

PRINTRONIX® **PSA3**

P7000 User's Manual



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User's Manual

The Printronix P7000 Series PSA3™ Printers

PRINTRONIX® **PSA3**

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Table of Contents

| | | |
|----------|--|-----------|
| 1 | Introduction | 11 |
| | Printer Overview | 11 |
| | Printronix P7000 Series Printers | 11 |
| | Integrated Print Management System..... | 12 |
| | Graphics Enhancements | 14 |
| | Taking Care Of Your Printer..... | 14 |
| | Conventions In This Manual | 15 |
| | Warnings And Special Information | 15 |
| | Related Documents | 15 |
| | Contact Information | 16 |
| | Printronix Customer Support Center | 16 |
| | Printronix Supplies Department..... | 16 |
| | Corporate Offices | 17 |
| 2 | Setting Up The Printer | 19 |
| | Before You Begin..... | 19 |
| | Power Requirements | 19 |
| | Select A Site | 19 |
| | Printer Dimensions | 20 |
| | Printer Component Locations | 23 |
| 3 | Operating The Printer | 25 |
| | Powering On The Printer | 25 |
| | Operating Modes | 25 |
| | The Control Panel..... | 26 |
| | Control Panel Keys | 27 |
| | Operational Procedures..... | 30 |
| | Reload Paper | 30 |
| | Unload Paper | 39 |
| | Integrated Print Management System | 42 |
| | Lighter Or Darker Print | 42 |
| | Changing Ribbons..... | 43 |
| | Cancel A Print Job | 46 |

| | |
|--|-----|
| 4 The Configuration Menus | 47 |
| Configuration Overview | 47 |
| Changing Parameter Settings | 47 |
| Saving Parameter Settings | 47 |
| Default And Custom Configurations | 48 |
| Navigating The Menus | 48 |
| Changing Parameters Example | 49 |
| Auto Save Configuration | 52 |
| Saving Your New Configuration | 52 |
| Optimizing Print Quality | 57 |
| Optimizing Print Speed | 58 |
| Main Menu | 59 |
| QUICK SETUP | 62 |
| ZTP SETTINGS | 68 |
| CONFIG. CONTROL | 69 |
| HOST INTERFACE | 72 |
| Auto Switching Submenu | 73 |
| IEEE 1284 Parallel (Bidirectional) Submenu | 75 |
| Centronics (Parallel) Submenu | 76 |
| Dataproducts Submenu | 79 |
| Serial Submenu | 81 |
| E-Net Adapter Submenu | 86 |
| Ethernet Submenu | 86 |
| NETWORK SETUP MENU | 87 |
| ADAPTER ADDRESS | 87 |
| ADAPTER PARAMS | 88 |
| ETHERNET ADDRESS | 91 |
| ETHERNET PARAMS | 92 |
| WLAN ADDRESS | 94 |
| WLAN PARAMS | 95 |
| WLAN KERBEROS | 99 |
| WLAN LEAP | 101 |
| ACTIVE IGP EMUL | 102 |
| ACTIVE EMULATION | 103 |
| EMULATION | 103 |
| Coax/Twinax (CTHI) Emulation | 104 |
| Standard | 104 |
| Simple Prot Conv | 105 |
| Coax Emulation | 106 |
| Twinax Params | 115 |
| 3270 Params | 121 |
| 5250 Params | 128 |

| | |
|---|------------|
| SPC Coax Params | 132 |
| SPC Twx Params | 135 |
| LinePrinter Plus Emulation | 137 |
| LinePrinter Plus Emulation (With PCL-II)..... | 139 |
| P-Series Emulation | 144 |
| P-Series Emulation (with PCL-II)..... | 144 |
| P-Series Emulation (With LG) | 145 |
| P-Series XQ Emulation | 152 |
| Serial Matrix Emulation | 154 |
| Proprinter XL Emulation | 159 |
| Epson FX Emulation | 163 |
| ANSI Emulation | 168 |
| IGP/PGL Emulation | 175 |
| Features | 175 |
| Configuring The Emulation With The Control Panel..... | 176 |
| IGP/PGL Submenu | 177 |
| IGP/PGL Submenu (With PCL-II)..... | 178 |
| IGP/PGL Submenu (With LG) | 179 |
| IGP/VGL Emulation | 189 |
| Features | 189 |
| Configuring The Emulation With The Control Panel..... | 190 |
| IGP/VGL Submenu | 190 |
| IGP/VGL Submenu (with PCL-II)..... | 192 |
| IGP/VGL Submenu (with LG)..... | 194 |
| IPDS Emulation | 205 |
| PCL - II Emulation..... | 209 |
| LG Emulation | 213 |
| PRINTER CONTROL | 218 |
| ADVANCED USER..... | 221 |
| DIAGNOSTICS | 227 |
| DATE | 230 |
| Printer MGMT | 231 |
| 5 Interfaces..... | 233 |
| Overview..... | 233 |
| Dataproducts Parallel Interface | 234 |
| Dataproducts Parallel Interface Signals | 235 |
| Centronics Parallel Interface..... | 236 |
| Centronics Parallel Interface Signals | 237 |
| IEEE 1284 Parallel Interface..... | 238 |
| Compatibility Mode..... | 238 |
| Nibble Mode | 238 |

| | |
|--|------------|
| Byte Mode | 238 |
| Signals | 239 |
| Terminating Resistor Configurations | 241 |
| RS-232 And RS-422 Serial Interfaces | 244 |
| RS-232 | 244 |
| RS-422 | 245 |
| 6 Reprogramming the Security Key | 247 |
| Reprogramming The Security Key | 247 |
| How To Program The Security Key | 247 |
| 7 Troubleshooting | 249 |
| Cleaning Requirements | 249 |
| Exterior Cleaning | 249 |
| Interior Cleaning | 250 |
| Diagnosing Problems | 252 |
| Bar Code Verification | 252 |
| Printing A Hex Dump | 253 |
| Fault Messages | 254 |
| A Printer Specifications | 285 |
| Ribbon Specifications | 285 |
| Paper Specifications | 286 |
| Printer Weight And Dimensions | 287 |
| Environmental Characteristics | 287 |
| Electrical Characteristics | 289 |
| Interfaces | 289 |
| Printing Rates | 290 |
| B ASCII Character Set | 291 |
| C Zero Tear Printer | 293 |
| Overview | 293 |
| Operation | 294 |
| Position The Paper Input And Adjust The Paper Guides | 294 |
| Load Paper | 296 |
| Position The Paper Out Sensor | 298 |
| Set The Tear Bar Distance | 299 |
| Set The Top Of Form | 300 |
| Control Panel Menus | 301 |
| Performance Limitations | 302 |

D Customer Support..... 305

 Printronix Customer Support Center.....305

 Printronix Supplies Department.....305

 Corporate Offices.....306

E Communication Notices 307

 Notices.....307

 Energy Star.....309

 Product Recycling and Disposal.....309

 Communication Statements.....310

 Lithium Battery Warning313

 Software License Agreement.....314

1

Introduction

Printer Overview

This chapter provides a general overview of your printer and the conventions used within this manual.

Printronix P7000 Series Printers

The Printronix® P7000 Series Printers are the latest line matrix printers to feature PSA3™ (Printronix System Architecture, third generation). All printer models (see Table 1 on page 12) are packaged in various configurations that offer software versatility and the latest refinements in printing technology. The print mechanisms are housed in sound-insulated cabinets which make the printer among the quietest line matrix printers in the world. Additionally, your printer has a flexible architecture that allows you to add new features and emulations as they become available.

LinePrinter Plus® is the standard emulation. LinePrinter Plus includes the Epson® FX-1050, Printronix P-Series, P-Series XQ, Serial Matrix and Proprietary® III XL emulations. Coax/Twinax, IPDS™, ANSI®, LG, PCL2, IGP®/PGL®, and IGP/VGL graphics enhancement emulations are available as optional upgrades. No matter what emulation is installed, your printer is easy to use. The message display and lights on the control panel communicate with you directly and clearly. You can select every function on your printer at the control panel, or you can send commands from the host computer.

The printer model numbers indicate physical configuration and printing speed. Model numbers beginning with P70 indicate pedestal models. Model numbers beginning with P72 indicate cabinet models. The final two digits in the model number (except for P7080 and P7280) refer to the printer's maximum speed in lines per minute (lpm): 02 for 200 lpm, 03 for 300 lpm, 05 for 500 lpm, 06 for 600 lpm, 10 for 1000 lpm, 15 for 1500 lpm, and 20 for 2000 lpm.

Refer to the following table for a complete listing of model numbers and options.

NOTE: H = H-Series
 HD = High Density
 HZT = H-Series Zero Tear
 ZT = Zero Tear

Table 1. The Printronix P7000 Series Printers

| Model Number | Print Speed | Model Type | Power Stacker |
|--------------|-------------|--------------------|---------------|
| P7002H | 200 lpm | Pedestal | |
| P7202HZT | 200 lpm | Zero Tear Pedestal | |
| P7003HZT | 300 lpm | Zero Tear Pedestal | |
| P7005 | 500 lpm | Pedestal | |
| P7005ZT | 500 lpm | Zero Tear Pedestal | |
| P7205 | 500 lpm | Cabinet | N/A |
| P7006HZT | 600 lpm | Zero Tear Pedestal | |
| P7010 | 1000 lpm | Pedestal | |
| P7010ZT | 1000 lpm | Zero Tear Pedestal | |
| P7015 | 1500 lpm | Pedestal | |
| P7015ZT | 1500 lpm | Zero Tear Pedestal | |
| P7080HD | 133 lpm | Pedestal | |
| P7080HDZT | 133 lpm | Zero Tear Pedestal | |
| P7210 | 1000 lpm | Cabinet | Option |
| P7215 | 1500 lpm | Cabinet | Option |
| P7220 | 2000 lpm | Cabinet | Option |
| P7280HD | 133 lpm | Cabinet | Option |

Integrated Print Management System

The P7000 has a new feature that automatically monitors and communicates ribbon life. Using a specially barcoded spool, the printer can automatically detect when a new or used ribbon is loaded, and all ribbon properties. With a sophisticated algorithm, the system monitors all jobs printed and automatically updates the remaining ribbon life on the front panel display. This allows the system administrator to have precise control over print quality and consumable costs. The accurate presentation of available ribbon life allows for efficient planning of print jobs. For example, you can install a new ribbon before printing large print jobs.

When the ribbon life gets near the end point, the printer displays a ribbon low message and flashes the indicator light. Printing will continue without interruption. Once the ribbon reaches 0% remaining, the alarm sounds, the indicator light flashes, the display updates, and printing pauses. If a new ribbon is loaded, the system automatically detects the change, clears the condition, and restarts the life at 100%. If it is not convenient to change the ribbon immediately, press the Online key and it will resume printing for a few minutes. This should be enough to complete the job. If not, repeat the same procedure indefinitely to extend printing on the same ribbon.

Output Darkness

By default the system is configured to meet most user requirements. However, some applications require that the output remains darker than the nominal set point while some applications are less critical and could tolerate a lighter final image. The system can easily adjust to this variability. A setting under the Printer Control menu is available that allows the user to adjust the final output. The range is as follows:

Normal (Default)
Darker +1 through +6
Lighter -1 through -10

The ribbon life indicator always cycles between 100% and 0%, but if a darker setting is selected, zero will be reached more quickly.

If a lighter setting is selected, the system will extend the amount of printing it takes to reach zero.

Ribbon Flipping

In some cases, the application's print pattern is narrow enough where only half of the ribbon is used when printing. In these cases, you can flip the ribbon and use the other half. The Integrated Print Management System detects the flip and resets the ribbon life to 100%.

NOTE: It is the user's responsibility to ensure the print pattern is sufficiently narrow to support flipping. If not, the ribbon life may falsely indicate 100% for the flipped ribbon.

Loading a Used Ribbon

You can take ribbons off the printer and reload it at a later time. The ribbon life gauge automatically updates to reflect the correct remaining capacity.

NOTE: The ribbon must be reloaded back onto the same printer, and in the same orientation as it was removed. If the used ribbon is loaded onto a different printer, or if it is flipped over, it will incorrectly indicate the ribbon as new.

Ribbon Log

The Integrated Printer Management System tracks all used ribbons. This data allows you to monitor how many ribbons and ribbon types have been used on the printer. This data is contained in the ribbon log. To print the ribbon log, see page 227.

Consumable Monitoring With PrintNet Enterprise

The Integrated Print Management System works with PrintNet Enterprise (PNE). PNE allows a system administrator to remotely view the current consumable status of all printers. PNE can be configured to deliver alerts on all consumable warnings. When a ribbon reaches the low state, PNE notifies the system administrator remotely via an automated e-mail alert of the low condition. This allows corrective action to be taken before the ribbon reaches its end of life. If the ribbon is not changed, an alert will again be initiated once the ribbon reaches the 0% end point. Refer to your PrintNet Enterprise Remote Management Software manual for details.

Graphics Enhancements

The IGP/PGL and IGP/VGL emulations allow you to create and store forms, generate logos, bar codes, expanded characters, and create other graphics. Alphanumeric and bar code data are added as the form is printed.

These emulations are available as factory-installed or field-installed options. For more information, contact your authorized service representative.

Taking Care Of Your Printer

Your printer will produce high print quality jobs if it is well taken care of. Periodic cleaning, handling the printer properly, and using the correct printer supplies such as ribbon and paper ensures optimum performance. Chapter 7 explains how to clean the printer, and printer supplies are listed in Appendix A.

Conventions In This Manual

All uppercase print indicates control panel keys.

Example: Press the CLEAR key, then press the ON LINE key.

Quotation marks (“ ”) indicate messages on the Liquid Crystal Display (LCD).

Example: Press the ON LINE key. “OFFLINE” appears on the LCD.

The + (plus) symbol represents key combinations.

Example: “Press ▲ + ▼” means press the ▲ (UP) key and the ▼ (DOWN) key at the same time.

Warnings And Special Information

Read and comply with all information highlighted under special headings:

WARNING A warning notice calls attention to a condition that could harm you.

CAUTION A caution notice calls attention to a condition that could damage the printer.

IMPORTANT Information vital to proper operation of the printer.

NOTE: A note gives you helpful tips about printer operation and maintenance.

Related Documents

- *Maintenance Manual* — Explains how to maintain and repair the line matrix printer at the field service level of maintenance.
- *Coax/Twinax Programmer's Reference Manual* — Covers the host control codes and character sets for the Coax and Twinax emulations.
- *Coax/Twinax Programmer's Reference Manual for the Simple Protocol Converter Option* — Covers the host control codes and character sets for the Coax and Twinax Simple Protocol Converter emulations.
- *LinePrinter Plus Programmer's Reference Manual* — Covers the host control codes for the LinePrinter Plus emulation.
- *IGP/PGL Programmer's Reference Manual* — Provides information used with the optional IGP Printronix emulation enhancement feature.
- *IGP/VGL Programmer's Reference Manual* — Provides information used with the optional Code V™ emulation enhancement feature.
- *ANSI Programmer's Reference Manual* — Provides host control codes and character sets for the ANSI emulation.
- *IPDS Twinax Emulation Programmer's Reference Manual* — Provides an overview of Intelligent Printer Data Stream™ (IPDS) features, commands, and diagnostics.
- *Character Sets Reference Manual* — Information about and examples of the character sets available in line matrix printers.

- *Integrated Network Interface Card User's Manual* — Information about network protocols, configuration, and operation.
- *External Network Interface Card User's Manual* — Information about network protocols, configuration, and operation.

Contact Information

Printronix Customer Support Center

IMPORTANT

Please have the following information available prior to calling the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout (Press PRT CONFIG on the control panel, then press Enter)
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas (714) 368-2686

Europe, Middle East, and Africa (31) 24 6489 410

Asia Pacific (65) 6548 4114

China (86) 800-999-6836

<http://www.printronix.com/public/servicessupport/default.aspx>

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas (800) 733-1900

Europe, Middle East, and Africa 33 (0) 1 46 25 19 07

Asia Pacific (65) 6548 4116
or (65) 6548 4182

China (86) 400-886-5598

<http://www.printronix.com/public/supplies/default.aspx>

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Fax: (86-21) 5138 0564

Visit the Printronix web site at www.primtronix.com

2

Setting Up The Printer

Before You Begin

Read this chapter carefully before installing and operating the printer. The printer is easy to install. However, for your safety and to protect valuable equipment, perform all the procedures in this chapter in the order presented.

Power Requirements

The printer must be connected to a power outlet that supplies AC 100V to 240V +/- 10% at 50 to 60 Hz. The printer automatically senses and adjusts itself to conform to the correct voltage range.

Primary circuit protection is provided by the power switch, which is also a circuit breaker. Consult an electrician if printer operation affects local electrical lines.

IMPORTANT

Printer power should be supplied from a separate AC circuit protected at 10 amperes for 100 - 120 volts or 5 amperes for 200 - 240 volts at 50 or 60 Hertz.

