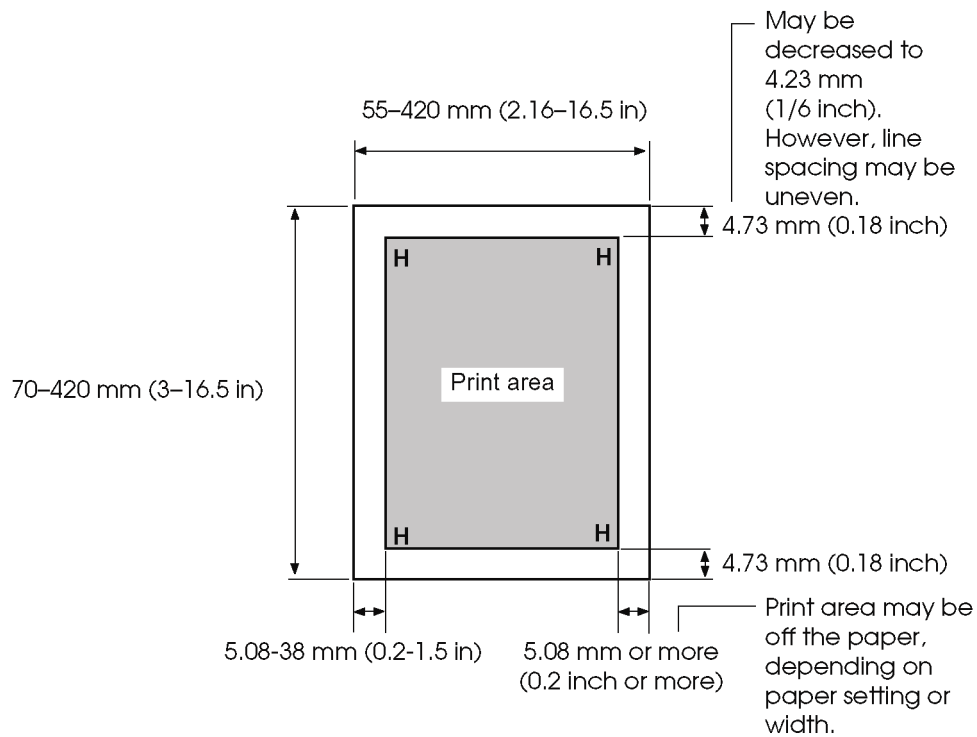
RFI regulation:

| Model   | Regulation                                      | Country       |
|---------|-------------------------------------------------|---------------|
| M33325A | Class B of FCC Part 15B<br>(for 100 to 120 VAC) | United States |

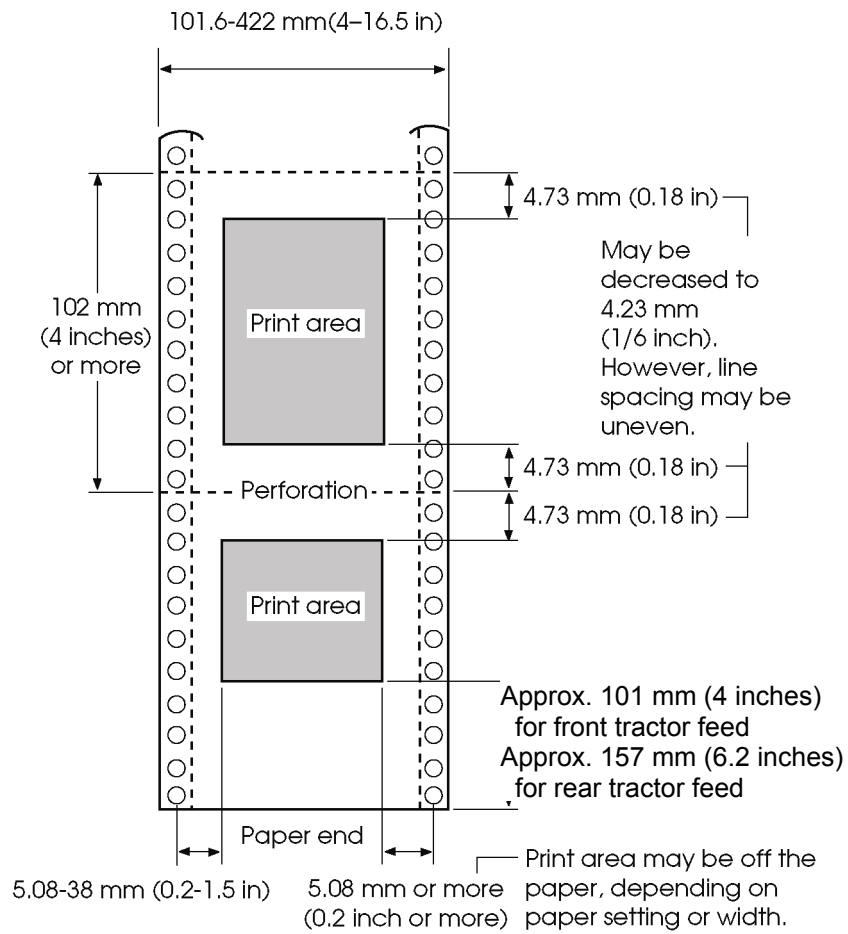
**PAPER  
SPECIFICATIONS**

**Print Area**

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



***Print area for single sheets***

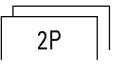
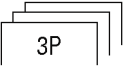
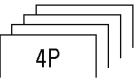

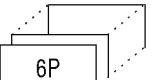


**Print area for continuous forms**

## Paper Thickness

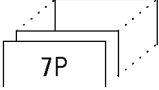
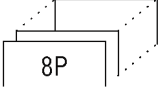
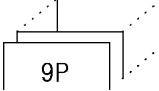
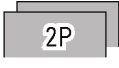
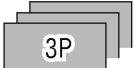
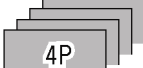

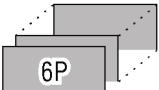
Paper thickness is given by the weight of the paper in either grams per square meter ( $\text{g/m}^2$ ) or in pounds per bond (lbs/bond). The following table shows the allowable paper thickness for one-part paper or for each sheet of multipart paper. The total thickness must not exceed 0.65 mm (0.026 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 $\text{g/m}^2$ (40-70 kg or 12-22 lb) |
| Carbonless<br><br><br><br><br> | Top             | 40-64 $\text{g/m}^2$ (34-55 kg or 11-17 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Bottom          | 40-81 $\text{g/m}^2$ (34-70 kg or 11-22 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Top             | 40-50 $\text{g/m}^2$ (34-43 kg or 11-13 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Middle          | 40-50 $\text{g/m}^2$ (34-43 kg or 11-13 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Bottom          | 40-81 $\text{g/m}^2$ (34-70 kg or 11-22 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Top             | 40 $\text{g/m}^2$ (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Middle (2-3p)   | 40 $\text{g/m}^2$ (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Bottom          | 40-81 $\text{g/m}^2$ (34-70 kg or 11-22 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Top             | 40 $\text{g/m}^2$ (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Middle (2-4p)   | 40 $\text{g/m}^2$ (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Bottom          | 40-64 $\text{g/m}^2$ (34-55 kg or 11-17 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Top             | 40 $\text{g/m}^2$ (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Middle (2-5p)   | 40 $\text{g/m}^2$ (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Bottom          | 40-64 $\text{g/m}^2$ (34-55 kg or 11-17 lb) |

kg: Weight in kilograms of 1000 sheets of  $788 \times 1091$  mm paper ( $1.16 \text{ g/m}^2$ )

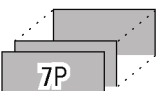
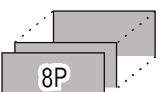
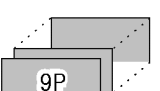

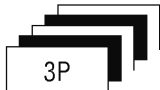
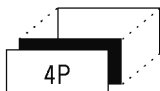

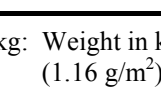
lb: Weight in pounds of 500 sheets of  $17 \times 22$  inch paper ( $3.76 \text{ g/m}^2$ )

| Type of Paper                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Number of Parts | Thickness                                     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------------------------------------|
| <b>Carbonless</b><br><br><br>                                                                                                                                                                                        | Top             | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Middle (2-6p)   | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Top             | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Middle (2-7p)   | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb) |
| <b>Carbon-backed</b><br><br><br><br><br> | Top             | 40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Top             | 40-52 g/m <sup>2</sup> (34-45 kg or 11-14 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Middle          | 40-52 g/m <sup>2</sup> (34-45 kg or 11-14 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Top             | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Middle (2-3p)   | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-81 g/m <sup>2</sup> (34-70 kg or 11-22 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Top             | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Middle (2-4p)   | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb) |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Top             | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Middle (2-5p)   | 40 g/m <sup>2</sup> (34 kg or 11 lb)          |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Bottom          | 40-64 g/m <sup>2</sup> (34-55 kg or 11-17 lb) |

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

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

## PRINTER AND PAPER SPECIFICATIONS

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

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

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

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# 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 <sub>1</sub> ) (n <sub>2</sub> ) |
| n <sub>1</sub> = 0:Normal            |                                             |
| 1:Outline                            |                                             |
| 2:Shaded                             |                                             |
| 3:Outline and shaded                 |                                             |
| 4:Thin outline                       |                                             |
| 5:Thin shaded                        |                                             |
| 6:Thin outline and shaded            |                                             |
| n <sub>2</sub> = 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<br>(on: n = 1, off: n = 0)<br>This command does not adjust the line spacing.                                                                                                                                                                                                                                                                                                                                                              | ESC V (n)                                                                            |
| Multiwidth and height printing<br>n = 0: Not adjusted<br>1: Character pitch multiplied<br>2: Line spacing multiplied<br>3: Character pitch and line spacing multiplied<br>h <sub>1</sub> : Tens digit of horizontal multiple<br>h <sub>2</sub> : Units digit of horizontal multiple<br>v <sub>1</sub> : Tens digit of vertical multiple<br>v <sub>2</sub> : Units digit of vertical multiple<br>(0 ≤ h <sub>1</sub> h <sub>2</sub> or v <sub>1</sub> v <sub>2</sub> ≤ 11) | ESC u (n) (h <sub>1</sub> ) (h <sub>2</sub> )<br>(v <sub>1</sub> ) (v <sub>2</sub> ) |
| Condensed characters on                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SI or ESC SI                                                                         |
| Condensed characters off                                                                                                                                                                                                                                                                                                                                                                                                                                                  | DC2                                                                                  |
| Subscript or superscript printing on<br>(subscript: n = 1, superscript: n = 0)                                                                                                                                                                                                                                                                                                                                                                                            | ESC S (n)                                                                            |
| Subscript and superscript printing off                                                                                                                                                                                                                                                                                                                                                                                                                                    | ESC T                                                                                |
| Select underline type<br>n = 0: Single line<br>1: Bold single line<br>2: Extremely bold single line<br>3: Double line<br>4: Bold double line<br>5: Extremely bold double line                                                                                                                                                                                                                                                                                             | ESC e U (n)                                                                          |
| Underline on/off<br>(on: n=1, off: n=0)                                                                                                                                                                                                                                                                                                                                                                                                                                   | ESC- (n)                                                                             |
| Overline on/off<br>(on: n=1, off: n=0)                                                                                                                                                                                                                                                                                                                                                                                                                                    | ESC e o (n)                                                                          |

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

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

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

| Function                                                                                                                                                                    | Command                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|
| Set page length to n inches<br>( $1 \leq n \leq 22$ )                                                                                                                       | ESC C NUL (n) or<br>ESC e C NUL (n) or<br>ESC FF NUL (n) |
| Set page length to n/360 inch<br>( $n = n_1 \times 256 + n_2$ )<br>( $0 \leq n_1 \ n_2 \leq 255$ )<br>( $1 \leq n_1 \leq 256 + n_2 \leq 7920$ )                             | ESC e f (n <sub>1</sub> ) (n <sub>2</sub> )              |
| Character Set Control                                                                                                                                                       |                                                          |
| Select character set 1<br>Appendix E gives the character sets                                                                                                               | ESC 7                                                    |
| Select character set 2<br>Appendix E gives the character sets.                                                                                                              | ESC 6                                                    |
| Select international character set<br>n = 0:USA<br>1:France<br>2:Germany<br>3:United Kingdom<br>4:Denmark 1/Norway<br>5:Sweden/Finland<br>6:Italy<br>7:Spain<br>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 #                                                    |

| Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Command                                                                                                                 |                                  |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------|---|---|---------------|---|---|-----------------|---|---|---------------|-------|-------|---------------|---|---|--------------------------|---|---|--------------------------|---|---|----------------------------------|---|---|-------------------------|---------------|
| Select code table<br>n = 0:Code page 437<br>1:Code page 850<br>2:Code page 860<br>3:Code page 863<br>4:Code page 865<br>5:ISO 8859-1/ECMA 94<br><br>Select extended character by character number<br>(0 ≤ n <sub>1</sub> n <sub>2</sub> n <sub>3</sub> ≤ 664)<br>n <sub>1</sub> , n <sub>2</sub> , and n <sub>3</sub> are the hundreds, tens, and units digits.                                                                                                                                                                                                                                                                                                                                                                                                                                    | ESC e C (n)<br><br><br><br><br><br><br><br><br><br><br>ESC e E<br>(n <sub>1</sub> ) (n <sub>2</sub> ) (n <sub>3</sub> ) |                                  |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| Word Processing<br>Line justification on<br>Automatically center printing<br>Reset word processing features                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ESC m<br>ESC c<br>ESC x                                                                                                 |                                  |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| Font Selection and Downloading<br>Select font m with source and style set by n<br>• m (bits 0 and 1: Font device selection)<br><table border="1"><tr><td>Bit 1</td><td>Bit 0</td><td>Selection of font</td></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><br><br>• m (bits 2 and 3: Print quality specification)<br><table border="1"><tr><td>Bit 3</td><td>Bit 2</td><td>Print quality</td></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> | Bit 1                                                                                                                   | Bit 0                            | Selection of font | 0 | 0 | Resident font | 0 | 1 | Downloaded font | 1 | 0 | Resident font | Bit 3 | Bit 2 | Print quality | 0 | 0 | Original quality of font | 0 | 1 | Letter quality (360 dpi) | 1 | 0 | Correspondence quality (180 dpi) | 1 | 1 | Draft quality (120 dpi) | ESC % (m) (n) |
| Bit 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Bit 0                                                                                                                   | Selection of font                |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                                                       | Resident font                    |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                                                       | Downloaded font                  |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                                                       | Resident font                    |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| Bit 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Bit 2                                                                                                                   | Print quality                    |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                                                       | Original quality of font         |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                                                       | Letter quality (360 dpi)         |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                                                                                                                       | Correspondence quality (180 dpi) |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1                                                                                                                       | Draft quality (120 dpi)          |                   |   |   |               |   |   |                 |   |   |               |       |       |               |   |   |                          |   |   |                          |   |   |                                  |   |   |                         |               |

| Function                                              |                     |                     | Command |
|-------------------------------------------------------|---------------------|---------------------|---------|
| • n (bit 0 to 2: Specification of font number)        |                     |                     |         |
| (1) Resident fonts                                    |                     |                     |         |
| n                                                     | m (bit 1, 0) = 0, 0 | m (bit 1, 0) = 1, 0 |         |
| 0                                                     | Courier 10          | OCR-B               |         |
| 1                                                     | Prestige elite 12   | OCR-A               |         |
| 2                                                     | Draft               |                     |         |
| 3                                                     | Compressed          |                     |         |
| 4                                                     | Boldface PS         |                     |         |
| 5                                                     | Pica 10             |                     |         |
| 6                                                     | Correspondence      |                     |         |
| 7                                                     | High-speed draft    |                     |         |
| (2) Downloaded fonts                                  |                     |                     |         |
| n = 0: Downloaded font 0                              |                     |                     |         |
| 1: Downloaded font 1                                  |                     |                     |         |
| 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)                     |                     |                     |         |
| Select spacing mode (font attributes)                 |                     |                     |         |
| n = 0:Fixed pitch font                                |                     |                     |         |
| 1:Proportional spacing font                           |                     |                     |         |
| Select character pitch (n/360 inch, font attributes)  |                     |                     |         |
| (0 ≤ n <sub>1</sub> ≤ 255) (1 ≤ n <sub>2</sub> ≤ 255) |                     |                     |         |
| (n = n <sub>1</sub> × 256 + n <sub>2</sub> )          |                     |                     |         |
| Ex.n = 36: 10 pitch                                   |                     |                     |         |
| 30: 12 pitch                                          |                     |                     |         |
| 24: 15 pitch                                          |                     |                     |         |
| 21: 17 pitch                                          |                     |                     |         |
| Condense/enlarge vertically (font attributes)         |                     |                     |         |
| n = 1:Executed                                        |                     |                     |         |
| 0:Not executed                                        |                     |                     |         |
| Select point size (n/1200 inch, font attributes)      |                     |                     |         |
| (0 ≤ n <sub>1</sub> ≤ 255) (0 ≤ n <sub>2</sub> ≤ 255) |                     |                     |         |
| (n = n <sub>1</sub> × 256 + n <sub>2</sub> )          |                     |                     |         |
| Ex. n =166: 10 point                                  |                     |                     |         |

| Function                                                                                                                                                                                          |  | Command     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------|
| Select character style (font attributes)<br>n = 0:Upright<br>1:Italic                                                                                                                             |  | ESC e i (n) |
| Select stroke weight (font attributes)<br>n = 249:-7 (reserved)<br>251:-5 (reserved)<br>253:-3 (light)<br>0:0 (medium)<br>3:3 (bold)<br>5:5 (black)<br>7:7 (ultrablack)                           |  | ESC e w (n) |
| Select typeface (font attributes)<br>n = 1:Pica<br>3:Courier (bitmap)<br>4:Nimbus Sans<br>5:Timeless<br>6:Gothic<br>8:Prestige<br>23:Boldface<br>130:OCR-A<br>131:OCR-B<br>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 <sup>®</sup>        |
| 133 | LQ      | PS      | -      | 10 pt | Nimbus Sans <sup>®</sup> Italic |
| 134 | LQ      | PS      | -      | 10 pt | Nimbus Sans <sup>®</sup> 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)       |

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

| Function                                                                                                                                                                                                                                               | Command                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bit Image Graphics<br>Graphics type m graphics<br><br>Graphics type m graphics<br><br>Single-density graphics<br>Double-density graphics<br>High-speed double-density graphics<br>Quadruple-density graphics<br>360 dot per inch 24-pin graphics       | ESC * (m)<br>(n <sub>1</sub> ) (n <sub>2</sub> ) (data)<br><br>ESC e b (m)<br>(n <sub>1</sub> ) (n <sub>2</sub> ) (data) or<br>ESC e B (m)<br>(n <sub>1</sub> ) (n <sub>2</sub> ) (data)<br><br>ESC K (n <sub>1</sub> ) (n <sub>2</sub> ) (data)<br>ESC L (n <sub>1</sub> ) (n <sub>2</sub> ) (data)<br>ESC Y (n <sub>1</sub> ) (n <sub>2</sub> ) (data)<br>ESC Z (n <sub>1</sub> ) (n <sub>2</sub> ) (data)<br>FS Z (n <sub>1</sub> ) (n <sub>2</sub> ) (data) |
| Cut Sheet Feeder Control<br>Feed a sheet from bin 1<br>Feed a sheet from bin 2<br>Feed a sheet from bin 3<br>Eject a page from the printer<br>Select bin 1 for following pages<br>Select bin 2 for following pages<br>Select bin 3 for following pages | ESC EM 1<br>ESC EM 2<br>ESC EM E<br>ESC EM R<br><br>// 1 //<br>// 2 //<br>// E //                                                                                                                                                                                                                                                                                                                                                                               |
| Initialize Printer<br>Reset printer<br>Reset printer<br>Initialize printer                                                                                                                                                                             | ESC @<br><br>ESC CR P<br>ESC SUB I                                                                                                                                                                                                                                                                                                                                                                                                                              |

| Function                      |  | Command                                   |
|-------------------------------|--|-------------------------------------------|
| Bar Code Printing             |  |                                           |
| Print bar code                |  | ESC DC4 (b) R                             |
| b: Total number of parameters |  | (c) (w) (h) (a)                           |
| R: (fixed)                    |  | (ch <sub>1</sub> ) ... (ch <sub>n</sub> ) |
| c: Type of bar code           |  |                                           |

| 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<sub>1</sub> ... ch<sub>n</sub>: 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 be 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.