Select A Site

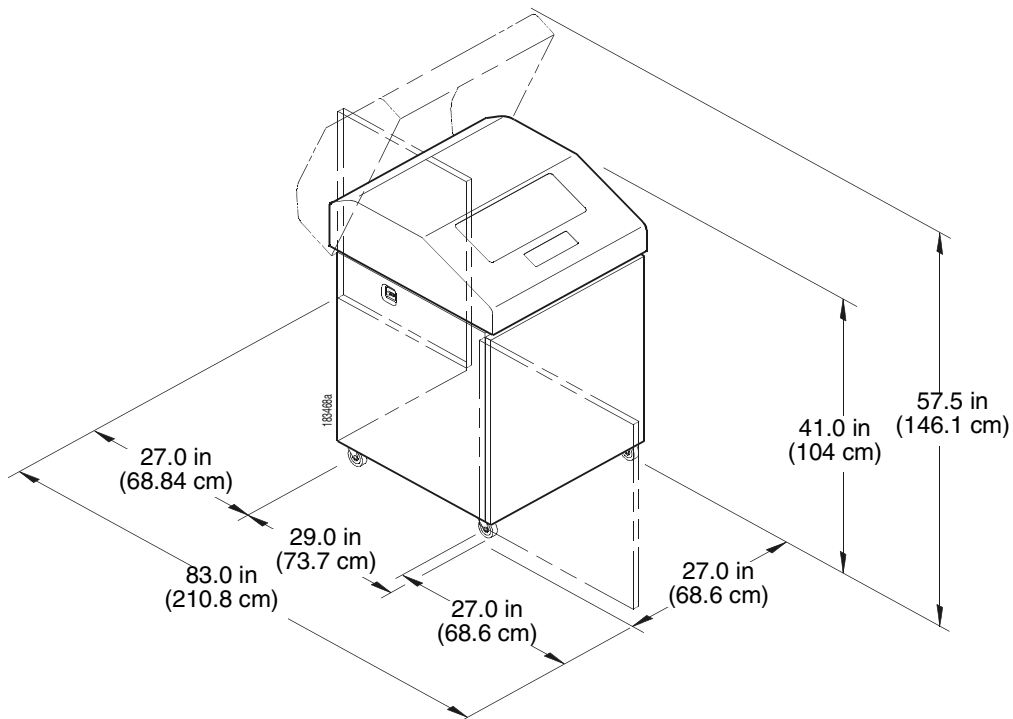
Select a printer site that meets all of the following requirements:

- Permits complete opening of the printer cover and doors.
- For cabinet models, allows at least three feet of clearance behind the printer. (This permits air to circulate freely around the printer and provides access to the paper stacking area.)
- Has a standard power outlet that supplies 88-135 Volts AC or 178-270 Volts AC power, at 47 to 63 Hz.
- Is relatively dust-free.
- Has a temperature range of 10° C to 40° C (50° F to 104° F) and a relative humidity from 15% to 90% non-condensing.
- Is located within the maximum allowable cable length to the host computer. This distance depends on the type of interface you plan to use, as shown in Table 2.

Table 2. Maximum Interface Connection Cable Length

| Interface Type | Maximum Cable Length |
|-------------------------|-------------------------|
| Centronics Parallel | 5 meters (15 feet) |
| Dataproducts Parallel | 12 meters (40 feet) |
| IEEE 1284 Parallel | 10 meters (32 feet) |
| Serial RS-232 | 15 meters (50 feet) |
| Serial RS-422 | 1220 meters (4000 feet) |
| Coax | 1500 meters (4920 feet) |
| Twinax | 1500 meters (4920 feet) |
| Twinax (shielded cable) | 1500 meters (4920 feet) |
| Twisted Pair / Type 3 | 300 meters (985 feet) |
| Ethernet 10/100Base-T | 100 meters (328 feet) |

Printer Dimensions

**Figure 1. Printer Dimensions - Cabinet Model**

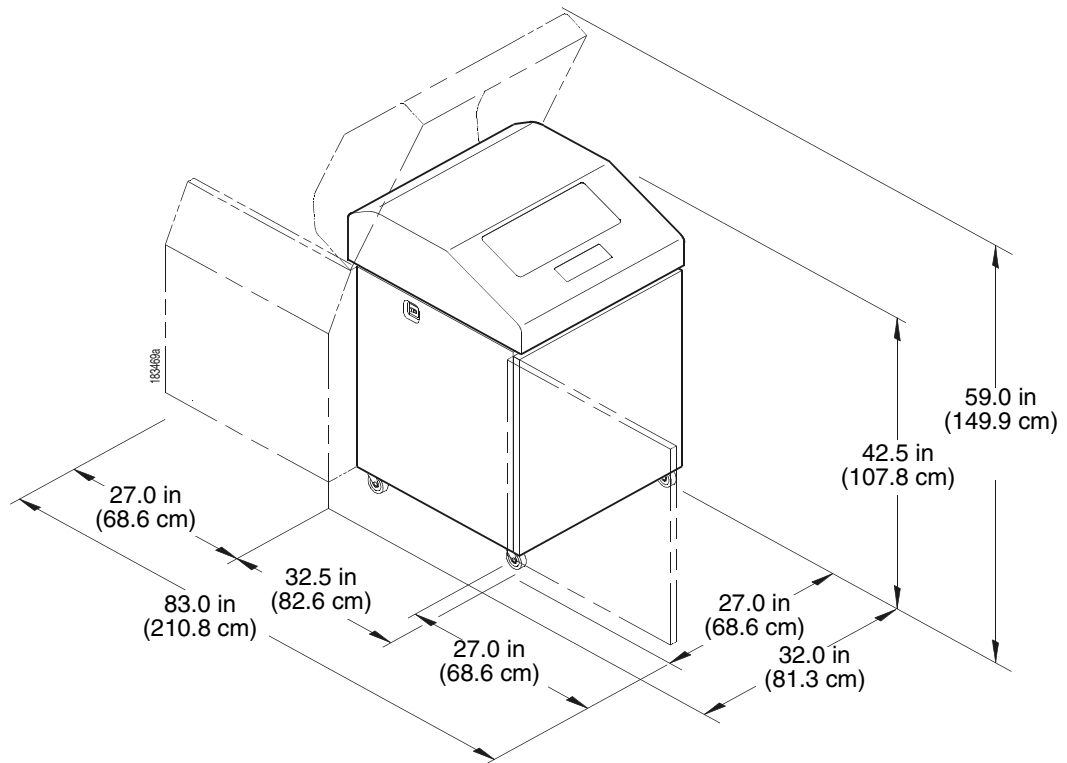


Figure 2. Printer Dimensions - Cabinet Model with Paper Stacker

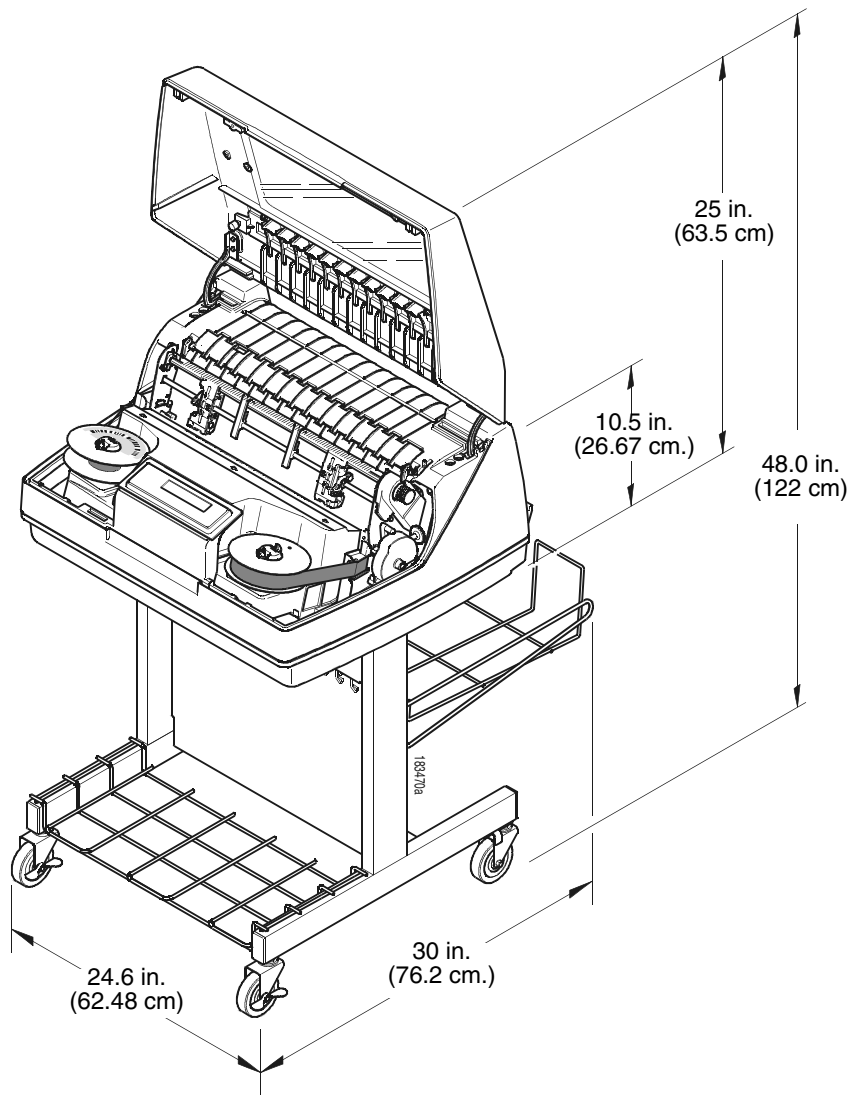


Figure 3. Printer Dimensions - Pedestal Model

Printer Component Locations

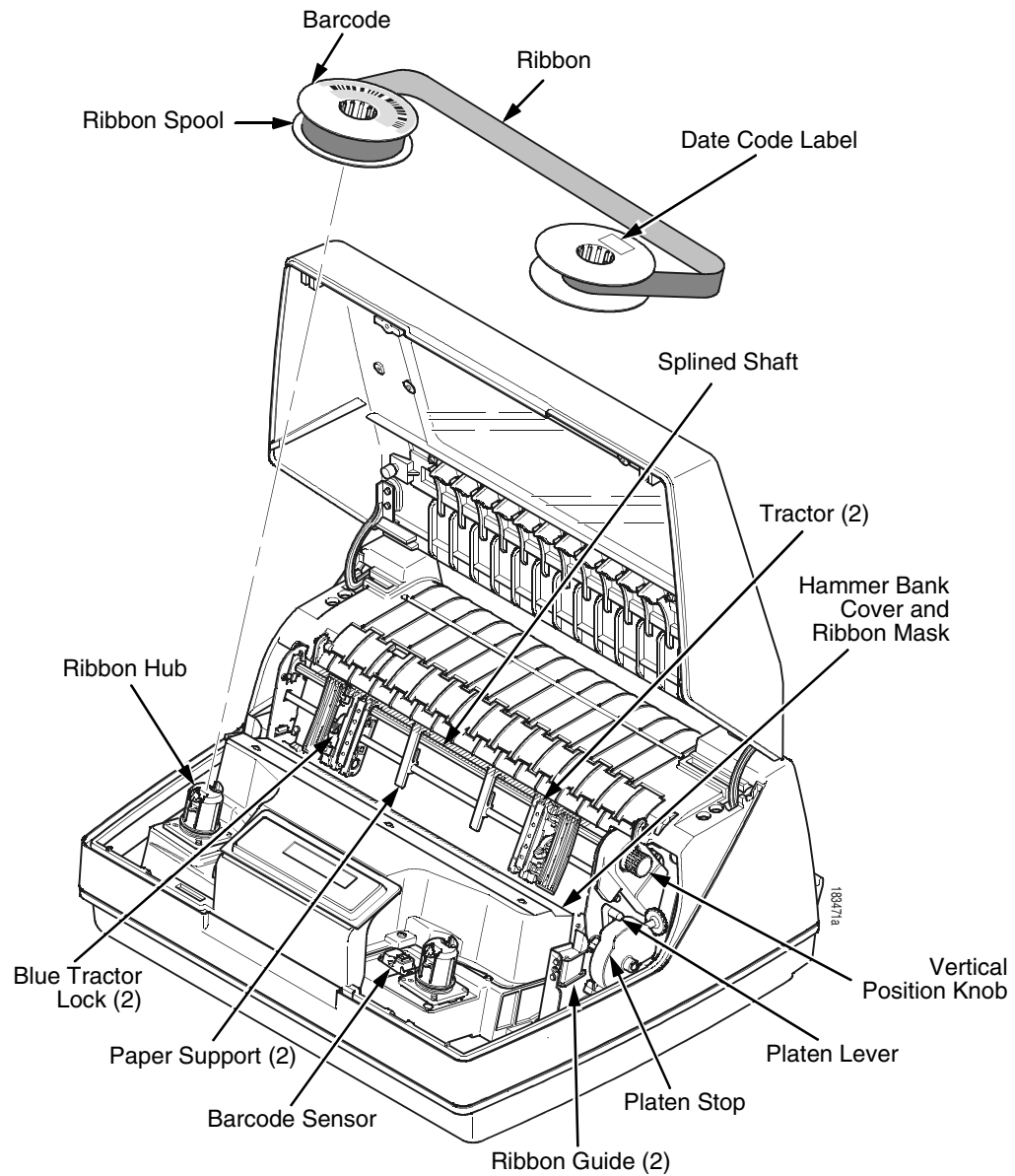


Figure 4. Printer Component Locations

3

Operating The Printer

Powering On The Printer

When you power on the printer, it executes a self-test. The default power-up state is online. When the self-test completes and the software has initialized successfully, the status indicator light turns on, indicating the printer is online. The default value of the type of emulation you have installed appears in the upper right corner of the display. The ribbon life remaining is shown on the second line.

If there is a fault during the self-test, the status indicator flashes and a specific fault message appears on the display (such as "LOAD PAPER"). The alarm also sounds if it is configured to do so. See "LCD Message Troubleshooting Table" on page 254 for information on fault messages and solutions.

Operating Modes

Online. In online mode, the printer can receive and print data sent from the host. Pressing the ON LINE key toggles the printer from online to offline mode. The status indicator is lit in online mode.

Offline. In offline mode, you can perform operator functions, such as loading paper and setting top-of-form. You can also move within the printer configuration menus. Pressing the ON LINE key toggles the printer from offline to online mode. The status indicator is off in offline mode.

Fault. In fault mode, a condition exists which must be cleared before printing can continue. The status indicator flashes, the alarm beeps (if configured to sound), and a descriptive fault message displays.

The current operating mode can be selected via control panel keys or can result from routine operations such as powering on the printer.

The Control Panel

Figure 5 shows the keys, displays, and indicators as they appear on the control panel. The following section provides the descriptions, and functions of the control panel keys.

Key combinations are indicated with the plus (+) sign. For example, “Press \triangle + ∇ ” means to press the \triangle key and the ∇ key at the same time.

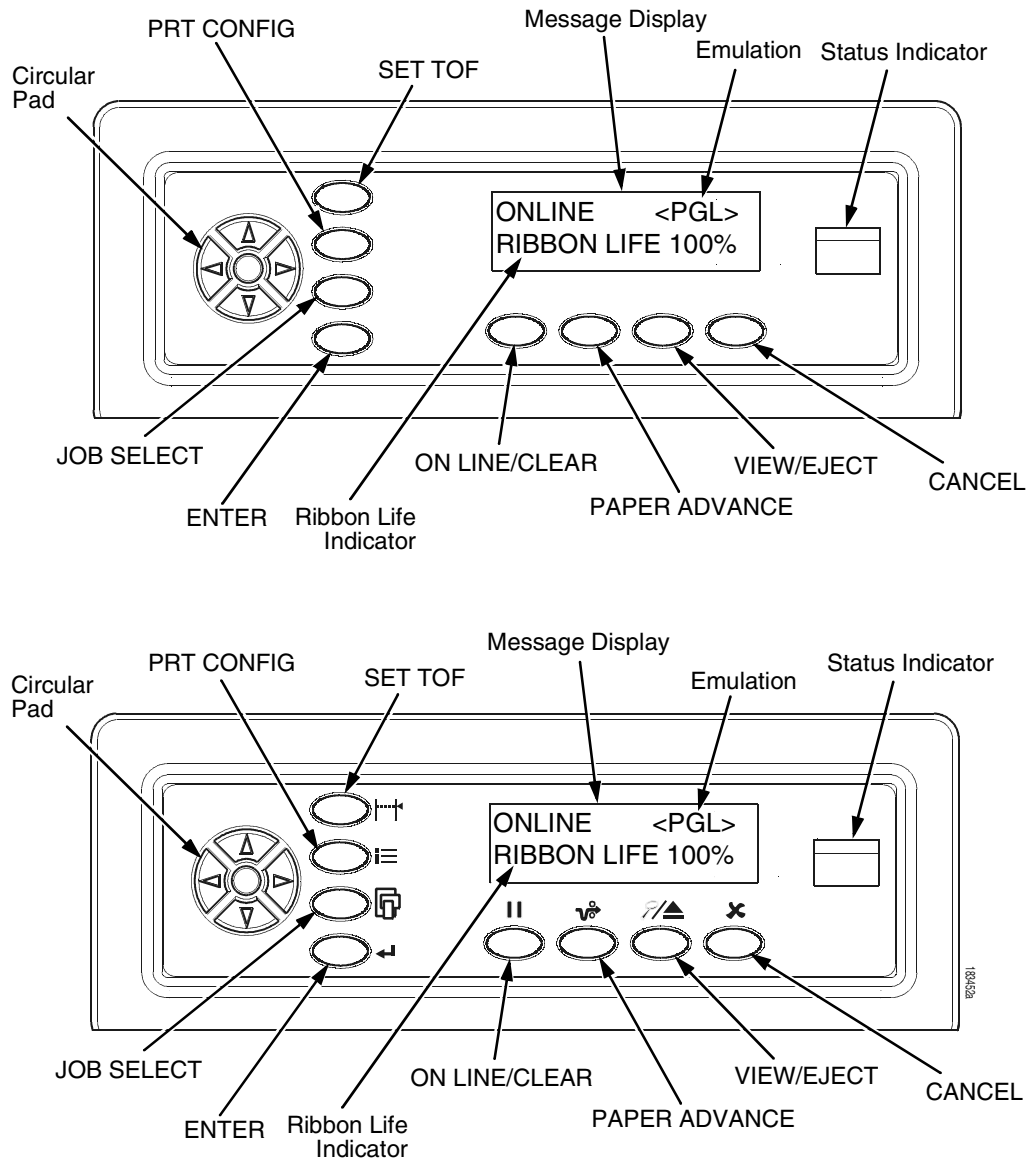


Figure 5. Control Panel

Control Panel Keys

ON LINE / CLEAR

Toggles the printer between online and offline modes. If a fault condition exists, pressing this key will clear the fault message and return the printer from fault mode to offline mode.

NOTE: If the fault condition is not corrected *before* pressing this key, the fault message will reappear when attempting to place the printer online.

PAPER ADVANCE

Performs advance to top-of-form, as defined by the current active form length. The key works both online and offline.

- If online with data in the printer buffer, the data will print and then the paper will move to the next top-of-form.
- In the fault state, PAPER ADVANCE will advance the paper. The first press moves to the top of the next available form. All subsequent presses advances one forms length as defined by the current active forms length.

VIEW / EJECT

When the printer is online or offline, pressing this key executes the view or eject function, depending on whether the printer is a cabinet or a pedestal (or zero tear pedestal).

If online with data in the printer buffer, the data prints and the key functions as described below.

If in a fault state, this key will be ignored.

- **View Function** — for cabinet models, pressing the VIEW/EJECT key moves the last data printed to the tractor area for viewing. While in the view state, the message "Printer in View" displays, pressing the UP or DOWN arrow keys moves the paper up or down in 1/72 inch increments. This is done to align the image within a pre-printed form, for example. Refer to the UP and DOWN key functions for additional details on the microstep feature. Pressing VIEW/EJECT a second time moves the paper back to the adjusted print position.

Eject Function — for pedestal models, when the VIEW/EJECT key is pressed, the bottom of the last printed form will move to the tear bar position. The message "READY TO TEAR/EJECT To Return" displays. While in this position, pressing the UP or DOWN arrow keys moves the paper up or down in 1/72 inch increments. Refer to the Up and Down key functions for additional details on the microstep feature. When the VIEW/EJECT key is pressed a second time, the printer will move the paper to enable printing on the next available form.

**CANCEL**

In offline mode, this key cancels all data in the print buffer, if enabled in the “ADVANCED USER” menu (see page 221). The print buffer is cleared without printing any of the data and the current paper position is set as the top-of-form. If this function is disabled, the CANCEL key will be ignored.

NOTE: Use of this key will cause loss of data.

**SET TOF**

Sets the top-of-form on the printer. This key is active only when the printer is offline and will not operate if the printer is in a fault condition. The paper moves down to the print position and aligns to the top-of-form. Refer to the *Quick Setup Guide* for complete instructions on how to set the top-of-form.

NOTE: If there is any data in the buffer, the paper will move to the last print position.

**PRT CONFIG**

In offline mode, PRT CONFIG prints the current short configuration. This key requires a confirmation with the ENTER key; pressing any other key will exit from this function. See “The Configuration Menus” on page 47 for an explanation of configuration menus.

**JOB SELECT**

In offline mode, this key allows for fast selection of any of the previously stored configurations. Pressing this key causes the printer to cycle through the following messages: Load Config., Factory Config, Load Config 1, Load Config 2, Load Config 3,...,Load Config 8.

**ENTER**

When navigating the configuration menus, ENTER selects the currently displayed option value as the active value. An asterisk (*) appears next to the active value on the display. ENTER is also used for starting and stopping printer tests and generating a configuration printout.

NOTE: The ENTER key must be unlocked in order to function.

See UP + DOWN, below.

The ENTER key lock and unlock function can be configured to be a key combination other than ▲ + ▼ (see page 225).

UP or DOWN (▲ or ▼)

Moves up or down between levels in the configuration menus and makes vertical forms adjustment. After pressing VIEW, press ▲ or ▼ to adjust the paper up or down in 1/72 inch increments for fine vertical forms alignment. When the printer is in offline mode, press ▲ or ▼ to move through levels in the configuration menus.

UP + DOWN (▲ + ▼)

Locks and unlocks the ENTER key.

NOTE: The ENTER key lock and unlock function can be configured to be a key combination other than ▲ + ▼ (see page 225).

PREV or NEXT (◀ or ▶)

Moves between the options on the current level of configuration menu. In the configuration menu, press ◀ to scroll backward or press ▶ to scroll forward through the menu selections on the same level.

PREV + NEXT (◀ + ▶)

When both keys are pressed simultaneously, the printer will reset to the power-up configuration and reset its internal state (in offline mode).

▲ + ON LINE (IPDS Emulation only)

In offline mode, press ▲ + ON LINE. If there is data in the printer buffer, the printer will be placed in online mode, print one page, and return to the offline mode. This action can be repeated until the end of a print job. Only one page prints each time you press

▲ + ON LINE. If there is no data in the printer buffer, the printer is placed in online mode.

In the fault state, ▲ + ON LINE does not work.

▲ + PAPER ADVANCE (IPDS Emulation only)

In offline mode, press ▲ + PAPER ADVANCE. The printer will perform a reverse linefeed. If you hold down the ▲ + PAPER ADVANCE keys for longer than 1/2 second, the printer moves to the previous top-of-form position. If there is data in the printer buffer, the data does not print.

In the fault state, ▲ + PAPER ADVANCE does not work.

▲ + VIEW (IPDS Emulation only)

In offline mode, press ▲ + VIEW. If there is data in the IPDS printer buffer, the printer will be placed in online mode, print one line, and return to offline mode. This action can be repeated until the end of the job. This function prints only one line of text. If the data is not text, only 1/6 inch prints. If there is no data in the printer buffer, the printer is placed in online mode for one second and then returns to offline mode.

In the fault state, ▲ + VIEW does not work.

Ribbon Life Indicator

The second line of the LCD displays the remaining life of the currently installed ribbon. The default settings for this feature should match the requirements for most applications; no special user setup is needed. If your particular application requires darker printing or can tolerate lighter printing, the ribbon end point can be adjusted as appropriate. Please refer “Ribbon End Point” on page 68.

Operational Procedures

This section contains routine printer operating procedures on how to:

- reload paper
- unload paper
- cancel a print job.

Reload Paper

Do this procedure when “LOAD PAPER” displays. (This message occurs when the last sheet of paper passes through the paper slot.) This procedure reloads paper without removing the last sheet of the old paper supply, while retaining the current top-of-form setting.

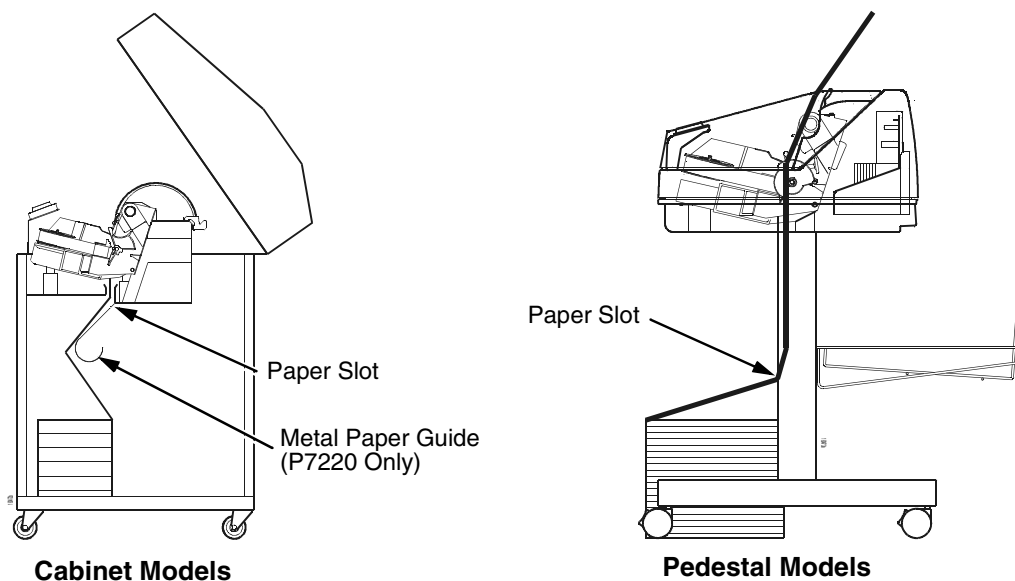


Figure 6. Paper Slot Location

1. Raise the printer cover. Raise the platen lever as far as it will go. (See Figure 4 on page 23 for the location of the lever.)
2. Press ON LINE/CLEAR to turn off the alarm. Do not open the tractor doors or remove the existing paper.
3. For cabinet models, open the front door. Align the paper supply with the label on the floor. Ensure the paper pulls freely from the box.

4. Feed the paper up through the paper slot (see Figure 6). It may be easier to feed one corner of the new paper up through the slot first. When this corner can be grasped from the top, rotate the paper back to the normal position.

NOTE: If you are using thick, multi-part forms and are unable to load the new paper over the existing paper, go to step 15.

5. Hold the paper to prevent it from slipping down and through the paper slot.

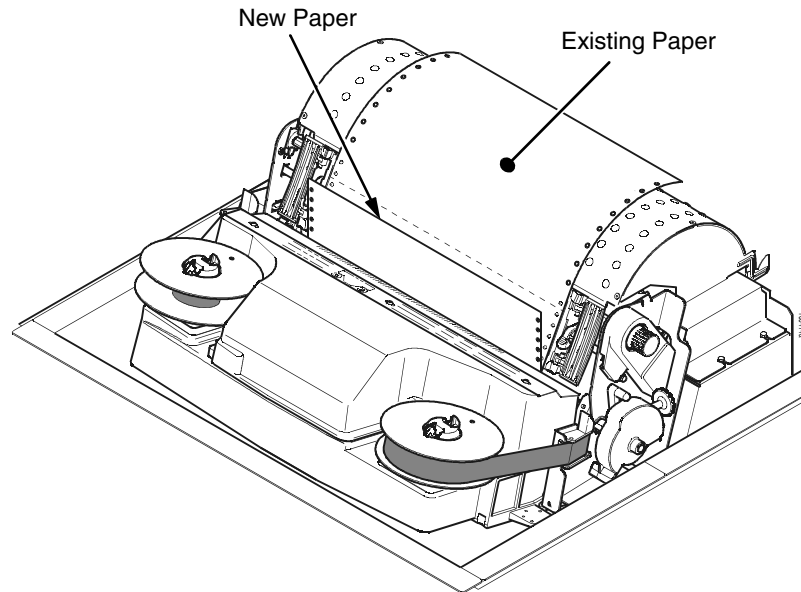


Figure 7. Loading New Paper into the Printer

6. Pull the new paper above and behind the ribbon mask, but in front of the existing paper. See Figure 4 on page 23 for the ribbon mask location. If necessary, gently press the existing paper back.
7. Align the top edge of the new paper with the top perforation of the existing paper.
8. Load the new paper over the existing paper. Open and load the tractors one at a time to prevent the paper from slipping.

NOTE: Make sure that the top edge of the new paper lines up with the top horizontal perforation of the last page.

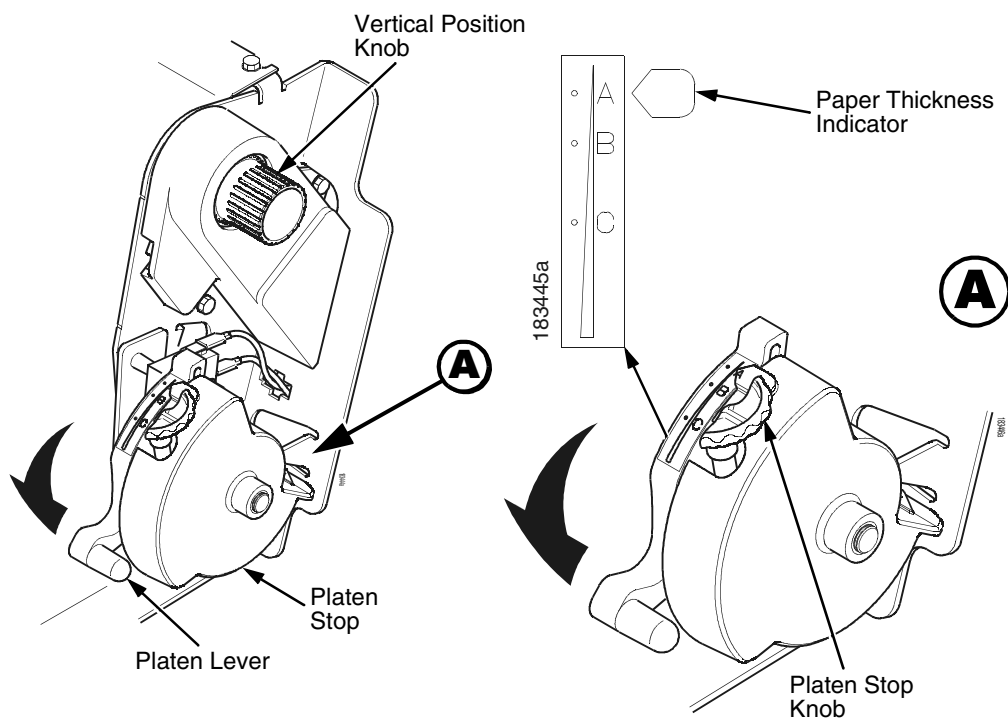


Figure 8. Setting the Platen Lever

9. Turn the platen stop knob clockwise or counterclockwise to match the paper thickness. (The A-B-C scale corresponds approximately to 1-, 3-, and 6-part paper thickness).

NOTE: If you are using the same thickness of paper, there is no need to readjust.

10. Lower the platen lever until it stops.
11. Press ON LINE/CLEAR to remove the “LOAD PAPER” fault message from the display.
12. Press PAPER ADVANCE several times to make sure the paper feeds properly beyond the tractors and over the lower paper guide. Feed sufficient paper to ensure the paper stacks correctly.
13. Close the printer top cover. Close the cabinet front door.
14. Press ON LINE/CLEAR to place the printer in online mode and resume printing.

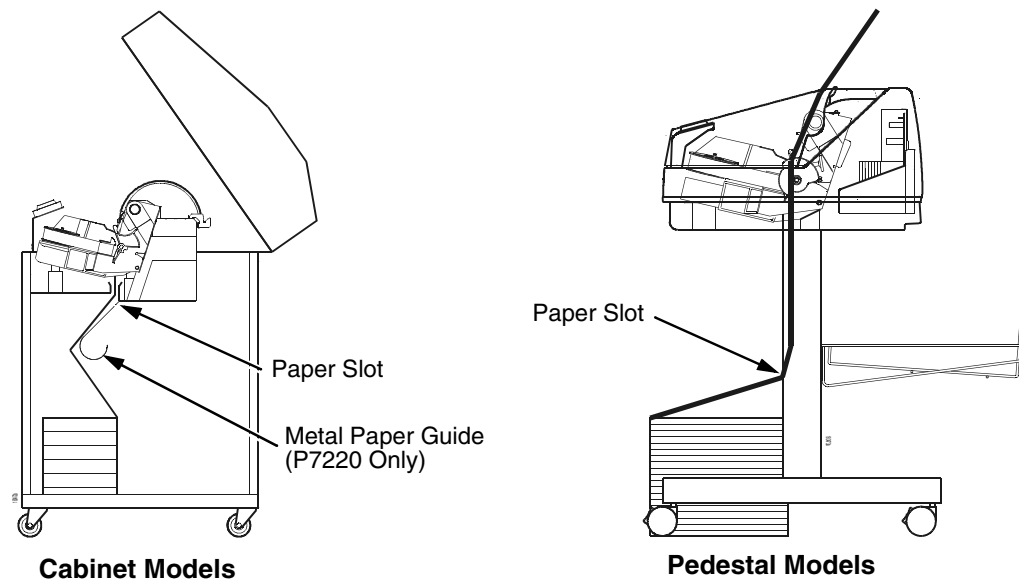


Figure 9. Paper Slots on the Printers

NOTE: Perform steps 15 to 32 only if you are unable to load the new paper over the existing paper.