| <b>w</b> | <b>Width of narrow bar</b> |
|----------|----------------------------|
| 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  $\div$  (parameter w)  $\times$  (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  $\leq$  23/180 if the standard is correct.

| <b>Narrow bar width</b> | <b>EAN 13/UCP-A</b>     | <b>EAN 8</b>            | <b>Others</b>           |
|-------------------------|-------------------------|-------------------------|-------------------------|
| 2 Dots<br>(16/1440)     | 162 Dots<br>(1296/1440) | 130 Dots<br>(1040/1040) | 108 Dots<br>(864/1440)  |
| 3 Dots<br>(24/1440)     | 234 Dots<br>(1872/1440) | 187 Dots<br>(1496/1040) | 135 Dots<br>(1080/1440) |
| 4 Dots<br>(32/1440)     | 312 Dots<br>(2496/1440) | 249 Dots<br>(1992/1040) | 162 Dots<br>(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<br>Additional specification<br>* 1                                | 0     | Added                                    |
|     |                                                                                   | 1     | Not added                                |
| 1   | Specification of OCR<br>character printing<br>(OCR-B is taken as the<br>standard) | 0     | Printed                                  |
|     |                                                                                   | 1     | Not printed                              |
| 2   | Printing position of<br>EAN, UPC flag<br>character                                | 0     | To the left of the<br>bar code           |
|     |                                                                                   | 1     | To the bottom<br>left of the bar<br>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<br>Symbols: +, -, \$/:<br>Start, Stop:<br>A,a,B,b,C,c,D,d,<br>T,t,N,n,*,E,e | $1 \leq n \leq 64$<br><br>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<br>Alphabets: A ~ Z:<br>Symbols:<br>+,-,\$/%SPACE<br>Start, Stop:*          | Check character<br>Additional code<br>$1 \leq n \leq 63$<br><br>Check character<br>Non-additional code<br>$1 \leq n \leq 64$               |
| Industrial 2 of 5               | Numerals: 0 ~ 9                                                                             |                                                                                                                                            |
| 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<br>Start code: A, B, C<br>Code set C: 0 ~ 9                                      | Check character<br>Additional code<br>$1 \leq n \leq 63$<br>Check character<br>Non-additional code<br>$1 \leq n \leq 64$<br>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<br>n = "F" :Friction<br>"T" :Rear Tractor<br>"M" : Front Tractor | ESC e T (n)                                                                     |
| Automatic paper thickness control                                                                   | ESC e P (n <sub>1</sub> ) (n <sub>2</sub> ) (n <sub>3</sub> ) (n <sub>4</sub> ) |
| Miscellaneous                                                                                       |                                                                                 |
| Sound bell                                                                                          | BEL                                                                             |
| Enable paper-out sensor                                                                             | ESC 9                                                                           |
| Ignore paper-out sensor                                                                             | ESC 8                                                                           |
| Typewriter mode on/off<br>(on:n=1, off: n=0)                                                        | ESC i (n)                                                                       |
| Move print head to home position                                                                    | ESC <                                                                           |
| Unidirectional printing on/off<br>(on:n=1, off: n=0)                                                | ESC U (n)                                                                       |
| Select CR code definition<br>n = 0:CR = CR only<br>1:CR = CR + LF                                   | ESC e r (n)                                                                     |
| Select LF code definition<br>n = 0:LF = LF only<br>1:LF = LF + CR                                   | ESC e l (n)                                                                     |
| Enter online setup mode                                                                             | ESC e ONLINE (data)                                                             |
| Move print head (unit: 1/180 inch)<br>(0 < n <sub>1</sub> < 255) (0 < n <sub>2</sub> < 255)         | ESC e h (n <sub>1</sub> ) (n <sub>2</sub> )                                     |

### 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          | <u>DPL24C+</u> , XL24E, ESC/P2                                                                                                                                                | Controllable in online setup mode                                                 |
| Font             | <u>COUR 10</u> , PRSTG 12, COMPRSD, BOLDPCE, 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<br>ESC e F<br>ESC %                                                       |
| Quality          | <u>LETTER</u> , REPORT, DRAFT, HI-DRFT                                                                                                                                        | ESC e q                                                                           |
| Pitch            | 2.5, 3, 5, 6, <u>10</u> , 12, 15, 17, 18, 20 CPI or PROP SP                                                                                                                   | ESC e p<br>ESC e H<br>ESC h<br>ESC US<br>ESC M<br>ESC P<br>ESC p ESC i<br>ESC e s |
| Line space       | 1, 2, 3, 4, 5, <u>6</u> , 7, 8, LPI                                                                                                                                           | ESC e V<br>ESC 0 ESC 1<br>ESC 2<br>ESC 3<br>ESC A                                 |
| Character width  | <u>NORMAL</u> , 2 TIMES, 4 TIMES                                                                                                                                              | ESC W<br>SO or ESC SO<br>(DC4) ESC u<br>ESC !                                     |
| Character height | <u>NORMAL</u> , 2 TIMES, 4 TIMES                                                                                                                                              | ESC V<br>ESC u                                                                    |

Underline: Factory default

( ): Cancel command

**COMMAND SETS (DPL24CPLUS)**

---

| Item        | Selectable options in setup mode                                                                                                                                                                                                                                                                                                                                                  | Command                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Attributes  | <u>NONE</u> , ITALICS, CONDNSD, SHADOW, BOLD                                                                                                                                                                                                                                                                                                                                      | ESC 4 (ESC 5)<br>SI or ESC SI<br>(DC2)<br>ESC E (ESC F)<br>ESC G (ESC H)<br>ESC e i ESC ! |
| Page length | 3.0, 3.5, 4.0, 5.0, 5.5, 6.0, 7.0, 8.0, 8.5, <u>11.0</u> , 11.6, 12.0, 14.0, 18.0 IN                                                                                                                                                                                                                                                                                              | ESC C NUL<br>ESC e C NUL<br>ESC FF NUL<br>ESC C<br>ESC e C<br>ESC FF                      |
| Left end    | <u>1</u> , 2, 3, ... , 41 COLM                                                                                                                                                                                                                                                                                                                                                    | Controllable in online setup mode                                                         |
| Top margin  | <u>1</u> , 2, 3, ... , 10 LINE                                                                                                                                                                                                                                                                                                                                                    | Controllable in online setup mode                                                         |
| Language    | USA, UK, GERMAN, FRENCH, ITALIAN, SPANISH, SWEDISH, FINNISH, DANISH1, DANISH2, NORWEGN, <u>PAGE437</u> , PAGE850, PAGE860, PAGE863, PAGE865 ISO8859, ECMA94                                                                                                                                                                                                                       | ESC R<br>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, <u>SET2</u>                                                                                                                 | ESC7 ESC6                         |
| Perforation skip | SKIP, <u>NO-SKIP</u>                                                                                                               | ESC N (ESC O)                     |
| Paper width      | 8.0 IN, 11.0 IN, 11.4 IN, <u>13.6IN</u> , (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        | <u>NO-SLSH</u> , SLASH                                                                                                             | Controllable in online setup mode |
| DC3              | <u>ENABLE</u> , DISABLE                                                                                                            | Controllable in online setup mode |
| CR code          | <u>CR-ONLY</u> , CR & LF                                                                                                           | ESC e r                           |
| LF code          | LF-ONLY, <u>LF &amp; CR</u>                                                                                                        | ESC e l                           |
| Right end wrap   | <u>WRAP</u> , OVR-PRT                                                                                                              | Controllable in online setup mode |
| Paper-out        | <u>CNTOONLY</u> , DETECT, IGNORE                                                                                                   | ESC 9 (ESC 8)                     |
| Print direction  | <u>BI-DIR</u> , UNI-DIR                                                                                                            | ESC U                             |
| Print mode       | <u>NORMAL</u> , QUIET                                                                                                              | Controllable in online setup mode |
| High Impact      | <u>DISABLE</u> , 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.

| Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Command                                                                               |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------|---------|-----------|-----------|-----------|---|--------|-----------|---|--------|-----------|----|-----------|--------|----|--------|--------|----|--------|--------|----|-----------|--------|----|--------|--------|----|--------|--------|--|
| Print Mode Control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                       |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| Double-strike (bold) printing on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ESC G                                                                                 |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| Double-strike (bold) printing off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ESC H                                                                                 |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| Emphasized (shadow) printing on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ESC E                                                                                 |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| Emphasized (shadow) printing off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ESC F                                                                                 |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| One-line double-width characters on                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | SO or ESC SO                                                                          |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| One-line double-width characters off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DC4                                                                                   |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| Double-width characters on/off<br>(on: $n = 1$ , off: $n = 0$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ESC W (n)                                                                             |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| Double-height/double-width characters<br>$n_1 = 4, n_2 = 0, m_1 = 0, m_2 = 0$<br>$m_3$ controls character height and line spacing:                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ESC [ @ (n <sub>1</sub> )(n <sub>2</sub> )<br>(m <sub>1</sub> ) ... (m <sub>4</sub> ) |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| <table border="1"><thead><tr><th>m<sub>3</sub></th><th>Height</th><th>Spacing</th></tr></thead><tbody><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></tbody></table> | m <sub>3</sub>                                                                        | Height    | Spacing | 0         | Unchanged | Unchanged | 1 | Normal | Unchanged | 2 | Double | Unchanged | 16 | Unchanged | Single | 17 | Normal | Single | 18 | Double | Single | 32 | Unchanged | Double | 33 | Normal | Double | 34 | Double | Double |  |
| m <sub>3</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Height                                                                                | Spacing   |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Unchanged                                                                             | Unchanged |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Normal                                                                                | Unchanged |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Double                                                                                | Unchanged |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Unchanged                                                                             | Single    |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Normal                                                                                | Single    |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Double                                                                                | Single    |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 32                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Unchanged                                                                             | Double    |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Normal                                                                                | Double    |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 34                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Double                                                                                | Double    |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| $m_4$ controls character width:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                       |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| <table border="1"><thead><tr><th>m<sub>3</sub></th><th>Height</th></tr></thead><tbody><tr><td>0</td><td>Unchanged</td></tr><tr><td>1</td><td>Normal</td></tr><tr><td>2</td><td>Double</td></tr></tbody></table>                                                                                                                                                                                                                                                                                                                                                                                         | m <sub>3</sub>                                                                        | Height    | 0       | Unchanged | 1         | Normal    | 2 | Double |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| m <sub>3</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Height                                                                                |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Unchanged                                                                             |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Normal                                                                                |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Double                                                                                |           |         |           |           |           |   |        |           |   |        |           |    |           |        |    |        |        |    |        |        |    |           |        |    |        |        |    |        |        |  |

| Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Command                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Condensed characters on<br>Condensed and elite characters off<br>Subscript or superscript printing on<br>(subscript: $n = 1$ , superscript: $n = 0$ )<br>Subscript and superscript printing off<br>Underline on/off (on: $n = 1$ , off: $n = 0$ )<br>Overline on/off (on: $n = 1$ , off: $n = 0$ )                                                                                                                                                                                                                                                                                                               | SI or ESC SI<br>DC2<br>ESC S (n)<br>ESC T<br>ESC - (n)<br>ESC_(n)                                                 |
| Horizontal Control<br>Space<br>Backspace<br>Carriage return<br>Elite characters on<br>Proportionally spaced characters on/off<br>(on:n= 1, off: n= 0)                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SP<br>BS<br>CR<br>ESC:<br>ESC P (n)                                                                               |
| Vertical Control<br>Line feed<br>Form feed<br>Advance papern/216 inch ( $1 \leq n \leq 255$ )<br>Advance papern/180 inch (in AG mode)<br>( $1 \leq n \leq 255$ )<br>Set line spacing to 1/8 lines<br>Set line spacing to 7/72 inch<br>Set line spacing to n/216 inch<br>( $0 \leq n \leq 255$ )<br>Set line spacing to n/180 inch (in AG mode)<br>( $0 \leq n \leq 255$ )<br>Preset line spacing to n/72 inch<br>( $1 \leq n \leq 255$ )<br>Preset line spacing to n/60 inch (in AG mode)<br>( $1 \leq n \leq 255$ )<br>Set line spacing to 1/6 inch or to the value<br>preset by line spacing command ESC A (n) | LF<br>FF<br>ESC J (n)<br>ESC J (n)<br>ESC 0<br>ESC 1<br>ESC 3 (n)<br>ESC 3 (n)<br>ESC A (n)<br>ESC A (n)<br>ESC 2 |

| Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Command                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Change graphics line spacing base to<br>1/216 or 1/180 inch (for ESC J and ESC 3)<br>$m_1 = 4, m_2 = 0$<br>$0 \leq t_1 \leq 255, 0 \leq t_2 \leq 255, t_3 = 0$<br>$t_4 = 180 \text{ or } 216$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | ESC [ \ (m <sub>1</sub> ) (m <sub>2</sub> )<br>(t <sub>1</sub> ) ... (t <sub>4</sub> )                                                                                                                            |
| Tabulation<br>Horizontal tab execution<br>Set horizontal tabs<br>The values of n <sub>1</sub> to n <sub>k</sub> in this command<br>are the ASCII values of the print columns<br>(at the current character width) at which<br>tabs are to be set. (1 ≤ n ≤ 255) (1 ≤ k ≤ 28)<br>Clear all horizontal tabs<br>Move print position right by n/120 inch<br>(0 ≤ n <sub>1</sub> , n <sub>2</sub> ≤ 255) (n = n <sub>1</sub> + n <sub>2</sub> × 256)<br>Vertical tab execution<br>Set vertical tabs<br>The values of n <sub>1</sub> to n <sub>k</sub> in this command<br>are the ASCII values of the lines (at the<br>current line spacing) at which tabs are to be<br>set. (1 ≤ n ≤ 255) (1 ≤ k ≤ 64)<br>Clear all vertical tabs<br>Reset tabs to default values | HT<br>ESC D (n <sub>1</sub> )...<br>(n <sub>k</sub> ) NUL<br><br>ESC D NUL<br>ESC d (n <sub>1</sub> )(n <sub>2</sub> )<br><br>VT<br>ESC B (n <sub>1</sub> )...<br>(n <sub>k</sub> ) NUL<br><br>ESC B NUL<br>ESC R |
| Page Formatting<br>Set left margin at column n and right<br>margin at column m (0 ≤ n, m ≤ 255)<br>Set perforation skip by n lines<br>(1 ≤ n ≤ 255)<br>Perforation skip off<br>Set page length to n lines (1 ≤ n ≤ 255)<br>Set page length to n inches (1 ≤ n ≤ 22)<br>Set top of form                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ESC X (n) (m)<br><br>ESC N (n)<br><br>ESC O<br>ESC C (n)<br>ESC C NUL (n)<br>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<br>(chars.: codes of characters to print,<br>$0 \leq \text{chars.} \leq 255$ )                                                                                                                                                                                                                                                                      | ESC \ (n <sub>1</sub> )(n <sub>2</sub> )<br>(chars.)                                 |                |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |
| Print a character from all-character set<br>(char.: a code of character to print,<br>$0 \leq \text{char.} \leq 255$ )                                                                                                                                                                                                                                                                                              | ESC ^ (char.)                                                                        |                |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |
| Select code page table n<br>( $0 \leq n_1, n_2 \leq 255$ ) ( $n = n_1 + n_2 \times 256$ )                                                                                                                                                                                                                                                                                                                          | ESC [ T (n <sub>1</sub> )(n <sub>2</sub> )<br>0 0 (c <sub>1</sub> )(c <sub>2</sub> ) |                |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |
| <table><tr><th>c<sub>1</sub></th><th>c<sub>2</sub></th><th>Code page ID</th></tr><tr><td>0</td><td>0</td><td>Ignore command</td></tr><tr><td>1</td><td>181</td><td>Code page 437</td></tr><tr><td>3</td><td>82</td><td>Code page 850</td></tr><tr><td>3</td><td>92</td><td>Code page 860</td></tr><tr><td>3</td><td>95</td><td>Code page 863</td></tr><tr><td>3</td><td>97</td><td>Code page 865</td></tr></table> | c <sub>1</sub>                                                                       | c <sub>2</sub> | 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 |  |
| c <sub>1</sub>                                                                                                                                                                                                                                                                                                                                                                                                     | c <sub>2</sub>                                                                       | 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  |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |
| Clear input buffer                                                                                                                                                                                                                                                                                                                                                                                                 | CAN                                                                                  |                |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |
| Select printer                                                                                                                                                                                                                                                                                                                                                                                                     | DC1                                                                                  |                |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |
| Deselect printer (ignore input)                                                                                                                                                                                                                                                                                                                                                                                    | ESC Q #                                                                              |                |              |   |   |                |   |     |               |   |    |               |   |    |               |   |    |               |   |    |               |  |

| Function                                                                                                                                                                                                                                                                           | Command                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Downloading<br>Select resident or downloaded font<br>Ex.n = 0:Resident Draft<br>2:Resident Courier<br>4:Downloaded Draft<br>6:Downloaded Courier<br>Create download font                                                                                                           | ESC I (n)<br><br>ESC = (n <sub>1</sub> ) (n <sub>2</sub> )<br>ID (m <sub>1</sub> ) (m <sub>2</sub> ) (data)                                                                                                                                                                                                                     |
| Bit Image Graphics<br>Single-density graphics<br>Double-density graphics<br>High-speed double-density graphics<br>Quadruple-density graphics<br>High-resolution graphics<br><br>Select graphics mode (in AG mode only)                                                             | ESC K (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC L (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC Y (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC Z (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC [ g (n <sub>1</sub> )(n <sub>2</sub> )<br>(m) (data)<br>ESC * (m) (c <sub>1</sub> ) (c <sub>2</sub> )<br>(data) |
| Cut Sheet Feeder Control<br>Feed a sheet from bin 1<br>Feed a sheet from bin 2<br>Feed a sheet from bin 3<br>Eject a page from the printer<br>Select bin 1 for following pages<br>Select bin 2 for following pages<br>Select bin 3 for following pages<br>Change bins at next page | ESC EM 1<br>ESC EM 2<br>ESC EM E<br>ESC EM R<br>// 1 //<br>// 2 //<br>// E //<br>// C //                                                                                                                                                                                                                                        |
| Print Option Control<br>Friction feed selection<br>Rear tractor feed selection<br>Front tractor feed selection<br>Cut sheet feed selection                                                                                                                                         | // F //<br>// T //<br>// M //<br>// S //                                                                                                                                                                                                                                                                                        |
| Miscellaneous<br>Sound the bell<br>Unidirectional printing on/off<br>(on:n= 1, off:n= 0)<br>Add a carriage return to all line feeds<br>(on:n= 1, off:n= 0)<br>Printer offline<br>Enter online setup mode<br>Select default settings                                                | BEL<br>ESC U (n)<br><br>ESC 5 (n)<br><br>ESC j<br>ESC e ONLINE (data)<br>ESC [ K (n <sub>1</sub> )(n <sub>2</sub> )<br>(i) (ID) (p <sub>1</sub> )(p <sub>2</sub> )                                                                                                                                                              |