15. Open both tractor doors.
16. Remove the old paper from the tractors. Allow the paper to fall into the paper supply area.
17. Feed the new paper up through the paper slot. Hold the paper to prevent it from slipping down through the paper slot.

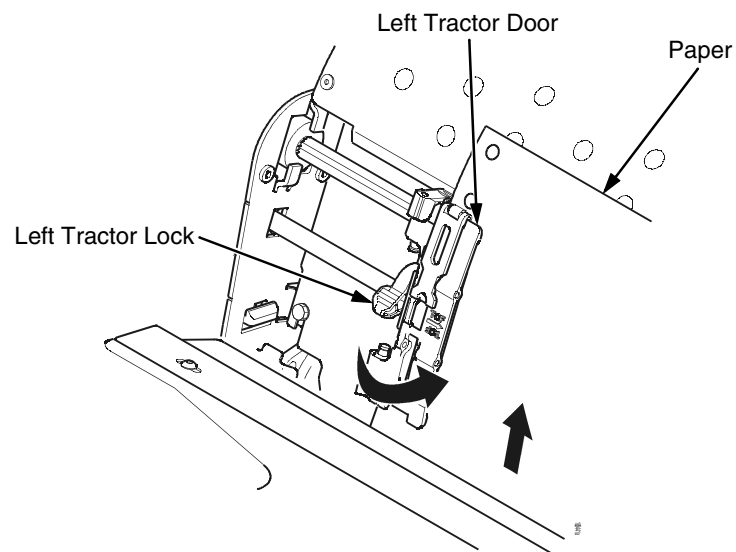


Figure 10. Loading Paper on the Left Tractor

18. Pull the paper above and behind the ribbon mask. See Figure 4 on page 23 for the ribbon mask location.
19. Load the paper on the left tractor.
20. Close the tractor door.

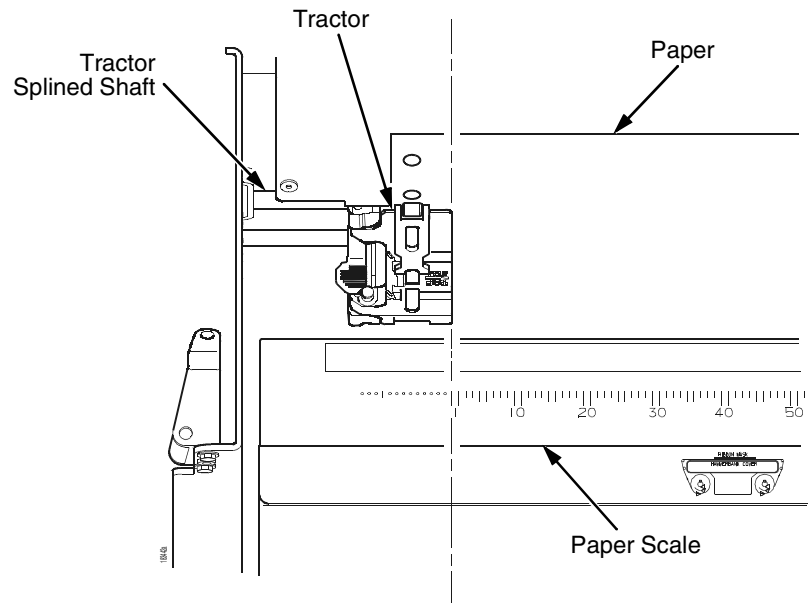


Figure 11. Positioning the Left Tractor to Avoid Damage

CAUTION To avoid damage to the printer caused by printing on the platen, always position the left tractor unit directly to the left of the “1” mark on the paper scale.

21. Normally, you should not need to adjust the position of the left tractor. If adjustment is necessary, unlock the left tractor. Slide the tractor until it is directly to the left of the number “1” on the paper scale and lock it. (You can also use the paper scale to count columns.)

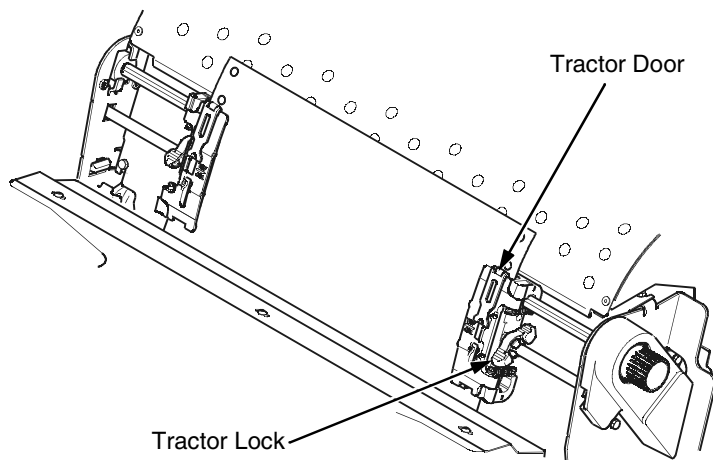
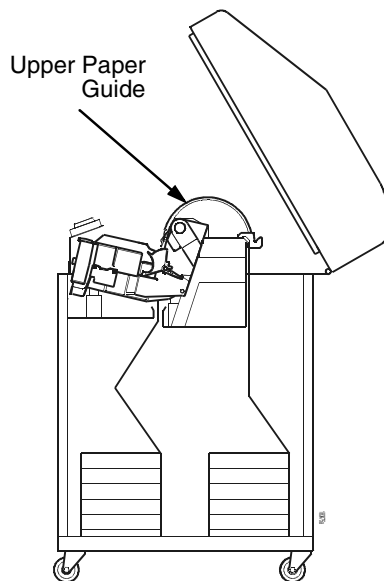
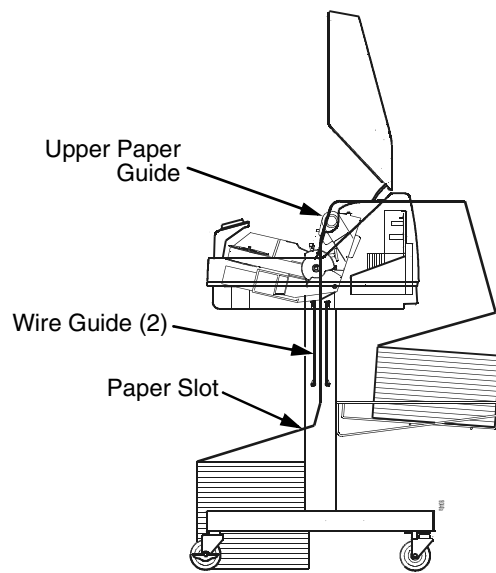


Figure 12. Loading Paper onto the Sprockets

22. Unlock the right tractor.
23. Load the paper onto the sprockets and close the tractor door.
If necessary, slide the right tractor to remove paper slack or to adjust for various paper widths. Then, lock the tractor.



Cabinet Model



Pedestal Model

Figure 13. Using the Paper Guide to Orient the Paper

24. Pedestal models:

Using the vertical position knob to move the paper up, guide the paper over the upper paper guide and through the slot to the rear of the top cover. For pedestal models with the Quick Access Cover, refer to the *Quick Setup Guide* for paper exiting options.

25. Press PAPER ADVANCE several times to make sure the paper feeds properly beyond the tractors and over the lower paper guide. Feed sufficient paper to ensure the paper stacks correctly.

26. Cabinet models:

Open the cabinet rear door. Make sure the paper is aligned with the label in the output area (inside the cabinet). Close the front and rear doors.

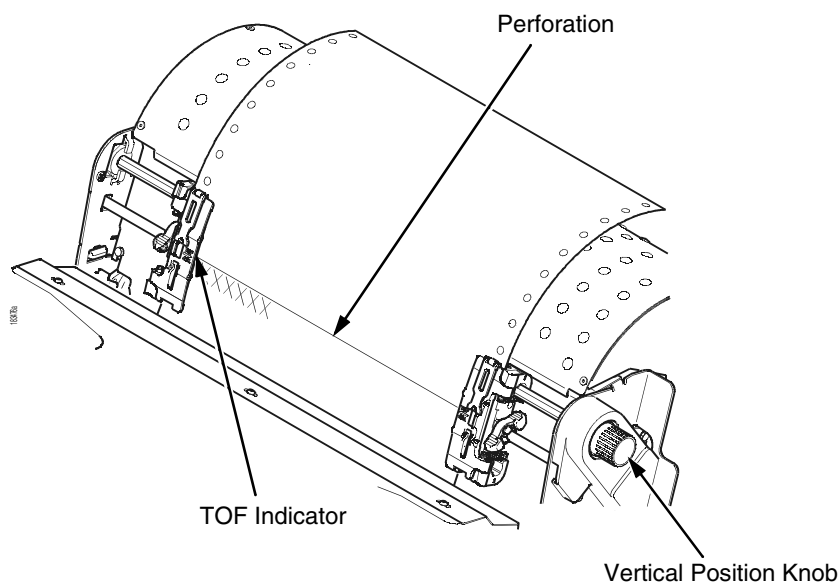


Figure 14. Aligning the Perforation with the TOF Indicator

27. Align the top of the first print line with the TOF indicator on the tractor by rotating the vertical position knob. For best print quality, it is recommended that the top-of-form be set at least one print line or more below the perforation.

NOTE: For exact positioning, press the VIEW/EJECT key to move the last data printed to the tractor area for viewing. While in View mode “Printer in View” displays. Press the Up or Down Arrow keys to move the paper vertically in small increments. Pressing the VIEW/EJECT key a second time moves the paper back to the adjusted print position. The key works both online and offline provided that the printer is in View mode. (This procedure is applicable for both the cabinet and pedestal models.)

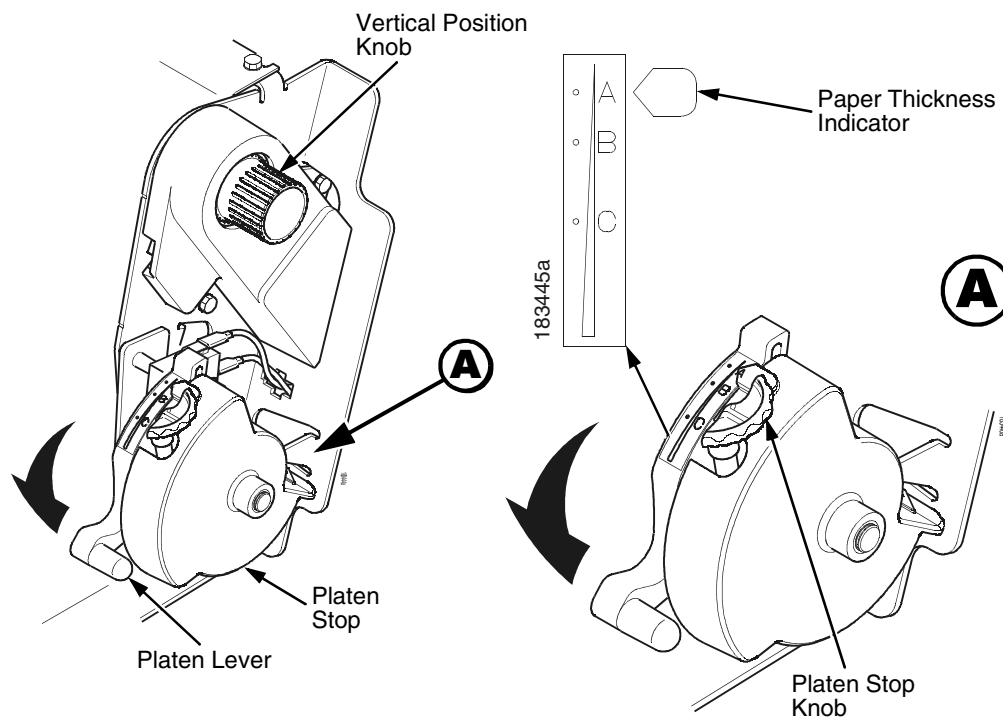


Figure 15. Adjusting the Platen Lever

28. Turn the Auto Platen Stop Knob clockwise or counterclockwise to match the paper thickness. (The A-B-C scale corresponds approximately to 1-, 3-, and 6-part paper thickness. Adjust until you have the desired print quality).

NOTE: The platen stop allows you to set an optimum and consistent thickness that is not affected when opening and closing the platen lever.

29. Lower the platen lever until it stops.
30. Press ON LINE/CLEAR to clear any fault messages (such as "LOAD PAPER") from the LCD.
31. Press SET TOF. The top-of-form you have set moves down to the print position. If there is data in the buffer, the paper moves forward to the last print position on the next page.
32. Press ON LINE/CLEAR and close the printer cover.

Unload Paper

1. Press ON LINE/CLEAR to place the printer in offline mode and open the printer cover.
2. For cabinet models, open the cabinet rear door. For models with the power stacker installed, press the STACKER UP key on the rear control panel.

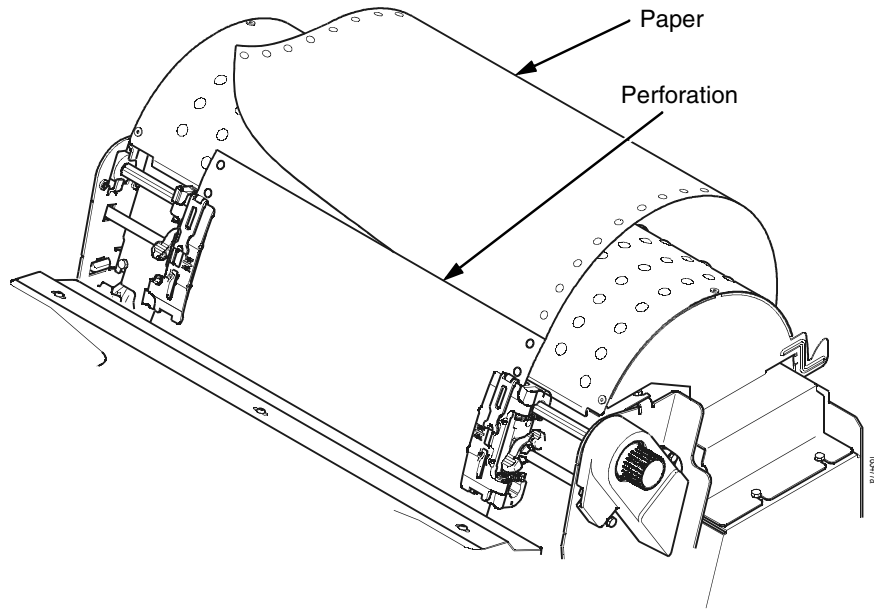


Figure 16. Unloading the Paper from the Printer

3. Tear off the paper at the perforation.
4. Allow the paper to fall to the back of the printer and into the paper stacking area.
5. For pedestal models, remove the stacked paper from the paper tray.

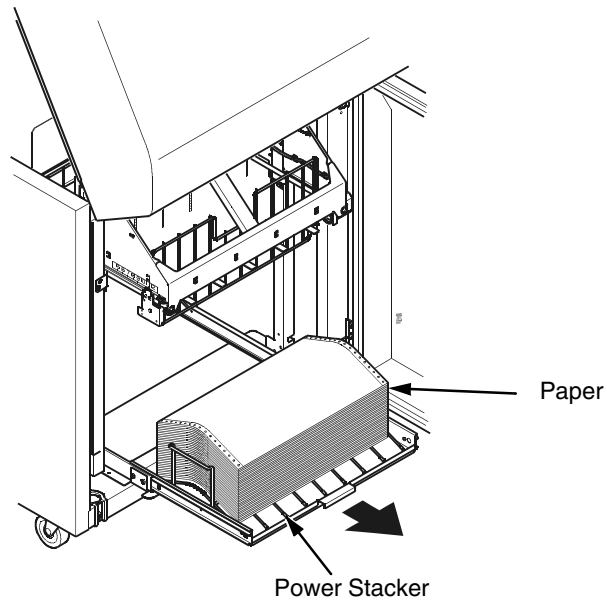


Figure 17. Removing Stacked Paper from the Printer

6. For cabinet models, remove the stacked paper from the rear cabinet floor. For cabinet models with the power stacker installed, remove the paper from the wire paper tent and press the STACKER DOWN key to lower the stacker mechanism.
7. Close the cabinet rear door.