**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                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| Set character pitch to $(n_1 + n_2 \times 256)/360$ inch<br>( $0 \leq n_1 \leq 255$ ) ( $0 \leq n_2 \leq 4$ )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | ESC c ( $n_1$ )( $n_2$ )                                                                                             |
| Select character pitch (specify unit of pitch)<br>$n_1 = 1, n_2 = 0$<br>d = 10 to 19: $10/3600$ inch = $1/360$ inch<br>d = 20 to 29: $20/3600$ inch = $1/180$ inch<br>d = 30 to 39: $30/3600$ inch = $1/120$ inch<br>d = 40 to 49: $40/3600$ inch = $1/90$ inch<br>d = 50 to 59: $50/3600$ inch = $1/72$ inch<br>d = 60 to 69: $60/3600$ inch = $1/60$ inch                                                                                                                                                                                                                                                                                           | ESC ( U ( $n_1$ )( $n_2$ ) (d)                                                                                       |
| Vertical Control<br>Line feed<br>Form feed<br>Advance paper n/180 inch ( $1 \leq n \leq 255$ )<br>Set line spacing to 1/8 inch<br>Set line spacing to n/180 inch ( $0 \leq n \leq 255$ )<br>Set line spacing to n/60 inch ( $0 \leq n \leq 127$ )<br>Set line spacing to 1/6 inch<br>Set line spacing to n/360 inch ( $0 \leq n \leq 255$ )                                                                                                                                                                                                                                                                                                           | LF<br>FF<br>ESC J (n)<br>ESC 0<br>ESC 3 (n)<br>ESC A (n)<br>ESC 2<br>ESC + (n)                                       |
| Tabulation<br>Horizontal tab execution<br>Set horizontal tabs<br>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.<br>( $1 \leq n \leq 255$ ) ( $1 \leq k \leq 32$ )<br>Move print position n/120 inch (for draft) <sup>(*)</sup><br>or n/180 inch (for letter) <sup>(*)</sup> right from left margin ( $n = n_1 + n_2 \times 256$ )<br>Move print position n/120 <sup>(*)</sup> inch (for draft)<br>Or n/180 <sup>(*)</sup> inch (for letter) left or right from the current position<br>( $n = n_1 + n_2 \times 256$ )<br>Vertical tab execution | HT<br>ESC D<br>( $n_1$ )... ( $n_k$ ) NUL<br><br>ESC \$ ( $n_1$ )( $n_2$ )<br><br>ESC \ ( $n_1$ )( $n_2$ )<br><br>VT |

| Function                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Command                                                                                                                                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Set vertical tabs<br>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.<br>$(1 \leq n \leq 255) (1 \leq k \leq 16)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | ESC B ( $n_1$ )...<br>( $n_k$ ) NUL                                                                                                                                                                                                            |
| Move to dot line $(d_1 + d_2 \times 256)/360^{(*)}$ inch<br>$n_1 = 2, n_2 = 0$<br>$(0 \leq d_1 \leq 255) (0 \leq d_2 \leq 127)$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ESC ( V ( $n_1$ ) ( $n_2$ )<br>( $d_1$ ) ( $d_2$ )                                                                                                                                                                                             |
| Vertical relative move by $(d_1 + d_2 \times 256)/360^{(*)}$ inch<br>$n_1 = 2, n_2 = 0$<br>$(0 \leq d_1 \leq 255) (0 \leq d_2 \leq 127)$<br>$-32768 \leq d_1 + d_2 \times 256 \leq 32768$                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | ESC ( v ( $n_1$ ) ( $n_2$ )<br>( $d_1$ ) ( $d_2$ )                                                                                                                                                                                             |
| <b>Page Formatting</b><br>Set right margin to column $n$<br>$(1 \leq n \leq 255)$<br>Set left margin to column $n$<br>$(0 \leq n \leq 255)$<br>Set top and bottom margins from top of page<br>$n_1 = 4, n_2 = 0$ <ul style="list-style-type: none"> <li>Top margin = <math>(t_1 + t_2 \times 256)/360^{(*)}</math> inch<br/> <math>(0 \leq t_1 \leq 255) (0 \leq t_2 \leq 127)</math></li> <li>Bottom margin = <math>(b_1 + b_2 \times 256)/360^{(*)}</math> inch<br/> <math>(0 \leq b_1 \leq 255)</math><br/> <math>(0 \leq b_2 \leq 127)</math></li> </ul> Set perforation skip by $n$ lines<br>$(1 \leq n \leq 127)$<br>Perforation skip off<br>Set page length to $n$ lines $(1 \leq n \leq 127)$<br>Set page length to $n$ inches $(1 \leq n \leq 22)$<br>Set page length to $(d_1 + d_2 \times 256)/360^{(*)}$ inch<br>$n_1 = 2, n_2 = 0$<br>$(0 \leq d_1 \leq 255) (0 \leq d_2 \leq 127)$ | ESC Q ( $n$ )<br><br>ESC l ( $n$ )<br><br>ESC ( c ( $n_1$ ) ( $n_2$ )<br>( $t_1$ ) ( $t_2$ ) ( $b_1$ ) ( $b_2$ )<br><br>ESC N ( $n$ )<br><br>ESC O<br>ESC C ( $n$ )<br>ESC C NUL ( $n$ )<br>ESC ( C ( $n_1$ ) ( $n_2$ )<br>( $d_1$ ) ( $d_2$ ) |

\*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<br>$n_1 = 3, n_2 = 0$<br>$d_1 = 0$ :Active character set number 0<br>1:Active character set number 1<br>2:Active character set number 2<br>3:Active character set number 3<br>$d_2 = 0$ :Italic<br>1:PC 437 (USA)<br>3:PC 850 (Multilingual)<br>7:PC 860 (Portugal)<br>8:PC 863 (Canada-French)<br>9:PC 865 (Norway)<br>$d_3 = 0$ | ESC ( t ( $n_1$ ) ( $n_2$ )<br>( $d_1$ ) ( $d_2$ ) ( $d_3$ ) |
| Print $n_1 + n_2 \times 256$ characters from all-character set<br>$(0 \leq n_1 \leq 255) (0 \leq n_2 \leq 127)$<br>$(0 \leq n_1 + n_2 \times 256 \leq 255)$<br>$(0 \text{ character codes} \leq 254)$                                                                                                                                                                                          | ESC ( ^ ( $n_1$ )( $n_2$ )<br>(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<br>Select font<br>$n = 0$ :Resident character set<br>1:Downloaded character set<br>Select letter or draft quality<br>$n = 0$ :Draft<br>1:Letter                                                                                                                                                                                                                 | ESC % ( $n$ )<br><br>ESC x ( $n$ )                           |

| Function                                                                                                                                                                                                                                                                                                                                                                                         | Command                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| Select type style<br>• Bitmap font:<br>n = 0:Courier<br>1:Courier<br>2:Courier<br>3:Prestige<br>4:Courier<br>5:OCR-B<br>6:OCR-A<br>7:Courier<br>8:Courier<br>9:Courier<br>• Scalable font:<br>n = 0:Timeless<br>1:Nimbus Sans <sup>®</sup><br>2:Courier<br>3:Timeless<br>4:Timeless<br>5:Timeless<br>6:Timeless<br>7:Timeless<br>8:Timeless<br>9:Timeless                                        | ESC k (n)                                                                                                    |
| Set scalable font mode<br>• m sets character pitch.<br>m = 0:Keep previous pitch<br>1:Set proportional space mode<br>m ≥ 5:Select character pitch<br>(m/360 inch)<br>(Reset proportional space mode)<br>• n <sub>1</sub> and n <sub>2</sub> set point size of font.<br>Point size = (n <sub>1</sub> + n <sub>2</sub> × 256) × 0.5 point<br>(0 ≤ n <sub>1</sub> ≤ 255) (0 ≤ n <sub>2</sub> ≤ 127) | ESC X m (n <sub>1</sub> )(n <sub>2</sub> )                                                                   |
| Copy resident character set to download area                                                                                                                                                                                                                                                                                                                                                     | ESC : NUL(n)(s)                                                                                              |
| Create download font                                                                                                                                                                                                                                                                                                                                                                             | ESC & NUL (n <sub>1</sub> )(n <sub>2</sub> )<br>(d <sub>0</sub> ) (d <sub>1</sub> ) (d <sub>2</sub> ) (data) |

\* Indicates extended commands not supported by the original printer.

| Function                                                                                                                                                                                                                                                                                                                           | Command                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bit Image Graphics<br>Graphics type m graphics<br><br>Bit image mode definition<br>Single-density graphics<br>Double-density graphics<br>High-speed double-density graphics<br>Quadruple-density graphics<br>Select raster image graphics<br>$n_1 = 1, n_2 = 0$<br>d= 1: Raster image graphics mode<br>Print raster image graphics | ESC * (m) (n <sub>1</sub> )(n <sub>2</sub> )<br>(data)<br>ESC ? (s) (n)<br>ESC K (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC L (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC Y (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC Z (n <sub>1</sub> )(n <sub>2</sub> ) (data)<br>ESC ( G (n <sub>1</sub> )(n <sub>2</sub> ) (d)<br><br>ESC . (c)(v) (h) (m)<br>(n <sub>1</sub> )(n <sub>2</sub> ) (data) |
| Cut Sheet Feeder Control<br>Feed a sheet from bin 1<br>Feed a sheet from bin 2<br>Feed a sheet from bin 3<br>Eject a page from the printer<br>Select bin 1 for following pages<br>Select bin 2 for following pages<br>Select bin 3 for following pages<br>Change bins at next page                                                 | ESC EM 1<br>ESC EM 2<br>ESC EM E<br>ESC EM R<br>// 1 //<br>// 2 //<br>// E //<br>// C //                                                                                                                                                                                                                                                                                                                       |
| Print Option Control<br>Friction feed selection<br>Rear tractor feed selection<br>Front tractor feed selection<br>Cut sheet feed selection                                                                                                                                                                                         | // F //<br>// T //<br>// M //<br>// S //                                                                                                                                                                                                                                                                                                                                                                       |
| Miscellaneous<br>Sound the bell<br>Move print head to home position<br>Unidirectional printing on/off<br>(on:n = 1, off:n = 0)<br>Initialize printer<br>Enter online setup mode                                                                                                                                                    | BEL<br>ESC <<br>ESC U (n)<br><br>ESC @<br>ESC e ONLINE<br>(data)                                                                                                                                                                                                                                                                                                                                               |

## INTERFACE INFORMATION

This printer can communicate with a computer through a Centronics parallel interface, a RS-232C serial interface, a USB interface, or a LAN interface. You can specify the interface selection mode so that the printer uses which interface or it can automatically select the interface from which it first 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             | <u>Data Strobe</u><br>(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 $\mu$ s 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.<br><br>Logical 1 signals must go high at least 1 $\mu$ s before the falling edge of the <u>Data Strobe</u> signal and must stay high for at least 1 $\mu$ s after the rising edge. |
| 10      | 28             | <u>Acknowledge</u><br>(ACK)  | Output    | This pulse signal indicates that the printer has received data and is ready to accept the next set of data.<br><br>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<br>(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 $\mu\text{s}$ , 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 k $\Omega$ resistor                                                                                |
| 36      | –              | $\overline{\text{SLCT-IN}}$             | Input     | Not used                                                                                                                           |

## Nibble Mode

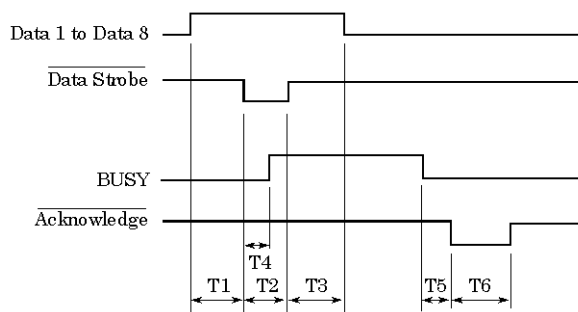
Pin numbers 2 to 9, 15 to 31, and 33 to 35 are the same as the conventional mode.

| 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:<br>This signal goes high when data being sent to the host is established.<br><br>Reverse idle phase:<br>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:<br>Data bit 3, data bit 7, then forward path (host to printer) busy status                                                                                                                              |
| 12      | 30             | Ack Data Req  | Output    | Reverse data transfer phase:<br>Data bit 2, then data bit 6<br><br>Reverse idle phase:<br>This signal is set high until the host requests data and, after that, follows the Data Available signal.                                   |
| 13      | —              | X Flag        | Output    | Reverse data transfer phase:<br>Data bit 1, then data bit 5                                                                                                                                                                          |

| Pin No. | Return Pin No. | Signal Name              | Direction | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------|----------------|--------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14      | –              | Host Busy                | Input     | <p>Reverse data transfer phase:<br/>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.</p> <p>Reverse idle phase:<br/>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.</p> |
| 32      | –              | <u>Data</u><br>Available | Output    | <p>Reverse data transfer phase:<br/>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.</p> <p>Reverse idle phase:<br/>This signal is used to indicate that data is available.</p>                                                                                                                                                                                                                                                                                                           |
| 36      | –              | 1284 Active              | Input     | <p>This signal goes high to cause the printer to enter the reverse data transfer phase (nibble mode).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

## 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.



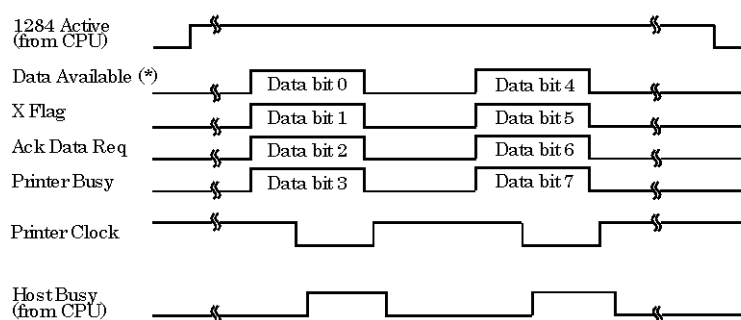
$T1, T2, T3 > 1 \mu s$

$T4 < 1 \mu s$

$0 \mu s < T5 < 3 \mu s$

$2 \mu s < T6 < 6 \mu s$

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.

| <b>Pin No.</b> | <b>Signal Name</b> | <b>Direction</b> | <b>Description</b>                                                                                                                                        |
|----------------|--------------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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

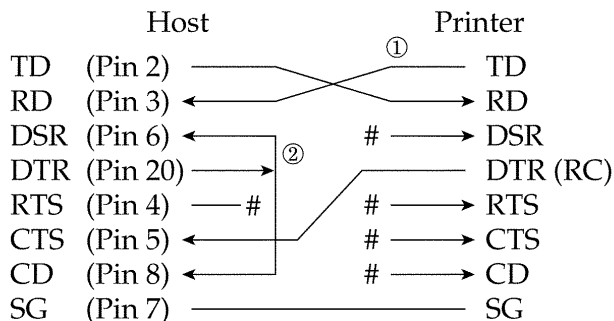
The serial options for the computer and the printer must match. Use the printer control panel, the computer operating system, or your software to change options specified as “selectable.”

|                    |                                                                                     |
|--------------------|-------------------------------------------------------------------------------------|
| 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 **HARDWARE** function (see Chapter 5).

DSR-disabled control offers simpler cabling and communication than does DSR-enabled control. DSR-disabled control can be used to interface with an IBM PC and most other 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.



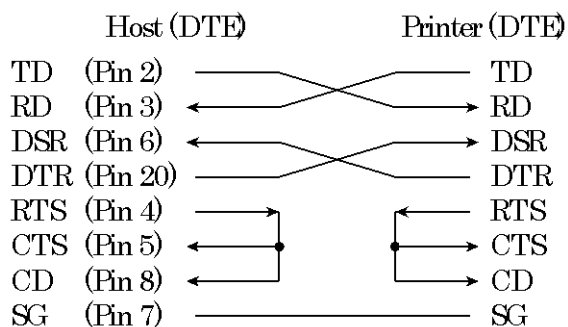
# indicates an open wire.

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 your computer documentation does not recommend a particular protocol, try DTR. The following table describes the three protocols.

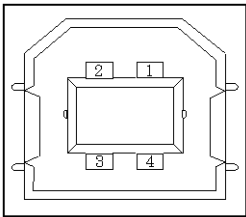
| Protocol           | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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
- Cable side

Type B receptacle (female)  
Upstream port  
Type B plug (male)

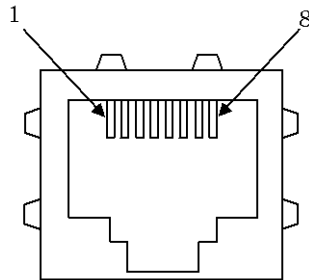
Specification

- 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   | —                | —       | —               |

## 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 | í | ë | í | í | í | í |
| 1   | SOH DC1 !  | 1 | A | Q | a | q   |   |   | SOH DC1 | í | í | í | í | í | í | í |
| 2   | STX DC2 "  | 2 | B | R | b | r   |   |   | STX DC2 | ó | ó | ó | ó | ó | ó | ó |
| 3   | ETX DC3 #  | 3 | C | S | c | s   |   |   | ETX DC3 | ú | ú | ú | ú | ú | ú | ú |
| 4   | EOT DC4 \$ | 4 | D | T | d | t   |   |   | EOT DC4 | ñ | ñ | ñ | ñ | ñ | ñ | ñ |
| 5   | ENQ NAK %  | 5 | E | U | e | u   |   |   | ENQ NAK | ñ | ñ | ñ | ñ | ñ | ñ | ñ |
| 6   | ACK SYN &  | 6 | F | V | f | v   |   |   | ACK SYN | á | á | á | á | á | á | á |
| 7   | BEL ETB '  | 7 | G | W | g | w   |   |   | BEL ETB | á | á | á | á | á | á | á |
| 8   | BS CAN (   | 8 | H | X | h | x   |   |   | BS CAN  | á | á | á | á | á | á | á |
| 9   | HT EM )    | 9 | I | Y | i | y   |   |   | HT EM   | á | á | á | á | á | á | á |
| A   | LF SUB *   | : | J | Z | j | z   |   |   | LF SUB  | á | á | á | á | á | á | á |
| B   | VT ESC +   | ; | K | [ | k | {   |   |   | VT ESC  | á | á | á | á | á | á | á |
| C   | FF FS ,    | < | L | \ | l |     |   |   | FF FS   | á | á | á | á | á | á | á |
| D   | CR GS -    | = | M | ] | m | }   |   |   | CR GS   | á | á | á | á | á | á | á |
| E   | SO RS .    | > | N | ^ | n | ~   |   |   | SO RS   | á | á | á | á | á | á | á |
| F   | SI US /    | ? | O | _ | o | DEL |   |   | SI US   | á | á | á | á | á | á | á |

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   |   |   | Q | E | á | í | ë | í | í | í |
| 1   | SOH DC1 !  | 1 | A | Q | a | q   |   |   | ü | æ | í | í | í | í | í | í |
| 2   | STX DC2 "  | 2 | B | R | b | r   |   |   | é | æ | ó | ó | ó | ó | ó | ó |
| 3   | ♦ DC3 #    | 3 | C | S | c | s   |   |   | á | ó | ú | ú | ú | ú | ú | ú |
| 4   | ♦ DC4 \$   | 4 | D | T | d | t   |   |   | á | ó | ñ | ñ | ñ | ñ | ñ | ñ |
| 5   | ♦ %        | 5 | E | U | e | u   |   |   | á | ó | ñ | ñ | ñ | ñ | ñ | ñ |
| 6   | ♦ SYN &    | 6 | F | V | f | v   |   |   | á | ó | ñ | ñ | ñ | ñ | ñ | ñ |
| 7   | BEL ETB '  | 7 | G | W | g | w   |   |   | ç | ù | ñ | ñ | ñ | ñ | ñ | ñ |
| 8   | BS CAN (   | 8 | H | X | h | x   |   |   | è | ý | ñ | ñ | ñ | ñ | ñ | ñ |
| 9   | HT EM )    | 9 | I | Y | i | y   |   |   | è | ó | ñ | ñ | ñ | ñ | ñ | ñ |
| A   | LF SUB *   | : | J | Z | j | z   |   |   | è | U | ñ | ñ | ñ | ñ | ñ | ñ |
| B   | VT ESC +   | ; | K | [ | k | {   |   |   | í | c | ñ | ñ | ñ | ñ | ñ | ñ |
| C   | FF FS ,    | < | L | \ | l |     |   |   | í | é | ñ | ñ | ñ | ñ | ñ | ñ |
| D   | CR GS -    | = | M | ] | m | }   |   |   | í | é | ñ | ñ | ñ | ñ | ñ | ñ |
| E   | SO RS .    | > | N | ^ | n | ~   |   |   | Á | Á | ñ | ñ | ñ | ñ | ñ | ñ |
| F   | SI US /    | ? | O | _ | o | DEL |   |   | Á | f | ñ | ñ | ñ | ñ | ñ | ñ |