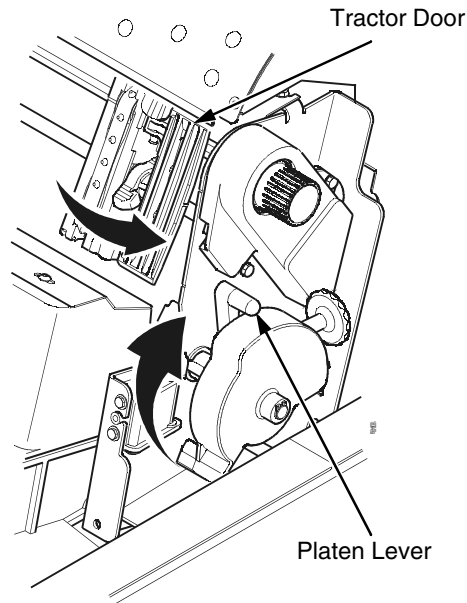


Figure 18. Completely Removing the Paper

8. To completely remove the paper from the printer:
 - a. Raise the platen lever as far as it will go and open both tractor doors.

CAUTION

Be careful when pulling any paper backward through the paper path, especially when using a label stock. If you are not careful, labels can detach and adhere to the printer within the paper path, where only an authorized service representative can remove them.

- b. Open the cabinet front door.
- c. Gently pull the paper down through the paper slot. Allow the paper to fall into the paper supply area.
- d. Remove the paper from the paper supply area.

Integrated Print Management System

The Integrated Print Management System feature automatically monitors and communicates the status of the ribbon's life to help the operator know when to change ribbons. Using a special bar coded spool, the P7000 automatically detects when a new or used ribbon is installed and determines the ribbon's length, ink color, and expected yield. The ribbon life, starting from 100% when new and decreasing to 0% when depleted, is always displayed on the control panel. See Figure 5 on page 26.

When the ribbon life reaches 2%, a warning message "RIBBON UNDER 2%/Change RBN soon" appears on the control panel display. The control panel status indicator lamp flashes. The printer will continue printing in this condition until the ribbon life reaches 0% at which time, printing will stop. The ribbon may be changed at any time while the printer is in the "RBN END POINT/Change Ribbon" condition without losing data in the printer's buffer. Simply follow the procedures outlined below to change the ribbon.

You may also resume printing for approximately two more minutes without changing the ribbon by pressing the ON LINE/CLEAR key twice. This may be done as many times as needed to complete the job in progress.

Lighter Or Darker Print

The ribbon life value as determined by the Integrated Print Management System is factory set so that the image quality at the end of the ribbon life is as good as it was when the ribbon was new. You may adjust the ribbon end point for a lighter or darker image as required for your printing needs. See "PRINTER CONTROL" on page 218..

Changing Ribbons

Before changing the ribbon, determine whether at the end of ribbon life if you want to make the print lighter (extend the ribbon life) or darker (shorten the ribbon life). If you want to make the print lighter, go to “Ribbon End Point” on page 218 and follow the procedures for adjusting the image density. If you are satisfied with the print darkness, or if you want to increase the darkness at the end of ribbon life, continue with the following steps.

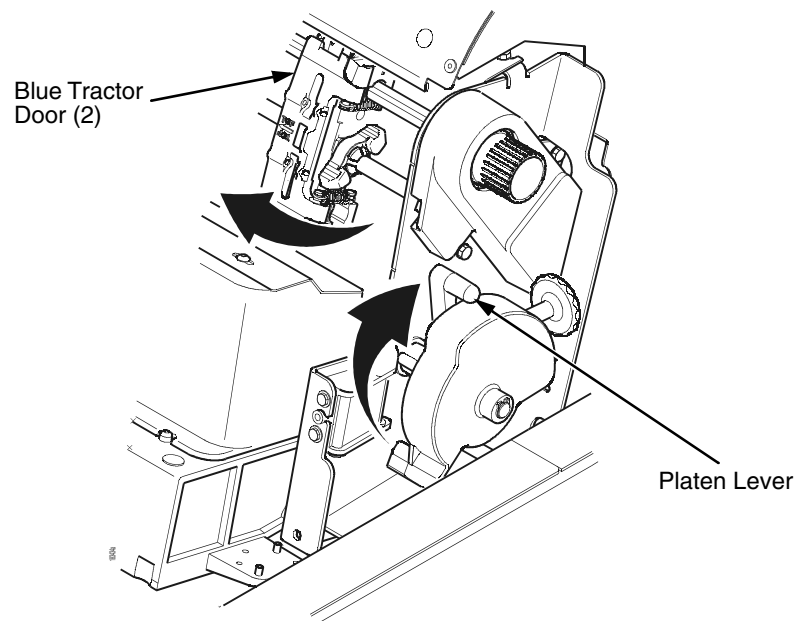


Figure 19. Preparing to Load the Ribbon

1. Open the printer cover.
2. Raise the platen lever as far as it will go.
3. Close the tractor doors.
4. Remove the old ribbon and discard properly.

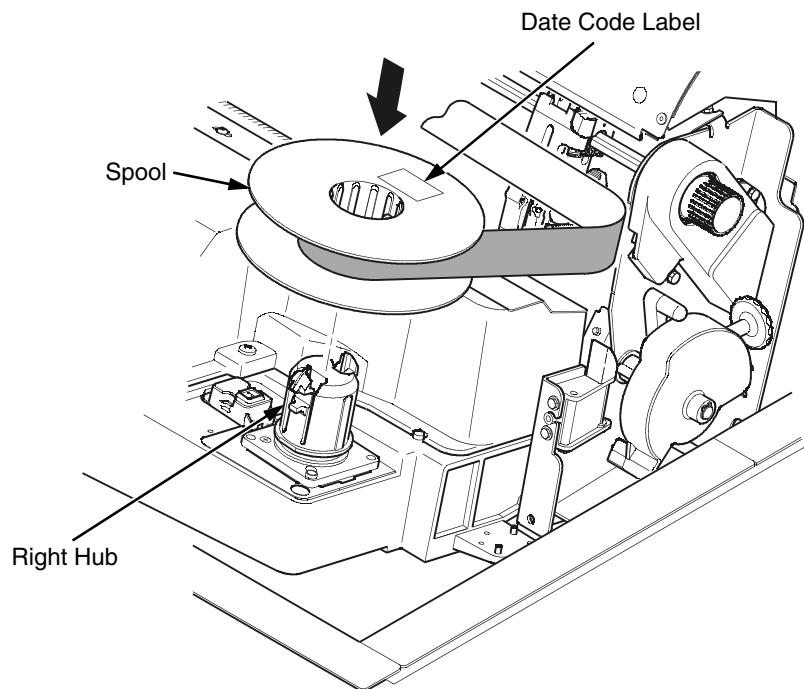


Figure 20. Loading the Barcoded Ribbon

5. Place the full spool on the right hand side ribbon hub and press it into place.

IMPORTANT

The full spool has a barcode label on the bottom side and a date code label on the top. Once the sensor reads and logs the ribbon barcode, the Integrated Print Management System starts to track ribbon usage. A date code label is on the top side of the right hand spool.

If you remove the ribbon during the course of its life and want to re-install the same ribbon, be sure to place the same spools on the correct hubs.

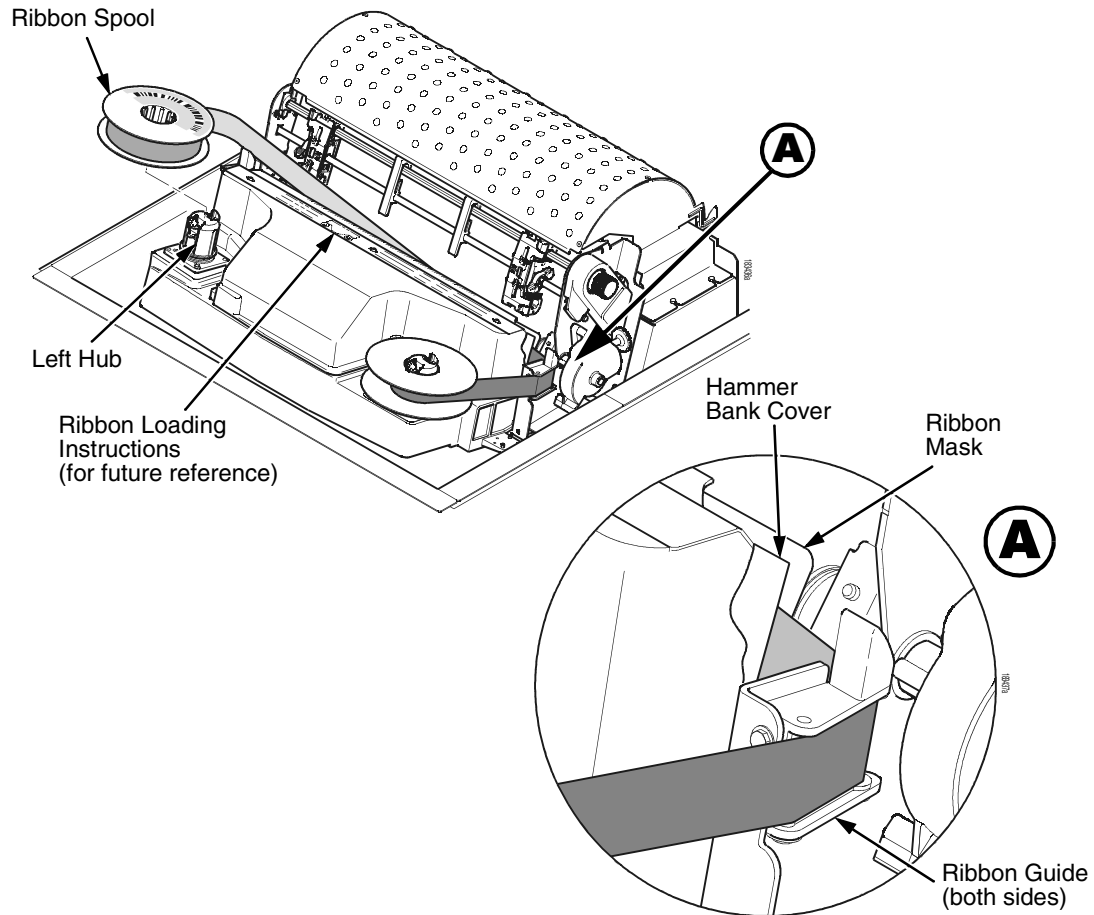


Figure 21. Threading the Ribbon Around the Ribbon Guide

6. Thread the ribbon around the ribbon guide and along the ribbon path. Be sure to thread the ribbon between the hammer bank cover and the ribbon mask.
7. Place the empty spool on the left hub.
8. Press the spool down until it snaps into place.
9. Turn the left spool by hand to make sure the ribbon tracks correctly in the ribbon path and around the ribbon guides.

NOTE: If there are ink stained fingerprints on the ribbon barcode (located on the ribbon spool), wipe it clean with a soft cloth or towelette moistened with alcohol.

10. Close the platen lever.
11. Close the printer top cover.

If you want to increase the darkness level of the ribbon at the end of life, go to “Ribbon End Point” on page 218 and follow the procedures for adjusting the image density.

If you are satisfied with the print darkness, press the ON LINE/CLEAR key twice to return the printer to operation.

Cancel A Print Job

The procedure to cancel a print job depends on the printer emulation and your application software. Contact your system administrator for additional information.

1. If the printer is online, press ON LINE/CLEAR to place the printer in offline mode.
2. From the host system, stop the print job.

NOTE: If the print job is not stopped from the host system before pressing CANCEL, the print job continues with data missing when the printer returns to online mode. Exercise caution to prevent unwanted data loss occurrences, as this function deletes unprinted data in the printer. This function is active only in offline mode; the purpose of this function is to eliminate the necessity of printing unwanted data when print jobs are canceled.

3. Press CANCEL.

NOTE: You may need to enable the Cancel option on the front panel. See “ADVANCED USER” on page 221. for details.

4. Set the top-of-form. Refer to the Quick Setup Guide.

4

The Configuration Menus

Configuration Overview

To print data, the printer must respond correctly to signals and commands received from the host computer. Configuration is the process of matching the printer's operating characteristics to those of the host computer and to specific tasks, such as printing labels or printing on different sizes of paper. The characteristics which define the printer's response to signals and commands received from the host computer are called configuration parameters.

You can configure the printer using the configuration menus and the control panel or by sending control codes in the data stream from a host computer attached to the printer. This chapter provides an introduction to configuring the printer and includes the configuration menus available (depending on which emulation you have installed in the printer).

IMPORTANT

Configuration directly affects printer operation. Do not change the configuration of your printer until you are thoroughly familiar with the procedures in this chapter.

Changing Parameter Settings

You may change a printer parameter setting, such as line spacing or forms length, either by pressing keys on the control panel or by sending emulation control codes in the data stream from a host attached to the printer. The control panel allows you to configure the printer's resident set of configuration menus. An example procedure for using the control panel to change parameter settings begins on page 49.

When control codes are sent from a host attached to the printer, they override control panel settings. For example, if you set the line spacing to 6 lpi with the control panel, and application software later changes this to 8 lpi with a control code, the control code overrides the control panel setting.

Saving Parameter Settings

The parameter settings that you have changed can be permanently stored in the printer's memory as a configuration. See "Auto Save Configuration" on page 52. and "Saving Your New Configuration" on page 52.

You may also save your new configurations using the PTX_SETUP command host control code. See your *LinePrinter Plus Programmer's Reference Manual* for details.

Default And Custom Configurations

A configuration consists of a group of parameter settings, such as line spacing, forms length, etc. Your printer provides a fixed default configuration and allows you to define several custom configurations for use with particular print jobs. The factory default configuration can be loaded, but it cannot be altered.

Eight configurations can be modified for unique print job requirements. The “Save Config.” option allows you to save eight groups of parameter settings in memory as custom configurations numbered from 1 through 8. An explanation on how to save a set of parameter values as a custom configuration using the “Save Config.” menu option begins on page 52.

Navigating The Menus

To manipulate configurations review the following instructions about navigating through the menus.

You must be offline to move within the menus.

ON LINE/CLEAR

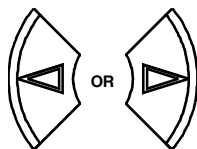


Press to toggle between ONLINE and OFFLINE. Menus are accessed with the printer offline.



Press to move up or down through the menu levels.

OR



Press to scroll through the available choices on a chosen level.

ENTER



Press to confirm selection.

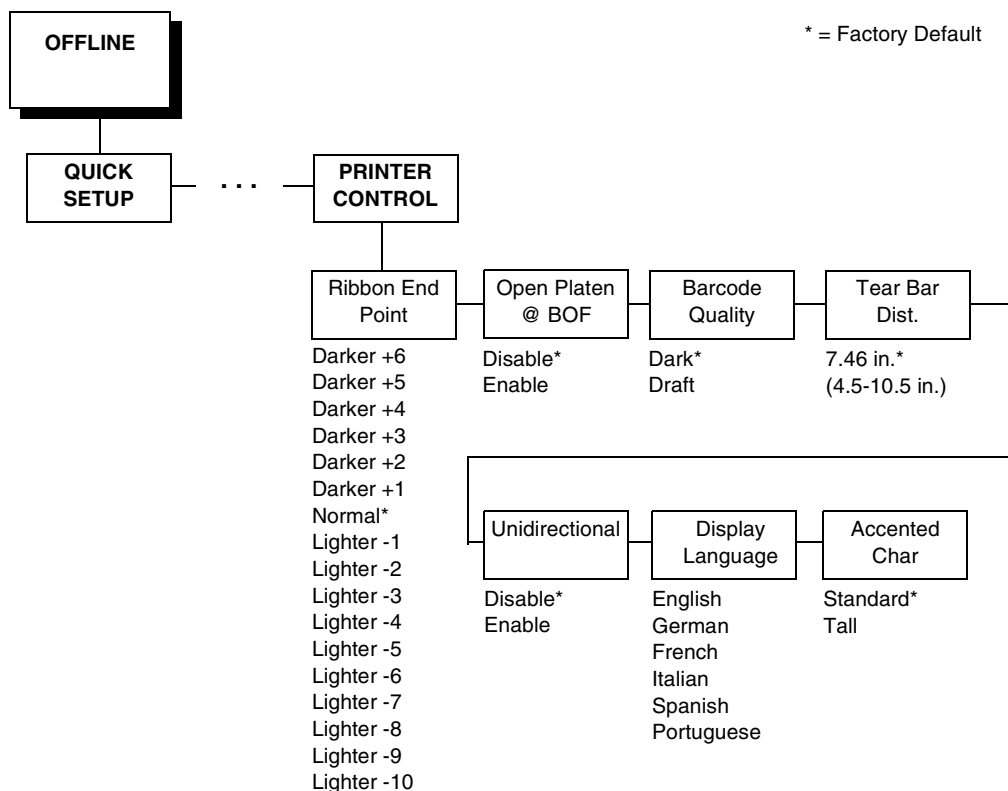


+



Press to lock and unlock the ENTER key. The ENTER key is locked by default to prevent you from accidentally changing the printer configuration. The lock and unlock function can be configured to be other than ▲ + ▼ (See “Set Lock Key” on page 225.)