## CHARACTER SETS

### 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       | â | ã | ä | å | æ | ç | è | é |
| 1   | SOH DC1    | !  | 1 | A | Q | a | q         | SOH DC1 | í | î | ï | ï | ï | ï | ï | ï |
| 2   | STX DC2    | "  | 2 | B | R | b | r         | STX DC2 | ó | ô | õ | ö | ÷ | ø | ù | ú |
| 3   | ETX DC3    | #  | 3 | C | S | c | s         | ETX DC3 | û | ü | ý | ÿ | ÿ | ÿ | ÿ | ÿ |
| 4   | EOT DC4    | \$ | 4 | D | T | d | t         | EOT DC4 | ñ | ñ | ñ | ñ | ñ | ñ | ñ | ñ |
| 5   | ENQ        | %  | 5 | E | U | e | u         | ENQ NAK | N | N | N | N | N | N | N | N |
| 6   | ACK SYN    | &  | 6 | F | V | f | v         | ACK SYN | à | á | â | ã | ä | å | æ | ç |
| 7   | BEL ETB    | '  | 7 | G | W | g | w         | BEL ETB | ê | ë | ë | ë | ë | ë | ë | ë |
| 8   | BS CAN     | (  | 8 | H | X | h | x         | BS CAN  | ê | ë | ë | ë | ë | ë | ë | ë |
| 9   | HT EM      | )  | 9 | I | Y | i | y         | HT EM   | ê | ë | ë | ë | ë | ë | ë | ë |
| A   | LF SUB     | *  | : | J | Z | j | z         | LF SUB  | ê | ë | ë | ë | ë | ë | ë | ë |
| B   | VT ESC     | +  | ; | K | [ | k | {         | VT ESC  | ê | ë | ë | ë | ë | ë | ë | ë |
| C   | FF FS      | ,  | < | L | \ | l |           | FF FS   | ê | ë | ë | ë | ë | ë | ë | ë |
| D   | CR GS      | -  | = | M | ] | m | }         | CR GS   | ê | ë | ë | ë | ë | ë | ë | ë |
| E   | SO RS      | .  | > | N | ^ | n | ~         | SO RS   | ê | ë | ë | ë | ë | ë | ë | ë |
| F   | SI US      | /  | ? | O | _ | o | DEL SI US | ê       | ë | ë | ë | ë | ë | ë | ë | ë |

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 | È | Á |   |   |   |   |   |   |    |
| 1   | SOH DC1 !  | 1 | A | Q | a | q   | ü | æ | í |   |   |   |   |   |   |    |
| 2   | STX DC2 "  | 2 | B | R | b | r   | é | Æ | ó |   |   |   |   |   |   |    |
| 3   | ETX DC3 #  | 3 | C | S | c | s   | ä | ö | ú |   |   |   |   |   |   |    |
| 4   | EOT DC4 \$ | 4 | D | T | d | t   | å | ø | û |   |   |   |   |   |   |    |
| 5   | ENQ %      | 5 | E | U | e | u   | ä | ö | ñ |   |   |   |   |   |   |    |
| 6   | ACK SYN &  | 6 | F | V | f | v   | å | ü | ä |   |   |   |   |   |   |    |
| 7   | BEL ETB '  | 7 | G | W | g | w   | ç | ù | å |   |   |   |   |   |   |    |
| 8   | BS CAN (   | 8 | H | X | h | x   | è | ý | ç |   |   |   |   |   |   |    |
| 9   | HT EM )    | 9 | I | Y | i | y   | ë | ö | ü |   |   |   |   |   |   |    |
| A   | LF SUB *   | : | J | Z | j | z   | è | ù | ü |   |   |   |   |   |   |    |
| B   | VT ESC +   | ; | K | [ | k | {   | í | ç | ½ |   |   |   |   |   |   |    |
| C   | FF FS ,    | < | L | \ | l |     | í | ç | ½ |   |   |   |   |   |   |    |
| D   | CR GS -    | = | M | ] | m | }   | í | ç | ½ |   |   |   |   |   |   |    |
| E   | SO RS .    | > | N | ^ | n | ~   | Ä | Å | « |   |   |   |   |   |   |    |
| F   | SI US /    | ? | O | _ | o | DEL | À | Á | » |   |   |   |   |   |   | SP |

## CHARACTER SETS

### 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)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ` | p | Ç | É | Á |   |   | À | ± | ≡ |
| 1   |   | !  | 1 | A | Q | R | a | q | ú | æ | í |   |   | Å | β | ± |
| 2   |   | "  | 2 | B | R |   | b | r | é | œ | ó |   |   | Ä | Γ | ± |
| 3   | ♥ |    | 3 | C | S | T | c | s | â | ô | ú |   |   | Å | π | ± |
| 4   | ♦ | \$ | 4 | D | T |   | d | t | à | ò | ñ |   |   | Å | Σ | ± |
| 5   | ♦ | \$ | 5 | E | U |   | e | u | ä | ö | â |   |   | Å | μ | ± |
| 6   | ♦ | \$ | 6 | F | V |   | f | v | å | ö | û |   |   | Å | τ | ± |
| 7   |   | '  | 7 | G | W |   | g | w | ç | ù | ø |   |   | Å | + | ± |
| 8   |   | (  | 8 | H | X |   | h | x | ê | ÿ | ç |   |   | Å | • | ± |
| 9   |   | )  | 9 | I | Y |   | i | y | ë | ÿ | ö |   |   | Å | • | ± |
| A   |   | *  | : | J | Z |   | j | z | è | ÿ | ü |   |   | Å | • | ± |
| B   |   | +  | ; | K | [ |   | k | l | é | ÿ | ï |   |   | Å | • | ± |
| C   |   | ,  | < | L | \ |   | l | m | ê | ÿ | ï |   |   | Å | • | ± |
| D   |   | -  | = | M | ^ |   | m | n | ë | ÿ | ï |   |   | Å | • | ± |
| E   |   | .  | > | N | ~ |   | n |   | » | ÿ | ï |   |   | Å | • | ± |
| F   |   | /  | ? | O | _ |   | o |   | » | ÿ | ï |   |   | Å | • | ± |

SWEDISH (Swedish)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | É | P | é | p | Ç | É | Á |   |   | À | ± | ≡ |
| 1   |   | !  | 1 | A | Q | R | a | q | ú | æ | í |   |   | Å | β | ± |
| 2   |   | "  | 2 | B | R |   | b | r | é | œ | ó |   |   | Ä | Γ | ± |
| 3   | ♥ |    | 3 | C | S | T | c | s | â | ô | ú |   |   | Å | π | ± |
| 4   | ♦ | \$ | 4 | D | T |   | d | t | à | ò | ñ |   |   | Å | Σ | ± |
| 5   | ♦ | \$ | 5 | E | U |   | e | u | ä | ö | â |   |   | Å | μ | ± |
| 6   | ♦ | \$ | 6 | F | V |   | f | v | å | ö | û |   |   | Å | τ | ± |
| 7   |   | '  | 7 | G | W |   | g | w | ç | ù | ø |   |   | Å | + | ± |
| 8   |   | (  | 8 | H | X |   | h | x | ê | ÿ | ç |   |   | Å | • | ± |
| 9   |   | )  | 9 | I | Y |   | i | y | ë | ÿ | ö |   |   | Å | • | ± |
| A   |   | *  | : | J | Z |   | j | z | è | ÿ | ü |   |   | Å | • | ± |
| B   |   | +  | ; | K | Å |   | k | ä | é | ÿ | ï |   |   | Å | • | ± |
| C   |   | ,  | < | L | Ö |   | l | ö | ê | ÿ | ï |   |   | Å | • | ± |
| D   |   | -  | = | M | A |   | m | ä | ë | ÿ | ï |   |   | Å | • | ± |
| E   |   | .  | > | N | Ü |   | n | ü | » | ÿ | ï |   |   | Å | • | ± |
| F   |   | /  | ? | O | _ |   | o |   | » | ÿ | ï |   |   | Å | • | ± |

GERMAN (German)

| L/H | 0 | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | \$ | P | ` | p | Ç | É | Á |   |   | À | ± | ≡ |
| 1   |   | !  | 1 | A | Q  | R | a | q | ú | æ | í |   |   | Å | β | ± |
| 2   |   | "  | 2 | B | R  |   | b | r | é | œ | ó |   |   | Ä | Γ | ± |
| 3   | ♥ |    | 3 | C | S  | T | c | s | â | ô | ú |   |   | Å | π | ± |
| 4   | ♦ | \$ | 4 | D | T  |   | d | t | à | ò | ñ |   |   | Å | Σ | ± |
| 5   | ♦ | \$ | 5 | E | U  |   | e | u | ä | ö | â |   |   | Å | μ | ± |
| 6   | ♦ | \$ | 6 | F | V  |   | f | v | å | ö | û |   |   | Å | τ | ± |
| 7   |   | '  | 7 | G | W  |   | g | w | ç | ù | ø |   |   | Å | + | ± |
| 8   |   | (  | 8 | H | X  |   | h | x | ê | ÿ | ç |   |   | Å | • | ± |
| 9   |   | )  | 9 | I | Y  |   | i | y | ë | ÿ | ö |   |   | Å | • | ± |
| A   |   | *  | : | J | Z  |   | j | z | è | ÿ | ü |   |   | Å | • | ± |
| B   |   | +  | ; | K | Å  |   | k | ä | é | ÿ | ï |   |   | Å | • | ± |
| C   |   | ,  | < | L | Ö  |   | l | ö | ê | ÿ | ï |   |   | Å | • | ± |
| D   |   | -  | = | M | Ü  |   | m | ü | » | ÿ | ï |   |   | Å | • | ± |
| E   |   | .  | > | N | ~  |   | n |   | » | ÿ | ï |   |   | Å | • | ± |
| F   |   | /  | ? | O | _  |   | o |   | » | ÿ | ï |   |   | Å | • | ± |

ISO8859/ECMA94 (ISO 8859-1/ECMA94)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ` | p |   |   | ° | À | Ä | à | ä | ø |
| 1   |   | !  | 1 | A | Q | R | a | q |   |   | í | ± | Å | Ñ | á | ñ |
| 2   |   | "  | 2 | B | R |   | b | r |   |   | ç | ± | Å | Ò | â | ò |
| 3   | ♥ |    | 3 | C | S | T | c | s |   |   | £ | ± | Å | Ó | ã | ó |
| 4   | ♦ | \$ | 4 | D | T |   | d | t |   |   | ¤ | ± | Å | Ô | ä | ô |
| 5   | ♦ | \$ | 5 | E | U |   | e | u |   |   | ¥ | ± | Å | Õ | å | ö |
| 6   | ♦ | \$ | 6 | F | V |   | f | v |   |   | ¥ | ± | Å | Ö | æ | ö |
| 7   |   | '  | 7 | G | W |   | g | w |   |   | § | ± | Å | × | ç | + |
| 8   |   | (  | 8 | H | X |   | h | x |   |   | ¨ | ± | Å | Ø | è | ø |
| 9   |   | )  | 9 | I | Y |   | i | y |   |   | © | ± | Å | Ù | é | ù |
| A   |   | *  | : | J | Z |   | j | z |   |   | ª | ± | Å | Ú | ê | ú |
| B   |   | +  | ; | K | [ |   | k | l |   |   | « | ± | Å | Û | ë | û |
| C   |   | ,  | < | L | \ |   | l | m |   |   | » | ± | Å | Ü | ì | ü |
| D   |   | -  | = | M | ^ |   | m | n |   |   | ¼ | ± | Å | Ý | í | ý |
| E   |   | .  | > | N | ~ |   | n |   |   |   | ½ | ± | Å | Þ | î | þ |
| F   |   | /  | ? | O | _ |   | o |   |   |   | ¾ | ± | Å | ß | ï | ÿ |

PAGE437/USA (Code Page 437/USA)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |    |   | 0 | @ | P | ` | p | ç | é | á | í | ï | ü | ä | ë |
| 1   |   |    |   | 1 | A | Q | ´ | q | û | æ | ó | ú |  |  |  |  |
| 2   |   |    |   | 2 | B | R |  | r |  |  |  |  |  |  |  |  |
| 3   | ♥ |    |   | 3 | C | S | T | s |  |  |  |  |  |  |  |  |
| 4   | ♦ |    |   | 4 | D | T | U | t |  |  |  |  |  |  |  |  |
| 5   | ♣ | \$ |   | 5 | E | F | V | f |  |  |  |  |  |  |  |  |
| 6   | ♠ | %  |   | 6 | F | V | W | w |  |  |  |  |  |  |  |  |
| 7   |   |    |   | 7 | G | H | X | x |  |  |  |  |  |  |  |  |
| 8   |   |    |   | 8 | H | X | Y | y |  |  |  |  |  |  |  |  |
| 9   |   |    |   | 9 | I | J | Z | z |  |  |  |  |  |  |  |  |
| A   |   |    |   | * | : | J | K | k |  |  |  |  |  |  |  |  |
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| C   |   |    |   | , | < | L | M | m |  |  |  |  |  |  |  |  |
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PAGE852/PG852-T (Code Page 852)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |    |   | 0 | @ | P | ` | p | ç | é | á | í | ï | ü | ä | ë |
| 1   |   |    |   | 1 | A | Q | ´ | q | û | æ | ó | ú |  |  |  |  |
| 2   |   |    |   | 2 | B | R |  | r |  |  |  |  |  |  |  |  |
| 3   | ♥ |    |   | 3 | C | S | T | s |  |  |  |  |  |  |  |  |
| 4   | ♦ |    |   | 4 | D | T | U | t |  |  |  |  |  |  |  |  |
| 5   | ♣ | \$ |   | 5 | E | F | V | f |  |  |  |  |  |  |  |  |
| 6   | ♠ | %  |   | 6 | F | V | W | w |  |  |  |  |  |  |  |  |
| 7   |   |    |   | 7 | G | H | X | x |  |  |  |  |  |  |  |  |
| 8   |   |    |   | 8 | H | X | Y | y |  |  |  |  |  |  |  |  |
| 9   |   |    |   | 9 | I | J | Z | z |  |  |  |  |  |  |  |  |
| A   |   |    |   | * | : | J | K | k |  |  |  |  |  |  |  |  |
| B   |   |    |   | + | ; | K | L | l |  |  |  |  |  |  |  |  |
| C   |   |    |   | , | < | L | M | m |  |  |  |  |  |  |  |  |
| D   |   |    |   | - | = | M | N | n |  |  |  |  |  |  |  |  |
| E   |   |    |   | . | > | N | O | o |  |  |  |  |  |  |  |  |
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PAGE850 (Code Page 850(Multilingual))

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 1   |   |    |   | 1 | A | Q | ´ | q | û | æ | ó | ú |  |  |  |  |
| 2   |   |    |   | 2 | B | R |  | r |  |  |  |  |  |  |  |  |
| 3   | ♥ |    |   | 3 | C | S | T | s |  |  |  |  |  |  |  |  |
| 4   | ♦ |    |   | 4 | D | T | U | t |  |  |  |  |  |  |  |  |
| 5   | ♣ | \$ |   | 5 | E | F | V | f |  |  |  |  |  |  |  |  |
| 6   | ♠ | %  |   | 6 | F | V | W | w |  |  |  |  |  |  |  |  |
| 7   |   |    |   | 7 | G | H | X | x |  |  |  |  |  |  |  |  |
| 8   |   |    |   | 8 | H | X | Y | y |  |  |  |  |  |  |  |  |
| 9   |   |    |   | 9 | I | J | Z | z |  |  |  |  |  |  |  |  |
| A   |   |    |   | * | : | J | K | k |  |  |  |  |  |  |  |  |
| B   |   |    |   | + | ; | K | L | l |  |  |  |  |  |  |  |  |
| C   |   |    |   | , | < | L | M | m |  |  |  |  |  |  |  |  |
| D   |   |    |   | - | = | M | N | n |  |  |  |  |  |  |  |  |
| E   |   |    |   | . | > | N | O | o |  |  |  |  |  |  |  |  |
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PAGE855 (Code Page 855)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |    |   | 0 | @ | P | ` | p | ç | é | á | í | ï | ü | ä | ë |
| 1   |   |    |   | 1 | A | Q | ´ | q | û | æ | ó | ú |  |  |  |  |
| 2   |   |    |   | 2 | B | R |  | r |  |  |  |  |  |  |  |  |
| 3   | ♥ |    |   | 3 | C | S | T | s |  |  |  |  |  |  |  |  |
| 4   | ♦ |    |   | 4 | D | T | U | t |  |  |  |  |  |  |  |  |
| 5   | ♣ | \$ |   | 5 | E | F | V | f |  |  |  |  |  |  |  |  |
| 6   | ♠ | %  |   | 6 | F | V | W | w |  |  |  |  |  |  |  |  |
| 7   |   |    |   | 7 | G | H | X | x |  |  |  |  |  |  |  |  |
| 8   |   |    |   | 8 | H | X | Y | y |  |  |  |  |  |  |  |  |
| 9   |   |    |   | 9 | I | J | Z | z |  |  |  |  |  |  |  |  |
| A   |   |    |   | * | : | J | K | k |  |  |  |  |  |  |  |  |
| B   |   |    |   | + | ; | K | L | l |  |  |  |  |  |  |  |  |
| C   |   |    |   | , | < | L | M | m |  |  |  |  |  |  |  |  |
| D   |   |    |   | - | = | M | N | n |  |  |  |  |  |  |  |  |
| E   |   |    |   | . | > | N | O | o |  |  |  |  |  |  |  |  |
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## CHARACTER SETS

PAGE860 (Code Page 860(Portugal))

| L/H | 0 | 1  | 2  | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |    |    |    | 0 | @ | P | ` | p | Ç | É | Á | À | ␣ | ␣ | ≡ |
| 1   |   | !  | "  | #  | 1 | A | Q | a | q | Ç | É | Á | À | ␣ | ␣ | ≡ |
| 2   |   | "  | #  | \$ | 2 | B | R | b | r | ú | Ê | Ô | Ó | ␣ | ␣ | ≡ |
| 3   | ♥ | #  | \$ | %  | 3 | C | S | c | s | ã | Ë | Õ | Ô | ␣ | ␣ | ≡ |
| 4   | ♦ | \$ | %  | &  | 4 | D | T | d | t | ä | Ì | Ö | Õ | ␣ | ␣ | ≡ |
| 5   | ♣ | \$ | %  | &  | 5 | E | U | e | u | å | Ñ | Ø | Ö | ␣ | ␣ | ≡ |
| 6   |   |    |    |    | 6 | F | V | f | v | æ | Ú | Å | Ù | ␣ | ␣ | ≡ |
| 7   |   |    |    |    | 7 | G | W | g | w | ç | Û | Ê | Ï | ␣ | ␣ | ≡ |
| 8   |   |    |    |    | 8 | H | X | h | x | ê | Ü | Ë | Ï | ␣ | ␣ | ≡ |
| 9   |   |    |    |    | 9 | I | Y | i | y | ë | Ö | Ë | Ï | ␣ | ␣ | ≡ |
| A   |   | *  | :  | ;  | J | Z | j | z | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| B   |   | +  | ,  | <  | K | ı | k | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| C   |   | -  | =  | >  | L | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| D   |   | .  | >  | ?  | M | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| E   |   | /  | ?  |    | N | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| F   |   | /  | ?  |    | O | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |

PAGE865 (Code Page 865(Nordic))

| L/H | 0 | 1  | 2  | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |    |    |    | 0 | @ | P | ` | p | Ç | É | Á | À | ␣ | ␣ | ≡ |
| 1   |   | !  | "  | #  | 1 | A | Q | a | q | Ç | É | Á | À | ␣ | ␣ | ≡ |
| 2   |   | "  | #  | \$ | 2 | B | R | b | r | ú | Ê | Ô | Ó | ␣ | ␣ | ≡ |
| 3   | ♥ | #  | \$ | %  | 3 | C | S | c | s | ã | Ë | Õ | Ô | ␣ | ␣ | ≡ |
| 4   | ♦ | \$ | %  | &  | 4 | D | T | d | t | ä | Ì | Ö | Õ | ␣ | ␣ | ≡ |
| 5   | ♣ | \$ | %  | &  | 5 | E | U | e | u | å | Ñ | Ø | Ö | ␣ | ␣ | ≡ |
| 6   |   |    |    |    | 6 | F | V | f | v | æ | Ú | Å | Ù | ␣ | ␣ | ≡ |
| 7   |   |    |    |    | 7 | G | W | g | w | ç | Û | Ê | Ï | ␣ | ␣ | ≡ |
| 8   |   |    |    |    | 8 | H | X | h | x | ê | Ü | Ë | Ï | ␣ | ␣ | ≡ |
| 9   |   |    |    |    | 9 | I | Y | i | y | ë | Ö | Ë | Ï | ␣ | ␣ | ≡ |
| A   |   | *  | :  | ;  | J | Z | j | z | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| B   |   | +  | ,  | <  | K | ı | k | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| C   |   | -  | =  | >  | L | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| D   |   | .  | >  | ?  | M | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| E   |   | /  | ?  |    | N | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
| F   |   | /  | ?  |    | O | ı | ı | ı | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |

PAGE863 (Code Page 863(Canada-French))

| L/H | 0 | 1  | 2  | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |    |    |    | 0 | @ | P | ` | p | Ç | É | Á | À | ␣ | ␣ | ≡ |
| 1   |   | !  | "  | #  | 1 | A | Q | a | q | Ç | É | Á | À | ␣ | ␣ | ≡ |
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| 3   | ♥ | #  | \$ | %  | 3 | C | S | c | s | ã | Ë | Õ | Ô | ␣ | ␣ | ≡ |
| 4   | ♦ | \$ | %  | &  | 4 | D | T | d | t | ä | Ì | Ö | Õ | ␣ | ␣ | ≡ |
| 5   | ♣ | \$ | %  | &  | 5 | E | U | e | u | å | Ñ | Ø | Ö | ␣ | ␣ | ≡ |
| 6   |   |    |    |    | 6 | F | V | f | v | æ | Ú | Å | Ù | ␣ | ␣ | ≡ |
| 7   |   |    |    |    | 7 | G | W | g | w | ç | Û | Ê | Ï | ␣ | ␣ | ≡ |
| 8   |   |    |    |    | 8 | H | X | h | x | ê | Ü | Ë | Ï | ␣ | ␣ | ≡ |
| 9   |   |    |    |    | 9 | I | Y | i | y | ë | Ö | Ë | Ï | ␣ | ␣ | ≡ |
| A   |   | *  | :  | ;  | J | Z | j | z | ı | ı | ı | ı | ı | ␣ | ␣ | ≡ |
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PAGE866 (Code Page 866(Cyrillic))

| L/H | 0 | 1  | 2  | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 1   |   | !  | "  | #  | 1 | A | Q | a | q | В | С | в | ␣ | ␣ | ␣ | ␣ |
| 2   |   | "  | #  | \$ | 2 | B | R | b | r | Г | Д | г | ␣ | ␣ | ␣ | ␣ |
| 3   | ♥ | #  | \$ | %  | 3 | C | S | c | s | Т | У | т | ␣ | ␣ | ␣ | ␣ |
| 4   | ♦ | \$ | %  | &  | 4 | D | T | d | t | Ф | Х | ф | ␣ | ␣ | ␣ | ␣ |
| 5   | ♣ | \$ | %  | &  | 5 | E | U | e | u | Ц | Ч | ц | ␣ | ␣ | ␣ | ␣ |
| 6   |   |    |    |    | 6 | F | V | f | v | Ж | Ш | ж | ␣ | ␣ | ␣ | ␣ |
| 7   |   |    |    |    | 7 | G | W | g | w | З | Щ | з | ␣ | ␣ | ␣ | ␣ |
| 8   |   |    |    |    | 8 | H | X | h | x | И | Ъ | и | ␣ | ␣ | ␣ | ␣ |
| 9   |   |    |    |    | 9 | I | Y | i | y | Й | Ы | й | ␣ | ␣ | ␣ | ␣ |
| A   |   | *  | :  | ;  | J | Z | j | z | ı | К | Ь | к | ␣ | ␣ | ␣ | ␣ |
| B   |   | +  | ,  | <  | K | ı | k | ı | ı | Л | Ъ | л | ␣ | ␣ | ␣ | ␣ |
| C   |   | -  | =  | >  | L | ı | ı | ı | ı | Н | Э | н | ␣ | ␣ | ␣ | ␣ |
| D   |   | .  | >  | ?  | M | ı | ı | ı | ı | О | Ю | о | ␣ | ␣ | ␣ | ␣ |
| E   |   | /  | ?  |    | N | ı | ı | ı | ı | П | Я | п | ␣ | ␣ | ␣ | ␣ |
| F   |   | /  | ?  |    | O | ı | ı | ı | ı | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ | ␣ |

HUNGARY/HUNG-T (Hungarian)

| L/H | 0 | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 3   | ♥ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 4   | ♦ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 5   | ♣ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 6   | ♠ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
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| 8   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 9   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| A   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| B   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| C   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| D   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| E   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
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POLISH/POLSH-T (Polish)

| L/H | 0 | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 2   |   | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 3   | ♥ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 4   | ♦ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 5   | ♣ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 6   | ♠ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 7   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 8   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 9   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| A   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| B   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| C   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| D   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| E   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| F   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |

SLOV/SLOV-T (Slovenian)

| L/H | 0 | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
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| 0   |   |   |   |   | 0  | @ | P | ^ | p | Ç | é | á | í | ó | ü | ~ |
| 1   |   | ! | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 2   |   | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 3   | ♥ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 4   | ♦ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 5   | ♣ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 6   | ♠ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 7   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 8   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 9   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| A   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| B   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| C   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| D   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| E   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| F   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |

MAZOWIA/MAZOW-T (Mazowian)

| L/H | 0 | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |   |   | 0  | @ | P | ^ | p | Ç | é | z | ó | ń | ~ | ~ |
| 1   |   | ! | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 2   |   | 1 | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
| 3   | ♥ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 4   | ♦ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 5   | ♣ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 6   | ♠ |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 7   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 8   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| 9   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| A   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| B   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| C   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| D   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| E   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |
| F   |   |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |

## CHARACTER SETS

LATIN2/LATN2-T (Latin2)

| L/H | 0 | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |    |   | 0 | @ | P | ` | p | Ç | É | Á | ı | ı | Ó | İ |
| 1   |   | !  | "  | # | 1 | A | Q | a | q | Ú | Ê | İ | ı | ı | Ö | İ |
| 2   |   | "  | "  | " | 2 | B | R | b | r | É | Ë | İ | ı | ı | Ö | İ |
| 3   | ♥ | #  | \$ | % | 3 | C | S | c | s | À | Ö | ı | ı | ı | Ö | İ |
| 4   | ♦ | \$ | %  | & | 4 | D | T | d | t | Á | Ö | ı | ı | ı | Ö | İ |
| 5   | ♦ | \$ | %  | & | 5 | E | U | e | u | Â | Ö | ı | ı | ı | Ö | İ |
| 6   | ♦ | \$ | %  | & | 6 | F | V | f | v | Ë | Ö | ı | ı | ı | Ö | İ |
| 7   |   |    |    |   | 7 | G | W | g | w | İ | Ö | ı | ı | ı | Ö | İ |
| 8   |   |    |    |   | 8 | H | X | h | x | İ | Ö | ı | ı | ı | Ö | İ |
| 9   |   |    |    |   | 9 | I | Y | i | y | İ | Ö | ı | ı | ı | Ö | İ |
| A   |   | *  | :  | ; | A | J | Z | j | z | İ | Ö | ı | ı | ı | Ö | İ |
| B   |   | +  | ,  | < | B | K | [ | k | [ | İ | Ö | ı | ı | ı | Ö | İ |
| C   |   | +  | ,  | < | C | L | \ | l | \ | İ | Ö | ı | ı | ı | Ö | İ |
| D   |   | +  | ,  | < | D | M | ] | m | ] | İ | Ö | ı | ı | ı | Ö | İ |
| E   |   | +  | ,  | < | E | N | ^ | n | ^ | İ | Ö | ı | ı | ı | Ö | İ |
| F   |   | +  | ,  | < | F | O | _ | o | _ | İ | Ö | ı | ı | ı | Ö | İ |

TURKY/TURKY-T (Turkish)

| L/H | 0 | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |    |   | 0 | @ | P | ` | p | Ç | É | Á | ı | ı | Ó | İ |
| 1   |   | !  | "  | # | 1 | A | Q | a | q | Ú | Ê | İ | ı | ı | Ö | İ |
| 2   |   | "  | "  | " | 2 | B | R | b | r | É | Ë | İ | ı | ı | Ö | İ |
| 3   | ♥ | #  | \$ | % | 3 | C | S | c | s | À | Ö | ı | ı | ı | Ö | İ |
| 4   | ♦ | \$ | %  | & | 4 | D | T | d | t | Á | Ö | ı | ı | ı | Ö | İ |
| 5   | ♦ | \$ | %  | & | 5 | E | U | e | u | Â | Ö | ı | ı | ı | Ö | İ |
| 6   | ♦ | \$ | %  | & | 6 | F | V | f | v | Ë | Ö | ı | ı | ı | Ö | İ |
| 7   |   |    |    |   | 7 | G | W | g | w | İ | Ö | ı | ı | ı | Ö | İ |
| 8   |   |    |    |   | 8 | H | X | h | x | İ | Ö | ı | ı | ı | Ö | İ |
| 9   |   |    |    |   | 9 | I | Y | i | y | İ | Ö | ı | ı | ı | Ö | İ |
| A   |   | *  | :  | ; | A | J | Z | j | z | İ | Ö | ı | ı | ı | Ö | İ |
| B   |   | +  | ,  | < | B | K | [ | k | [ | İ | Ö | ı | ı | ı | Ö | İ |
| C   |   | +  | ,  | < | C | L | \ | l | \ | İ | Ö | ı | ı | ı | Ö | İ |
| D   |   | +  | ,  | < | D | M | ] | m | ] | İ | Ö | ı | ı | ı | Ö | İ |
| E   |   | +  | ,  | < | E | N | ^ | n | ^ | İ | Ö | ı | ı | ı | Ö | İ |
| F   |   | +  | ,  | < | F | O | _ | o | _ | İ | Ö | ı | ı | ı | Ö | İ |

KAMENIC/KAMEN-T (Kamenicky)

| L/H | 0 | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |    |   | 0 | @ | P | ` | p | Č | É | Á | ı | ı | Ó | İ |
| 1   |   | !  | "  | # | 1 | A | Q | a | q | Ú | Ê | İ | ı | ı | Ö | İ |
| 2   |   | "  | "  | " | 2 | B | R | b | r | É | Ë | İ | ı | ı | Ö | İ |
| 3   | ♥ | #  | \$ | % | 3 | C | S | c | s | À | Ö | ı | ı | ı | Ö | İ |
| 4   | ♦ | \$ | %  | & | 4 | D | T | d | t | Á | Ö | ı | ı | ı | Ö | İ |
| 5   | ♦ | \$ | %  | & | 5 | E | U | e | u | Â | Ö | ı | ı | ı | Ö | İ |
| 6   | ♦ | \$ | %  | & | 6 | F | V | f | v | Ë | Ö | ı | ı | ı | Ö | İ |
| 7   |   |    |    |   | 7 | G | W | g | w | İ | Ö | ı | ı | ı | Ö | İ |
| 8   |   |    |    |   | 8 | H | X | h | x | İ | Ö | ı | ı | ı | Ö | İ |
| 9   |   |    |    |   | 9 | I | Y | i | y | İ | Ö | ı | ı | ı | Ö | İ |
| A   |   | *  | :  | ; | A | J | Z | j | z | İ | Ö | ı | ı | ı | Ö | İ |
| B   |   | +  | ,  | < | B | K | [ | k | [ | İ | Ö | ı | ı | ı | Ö | İ |
| C   |   | +  | ,  | < | C | L | \ | l | \ | İ | Ö | ı | ı | ı | Ö | İ |
| D   |   | +  | ,  | < | D | M | ] | m | ] | İ | Ö | ı | ı | ı | Ö | İ |
| E   |   | +  | ,  | < | E | N | ^ | n | ^ | İ | Ö | ı | ı | ı | Ö | İ |
| F   |   | +  | ,  | < | F | O | _ | o | _ | İ | Ö | ı | ı | ı | Ö | İ |

CYRILIC (Cyrillic)

| L/H | 0 | 1  | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |    |   | 0 | @ | P | ` | p |   | А | Р | а | р | № |   |
| 1   |   | !  | "  | # | 1 | A | Q | a | q |   | Б | С | б | с | Ѡ |   |
| 2   |   | "  | "  | " | 2 | B | R | b | r |   | В | Т | в | т | ѡ |   |
| 3   | ♥ | #  | \$ | % | 3 | C | S | c | s |   | Г | У | г | у | Ѣ |   |
| 4   | ♦ | \$ | %  | & | 4 | D | T | d | t |   | Д | Ф | д | ф | ѣ |   |
| 5   | ♦ | \$ | %  | & | 5 | E | U | e | u |   | Е | Х | е | х | Ѥ |   |
| 6   | ♦ | \$ | %  | & | 6 | F | V | f | v |   | І | Ц | і | ц | Ѧ |   |
| 7   |   |    |    |   | 7 | G | W | g | w |   | Ј | Ч | ј | ч | ѧ |   |
| 8   |   |    |    |   | 8 | H | X | h | x |   | Љ | Ш | љ | ш | Ѩ |   |
| 9   |   |    |    |   | 9 | I | Y | i | y |   | Њ | Щ | њ | щ | ѩ |   |
| A   |   | *  | :  | ; | A | J | Z | j | z |   | Ъ | К | ъ | к | Ѫ |   |
| B   |   | +  | ,  | < | B | K | [ | k | [ |   | Ѭ | Л | Ѭ | л | ѫ |   |
| C   |   | +  | ,  | < | C | L | \ | l | \ |   | ѭ | М | ѭ | м | Ѭ |   |
| D   |   | +  | ,  | < | D | M | ] | m | ] |   | Ѯ | Н | Ѯ | н | ѭ |   |
| E   |   | +  | ,  | < | E | N | ^ | n | ^ |   | Ѱ | О | Ѱ | о | Ѯ |   |
| F   |   | +  | ,  | < | F | O | _ | o | _ |   | Ѳ | П | Ѳ | п | Ѯ |   |

IBM437 (IBM 437)

| L/H | 0 | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0  | @ | P | ^ | p | A | P | κ | ⌚ | ⌚ | ⌚ | ⌚ |
| 1   |   | !  | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 2   |   | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | I | J | K | L | M | N |
| 3   |   | "  | 3 | C | D  | E | F | G | H | I | J | K | L | M | N | O |
| 4   |   | #  | 4 | D | T  | U | V | W | X | Y | Z | [ | \ | ] | ^ | _ |
| 5   |   | \$ | 5 | E | F  | G | H | I | J | K | L | M | N | O | P | Q |
| 6   |   | %  | 6 | F | V  | W | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |
| 7   |   | &  | 7 | G | W  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 8   |   | '  | ( | 8 | H  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 9   |   | )  | 9 | I | Y  | Z | [ | \ | ] | ^ | _ | ~ |   |   |   |   |
| A   |   | *  | : | J | Z  | [ | \ | ] | ^ | _ | ~ |   |   |   |   |   |
| B   |   | +  | ; | K | [  | \ | ] | ^ | _ | ~ |   |   |   |   |   |   |
| C   |   | ,  | < | L | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| D   |   | -  | = | M | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| E   |   | .  | > | N | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| F   |   | /  | ? | O | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |

ELOT928 (ELOT 928)

| L/H | 0 | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0  | @ | P | ^ | p |   |   |   |   |   |   |   |
| 1   |   | !  | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 2   |   | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | I | J | K | L | M | N |
| 3   |   | "  | 3 | C | D  | E | F | G | H | I | J | K | L | M | N | O |
| 4   |   | #  | 4 | D | T  | U | V | W | X | Y | Z | [ | \ | ] | ^ | _ |
| 5   |   | \$ | 5 | E | F  | G | H | I | J | K | L | M | N | O | P | Q |
| 6   |   | %  | 6 | F | V  | W | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |
| 7   |   | &  | 7 | G | W  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 8   |   | '  | ( | 8 | H  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 9   |   | )  | 9 | I | Y  | Z | [ | \ | ] | ^ | _ | ~ |   |   |   |   |
| A   |   | *  | : | J | Z  | [ | \ | ] | ^ | _ | ~ |   |   |   |   |   |
| B   |   | +  | ; | K | [  | \ | ] | ^ | _ | ~ |   |   |   |   |   |   |
| C   |   | ,  | < | L | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| D   |   | -  | = | M | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| E   |   | .  | > | N | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| F   |   | /  | ? | O | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |

IBM851 (IBM 851)

| L/H | 0 | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0  | @ | P | ^ | p | Ç | ı | ı | ı | ı | ı | ı |
| 1   |   | !  | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 2   |   | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | I | J | K | L | M | N |
| 3   |   | "  | 3 | C | D  | E | F | G | H | I | J | K | L | M | N | O |
| 4   |   | #  | 4 | D | T  | U | V | W | X | Y | Z | [ | \ | ] | ^ | _ |
| 5   |   | \$ | 5 | E | F  | G | H | I | J | K | L | M | N | O | P | Q |
| 6   |   | %  | 6 | F | V  | W | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |
| 7   |   | &  | 7 | G | W  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 8   |   | '  | ( | 8 | H  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 9   |   | )  | 9 | I | Y  | Z | [ | \ | ] | ^ | _ | ~ |   |   |   |   |
| A   |   | *  | : | J | Z  | [ | \ | ] | ^ | _ | ~ |   |   |   |   |   |
| B   |   | +  | ; | K | [  | \ | ] | ^ | _ | ~ |   |   |   |   |   |   |
| C   |   | ,  | < | L | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| D   |   | -  | = | M | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| E   |   | .  | > | N | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| F   |   | /  | ? | O | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |

PG-DHN (Code Page DHN)

| L/H | 0 | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0  | @ | P | ^ | p | À | á | â | ã | ä | å | æ |
| 1   |   | !  | " | # | \$ | % | & | ' | ( | ) | * | + | , | - | . | / |
| 2   |   | 1  | 2 | 3 | 4  | 5 | 6 | 7 | 8 | 9 | I | J | K | L | M | N |
| 3   |   | "  | 3 | C | D  | E | F | G | H | I | J | K | L | M | N | O |
| 4   |   | #  | 4 | D | T  | U | V | W | X | Y | Z | [ | \ | ] | ^ | _ |
| 5   |   | \$ | 5 | E | F  | G | H | I | J | K | L | M | N | O | P | Q |
| 6   |   | %  | 6 | F | V  | W | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |
| 7   |   | &  | 7 | G | W  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 8   |   | '  | ( | 8 | H  | X | Y | Z | [ | \ | ] | ^ | _ | ~ |   |   |
| 9   |   | )  | 9 | I | Y  | Z | [ | \ | ] | ^ | _ | ~ |   |   |   |   |
| A   |   | *  | : | J | Z  | [ | \ | ] | ^ | _ | ~ |   |   |   |   |   |
| B   |   | +  | ; | K | [  | \ | ] | ^ | _ | ~ |   |   |   |   |   |   |
| C   |   | ,  | < | L | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| D   |   | -  | = | M | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| E   |   | .  | > | N | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |
| F   |   | /  | ? | O | \  | ] | ^ | _ | ~ |   |   |   |   |   |   |   |

## CHARACTER SETS

LATIN-P (Latin Polish)

| L/H | 0 | 1  | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0  | @ | P | ` | p | Ç | é | á | ı | Ł | ł | ó | ≡ |
| 1   |   | !  | 1 | A  | Q | R | a | q | ú | æ | í | ó | Ł | ł | ß | ± |
| 2   |   | "  | 2 | B  | R | S | b | r | ë | æ | í | ó | Ł | ł | Γ | ≥ |
| 3   | ♥ | #  | 3 | C  | S | T | c | s | ā | ø | ú | Å | ł | ł | Ń | ≤ |
| 4   | ♦ | \$ | 4 | D  | T | U | d | t | ā | ō | ā | Å | ł | ł | Ń | ≤ |
| 5   | ♣ | %  | 5 | E  | U | V | e | u | ā | ō | ā | Å | ł | ł | Ń | ≤ |
| 6   |   | &  | 6 | F  | V | W | f | w | ā | ō | ā | Å | ł | ł | Ń | ≤ |
| 7   |   | '  | 7 | G  | W | X | g | w | ā | ō | ā | Å | ł | ł | Ń | ≤ |
| 8   |   | (  | 8 | H  | X | Y | h | x | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| 9   |   | )  | 9 | I  | Y | Z | i | y | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| A   |   | *  | A | J  | Z | j | z | j | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| B   |   | +  | B | K  | l | k | l | k | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| C   |   | ,  | C | L  | \ | l | \ | l | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| D   |   | -  | D | =  | M | l | m | l | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| E   |   | .  | E | >  | N | ^ | n | ^ | ā | ē | ē | ē | ł | ł | Ń | ≤ |
| F   |   | /  | F | ?/ | O | - | o | - | ā | ē | ē | ē | ł | ł | Ń | ≤ |

LITHUA1 (Lithuanian 1)

| L/H | 0 | 1  | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0  | @ | P | ` | p | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 1   |   | !  | 1 | A  | Q | R | a | q | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 2   |   | "  | 2 | B  | R | S | b | r | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 3   | ♥ | #  | 3 | C  | S | T | c | s | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 4   | ♦ | \$ | 4 | D  | T | U | d | t | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 5   | ♣ | %  | 5 | E  | U | V | e | u | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 6   |   | &  | 6 | F  | V | W | f | w | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 7   |   | '  | 7 | G  | W | X | g | w | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 8   |   | (  | 8 | H  | X | Y | h | x | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 9   |   | )  | 9 | I  | Y | Z | i | y | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| A   |   | *  | A | J  | Z | j | z | j | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| B   |   | +  | B | K  | l | k | l | k | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| C   |   | ,  | C | L  | \ | l | \ | l | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| D   |   | -  | D | =  | M | l | m | l | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| E   |   | .  | E | >  | N | ^ | n | ^ | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| F   |   | /  | F | ?/ | O | - | o | - | Ą | ą | Ą | ą | Ą | ą | Ą | ą |

ISO-LTN (ISO Latin)

| L/H | 0 | 1  | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0  | @ | P | ` | p |   |   | ° | Ř | ř | đ | đ |   |
| 1   |   | !  | 1 | A  | Q | R | a | q |   |   | ° | Ř | ř | đ | đ |   |
| 2   |   | "  | 2 | B  | R | S | b | r |   |   | ° | Ř | ř | đ | đ |   |
| 3   | ♥ | #  | 3 | C  | S | T | c | s |   |   | ° | Ř | ř | đ | đ |   |
| 4   | ♦ | \$ | 4 | D  | T | U | d | t |   |   | ° | Ř | ř | đ | đ |   |
| 5   | ♣ | %  | 5 | E  | U | V | e | u |   |   | ° | Ř | ř | đ | đ |   |
| 6   |   | &  | 6 | F  | V | W | f | w |   |   | ° | Ř | ř | đ | đ |   |
| 7   |   | '  | 7 | G  | W | X | g | w |   |   | ° | Ř | ř | đ | đ |   |
| 8   |   | (  | 8 | H  | X | Y | h | x |   |   | ° | Ř | ř | đ | đ |   |
| 9   |   | )  | 9 | I  | Y | Z | i | y |   |   | ° | Ř | ř | đ | đ |   |
| A   |   | *  | A | J  | Z | j | z | j |   |   | ° | Ř | ř | đ | đ |   |
| B   |   | +  | B | K  | l | k | l | k |   |   | ° | Ř | ř | đ | đ |   |
| C   |   | ,  | C | L  | \ | l | \ | l |   |   | ° | Ř | ř | đ | đ |   |
| D   |   | -  | D | =  | M | l | m | l |   |   | ° | Ř | ř | đ | đ |   |
| E   |   | .  | E | >  | N | ^ | n | ^ |   |   | ° | Ř | ř | đ | đ |   |
| F   |   | /  | F | ?/ | O | - | o | - |   |   | ° | Ř | ř | đ | đ |   |

LITHUA2 (Lithuanian 2)

| L/H | 0 | 1  | 2 | 3  | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0  | @ | P | ` | p | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 1   |   | !  | 1 | A  | Q | R | a | q | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 2   |   | "  | 2 | B  | R | S | b | r | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 3   | ♥ | #  | 3 | C  | S | T | c | s | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 4   | ♦ | \$ | 4 | D  | T | U | d | t | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 5   | ♣ | %  | 5 | E  | U | V | e | u | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 6   |   | &  | 6 | F  | V | W | f | w | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 7   |   | '  | 7 | G  | W | X | g | w | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 8   |   | (  | 8 | H  | X | Y | h | x | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| 9   |   | )  | 9 | I  | Y | Z | i | y | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| A   |   | *  | A | J  | Z | j | z | j | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| B   |   | +  | B | K  | l | k | l | k | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| C   |   | ,  | C | L  | \ | l | \ | l | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| D   |   | -  | D | =  | M | l | m | l | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| E   |   | .  | E | >  | N | ^ | n | ^ | Ą | ą | Ą | ą | Ą | ą | Ą | ą |
| F   |   | /  | F | ?/ | O | - | o | - | Ą | ą | Ą | ą | Ą | ą | Ą | ą |

MACEDON (Macedonian)

| L/H | 0 | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |     | 0 | @ | P | ~ | p | A | Б | Ѓ | Ќ | Љ | Њ | а | в | џ |
| 1   |   | !   | 1 | A | B | Q | r | В | В | Г | Д | Ѓ | Ќ | б | в | џ |
| 2   |   | "   | 2 | B | R | S | t | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 3   | ♥ | #   | 3 | C | S | T | u | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 4   | ♦ | \$  | 4 | D | E | F | v | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 5   | ♣ | %   | 5 | E | F | G | w | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 6   |   | &   | 6 | F | G | H | x | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 7   |   | '   | 7 | G | H | I | y | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 8   |   | (   | 8 | H | I | J | z | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 9   |   | )   | 9 | I | J | K | { | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| A   |   | *   | A | J | K | L |   | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| B   |   | +   | B | K | L | M | ~ | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| C   |   | , < | C | L | M | N | ^ | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| D   |   | - = | D | M | N | O | ~ | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| E   |   | . > | E | N | O |   |   | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| F   |   | / ? | F | O |   |   |   | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |

PG-MAC

| L/H | 0 | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |     | 0 | Ж | П | ж | п | А | Б | В | Г | Д | Е | а | б | в |
| 1   |   | !   | 1 | А | Б | В | Г | Д | Е | Ж | П | а | б | в | г | д |
| 2   |   | "   | 2 | Б | В | Г | Д | Е | Ж | П | а | б | в | г | д | е |
| 3   | ♥ | #   | 3 | Ц | С | Т | Д | Е | Ж | П | а | б | в | г | д | е |
| 4   | ♦ | \$  | 4 | Д | Е | Ж | П | а | б | в | г | д | е | ж | з | и |
| 5   | ♣ | %   | 5 | Ф | В | Г | Д | Е | Ж | П | а | б | в | г | д | е |
| 6   |   | &   | 6 | Ф | В | Г | Д | Е | Ж | П | а | б | в | г | д | е |
| 7   |   | '   | 7 | Г | Д | Е | Ж | П | а | б | в | г | д | е | ж | з |
| 8   |   | (   | 8 | Х | Ц | С | Т | Д | Е | Ж | П | а | б | в | г | д |
| 9   |   | )   | 9 | И | С | Т | Д | Е | Ж | П | а | б | в | г | д | е |
| A   |   | *   | A | Ј | З | И | С | Т | Д | Е | Ж | П | а | б | в | г |
| B   |   | +   | B | Ш | К | Л | М | Н | О | П | а | б | в | г | д | е |
| C   |   | , < | C | Л | М | Н | О | П | а | б | в | г | д | е | ж | з |
| D   |   | - = | D | К | Л | М | Н | О | П | а | б | в | г | д | е | ж |
| E   |   | . > | E | Н | О |   |   |   |   |   |   |   |   |   |   |   |
| F   |   | / ? | F | О |   |   |   |   |   |   |   |   |   |   |   |   |

MIK

| L/H | 0 | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |     | 0 | @ | P | ~ | p | A | Б | В | Г | Д | Е | а | б | в |
| 1   |   | !   | 1 | A | B | Q | r | В | В | Г | Д | Ѓ | Ќ | б | в | џ |
| 2   |   | "   | 2 | B | R | S | t | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 3   | ♥ | #   | 3 | C | S | T | u | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 4   | ♦ | \$  | 4 | D | E | F | v | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 5   | ♣ | %   | 5 | E | F | G | w | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 6   |   | &   | 6 | F | G | H | x | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 7   |   | '   | 7 | G | H | I | y | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 8   |   | (   | 8 | H | I | J | z | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 9   |   | )   | 9 | I | J | K | { | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| A   |   | *   | A | J | K | L |   | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| B   |   | +   | B | K | L | M | ~ | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| C   |   | , < | C | L | M | N | ^ | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| D   |   | - = | D | M | N | O | ~ | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| E   |   | . > | E | N | O |   |   | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| F   |   | / ? | F | O |   |   |   | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |

ELOT 927

| L/H | 0 | 1   | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |     | 0 | @ | P | ~ | p | A | Б | В | Г | Д | Е | а | б | в |
| 1   |   | !   | 1 | A | B | Q | r | В | В | Г | Д | Ѓ | Ќ | б | в | џ |
| 2   |   | "   | 2 | B | R | S | t | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 3   | ♥ | #   | 3 | C | S | T | u | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 4   | ♦ | \$  | 4 | D | E | F | v | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 5   | ♣ | %   | 5 | E | F | G | w | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 6   |   | &   | 6 | F | G | H | x | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 7   |   | '   | 7 | G | H | I | y | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 8   |   | (   | 8 | H | I | J | z | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| 9   |   | )   | 9 | I | J | K | { | Г | Д | Ѓ | Ќ | Љ | Њ | г | д | џ |
| A   |   | *   | A | Ј | З | И | С | Т | Д | Е | Ж | П | а | б | в | г |
| B   |   | +   | B | Ш | К | Л | М | Н | О | П | а | б | в | г | д | е |
| C   |   | , < | C | Л | М | Н | О | П | а | б | в | г | д | е | ж | з |
| D   |   | - = | D | К | Л | М | Н | О | П | а | б | в | г | д | е | ж |
| E   |   | . > | E | Н | О |   |   |   |   |   |   |   |   |   |   |   |
| F   |   | / ? | F | О |   |   |   |   |   |   |   |   |   |   |   |   |

## CHARACTER SETS

ABG

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    | @ | P | ~ | Π | A | P | ι | κ | λ | μ | ν | ξ | ο |
| 1   |   | ! | "  | A | Q | ^ | Α | B | Ρ | ω | ά | ή | ί | ύ | ζ | ± |
| 2   |   |   |    | B | R | A | Β | Γ | Σ | ε | ή | ή | ή | ή | ή | ± |
| 3   | ♥ |   |    | C | S | B | Γ | Δ | Τ | ς | λ | μ | ν | ξ | ο | ± |
| 4   | ♦ | # | \$ | D | T | C | Δ | Ε | Φ | ς | λ | μ | ν | ξ | ο | ± |
| 5   | ♣ | % | §  | E | U | D | Ε | Φ | Χ | ς | λ | μ | ν | ξ | ο | ± |
| 6   |   | & | '  | F | V | E | Φ | Χ | Ψ | ο | ρ | σ | τ | υ | φ | χ |
| 7   |   |   |    | G | W | F | Χ | Ψ | Ω | ο | ρ | σ | τ | υ | φ | χ |
| 8   |   | ( |    | H | X | G | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| 9   |   | ) |    | I | Y | H | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| A   |   | * |    | J | Z | I | Κ | Λ | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ |
| B   |   | + |    | K | Λ | J | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ |
| C   |   | , |    | L | Μ | K | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ |
| D   |   | - |    | M | Ν | L | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ |
| E   |   | . |    | N | Ξ | M | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |
| F   |   | / |    | O | Π | N | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |

DEC GR

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    | @ | P | ~ | Π | A | P | ι | κ | λ | μ | ν | ξ | ο |
| 1   |   | ! | "  | A | Q | ^ | Α | B | Ρ | ω | ά | ή | ί | ύ | ζ | ± |
| 2   |   |   |    | B | R | A | Β | Γ | Σ | ε | ή | ή | ή | ή | ή | ± |
| 3   | ♥ |   |    | C | S | B | Γ | Δ | Τ | ς | λ | μ | ν | ξ | ο | ± |
| 4   | ♦ | # | \$ | D | T | C | Δ | Ε | Φ | ς | λ | μ | ν | ξ | ο | ± |
| 5   | ♣ | % | §  | E | U | D | Ε | Φ | Χ | ς | λ | μ | ν | ξ | ο | ± |
| 6   |   | & | '  | F | V | E | Φ | Χ | Ψ | ο | ρ | σ | τ | υ | φ | χ |
| 7   |   |   |    | G | W | F | Χ | Ψ | Ω | ο | ρ | σ | τ | υ | φ | χ |
| 8   |   | ( |    | H | X | G | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| 9   |   | ) |    | I | Y | H | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| A   |   | * |    | J | Z | I | Κ | Λ | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ |
| B   |   | + |    | K | Λ | J | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ |
| C   |   | , |    | L | Μ | K | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ |
| D   |   | - |    | M | Ν | L | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ |
| E   |   | . |    | N | Ξ | M | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |
| F   |   | / |    | O | Π | N | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |

ABY

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    | @ | P | ~ | Π | A | P | ι | κ | λ | μ | ν | ξ | ο |
| 1   |   | ! | "  | A | Q | ^ | Α | B | Ρ | ω | ά | ή | ί | ύ | ζ | ± |
| 2   |   |   |    | B | R | A | Β | Γ | Σ | ε | ή | ή | ή | ή | ή | ± |
| 3   | ♥ |   |    | C | S | B | Γ | Δ | Τ | ς | λ | μ | ν | ξ | ο | ± |
| 4   | ♦ | # | \$ | D | T | C | Δ | Ε | Φ | ς | λ | μ | ν | ξ | ο | ± |
| 5   | ♣ | % | §  | E | U | D | Ε | Φ | Χ | ς | λ | μ | ν | ξ | ο | ± |
| 6   |   | & | '  | F | V | E | Φ | Χ | Ψ | ο | ρ | σ | τ | υ | φ | χ |
| 7   |   |   |    | G | W | F | Χ | Ψ | Ω | ο | ρ | σ | τ | υ | φ | χ |
| 8   |   | ( |    | H | X | G | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| 9   |   | ) |    | I | Y | H | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| A   |   | * |    | J | Z | I | Κ | Λ | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ |
| B   |   | + |    | K | Λ | J | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ |
| C   |   | , |    | L | Μ | K | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ |
| D   |   | - |    | M | Ν | L | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ |
| E   |   | . |    | N | Ξ | M | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |
| F   |   | / |    | O | Π | N | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |

HBR-OLD

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    | @ | P | ~ | Π | A | P | ι | κ | λ | μ | ν | ξ | ο |
| 1   |   | ! | "  | A | Q | ^ | Α | B | Ρ | ω | ά | ή | ί | ύ | ζ | ± |
| 2   |   |   |    | B | R | A | Β | Γ | Σ | ε | ή | ή | ή | ή | ή | ± |
| 3   | ♥ |   |    | C | S | B | Γ | Δ | Τ | ς | λ | μ | ν | ξ | ο | ± |
| 4   | ♦ | # | \$ | D | T | C | Δ | Ε | Φ | ς | λ | μ | ν | ξ | ο | ± |
| 5   | ♣ | % | §  | E | U | D | Ε | Φ | Χ | ς | λ | μ | ν | ξ | ο | ± |
| 6   |   | & | '  | F | V | E | Φ | Χ | Ψ | ο | ρ | σ | τ | υ | φ | χ |
| 7   |   |   |    | G | W | F | Χ | Ψ | Ω | ο | ρ | σ | τ | υ | φ | χ |
| 8   |   | ( |    | H | X | G | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| 9   |   | ) |    | I | Y | H | Χ | Ψ | Ω | α | β | γ | δ | ε | ζ | η |
| A   |   | * |    | J | Z | I | Κ | Λ | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ |
| B   |   | + |    | K | Λ | J | Μ | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ |
| C   |   | , |    | L | Μ | K | Ν | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ |
| D   |   | - |    | M | Ν | L | Ξ | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ |
| E   |   | . |    | N | Ξ | M | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |
| F   |   | / |    | O | Π | N | Ο | Π | Ρ | Σ | Τ | Υ | Φ | Χ | Ψ | Ω |

PAGE 862 (Code Page 862)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p | κ | ι | ά | ⋮ | ⋮ | ⋮ | ⋮ | ⋮ |
| 1   |   | !  | 1 | A | Q | R | a | q | Ⲁ | ⲁ | Ⲃ | ⲃ | Ⲅ | ⲅ | Ⲇ | ⲇ |
| 2   |   | "  | 2 | B | R | S | b | r | Ⲇ | ⲇ | Ⲉ | ⲉ | Ⲋ | ⲋ | Ⲍ | ⲍ |
| 3   | ♥ | #  | 3 | C | S | T | c | s | Ⲋ | ⲋ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ |
| 4   | ♦ | \$ | 4 | D | T | U | d | t | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ |
| 5   | ♣ | %  | 5 | E | U | V | e | u | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ |
| 6   | ♠ | &  | 6 | F | V | W | f | v | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ |
| 7   |   | '  | 7 | G | W | X | g | w | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ |
| 8   |   | (  | 8 | H | X | Y | h | x | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ |
| 9   |   | )  | 9 | I | Y | Z | i | y | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ |
| A   |   | *  | A | J | Z | [ | j | z | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ |
| B   |   | +  | B | K | [ | \ | k | l | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ |
| C   |   | ,  | C | L | \ | ] | l | m | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ |
| D   |   | -  | D | M | ] | ^ | m | n | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ |
| E   |   | .  | E | N | ^ | ~ | n | o | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ |
| F   |   | /  | F | O | ~ | _ | o |   | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ |

GREEK 11

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ■ | Π |   |   |   |   |   |   |   |   |
| 1   |   | !  | 1 | A | Q | R | A | Τ |   |   |   |   |   |   |   |   |
| 2   |   | "  | 2 | B | R | S | B | Ρ |   |   |   |   |   |   |   |   |
| 3   | ♥ | #  | 3 | C | S | T | Ψ | Σ |   |   |   |   |   |   |   |   |
| 4   | ♦ | \$ | 4 | D | T | U | Δ | Τ |   |   |   |   |   |   |   |   |
| 5   | ♣ | %  | 5 | E | U | V | Ε | Θ |   |   |   |   |   |   |   |   |
| 6   | ♠ | &  | 6 | F | V | W | Φ | Ω |   |   |   |   |   |   |   |   |
| 7   |   | '  | 7 | G | V | Γ | Γ | ⊥ |   |   |   |   |   |   |   |   |
| 8   |   | (  | 8 | H | X | H | Χ | Χ |   |   |   |   |   |   |   |   |
| 9   |   | )  | 9 | I | Y | I | Υ | Υ |   |   |   |   |   |   |   |   |
| A   |   | *  | A | J | Z | Ξ | Ξ | Ζ |   |   |   |   |   |   |   |   |
| B   |   | +  | B | K | Κ | Κ | Λ | Μ |   |   |   |   |   |   |   |   |
| C   |   | ,  | C | L | Λ | Λ | Μ | Ν |   |   |   |   |   |   |   |   |
| D   |   | -  | D | M | Μ | Μ | Ν | Ξ |   |   |   |   |   |   |   |   |
| E   |   | .  | E | N | Ν | Ν | Ο | Π |   |   |   |   |   |   |   |   |
| F   |   | /  | F | O | Ο | Ο | Π | Ρ |   |   |   |   |   |   |   |   |

HBR-DEC

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p | Ⲁ | ⲁ | Ⲃ | ⲃ | Ⲅ | ⲅ | Ⲇ | ⲇ |
| 1   |   | !  | 1 | A | Q | R | a | q | Ⲇ | ⲇ | Ⲉ | ⲉ | Ⲋ | ⲋ | Ⲍ | ⲍ |
| 2   |   | "  | 2 | B | R | S | b | r | Ⲋ | ⲋ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ |
| 3   | ♥ | #  | 3 | C | S | T | c | s | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ |
| 4   | ♦ | \$ | 4 | D | T | U | d | t | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ |
| 5   | ♣ | %  | 5 | E | U | V | e | u | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ |
| 6   | ♠ | &  | 6 | F | V | W | f | v | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ |
| 7   |   | '  | 7 | G | W | X | g | w | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ |
| 8   |   | (  | 8 | H | X | Y | h | x | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ |
| 9   |   | )  | 9 | I | Y | Z | i | y | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ |
| A   |   | *  | A | J | Z | [ | j | z | ⲑ | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ |
| B   |   | +  | B | K | [ | \ | k | l | Ⲓ | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ |
| C   |   | ,  | C | L | \ | ] | l | m | ⲓ | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ |
| D   |   | -  | D | M | ] | ^ | m | n | Ⲕ | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ |
| E   |   | .  | E | N | ^ | ~ | n | o | ⲕ | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ |
| F   |   | /  | F | O | ~ | _ | o |   | Ⲍ | ⲍ | Ⲏ | ⲏ | Ⲑ | ⲑ | Ⲓ | ⲓ |