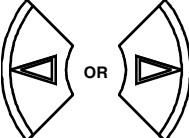



To experiment with navigating the menus, use the example on the next page as a tutorial.



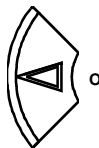









A configuration consists of several parameters. The default factory configuration has a starting set of parameters. In the configuration menu above, and in all the configuration menus in this chapter, the factory default values are indicated by an asterisk (*).

Your print jobs may require parameter values which vary from the default settings. This section provides an example procedure for changing individual parameter values.

The following procedure shows how to change and save the settings for the Barcode Quality and Language options. Use these guidelines to navigate the configuration menus and change other parameters.

| Step | Press | LCD | Notes |
|------|---|-------------------------------------|---|
| 1. | Make sure the printer is on. | | |
| 2. | ON LINE/CLEAR  | OFFLINE QUICK SETUP | Allows you to make configuration changes. |
| 3. |  +  | ENTER SWITCH UNLOCKED | |
| | | OFFLINE QUICK SETUP | |
| 4. |  UNTIL | OFFLINE PRINTER CONTROL | |
| 5. |  | PRINTER CONTROL Ribbon End Point | |
| 6. |  UNTIL | PRINTER CONTROL Barcode Quality | |
| 7. |  | Barcode Quality Dark* | Cycle through the choices. |
| 8. |  OR  | Barcode Quality Draft | |
| 9. | ENTER  | Barcode Quality Draft* | The * indicates this choice is active. |
| 10. |  | PRINTER CONTROL Barcode Quality | |

| Step | Press | LCD | Notes |
|------|---|-------------------------------------|--|
| 11. |  UNTIL | PRINTER CONTROL Display Language | Press until the desired parameter displays. |
| 12. |  | Display Language English* | |
| 13. |  OR  | Display Language Spanish | |
| 14. | ENTER  | Display Language Spanish* | |
| 15. |  +  | ENTER SWITCH LOCKED | Locks the ENTER key. |
| 16. | ON LINE/CLEAR  | ENTER = Save ONLINE = No Save | Press ENTER to automatically save configuration changes. Press ONLINE to continue without saving. |
| 17A. | ENTER  | Cfg = 1* = Power-Up Cfg | Configuration changes have been saved as Configuration 1, and will be set as the Power-Up config. The printer will then be brought online. |
| 17B. | ON LINE/CLEAR  | ONLINE Ribbon Life = 100% | Places the printer online without permanently saving the configuration changes. |
| 18. | The printer is ready for operation | | |

Auto Save Configuration

After any changes are made to the Factory Default configuration menu items, you will be prompted to save the changes to “Config #” when you place the printer online. “#” represents the next available unassigned configuration number. When prompted, press one of the following:

- **Enter.** Saves to Config 1 or the next available Config, and becomes the power-up config.
- **Online.** Changes will be implemented but saved only temporarily until deliberately saved as a new configuration or until you power off the printer. All changes will be lost when you power off the printer.

Saving Your New Configuration











The Save Config. option allows you to save up to eight custom configurations to meet different print job requirements. Once you have changed all of the necessary parameters, you may save them as a numbered configuration (Example 1 on page 53) or a named configuration (Example 2 on page 55) that can be stored and loaded later for future use. If you do not save your configuration using the Auto Save, or this option, all of your parameter changes will be erased when you power off the printer.










Once you have saved a custom configuration using this option, it will not be lost if you power off the printer. You can load a configuration for a specific print job (see “Load Config.” on page 70). You can also modify and resave it. You may want to print your configurations (see “Print Config.” on page 70) and store them in a safe place, such as inside the printer cabinet. If the Protect Configs. parameter is enabled and you try to resave an existing configuration, the new configuration will not be saved until the existing configuration has been deleted (see “Delete Config.” on page 70).

NOTE: Once you change active emulations, any changes to the previously selected emulation will be gone unless they have been saved.

Example 1











This example shows how to save a configuration as a numbered configuration, then later print it.












| Step | Press | LCD | Notes |
|------|---|---------------------------------|---|
| 1. | Make sure the printer is on. | | |
| 2. | ON LINE/CLEAR  | OFFLINE QUICK SETUP | Allows you to make configuration changes. |
| 3. |  +  | ENTER SWITCH UNLOCKED | |
| | | OFFLINE QUICK SETUP | |
| 4. |  UNTIL | OFFLINE CONFIG. CONTROL | |
| 5. |  | CONFIG. CONTROL Load Config. | |
| 6. |  UNTIL | CONFIG. CONTROL Save Config. | |
| 7. |  | Save Config. 1* | Cycle through the choices. |
| 8. |  OR  | Save Config. 2 | |
| 9. | ENTER  | Save Config. 2* | The * indicates this choice is active. |






| Step | Press | LCD | Notes |
|--|---|----------------------------------|--|
| NOTE: We recommend that you print the configuration. To print the configuration go to Step 9. To skip this procedure and resume printer operation, go to Step 14. | | | |
| 10. |  | CONFIG. CONTROL Save Config. | |
| 11. |  UNTIL | CONFIG. CONTROL Print Config. | |
| 12. |  | Print Config. Current | |
| 13. |  OR  | Print Config. 2 | |
| 14. | ENTER  | OFFLINE CONFIG. CONTROL | The selected configuration is printed. |
| 15. |  +  | ENTER SWITCH LOCKED | Locks the ENTER key. |
| 16. | ON LINE/CLEAR  | ONLINE Ribbon Life = 100% | |
| 17. | If you printed out the configuration, store it in a safe place. The printer is ready for operation. | | |

Example 2

This example shows how to save a configuration as a named configuration.

| Step | Press | LCD | Notes |
|------|---|----------------------------------|---|
| 1. | Make sure the printer is on. | | |
| 2. | ON LINE/CLEAR  | OFFLINE QUICK SETUP | |
| 3. |  +  | ENTER SWITCH UNLOCKED | Allows you to make configuration changes. |
| | | OFFLINE QUICK SETUP | |
| 4. |  UNTIL | OFFLINE CONFIG. CONTROL | |
| 5. |  | CONFIG. CONTROL Load Config. | |
| 6. |  UNTIL | CONFIG. CONTROL Name Configs. | |
| 7. |  | Name Configs. 1 | The LCD flashes. |
| 8. |  UNTIL | Name Configs 2 | You will rename config 2. |
| 9. |  | 2 2* | |
| 10. |  UNTIL | 2 T | Cycle through the choices until "T" displays. |

| Step | Press | LCD | Notes |
|------|--|---------------------------------|---|
| 11. |  | 2 T_ | Saves the first character. |
| 12. |  UNTIL | 2 TE | Cycle through the choices until "E" displays. |
| 13. |  | 2 TE_ | Saves the second character. |
| 14. |  UNTIL | 2 TES | Cycle through the choices until "S" displays. |
| 15. |  | 2 TES_ | Saves the third character. |
| 16. |  UNTIL | 2 TEST | Cycle through the choices until "T" displays. |
| 17. |  | 2 TEST_ | Saves the fourth character. |
| 18. | ENTER  | Name Configs TEST | The configuration is renamed TEST. |
| 19. |  | CONFIG. CONTROL Name Configs | |
| 20. |  UNTIL | CONFIG. CONTROL Save Config. | |
| 21. |  | Save Config. 1* | |

| Step | Press | LCD | Notes |
|------|---|------------------------------|---|
| 22. |  | Save Config. TEST | TEST now appears as one of configuration choices. |
| 23. | ENTER  | Saving Configuration | |
| | | Save Config. TEST* | Your configuration is saved as TEST. |
| 24. |  +  | ENTER SWITCH LOCKED | Locks the ENTER key. |
| 25. | ON LINE/CLEAR  | ONLINE Ribbon Life = 100% | |

Now you have the saved configuration for later use if needed.

Optimizing Print Quality

LP+, IGP/PGL, and IGP/VGL Emulations

You can optimize print quality for darker and sharper barcodes and characters. Doing so, however, will decrease the printer speed.

To optimize print quality, you can change the values of the following configuration parameters:

- **Bar Code Quality (Printer Control menu):** Select “Dark” or “Recommended.” Recommended prints the darkest images, but at the slowest speed. Dark prints at a faster speed than Recommended, but the characters are not as dark. (See page 219 for a written description of Bar Code Quality.)
- **Print Quality (IGP/PGL emulation):** Select “Best” or “High.” Best prints the darkest images, but at the slowest speed. High prints at a faster speed than Best, but the characters are not as dark. (See page 177 for the IGP/PGL Configuration Menu, and see page 186 for a written description of Print Quality.)
- **Print Quality (IGP/VGL emulation):** Select “High.” (See page 190 for the IGP/VGL Configuration Menu, and see page 197 for a written description of Print Quality.)

Optimizing Print Speed

LP+, IGP/PGL, and IGP/VGL Emulations

The printer has been configured at the factory for optimal print speed. To optimize print quality instead, you can change values for specific configuration parameters such as Barcode Quality and Print Quality. Doing so, however, will decrease the printer speed.

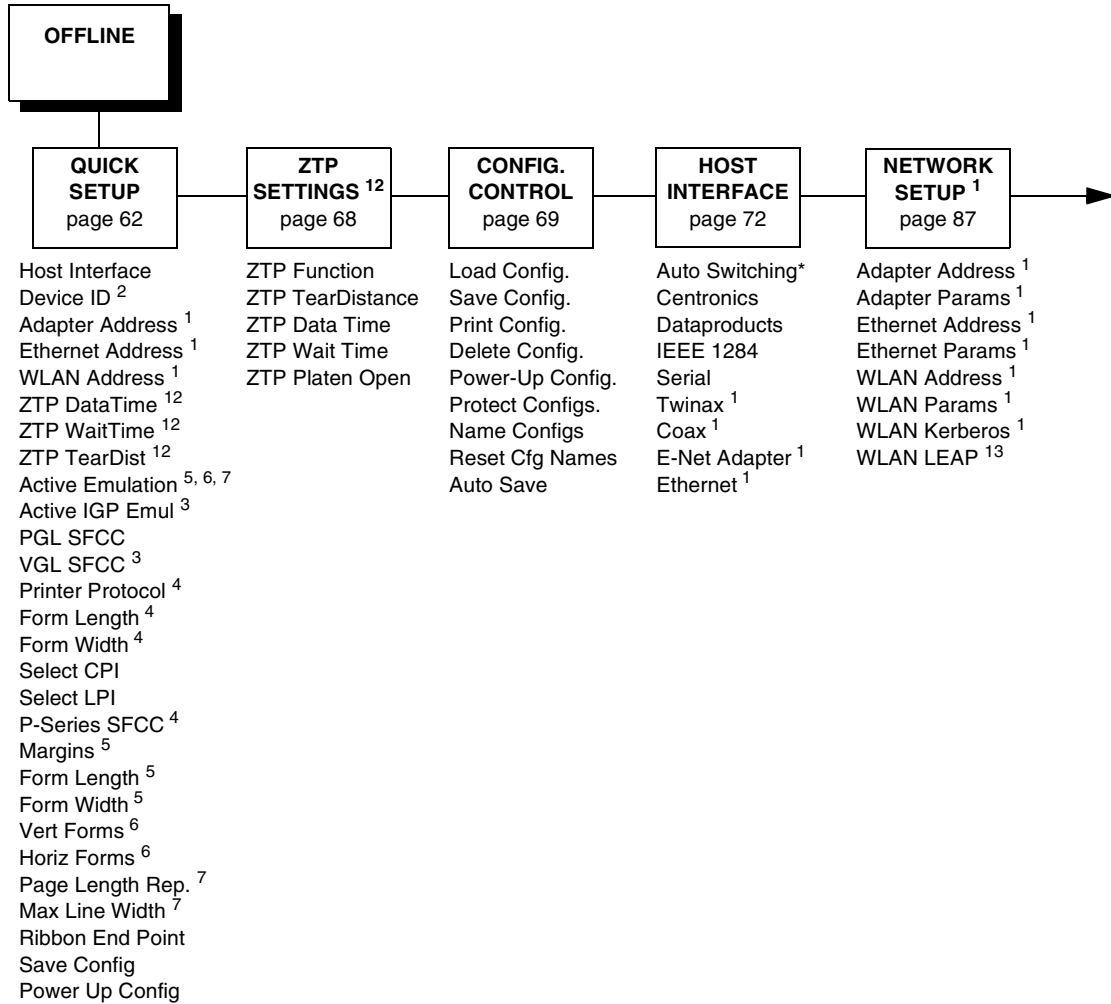
If you have optimized the printer for print quality, you can change it to optimal speed by selecting the values as follows:

- **Bar Code Quality (Printer Control menu):** Select Draft.
(See page 59 for the Configuration Main Menu, and see page 219 for a written description of Bar Code Quality.)
- **Print Quality (IGP/PGL emulation):** Select Dataprocessing. (See page 177 for the IGP/PGL Configuration Menu, and see page 186 for a written description of Print Quality.)
- **Print Quality (IGP/VGL emulation):** Select Dataprocessing. (See page 190 for the IGP/VGL Configuration Menu, and see page 197 for a written description of Print Quality.)

Coax/Twinax Emulation

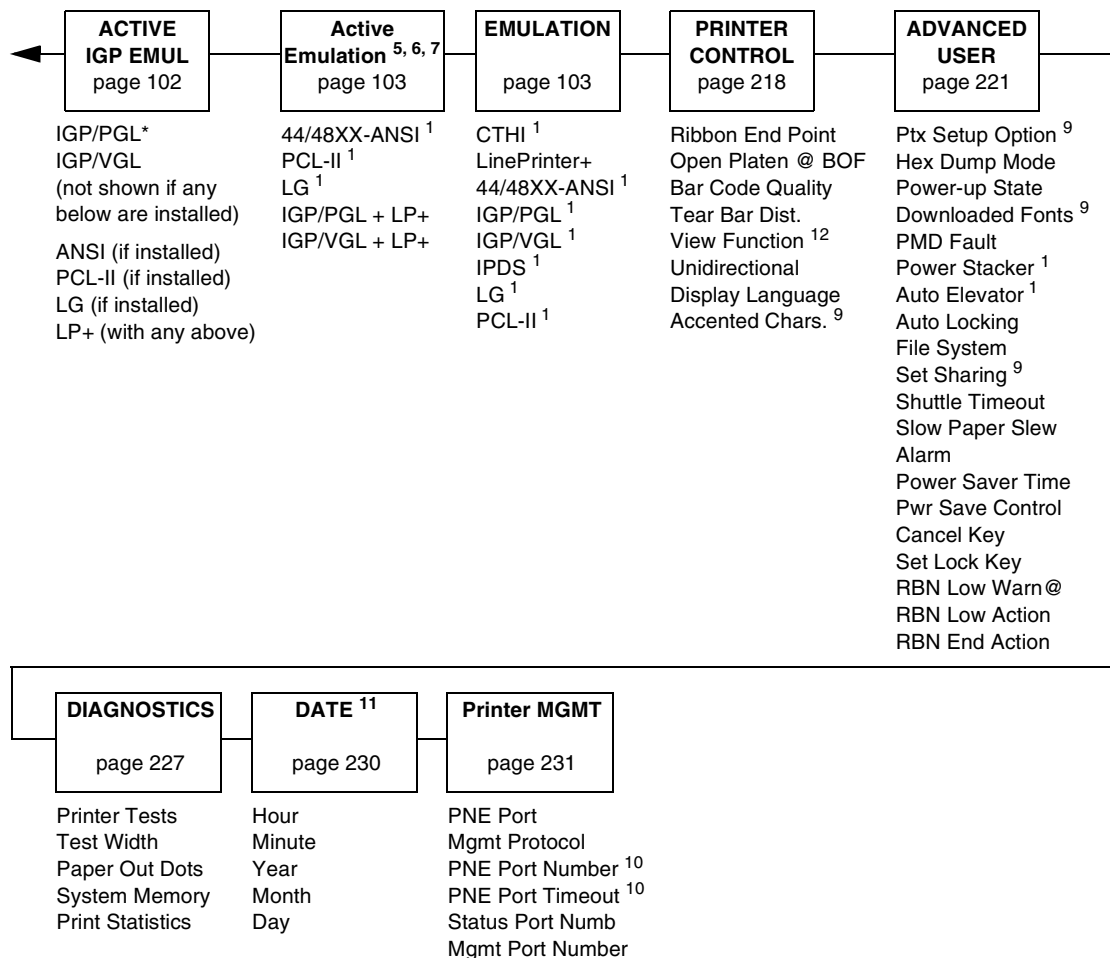
You can increase print speed by selecting the Enable mode for the Early Print Complete configuration parameter in the Coax/Twinax Emulation. However, if an error occurs while in Enable mode, you may lose data. For more information, refer to “Early Print Complete” on page 109. (For the Coax/Twinax Emulation menu, see page 104.)

Main Menu



- ¹ If installed
- ² If Twinax is selected
- ³ If VGL is enabled
- ⁴ If LP+ is selected
- ⁵ If ANSI is installed
- ⁶ If LG is installed
- ⁷ If PCL-II is installed
- ⁸ If Ethernet is installed
- ⁹ Not available in LG or PCL-II
- ¹⁰ Not available if PNE Port number is set to Serial.
- ¹¹ If Real Time Clock (RTC) option is installed.
- ¹² Available for Zero Tear Pedestal printer only.
- ¹³ Only if a Cisco radio card is installed.

Figure 22. Main Menu Configuration



¹If installed

² If Twinax is selected

³ If VGL is enabled

⁴ If LP+ is selected

⁵ If ANSI is installed

⁶ If LG is installed

⁷ If PCL-II is installed

⁸ If Ethernet is installed

⁹ Not available in LG or PCL-II

¹⁰ Not available if PNE Port number is set at Serial

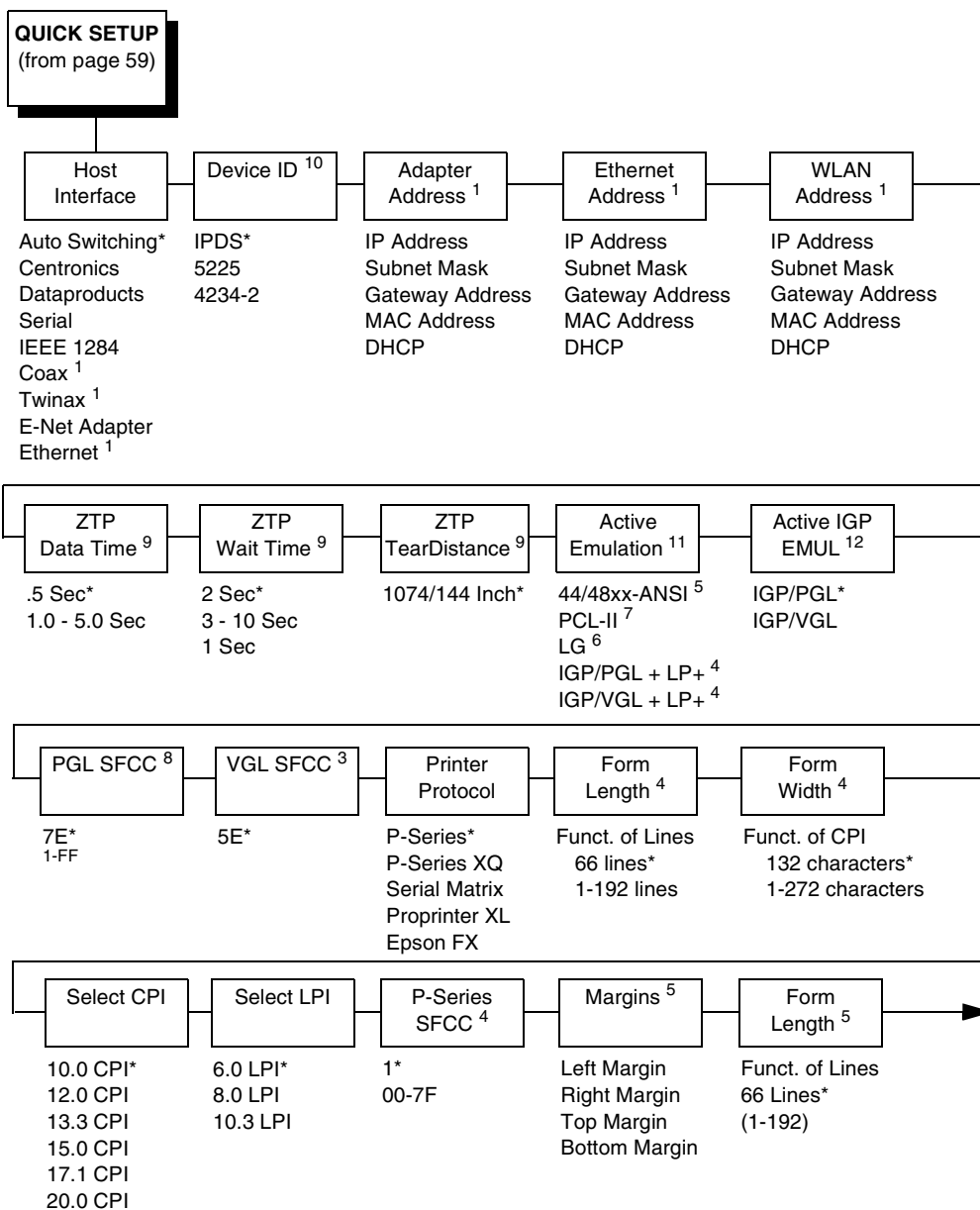
¹¹ If Real Time Clock (RTC) option is installed.

¹² Available for Pedestal printer only.

Brief descriptions follow for the first-level configuration menu options:

- **QUICK SETUP** — These options allow quick access to the most frequently changed or inputted parameters during the installation of the printer.
- **ZTP SETTINGS** These options allow you to set parameters for zero tear pedestal printers.
- **CONFIG. CONTROL** — These options allow you to save, print, load, delete, name, and reset entire sets of configuration parameters.
- **HOST INTERFACE** — These options allow you to select either the Serial RS-232, Serial RS-422, Centronics® parallel, Dataproducts® parallel and Long Lines, Ethernet™, IEEE® 1284 parallel, Auto Switching, Coax or Twinax interface for the printer. This menu also allows you to configure several parameters for each interface.
- **NETWORK SETUP** — This option allows you to select from Ethernet Address options and Ethernet Parameters options.
- **ACTIVE (IGP) EMUL** — This menu allows you to select the PGL or VGL emulation from the menu if IGP is installed.
- **ACTIVE EMULATION** — This menu allows you to activate the desired emulation to be used with your printer.
- **EMULATION** — This menu allows you to configure the options which are available for the current operating (active) emulation. For example, if LinePrinter+ is the active emulation, then the LinePrinter+ emulation options can be configured using this menu.
- **PRINTER CONTROL** — This menu allows you to select parameters common to a general user, such as display language and Barcode quality.
- **ADVANCED USER** — This menu allows you to select several advanced operating parameters for the printer, such as the speed at which paper will advance when slewing.
- **DIAGNOSTICS** — This menu includes the diagnostic tests, system memory, and statistics of the printer.
- **DATE** — This menu allows you to set the printer's real time clock. The parameters include hours, minutes, year, month, and day.
- **Printer MGMT** — These options allow you to select the PNE port type, port number, port timeout period, status port number, and management port number.

QUICK SETUP



* = Factory Default

¹ If installed

² If VGL is enabled

³ If VGL is selected

⁴ If LP+ is selected

⁵ If ANSI is installed

⁶ If LG is installed

⁷ If PCL-II is installed

⁸ If PGL is selected

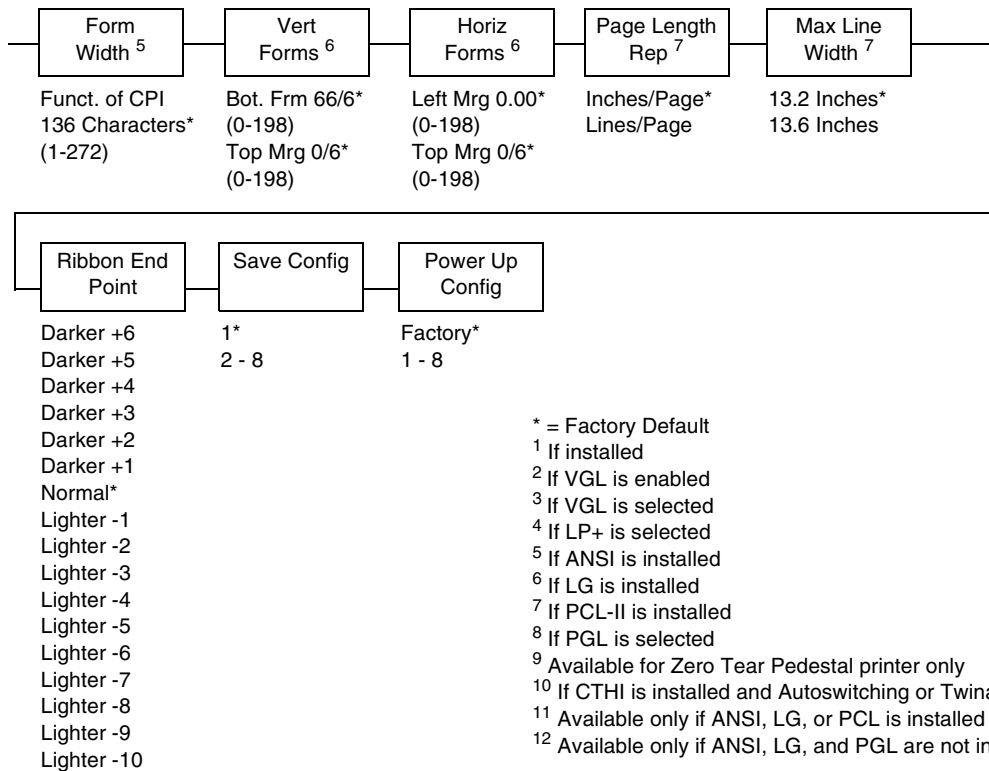
⁹ Available for Zero Tear Pedestal printer only

¹⁰ If CTHI is installed and Autoswitching or Twinax is selected

¹¹ Available only if ANSI, LG, or PCL is installed

¹² Available only if ANSI, LG, and PGL are not installed

QUICK SETUP (from page 62)



Host Interface

The Host Interface menu enables you to select and configure interfaces between the printer and your host computer.

Device ID

This parameter defines the printer emulation as IPDS, 4234-2 or 5225. After the emulation has been changed, a POR status is sent to the host. IPDS is the default.

Adapter Address

- **IP Address.** A numeric address such as 123.45.61.23 which identifies a printer or server in a LAN or WAN.
- **Subnet Mask.** A binary value used to divide IP networks into smaller subnetworks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.
- **Gateway Address.** A gateway address is the IP address of a hardware device (gateway) that translates data between two incompatible networks, which can include protocol translation.
- **MAC Address.** This menu item is the Manufacturer's Assigned Number, and is unique for each printer. It is read-only.
- **DHCP.** You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

Ethernet Address

- **IP Address.** A numeric address such as 123.45.61.23 which identifies a printer or server in a LAN or WAN.
- **Subnet Mask.** A binary value used to divide IP networks into smaller subnetworks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.
- **Gateway Address.** A gateway address is the IP address of a hardware device (gateway) that translates data between two incompatible networks, which can include protocol translation.
- **MAC Address.** This menu item is the Manufacturer's Assigned Number, and is unique for each printer. It is read-only.
- **DHCP.** You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

WLAN Address

- **IP Address.** A numeric address such as 123.45.61.23 which identifies a printer or server in a LAN or WAN.
- **Subnet Mask.** A binary value used to divide IP networks into smaller subnetworks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.
- **Gateway Address.** A gateway address is the IP address of a hardware device (gateway) that translates data between two incompatible networks, which can include protocol translation.
- **MAC Address.** This menu item is the Manufacturer's Assigned Number, and is unique for each printer. It is read-only.
- **DHCP.** You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

ZTP Data Time

This option sets the pause time in the data stream that the ZTP requires before moving the form to the tear bar once a print job is completed. The values range from .5 to 5 seconds. The default is .5 seconds.

ZTP Wait Time

This option sets the minimum amount of time that the form stays at the tear bar. This allows you time to remove the form before the form is retracted to print the next form. The adjustable values range from 500 to 5000 milliseconds in increments of 500 milliseconds. The default value is 2 seconds.

ZTP TearDistance

This option sets the tear off distance from the current print position to the tear bar. Adjustable values in increments of 1/144th of an inch range from 200 to 2880. The up and down arrows adjust the display value. When you press the **Enter** key, the selected value is stored and a scale is printed to indicate the current tear off position. The default value is 1060.

NOTE: When a new value is selected, the printer will lose the current print position. You must reset the top of form to automatically save the new value.

Active Emulation

The Active Emulation menu enables you to select either the ANSI, PCL, LG, PGL, or VGL emulation.

Active IGP Emulation

The Active IGP Emulation menu enables you to activate either the PGL or VGL emulation.

PGL SFCC

You can specify which hex code (1-FF) will be used as the Special Function Control Character (SFCC). The SFCC denotes that the following data is an IGP command.

- **7E** (the default)
- **1 – FF**

VGL SFCC

You can specify which hex code (1-FF) will be used as the Special Function Control Character (SFCC). The SFCC denotes that the following data is an IGP command.

- **5E** (default)
- **1 – FF**

Printer Protocol

Select the LinePrinter+ protocol you wish to use. Refer to the *LinePrinter Plus Programmer's Reference Manual* for more information.

Form Length

Form length is the number of lines that can be printed on a page. You can set the form length in inches, millimeters (mm), or as a function of the current lpi (lines per inch).

Form Width

The form width can be specified in inches, millimeters, or as a function of the current cpi (characters per inch). The forms width set should not exceed the actual paper width.

Select CPI

This parameter lets you specify the characters per inch (cpi) values.

Select LPI

This parameter lets you specify the lines per inch (lpi) values.

P-Series SFCC

This parameter allows you to select which ASCII codes will function as the Special Function Control Code (SFCC) command delimiter. P-Series codes can use hex 00 through hex 7F. Options include the following:

- **SOH (hex 01)** (the default)
- **ESC (hex 1B)**
- **ETX (hex 03)**
- **CIRCUMFLEX (hex 5E)** – also called caret (^)
- **TILDE (hex 7E)** – (~)

NOTE: SOH, ETX, and ESC are non-printables. The characters (^) and (~) are printable; however, do not use them as printables in the host data stream if either is chosen as a delimiter because print errors will occur.

Margins

- **Left Margin.** Set in columns. Column zero is defined as the far left edge of the page, and column numbering increments from left to right.
- **Right Margin.** Set in columns. Column zero is defined as the far right edge of the page, and column numbering increments from right to left.
- **Top Margin.** Defined in lines, starting from line zero at the top of the page and incrementing from the top down.
- **Bottom Margin.** Defined in lines, starting from line zero at the bottom of the page and incrementing from the bottom up.

Form Length

Form length is the number of lines that can be printed on a page. You can set the form length in inches, millimeters (mm), or as a function of the current lpi (lines per inch).

Form Width

The form width can be specified in inches, millimeters, or as a function of the current cpi (characters per inch). The forms width set should not exceed the actual paper width.

Vert Forms

- **Bot Frm 66/6** (default). This option sets the bottom margin for the forms. You must specify the bottom margin in lines (at 6 lines per inch), ranging from 0 to 198 lines (33 inches). The default setting is 66. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. Selecting a value for this option resets the top margin to 0, so the top margin must be redefined after this option is selected.
- **Top Mrg 6/0** This option sets the top margin for the forms. You must specify the top margin in lines (at 6 lines per inch), ranging from 0 to 198 lines (33 inches). The default setting is 0. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. The margins will automatically adjust so that the top and bottom margins do not cross each other.

Horiz Forms

- **Left Mgr 0.00** (default). This sets the left margin for the forms. You must specify the left margin in 1/10 inch increments, from 0 to 13.1 inches. The default value is 0. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. The margins will automatically adjust so that the left and right margins do not cross each other.
- **Right Mrg 13.2**. This sets the right margin for the forms. You must specify the right margin in 1/10 inch increments, from 0.1 to 13.2 inches. The default value is 13.2. Press NEXT to increase the value, PREV to decrease the value, and ENTER to change units. The margins will automatically adjust so that the left and right margins do not cross each other.

Page Length Rep

- **Inches/Page** (default). Allows the user to set the page length in inches.
- **Lines/Page**. Allows the user to set the page length in number of lines.

Max Line Width

Set the maximum line width at either 13.2 inches or the maximum width of the printer.

Ribbon End Point

This parameter adjusts the point at which the system will declare the ribbon as being expended. The life count will always be from 100% to 0%, but if a darker setting is selected 0% will be reached more quickly. If a lighter setting is selected, the system will extend the time it takes to reach 0%.