ISO-TUK

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p |   |   | ° | À | Á | Â | Ë | Ü |
| 1   |   | !  | 1 | A | Q | R | a | q |   |   | ± | Ä | Å | Ö | × | ø |
| 2   |   | "  | 2 | B | R | S | b | r |   |   | ² | Å | Ö | × | ø | ÷ |
| 3   | ♥ | #  | 3 | C | S | T | c | s |   |   | ³ | Å | Ö | × | ø | ÷ |
| 4   | ♦ | \$ | 4 | D | T | U | d | t |   |   | ¼ | Å | Ö | × | ø | ÷ |
| 5   | ♣ | %  | 5 | E | U | V | e | u |   |   | ½ | Å | Ö | × | ø | ÷ |
| 6   | ♠ | &  | 6 | F | V | W | f | v |   |   | ¾ | Å | Ö | × | ø | ÷ |
| 7   |   | '  | 7 | G | W | X | g | w |   |   | ˆ | Å | Ö | × | ø | ÷ |
| 8   |   | (  | 8 | H | X | Y | h | x |   |   | ˜ | Å | Ö | × | ø | ÷ |
| 9   |   | )  | 9 | I | Y | Z | i | y |   |   | ˘ | Å | Ö | × | ø | ÷ |
| A   |   | *  | A | J | Z | [ | j | z |   |   | ˙ | Å | Ö | × | ø | ÷ |
| B   |   | +  | B | K | [ | \ | k | l |   |   | ˚ | Å | Ö | × | ø | ÷ |
| C   |   | ,  | C | L | \ | ] | l | m |   |   | ˛ | Å | Ö | × | ø | ÷ |
| D   |   | -  | D | M | ] | ^ | m | n |   |   | ˜ | Å | Ö | × | ø | ÷ |
| E   |   | .  | E | N | ^ | ~ | n | o |   |   | ˘ | Å | Ö | × | ø | ÷ |
| F   |   | /  | F | O | ~ | _ | o |   |   |   | ˙ | Å | Ö | × | ø | ÷ |

## CHARACTER SETS

RUSCII

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p | A | P | a |   |   |   |   |   |
| 1   |   | !  | 1 | A | Q | a | q | ~ | B | B | б |   |   |   |   |   |
| 2   |   | "  | 2 | B | R | b | r | ~ | C | C | с |   |   |   |   |   |
| 3   | ♥ | #  | 3 | C | S | c | s | ~ | D | D | д |   |   |   |   |   |
| 4   | ♦ | \$ | 4 | D | T | d | t | ~ | E | E | е |   |   |   |   |   |
| 5   | ♣ | %  | 5 | E | U | e | u | ~ | F | F | ф |   |   |   |   |   |
| 6   | ♠ | &  | 6 | F | V | f | v | ~ | G | G | г |   |   |   |   |   |
| 7   |   | '  | 7 | G | W | g | w | ~ | H | H | х |   |   |   |   |   |
| 8   |   | (  | 8 | H | X | h | x | ~ | I | I | и |   |   |   |   |   |
| 9   |   | )  | 9 | I | Y | i | y | ~ | J | J | й |   |   |   |   |   |
| A   |   | *  | : | J | Z | j | z | ~ | K | K | ъ |   |   |   |   |   |
| B   |   | +  | ; | K | L | l | l | ~ | L | L | ь |   |   |   |   |   |
| C   |   | ,  | < | L | \ | l | l | ~ | M | M | н |   |   |   |   |   |
| D   |   | -  | = | M |   | m | n | ~ | N | N | о |   |   |   |   |   |
| E   |   | .  | > | N | ^ | n | o | ~ | O | O | п |   |   |   |   |   |
| F   |   | /  | ? | O | _ | o | o | ~ |   |   |   |   |   |   |   |   |

LATIN-9

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p |   |   | ° | A | À | Á | Â | Ã |
| 1   |   | !  | 1 | A | Q | a | q | ~ |   |   | ± | Ä | Å | Ö | × | ø |
| 2   |   | "  | 2 | B | R | b | r | ~ |   |   | ¢ | Ä | Å | Ö | × | ø |
| 3   | ♥ | #  | 3 | C | S | c | s | ~ |   |   | £ | Ä | Å | Ö | × | ø |
| 4   | ♦ | \$ | 4 | D | T | d | t | ~ |   |   | ¥ | Ä | Å | Ö | × | ø |
| 5   | ♣ | %  | 5 | E | U | e | u | ~ |   |   | § | Ä | Å | Ö | × | ø |
| 6   | ♠ | &  | 6 | F | V | f | v | ~ |   |   | § | Ä | Å | Ö | × | ø |
| 7   |   | '  | 7 | G | W | g | w | ~ |   |   | § | Ä | Å | Ö | × | ø |
| 8   |   | (  | 8 | H | X | h | x | ~ |   |   | § | Ä | Å | Ö | × | ø |
| 9   |   | )  | 9 | I | Y | i | y | ~ |   |   | § | Ä | Å | Ö | × | ø |
| A   |   | *  | : | J | Z | j | z | ~ |   |   | § | Ä | Å | Ö | × | ø |
| B   |   | +  | ; | K | I | k | i | ~ |   |   | § | Ä | Å | Ö | × | ø |
| C   |   | ,  | < | L | \ | l | l | ~ |   |   | § | Ä | Å | Ö | × | ø |
| D   |   | -  | = | M |   | m | n | ~ |   |   | § | Ä | Å | Ö | × | ø |
| E   |   | .  | > | N | ^ | n | o | ~ |   |   | § | Ä | Å | Ö | × | ø |
| F   |   | /  | ? | O | _ | o | o | ~ |   |   | § | Ä | Å | Ö | × | ø |

WCP1250 (Windows – 1250)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p | € |   | ° | À | Á | Â | Ã | Ä |
| 1   |   | !  | 1 | A | Q | a | q | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 2   |   | "  | 2 | B | R | b | r | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 3   | ♥ | #  | 3 | C | S | c | s | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 4   | ♦ | \$ | 4 | D | T | d | t | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 5   | ♣ | %  | 5 | E | U | e | u | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 6   | ♠ | &  | 6 | F | V | f | v | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 7   |   | '  | 7 | G | W | g | w | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 8   |   | (  | 8 | H | X | h | x | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| 9   |   | )  | 9 | I | Y | i | y | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| A   |   | *  | : | J | Z | j | z | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| B   |   | +  | ; | K | I | k | i | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| C   |   | ,  | < | L | \ | l | l | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| D   |   | -  | = | M |   | m | n | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| E   |   | .  | > | N | ^ | n | o | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |
| F   |   | /  | ? | O | _ | o | o | ~ | ‚ | ± | À | Á | Â | Ã | Ä | Å |

WCP1251 (Windows – 1251)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 1   |   | !  | 1 | A | Q | a | q | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 2   |   | "  | 2 | B | R | b | r | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 3   | ♥ | #  | 3 | C | S | c | s | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 4   | ♦ | \$ | 4 | D | T | d | t | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 5   | ♣ | %  | 5 | E | U | e | u | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 6   | ♠ | &  | 6 | F | V | f | v | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 7   |   | '  | 7 | G | W | g | w | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 8   |   | (  | 8 | H | X | h | x | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| 9   |   | )  | 9 | I | Y | i | y | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| A   |   | *  | : | J | Z | j | z | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| B   |   | +  | ; | K | I | k | i | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| C   |   | ,  | < | L | \ | l | l | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| D   |   | -  | = | M |   | m | n | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| E   |   | .  | > | N | ^ | n | o | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |
| F   |   | /  | ? | O | _ | o | o | ~ | Ђ | ° | À | Á | Â | Ã | Ä | Å |

WCP1252 (Windows – 1252)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ` | p | e |   | ° | À | Ä | à | ä |   |
| 1   |   | !  | 1 | A | Q | a | q |   | , | ' | ± | Á | Ñ | á | ñ |   |
| 2   |   | "  | 2 | B | R | b | r | , | ' | ¢ | ² | Â | Ò | â | ò |   |
| 3   | ♥ | #  | 3 | C | S | c | s | f | " | £ | ³ | Ã | Ó | ã | ó |   |
| 4   | ♦ | \$ | 4 | D | T | d | t | " | " | ¤ | ´ | Ä | Ô | ä | ô |   |
| 5   | ♣ | §  | 5 | E | U | e | u | " | • | ¥ | µ | Å | Ö | å | ö |   |
| 6   | ♠ | &  | 6 | F | V | f | v | † | – | ¦ | ¶ | Æ | Ø | æ | ø |   |
| 7   |   | '  | 7 | G | W | g | w | ‡ | ~ | § | · | Ç | × | ç | ÷ |   |
| 8   |   | (  | 8 | H | X | h | x | ˆ | ~ | ¨ | ˙ | È | Ø | è | ø |   |
| 9   |   | )  | 9 | I | Y | i | y | % | " | © | ˚ | É | Ù | é | ù |   |
| A   |   | *  | : | J | Z | j | z | § | » | ª | º | Ê | Û | ê | û |   |
| B   |   | +  | ; | K | [ | k | { | < | > | « | » | Ë | Ü | ë | ü |   |
| C   |   | ,  | < | L | \ | l |   |   | œ | œ | ¼ | Ì | Û | ì | ü |   |
| D   |   | -  | = | M | ] | m | } | } | – | – | ½ | Í | Ý | í | ý |   |
| E   |   | .  | > | N | ^ | n | ~ | ˜ | ž | ž | ¾ | Î | Þ | î | þ |   |
| F   |   | /  | ? | O | _ | o |   |   | ÿ | ÿ | ¾ | Ï | ß | ï | ÿ |   |

# **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 |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | à | P | ` | p | ç | é | á | À | Ä | à | ä |   |
| 1   |   | !  | 1 | A | Q | a | q | ü | æ | í | í | Ä | Ä | ä | ä |   |
| 2   |   | "  | 2 | B | R | b | r | é | ó | ó | ó | Ä | Ä | ä | ä |   |
| 3   | ♥ | £  | 3 | C | S | c | s | à | ò | ò | ò | Ä | Ä | ä | ä |   |
| 4   | ♦ | \$ | 4 | D | T | d | t | à | ò | ò | ò | Ä | Ä | ä | ä |   |
| 5   | ♣ | §  | 5 | E | U | e | u | à | à | à | à | Ä | Ä | ä | ä |   |
| 6   | ♠ | &  | 6 | F | V | f | v | à | à | à | à | Ä | Ä | ä | ä |   |
| 7   |   | '  | 7 | G | W | g | w | q | ü | ü | ü | Ä | Ä | ä | ä |   |
| 8   |   | (  | 8 | H | X | h | x | q | ü | ü | ü | Ä | Ä | ä | ä |   |
| 9   |   | )  | 9 | I | Y | i | y | é | ö | ö | ö | Ä | Ä | ä | ä |   |
| A   |   | *  | : | J | Z | j | z | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| B   |   | +  | ; | K | [ | k | { | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| C   |   | ,  | < | L | \ | l |   | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| D   |   | -  | = | M | ] | m | } | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| E   |   | .  | > | N | ^ | n | ~ | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| F   |   | /  | ? | O | _ | o |   | é | ü | ü | ü | Ä | Ä | ä | ä |   |

ITALIAN (Italian)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | § | P | ù | p | ç | é | á | À | Ä | à | ä |   |
| 1   |   | !  | 1 | A | Q | a | q | ü | æ | í | í | Ä | Ä | ä | ä |   |
| 2   |   | "  | 2 | B | R | b | r | é | ó | ó | ó | Ä | Ä | ä | ä |   |
| 3   | ♥ | £  | 3 | C | S | c | s | à | ò | ò | ò | Ä | Ä | ä | ä |   |
| 4   | ♦ | \$ | 4 | D | T | d | t | à | ò | ò | ò | Ä | Ä | ä | ä |   |
| 5   | ♣ | §  | 5 | E | U | e | u | à | à | à | à | Ä | Ä | ä | ä |   |
| 6   | ♠ | &  | 6 | F | V | f | v | à | à | à | à | Ä | Ä | ä | ä |   |
| 7   |   | '  | 7 | G | W | g | w | q | ü | ü | ü | Ä | Ä | ä | ä |   |
| 8   |   | (  | 8 | H | X | h | x | q | ü | ü | ü | Ä | Ä | ä | ä |   |
| 9   |   | )  | 9 | I | Y | i | y | é | ö | ö | ö | Ä | Ä | ä | ä |   |
| A   |   | *  | : | J | Z | j | z | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| B   |   | +  | ; | K | [ | k | { | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| C   |   | ,  | < | L | \ | l |   | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| D   |   | -  | = | M | ] | m | } | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| E   |   | .  | > | N | ^ | n | ~ | é | ü | ü | ü | Ä | Ä | ä | ä |   |
| F   |   | /  | ? | O | _ | o |   | é | ü | ü | ü | Ä | Ä | ä | ä |   |

## CHARACTER SETS

SPANISH (Spanish)

| L/H | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |   | 0 | S | P | ^ | p | Ç | é | á | í | ó | ú | ñ | « |
| 1   |   | ! | " | 1 | A | Q | R | a | b | r | æ | í | ó | ú | ñ | « |
| 2   |   |   |   | 2 | B | R | S | b | r | s | æ | í | ó | ú | ñ | « |
| 3   | ♥ |   |   | 3 | C | D | T | c | d | t | æ | í | ó | ú | ñ | « |
| 4   | ♦ |   |   | 4 | D | T | S | d | t | s | æ | í | ó | ú | ñ | « |
| 5   | ♣ | S | % | 5 | E | U | V | e | u | v | æ | í | ó | ú | ñ | « |
| 6   | ♠ |   |   | 6 | F | V | W | f | v | w | æ | í | ó | ú | ñ | « |
| 7   |   |   |   | 7 | G | X | H | g | x | h | æ | í | ó | ú | ñ | « |
| 8   |   |   |   | 8 | H | X | I | h | x | i | æ | í | ó | ú | ñ | « |
| 9   |   |   |   | 9 | I | Y | Z | i | y | z | æ | í | ó | ú | ñ | « |
| A   |   | * | : | A | J | K | L | j | k | l | æ | í | ó | ú | ñ | « |
| B   |   | + | ; | B | K | L | M | k | l | m | æ | í | ó | ú | ñ | « |
| C   |   | , | < | C | L | M | N | l | m | n | æ | í | ó | ú | ñ | « |
| D   |   | - | = | D | M | N | O | m | n | o | æ | í | ó | ú | ñ | « |
| E   |   | . | > | E | N | O |   | n | o |   | æ | í | ó | ú | ñ | « |
| F   |   | / | ? | F | O |   |   |   |   |   | æ | í | ó | ú | ñ | « |

FINNISH (Finnish)

| L/H | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |   | 0 | É | P | ^ | p | Ç | é | á | í | ó | ú | ñ | « |
| 1   |   | ! | " | 1 | A | Q | R | a | b | r | æ | í | ó | ú | ñ | « |
| 2   |   |   |   | 2 | B | R | S | b | r | s | æ | í | ó | ú | ñ | « |
| 3   | ♥ |   |   | 3 | C | D | T | c | d | t | æ | í | ó | ú | ñ | « |
| 4   | ♦ |   |   | 4 | D | T | S | d | t | s | æ | í | ó | ú | ñ | « |
| 5   | ♣ | S | % | 5 | E | U | V | e | u | v | æ | í | ó | ú | ñ | « |
| 6   | ♠ |   |   | 6 | F | V | W | f | v | w | æ | í | ó | ú | ñ | « |
| 7   |   |   |   | 7 | G | X | H | g | x | h | æ | í | ó | ú | ñ | « |
| 8   |   |   |   | 8 | H | X | I | h | x | i | æ | í | ó | ú | ñ | « |
| 9   |   |   |   | 9 | I | Y | Z | i | y | z | æ | í | ó | ú | ñ | « |
| A   |   | * | : | A | J | K | L | j | k | l | æ | í | ó | ú | ñ | « |
| B   |   | + | ; | B | K | L | M | k | l | m | æ | í | ó | ú | ñ | « |
| C   |   | , | < | C | L | M | N | l | m | n | æ | í | ó | ú | ñ | « |
| D   |   | - | = | D | M | N | O | m | n | o | æ | í | ó | ú | ñ | « |
| E   |   | . | > | E | N | O |   | n | o |   | æ | í | ó | ú | ñ | « |
| F   |   | / | ? | F | O |   |   |   |   |   | æ | í | ó | ú | ñ | « |

DANISH1/NORWEGN (Danish1/Norwegian)

| L/H | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |   | 0 | É | P | ^ | p | Ç | é | á | í | ó | ú | ñ | « |
| 1   |   | ! | " | 1 | A | Q | R | a | b | r | æ | í | ó | ú | ñ | « |
| 2   |   |   |   | 2 | B | R | S | b | r | s | æ | í | ó | ú | ñ | « |
| 3   | ♥ |   |   | 3 | C | D | T | c | d | t | æ | í | ó | ú | ñ | « |
| 4   | ♦ |   |   | 4 | D | T | S | d | t | s | æ | í | ó | ú | ñ | « |
| 5   | ♣ | S | % | 5 | E | U | V | e | u | v | æ | í | ó | ú | ñ | « |
| 6   | ♠ |   |   | 6 | F | V | W | f | v | w | æ | í | ó | ú | ñ | « |
| 7   |   |   |   | 7 | G | X | H | g | x | h | æ | í | ó | ú | ñ | « |
| 8   |   |   |   | 8 | H | X | I | h | x | i | æ | í | ó | ú | ñ | « |
| 9   |   |   |   | 9 | I | Y | Z | i | y | z | æ | í | ó | ú | ñ | « |
| A   |   | * | : | A | J | K | L | j | k | l | æ | í | ó | ú | ñ | « |
| B   |   | + | ; | B | K | L | M | k | l | m | æ | í | ó | ú | ñ | « |
| C   |   | , | < | C | L | M | N | l | m | n | æ | í | ó | ú | ñ | « |
| D   |   | - | = | D | M | N | O | m | n | o | æ | í | ó | ú | ñ | « |
| E   |   | . | > | E | N | O |   | n | o |   | æ | í | ó | ú | ñ | « |
| F   |   | / | ? | F | O |   |   |   |   |   | æ | í | ó | ú | ñ | « |

DANISH2 (Danish2)

| L/H | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |   | 0 | @ | P | ^ | p | Ç | é | á | í | ó | ú | ñ | « |
| 1   |   | ! | " | 1 | A | Q | R | a | b | r | æ | í | ó | ú | ñ | « |
| 2   |   |   |   | 2 | B | R | S | b | r | s | æ | í | ó | ú | ñ | « |
| 3   | ♥ |   |   | 3 | C | D | T | c | d | t | æ | í | ó | ú | ñ | « |
| 4   | ♦ |   |   | 4 | D | T | S | d | t | s | æ | í | ó | ú | ñ | « |
| 5   | ♣ | S | % | 5 | E | U | V | e | u | v | æ | í | ó | ú | ñ | « |
| 6   | ♠ |   |   | 6 | F | V | W | f | v | w | æ | í | ó | ú | ñ | « |
| 7   |   |   |   | 7 | G | X | H | g | x | h | æ | í | ó | ú | ñ | « |
| 8   |   |   |   | 8 | H | X | I | h | x | i | æ | í | ó | ú | ñ | « |
| 9   |   |   |   | 9 | I | Y | Z | i | y | z | æ | í | ó | ú | ñ | « |
| A   |   | * | : | A | J | K | L | j | k | l | æ | í | ó | ú | ñ | « |
| B   |   | + | ; | B | K | L | M | k | l | m | æ | í | ó | ú | ñ | « |
| C   |   | , | < | C | L | M | N | l | m | n | æ | í | ó | ú | ñ | « |
| D   |   | - | = | D | M | N | O | m | n | o | æ | í | ó | ú | ñ | « |
| E   |   | . | > | E | N | O |   | n | o |   | æ | í | ó | ú | ñ | « |
| F   |   | / | ? | F | O |   |   |   |   |   | æ | í | ó | ú | ñ | « |

# 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)

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    |   | 0 | @ | P | ` | ç | é | á | ⌚ | ⌚ | α | ± | ≡ |
| 1   |   | ! | "  |   | 1 | Å | Q | a | q | æ | í | ⌚ | ⌚ | β | ∓ | ≡ |
| 2   |   |   |    |   | 2 | Å | R | b | r | æ | ó | ⌚ | ⌚ | Γ | ∓ | ≡ |
| 3   |   |   | #  |   | 3 | Å | S | c | s | å | ô | ⌚ | ⌚ | π | ∓ | ≡ |
| 4   |   |   | \$ |   | 4 | Å | T | d | t | å | ñ | ⌚ | ⌚ | Σ | ∓ | ≡ |
| 5   |   |   | %  |   | 5 | Å | E | u | u | å | ä | ⌚ | ⌚ | o | ∓ | ≡ |
| 6   |   |   | &  |   | 6 | Å | F | v | v | å | ö | ⌚ | ⌚ | μ | ∓ | ≡ |
| 7   |   |   | '  |   | 7 | Å | G | w | w | ç | ÿ | ⌚ | ⌚ | τ | ∓ | ≡ |
| 8   |   |   | (  |   | 8 | Å | H | x | x | ç | ÿ | ⌚ | ⌚ | θ | ∓ | ≡ |
| 9   |   |   | )  |   | 9 | Å | I | y | y | ç | ÿ | ⌚ | ⌚ | • | ∓ | ≡ |
| A   |   |   | *  |   | A | Å | J | z | z | ç | ÿ | ⌚ | ⌚ | Ω | ∓ | ≡ |
| B   |   |   | +  |   | B | Å | K | ø | ø | ç | ÿ | ⌚ | ⌚ | δ | ∓ | ≡ |
| C   |   |   | <  |   | C | Å | L | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| D   |   |   | =  |   | D | Å | M | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| E   |   |   | .  |   | E | Å | N | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| F   |   |   | /  |   | F | Å | O | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |

SPANSH1 (Spanish1)

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    |   | 0 | @ | P | ` | ç | é | á | ⌚ | ⌚ | α | ± | ≡ |
| 1   |   | ! | "  |   | 1 | Å | Q | a | q | æ | í | ⌚ | ⌚ | β | ∓ | ≡ |
| 2   |   |   |    |   | 2 | Å | R | b | r | æ | ó | ⌚ | ⌚ | Γ | ∓ | ≡ |
| 3   |   |   | #  |   | 3 | Å | S | c | s | å | ô | ⌚ | ⌚ | π | ∓ | ≡ |
| 4   |   |   | \$ |   | 4 | Å | T | d | t | å | ñ | ⌚ | ⌚ | Σ | ∓ | ≡ |
| 5   |   |   | %  |   | 5 | Å | E | u | u | å | ä | ⌚ | ⌚ | o | ∓ | ≡ |
| 6   |   |   | &  |   | 6 | Å | F | v | v | å | ö | ⌚ | ⌚ | μ | ∓ | ≡ |
| 7   |   |   | '  |   | 7 | Å | G | w | w | ç | ÿ | ⌚ | ⌚ | τ | ∓ | ≡ |
| 8   |   |   | (  |   | 8 | Å | H | x | x | ç | ÿ | ⌚ | ⌚ | θ | ∓ | ≡ |
| 9   |   |   | )  |   | 9 | Å | I | y | y | ç | ÿ | ⌚ | ⌚ | • | ∓ | ≡ |
| A   |   |   | *  |   | A | Å | J | z | z | ç | ÿ | ⌚ | ⌚ | Ω | ∓ | ≡ |
| B   |   |   | +  |   | B | Å | K | ø | ø | ç | ÿ | ⌚ | ⌚ | δ | ∓ | ≡ |
| C   |   |   | <  |   | C | Å | L | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| D   |   |   | =  |   | D | Å | M | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| E   |   |   | .  |   | E | Å | N | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| F   |   |   | /  |   | F | Å | O | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |

ITALIAN (Italian)

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    |   | 0 | @ | P | ` | ç | é | á | ⌚ | ⌚ | α | ± | ≡ |
| 1   |   | ! | "  |   | 1 | Å | Q | a | q | æ | í | ⌚ | ⌚ | β | ∓ | ≡ |
| 2   |   |   |    |   | 2 | Å | R | b | r | æ | ó | ⌚ | ⌚ | Γ | ∓ | ≡ |
| 3   |   |   | #  |   | 3 | Å | S | c | s | å | ô | ⌚ | ⌚ | π | ∓ | ≡ |
| 4   |   |   | \$ |   | 4 | Å | T | d | t | å | ñ | ⌚ | ⌚ | Σ | ∓ | ≡ |
| 5   |   |   | %  |   | 5 | Å | E | u | u | å | ä | ⌚ | ⌚ | o | ∓ | ≡ |
| 6   |   |   | &  |   | 6 | Å | F | v | v | å | ö | ⌚ | ⌚ | μ | ∓ | ≡ |
| 7   |   |   | '  |   | 7 | Å | G | w | w | ç | ÿ | ⌚ | ⌚ | τ | ∓ | ≡ |
| 8   |   |   | (  |   | 8 | Å | H | x | x | ç | ÿ | ⌚ | ⌚ | θ | ∓ | ≡ |
| 9   |   |   | )  |   | 9 | Å | I | y | y | ç | ÿ | ⌚ | ⌚ | • | ∓ | ≡ |
| A   |   |   | *  |   | A | Å | J | z | z | ç | ÿ | ⌚ | ⌚ | Ω | ∓ | ≡ |
| B   |   |   | +  |   | B | Å | K | ø | ø | ç | ÿ | ⌚ | ⌚ | δ | ∓ | ≡ |
| C   |   |   | <  |   | C | Å | L | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| D   |   |   | =  |   | D | Å | M | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| E   |   |   | .  |   | E | Å | N | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| F   |   |   | /  |   | F | Å | O | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |

SPANSH2 (Spanish2)

| L/H | 0 | 1 | 2  | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |   |    |   | 0 | á | P | ` | ç | é | á | ⌚ | ⌚ | α | ± | ≡ |
| 1   |   | ! | "  |   | 1 | Å | Q | a | q | æ | í | ⌚ | ⌚ | β | ∓ | ≡ |
| 2   |   |   |    |   | 2 | Å | R | b | r | æ | ó | ⌚ | ⌚ | Γ | ∓ | ≡ |
| 3   |   |   | #  |   | 3 | Å | S | c | s | å | ô | ⌚ | ⌚ | π | ∓ | ≡ |
| 4   |   |   | \$ |   | 4 | Å | T | d | t | å | ñ | ⌚ | ⌚ | Σ | ∓ | ≡ |
| 5   |   |   | %  |   | 5 | Å | E | u | u | å | ä | ⌚ | ⌚ | o | ∓ | ≡ |
| 6   |   |   | &  |   | 6 | Å | F | v | v | å | ö | ⌚ | ⌚ | μ | ∓ | ≡ |
| 7   |   |   | '  |   | 7 | Å | G | w | w | ç | ÿ | ⌚ | ⌚ | τ | ∓ | ≡ |
| 8   |   |   | (  |   | 8 | Å | H | x | x | ç | ÿ | ⌚ | ⌚ | θ | ∓ | ≡ |
| 9   |   |   | )  |   | 9 | Å | I | y | y | ç | ÿ | ⌚ | ⌚ | • | ∓ | ≡ |
| A   |   |   | *  |   | A | Å | J | z | z | ç | ÿ | ⌚ | ⌚ | Ω | ∓ | ≡ |
| B   |   |   | +  |   | B | Å | K | ø | ø | ç | ÿ | ⌚ | ⌚ | δ | ∓ | ≡ |
| C   |   |   | <  |   | C | Å | L | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| D   |   |   | =  |   | D | Å | M | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| E   |   |   | .  |   | E | Å | N | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |
| F   |   |   | /  |   | F | Å | O | ø | ø | ç | ÿ | ⌚ | ⌚ | ∞ | ∓ | ≡ |

## CHARACTER SETS

JAPAN (Japanese)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | @ | P | ~ | p | Ç | É | Á |   |   | α | ≡ |   |
| 1   |   | !  | 1 | A | Q | R | a | q | Ù | æ | í | ó | ü | β | ± |   |
| 2   |   | "  | 2 | B | R | R | b | r | É | Æ | ó | ñ | ü | Γ | ≥ |   |
| 3   |   | #  | 3 | C | S | T | c | s | á | ö | ú | ñ | ü | Π | Σ |   |
| 4   |   | \$ | 4 | D | T | d | e | t | ä | ö | ü | ñ | ü | τ | ο |   |
| 5   |   | %  | 5 | E | U | U | e | u | ä | ö | ü | ñ | ü | ο | μ |   |
| 6   |   | &  | 6 | F | V | V | f | v | ä | ö | ü | ñ | ü | τ | + |   |
| 7   |   | '  | 7 | G | W | X | g | w | ç | ë | ÿ | ö | ç | • | • |   |
| 8   |   | (  | 8 | H | X | X | h | x | ç | ë | ÿ | ö | ç | • | • |   |
| 9   |   | )  | 9 | I | Y | Y | i | y | è | ë | ÿ | ö | ç | • | • |   |
| A   |   | *  | : | J | Z | Z | j | z | è | ë | ÿ | ö | ç | • | • |   |
| B   |   | +  | ; | K | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| C   |   | ,  | < | L | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| D   |   | -  | = | M | l | l | m | l | è | ë | ÿ | ö | ç | • | • |   |
| E   |   | .  | > | N | l | l | n | l | è | ë | ÿ | ö | ç | • | • |   |
| F   |   | /  | ? | O | - | - | o | - | è | ë | ÿ | ö | ç | • | • |   |

LATIN A (Latin American)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | Á | P | ú | p | Ç | É | Á |   |   | α | ≡ |   |
| 1   |   | !  | 1 | A | Q | R | a | q | Ù | æ | í | ó | ü | β | ± |   |
| 2   |   | "  | 2 | B | R | R | b | r | É | Æ | ó | ñ | ü | Γ | ≥ |   |
| 3   |   | #  | 3 | C | S | T | c | s | á | ö | ú | ñ | ü | Π | Σ |   |
| 4   |   | \$ | 4 | D | T | d | e | t | ä | ö | ü | ñ | ü | τ | ο |   |
| 5   |   | %  | 5 | E | U | U | e | u | ä | ö | ü | ñ | ü | ο | μ |   |
| 6   |   | &  | 6 | F | V | V | f | v | ä | ö | ü | ñ | ü | τ | + |   |
| 7   |   | '  | 7 | G | W | X | g | w | ç | ë | ÿ | ö | ç | • | • |   |
| 8   |   | (  | 8 | H | X | X | h | x | ç | ë | ÿ | ö | ç | • | • |   |
| 9   |   | )  | 9 | I | Y | Y | i | y | è | ë | ÿ | ö | ç | • | • |   |
| A   |   | *  | : | J | Z | Z | j | z | è | ë | ÿ | ö | ç | • | • |   |
| B   |   | +  | ; | K | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| C   |   | ,  | < | L | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| D   |   | -  | = | M | l | l | m | l | è | ë | ÿ | ö | ç | • | • |   |
| E   |   | .  | > | N | l | l | n | l | è | ë | ÿ | ö | ç | • | • |   |
| F   |   | /  | ? | O | - | - | o | - | è | ë | ÿ | ö | ç | • | • |   |

NORWEGN (Norwegian)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | É | P | é | p | Ç | É | Á |   |   | α | ≡ |   |
| 1   |   | !  | 1 | A | Q | R | a | q | Ù | æ | í | ó | ü | β | ± |   |
| 2   |   | "  | 2 | B | R | R | b | r | É | Æ | ó | ñ | ü | Γ | ≥ |   |
| 3   |   | #  | 3 | C | S | T | c | s | á | ö | ú | ñ | ü | Π | Σ |   |
| 4   |   | \$ | 4 | D | T | d | e | t | ä | ö | ü | ñ | ü | τ | ο |   |
| 5   |   | %  | 5 | E | U | U | e | u | ä | ö | ü | ñ | ü | ο | μ |   |
| 6   |   | &  | 6 | F | V | V | f | v | ä | ö | ü | ñ | ü | τ | + |   |
| 7   |   | '  | 7 | G | W | X | g | w | ç | ë | ÿ | ö | ç | • | • |   |
| 8   |   | (  | 8 | H | X | X | h | x | ç | ë | ÿ | ö | ç | • | • |   |
| 9   |   | )  | 9 | I | Y | Y | i | y | è | ë | ÿ | ö | ç | • | • |   |
| A   |   | *  | : | J | Z | Z | j | z | è | ë | ÿ | ö | ç | • | • |   |
| B   |   | +  | ; | K | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| C   |   | ,  | < | L | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| D   |   | -  | = | M | l | l | m | l | è | ë | ÿ | ö | ç | • | • |   |
| E   |   | .  | > | N | l | l | n | l | è | ë | ÿ | ö | ç | • | • |   |
| F   |   | /  | ? | O | - | - | o | - | è | ë | ÿ | ö | ç | • | • |   |

FRENCH (French)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   | 0 | à | P | ~ | p | Ç | É | Á |   |   | α | ≡ |   |
| 1   |   | !  | 1 | A | Q | R | a | q | Ù | æ | í | ó | ü | β | ± |   |
| 2   |   | "  | 2 | B | R | R | b | r | É | Æ | ó | ñ | ü | Γ | ≥ |   |
| 3   |   | #  | 3 | C | S | T | c | s | á | ö | ú | ñ | ü | Π | Σ |   |
| 4   |   | \$ | 4 | D | T | d | e | t | ä | ö | ü | ñ | ü | τ | ο |   |
| 5   |   | %  | 5 | E | U | U | e | u | ä | ö | ü | ñ | ü | ο | μ |   |
| 6   |   | &  | 6 | F | V | V | f | v | ä | ö | ü | ñ | ü | τ | + |   |
| 7   |   | '  | 7 | G | W | X | g | w | ç | ë | ÿ | ö | ç | • | • |   |
| 8   |   | (  | 8 | H | X | X | h | x | ç | ë | ÿ | ö | ç | • | • |   |
| 9   |   | )  | 9 | I | Y | Y | i | y | è | ë | ÿ | ö | ç | • | • |   |
| A   |   | *  | : | J | Z | Z | j | z | è | ë | ÿ | ö | ç | • | • |   |
| B   |   | +  | ; | K | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| C   |   | ,  | < | L | l | l | k | l | è | ë | ÿ | ö | ç | • | • |   |
| D   |   | -  | = | M | l | l | m | l | è | ë | ÿ | ö | ç | • | • |   |
| E   |   | .  | > | N | l | l | n | l | è | ë | ÿ | ö | ç | • | • |   |
| F   |   | /  | ? | O | - | - | o | - | è | ë | ÿ | ö | ç | • | • |   |

DANISH2 (Danish2)

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0 | É | P | é | p | Ç | é | á |   | À | α | ≡ |
| 1   |   | !  | 1 | 2 | Á | Q | á | q | ç | ú | æ | í | À | À | β | ± |
| 2   |   | "  | 3 | 4 | B | R | b | r | é | æ | ó | ó | À | À | Γ | Σ |
| 3   |   | #  | 5 | 6 | C | S | c | s | á | ö | ú | ñ | À | À | Π | Σ |
| 4   |   | \$ | 7 | 8 | D | T | d | t | ä | ö | ä | ñ | À | À | Σ | Σ |
| 5   | § | %  | 9 | A | E | U | e | u | å | ö | ä | ñ | À | À | ο | Σ |
| 6   |   | &  | B | F | V | f | v | w | å | ö | ä | ñ | À | À | μ | ± |
| 7   |   | '  | C | G | W | g | w | x | ç | ü | ö | ä | ñ | À | τ | ° |
| 8   |   | (  | D | H | X | h | x | y | ë | ö | ä | ñ | À | À | Φ | ° |
| 9   |   | )  | E | I | Y | i | y | z | è | ö | ä | ñ | À | À | Θ | ° |
| A   |   | *  | F | J | Z | j | z | è | ü | ö | ä | ñ | À | À | Ω | ° |
| B   |   | +  | G | K | Æ | k | æ | ø | é | ü | ö | ä | ñ | À | δ | √ |
| C   |   | <  | H | L | Ø | l | ø | å | í | ü | ö | ä | ñ | À | ∞ | ² |
| D   |   | =  | I | M | Å | m | å | ü | í | ü | ö | ä | ñ | À | ∅ | ² |
| E   |   | .  | J | N | Ü | n | ü | å | í | ü | ö | ä | ñ | À | ∅ | ² |
| F   |   | /  | K | O | — | o | — | å | í | ü | ö | ä | ñ | À | ∅ | ² |

KOREA

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0 | @ | P | ~ | p | Ç | é | á |   | À | α | ≡ |
| 1   |   | !  | 1 | 2 | Á | Q | á | q | ç | ú | æ | í | À | À | β | ± |
| 2   |   | "  | 3 | 4 | B | R | b | r | é | æ | ó | ó | À | À | Γ | Σ |
| 3   |   | #  | 5 | 6 | C | S | c | s | á | ö | ú | ñ | À | À | Π | Σ |
| 4   |   | \$ | 7 | 8 | D | T | d | t | ä | ö | ä | ñ | À | À | Σ | Σ |
| 5   | § | %  | 9 | A | E | U | e | u | å | ö | ä | ñ | À | À | ο | Σ |
| 6   |   | &  | B | F | V | f | v | w | å | ö | ä | ñ | À | À | μ | ± |
| 7   |   | '  | C | G | W | g | w | x | ç | ü | ö | ä | ñ | À | τ | ° |
| 8   |   | (  | D | H | X | h | x | y | ë | ö | ä | ñ | À | À | Φ | ° |
| 9   |   | )  | E | I | Y | i | y | z | è | ö | ä | ñ | À | À | Θ | ° |
| A   |   | *  | F | J | Z | j | z | è | ü | ö | ä | ñ | À | À | Ω | ° |
| B   |   | +  | G | K | Æ | k | æ | ø | é | ü | ö | ä | ñ | À | δ | √ |
| C   |   | <  | H | L | Ø | l | ø | å | í | ü | ö | ä | ñ | À | ∞ | ² |
| D   |   | =  | I | M | Å | m | å | ü | í | ü | ö | ä | ñ | À | ∅ | ² |
| E   |   | .  | J | N | Ü | n | ü | å | í | ü | ö | ä | ñ | À | ∅ | ² |
| F   |   | /  | K | O | — | o | — | å | í | ü | ö | ä | ñ | À | ∅ | ² |

LEGAL

| L/H | 0 | 1  | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F |
|-----|---|----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0   |   |    |   |   | 0 | § | P | ~ | p | Ç | é | á |   | À | α | ≡ |
| 1   |   | !  | 1 | 2 | Á | Q | á | q | ç | ú | æ | í | À | À | β | ± |
| 2   |   | "  | 3 | 4 | B | R | b | r | é | æ | ó | ó | À | À | Γ | Σ |
| 3   |   | #  | 5 | 6 | C | S | c | s | á | ö | ú | ñ | À | À | Π | Σ |
| 4   |   | \$ | 7 | 8 | D | T | d | t | ä | ö | ä | ñ | À | À | Σ | Σ |
| 5   | § | %  | 9 | A | E | U | e | u | å | ö | ä | ñ | À | À | ο | Σ |
| 6   |   | &  | B | F | V | f | v | w | å | ö | ä | ñ | À | À | μ | ± |
| 7   |   | '  | C | G | W | g | w | x | ç | ü | ö | ä | ñ | À | τ | ° |
| 8   |   | (  | D | H | X | h | x | y | ë | ö | ä | ñ | À | À | Φ | ° |
| 9   |   | )  | E | I | Y | i | y | z | è | ö | ä | ñ | À | À | Θ | ° |
| A   |   | *  | F | J | Z | j | z | è | ü | ö | ä | ñ | À | À | Ω | ° |
| B   |   | +  | G | K | Æ | k | æ | ø | é | ü | ö | ä | ñ | À | δ | √ |
| C   |   | <  | H | L | Ø | l | ø | å | í | ü | ö | ä | ñ | À | ∞ | ² |
| D   |   | =  | I | M | Å | m | å | ü | í | ü | ö | ä | ñ | À | ∅ | ² |
| E   |   | .  | J | N | Ü | n | ü | å | í | ü | ö | ä | ñ | À | ∅ | ² |
| F   |   | /  | K | O | — | o | — | å | í | ü | ö | ä | ñ | À | ∅ | ² |

### 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-B | OCR-A |
|------------------------|--------------------|------------|----------|----------|-------|---------|---------|---------------------|-------------|----------------|----------------|-------|-------|
| 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

## CHARACTER SETS

| Resident font          |                    | Courier 10 | Elite 12 | Compress | Draft | Bold PS | Pica 10 | Courier scalable** | Timeless** | Correspondence<br>Nimbus Sans** | 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

## 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. |

## RESIDENT FONTS

---

### COURIER (SCALABLE)

|        |                                                                                                                 |
|--------|-----------------------------------------------------------------------------------------------------------------|
| Normal | The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.        |
| Bold   | <b>The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.</b> |
| Italic | <i>The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.</i> |

### NIMBUS SANS ® (SCALABLE)

|        |                                                                                                                 |
|--------|-----------------------------------------------------------------------------------------------------------------|
| Normal | The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.        |
| Bold   | <b>The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.</b> |
| Italic | <i>The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.</i> |

### TIMELESS (SCALABLE)

|        |                                                                                                                 |
|--------|-----------------------------------------------------------------------------------------------------------------|
| Normal | The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.        |
| Bold   | <b>The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.</b> |
| Italic | <i>The 24-wire dot-matrix printer prints quality characters and symbols using a variety of sizes and fonts.</i> |

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