Save Config

This option allows you to save up to eight configurations to meet different print job requirements. This eliminates the need to change the parameter settings for each new job. The configurations are stored in memory and will not be lost if you turn off the printer. If the Protect Configs. parameter is enabled, the new configuration will not be saved unless the existing configuration has been deleted first. The factory default configuration cannot be changed. See “Saving Your New Configuration” on page 52 for details.

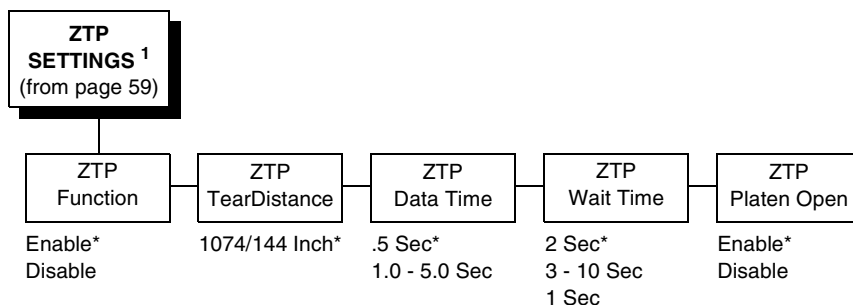
Power Up Config

This option allows you to specify which of the nine configurations (Factory or 1-8) will be the power-up configuration.

ZTP SETTINGS

* = Factory Default

¹ Available for Zero Tear Pedestal printers only.



ZTP Function

This option enables or disables all unique ZTP functions. The default is Enable.

NOTE: When the ZTP Function is enabled, the View/Eject key is disabled and Slow Paper Slew is enabled.

ZTP TearDistance

This option sets the tear off distance from the current print position to the tear bar. Adjustable values in increments of 1/144th of an inch range from 200 to 2880. The up and down arrows adjust the display value. When you press the **Enter** key, the selected value is stored and a scale is printed to indicate the current tear off position. The default value is 1060.

NOTE: When a new value is selected, the printer will lose the current print position. You must reset the top of form to automatically save the new value.

ZTP Data Time

This option sets the pause time in the data stream that the ZTP requires before moving the form to the tear bar once a print job is completed. The values range from .5 to 5 seconds. The default is .5 seconds.

ZTP Wait Time

This option sets the minimum amount of time that the form stays at the tear bar. This allows you time to remove the form before the form is retracted to print the next form. The adjustable values range from 500 to 5000 milliseconds in increments of 500 milliseconds. The default value is 2 seconds.

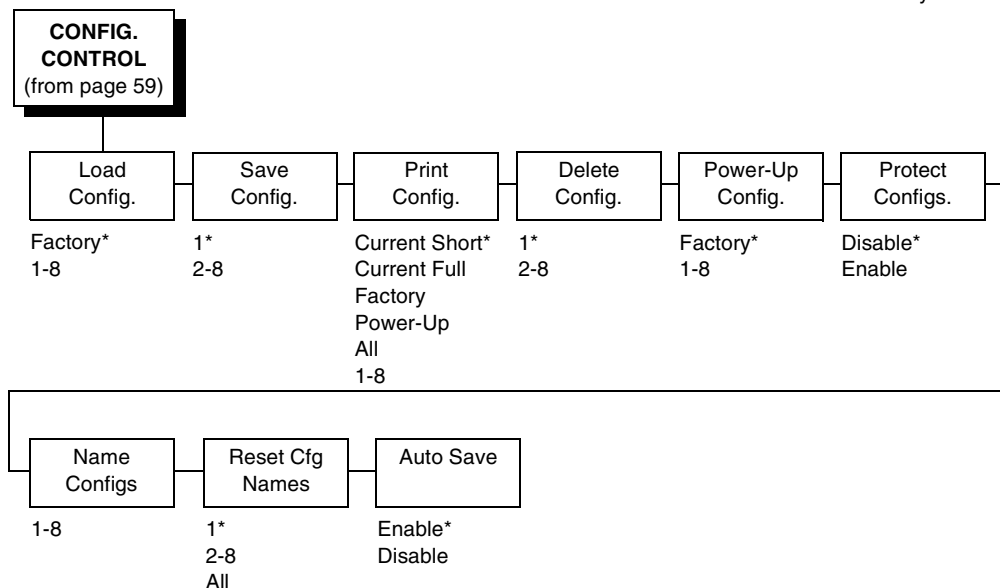
ZTP Platen Open

This option allows the user to have the platen open whenever forms are reversed. Enabled is the default, used for most papers and labels. The feature can be disabled as required by some multi-part forms.

CONFIG. CONTROL

The CONFIG. CONTROL menu allows you to control your printer's configurations according to the specifications necessary for your print jobs.

* = Factory Default



Load Config.

The printer can store numerous configurations in memory. This parameter allows you to select and load a specific configuration.

Save Config.

This option allows you to save up to eight configurations to meet different print job requirements. This eliminates the need to change the parameter settings for each new job. The configurations are stored in memory and will not be lost if you turn off the printer. If the Protect Configs. parameter is enabled, the new configuration will not be saved unless the existing configuration has been deleted first. The factory default configuration cannot be changed. See “Saving Your New Configuration” on page 52 for details.

Print Config.

This option is used to print a listing of various stored printer configurations. Store printouts of your configurations in a safe place for quick referral.

Delete Config.

You can delete one or all of your eight customized configurations. The factory default configuration cannot be deleted.

Power-Up Config.

You can specify which of the nine configurations (Factory or 1-8) will be the power-up configuration.

Protect Configs.

You can specify whether or not a new configuration should overwrite an existing configuration when you activate the Save Configs. parameter. When disabled (default), the new configuration will overwrite the existing configuration. When enabled, the new configuration will *not* overwrite the existing configuration, and the message “CONFIG. EXISTS / Delete First” displays.

Name Configs

You may specify a 15-character name which can be used to refer to a configuration. The name you enter for a configuration will be used in the Load Config., Save Config., Print Config., Delete Config., and Power-Up Config. menus. The name can only be cleared by using the Reset Cfg Names menu.

When you move into the Name Configs. menu, the top line of the display shows the current configuration name. The second line of the display is initially the same as the top line. You can modify the second line of the display without affecting the top line until the ENTER key is pressed, which sets the modified name.

Press the UP or DOWN (▲ or ▼) keys to cycle through the values available for that character at the cursor location. Press the NEXT (►) key to move to the next character to be modified. Press the PREV key (◀) to go back to a character you have already modified. Continue until you have entered the name you want to give to this configuration, then press ENTER to save. The name you entered will now represent this configuration on the printer's front panel. To exit this menu without saving, press any key other than the ENTER key. The configuration name will revert to the last saved value.

Reset Cfg Names

You can reset specific configuration names back to the default value of the configuration number.

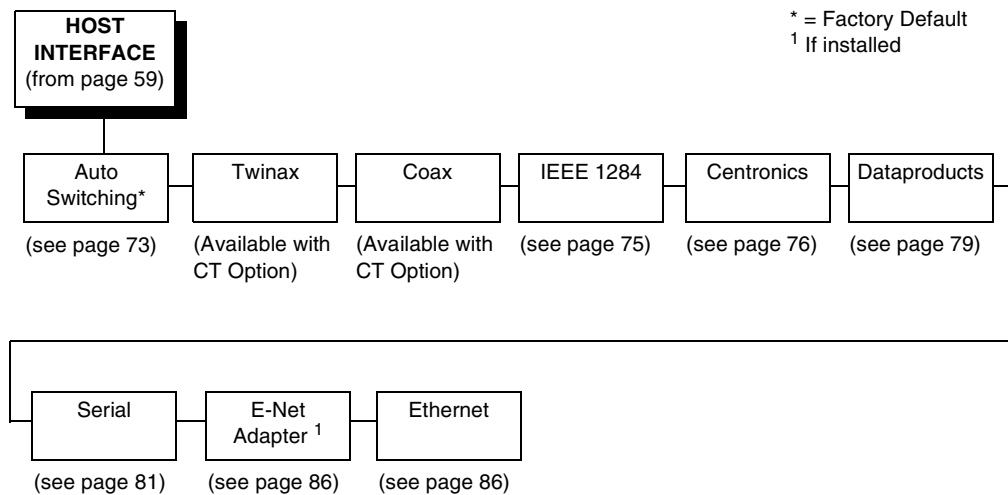
Auto Save

- **Enable** (default). When a change has been made to a Config. menu, this option automatically prompts the user to save or not save the change to a Config #.

If you are currently in the Factory Config. menus and make a change, pressing Enter saves to Config 1 or the next available Config. and becomes the Power-Up Config. If the Current Config is Config 1 and a menu change is made, pressing Enter will save the change to Config 1.

- **Disable**. The printer will not prompt you to save any changes made.

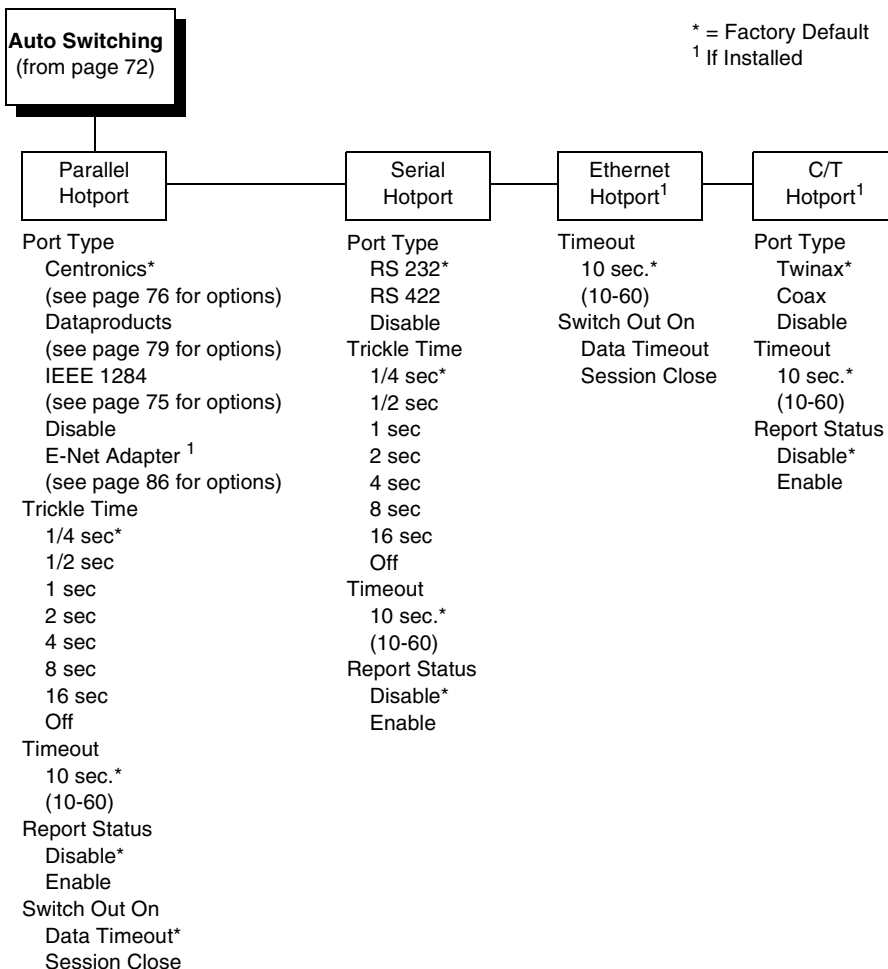
HOST INTERFACE



The Host Interface Menu enables you to select and configure one of many types of interfaces between the printer and your host computer. The currently selected interface is indicated with an asterisk on the control panel message display. Each interface has its own submenu with a set of interface parameters which can be configured.

IMPORTANT When switching between Twinax, Coax, or Auto Switching, the printer will load the power-up configuration and the new interface parameters. Any settings made and not saved before selecting these interfaces will be lost.

Auto Switching Submenu



Auto Switching gives the printer the ability to handle multiple data streams sequentially. With Auto Switching, the printer can service hosts attached to the serial, parallel, Ethernet, coax and twinax ports as if they were the only interface connected.

For example, if the host computer sends one print job to the RS-232 serial port and a separate print job to the IEEE 1284 parallel port, the printer's Auto Switching is able to handle both jobs, in the order they were received. The user does not have to reconfigure the selected interface between jobs.

Port Type

Select the types of parallel, serial and/or C/T interfaces which are connected to the printer. For example, if your printer is attached to one host with a Centronics connection and a second host with an RS-422 serial connection, you would select Centronics under the Parallel Hotport menu, RS-422 under the Serial Hotport menu, and Disable under the C/T Hotport menu.

Trickle Time

When the printer is printing data from a host and a second job is received by the printer from a different host, Trickle Time prevents the second host from timing out while it is waiting for its data to be printed. In order to support this feature, the port has to be able to accept data from the host and store it for future use.

For example, if the printer is printing a job from the serial port, and then receives a second print job from the parallel port, the data from the parallel port will “trickle” bit by bit into the printer buffer to prevent a timeout error from being sent back to the host connected to the parallel port.

The selected value is the time that the printer waits before getting the next byte of data from the host. The Trickle Time value should be less than the host time out value, but not too much shorter or else the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

Timeout

This is the value used by the printer to time out from the current port and check the other selected port types for data to print. When the printer has not received data from the host after a certain period of time, it needs to timeout in order to service the other ports.

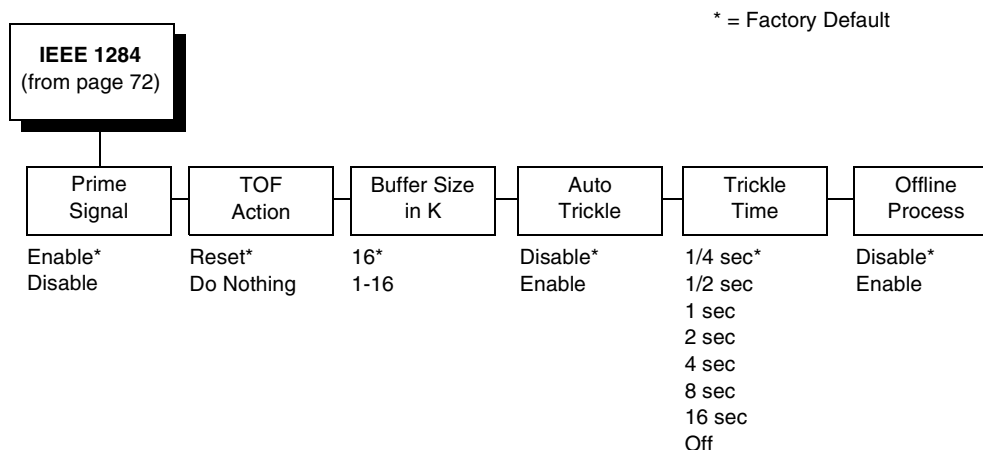
Report Status

- **Disable** (default). When a fault occurs on the printer, only the active port reports the fault to the host.
- **Enable**. The port will report any fault even when it is not the current active port.

Switch Out On

- **Data Timeout** (default). Allows Autoswitching when no data has been received for the selected Time Out period.
- **Session Close**. Allows Autoswitching only when the Network Socket is closed. If the Ethernet option is not installed the Network Socket is always reported as closed and this menu option is ignored.

IEEE 1284 Parallel (Bidirectional) Submenu



The IEEE 1284 interface is faster and more versatile than Centronics and supports bidirectional communication. Configuration of this interface is controlled from the host. Refer to “IEEE 1284 Parallel Interface” on page 238 more details about the available modes (Compatibility, Nibble, and Byte).

Prime Signal

- **Enable** (default). The parallel port will perform a warm start (reboot) if the host asserts the prime signal.
- **Disable**. The parallel port will not perform a warm start (reboot) if the host asserts the prime signal.

TOF Action

- **Reset** (default). A form feed is performed before a warm start when the prime signal is asserted from the host. This setting is used only if the prime signal parameter is enabled.
- **Do Nothing**. Nothing occurs before a warm start when the prime signal is asserted from the host.

Buffer Size in K

This option configures the amount of memory allocated for the IEEE 1284 parallel port buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

Auto Trickle

Auto Trickle is used to prevent a host computer from timing out because the parallel interface was busy for too long. When Auto Trickle is enabled and the printer's buffers are almost full, the printer will begin to trickle data in (at the rate set in the Trickle Time menu) until the buffers start to empty.

Trickle Time

When the printer is printing data from a host and a second job is received by the printer from a different host, Trickle Time prevents the second host from timing out while it is waiting for its data to be printed. In order to support this feature, the port has to be able to accept data from the host and store it for future use.

For example, if the printer is printing a job from the serial port, and then receives a second print job from the parallel port, the data from the parallel port will “trickle” bit by bit into the printer buffer to prevent a timeout error from being sent back to the host connected to the parallel port.

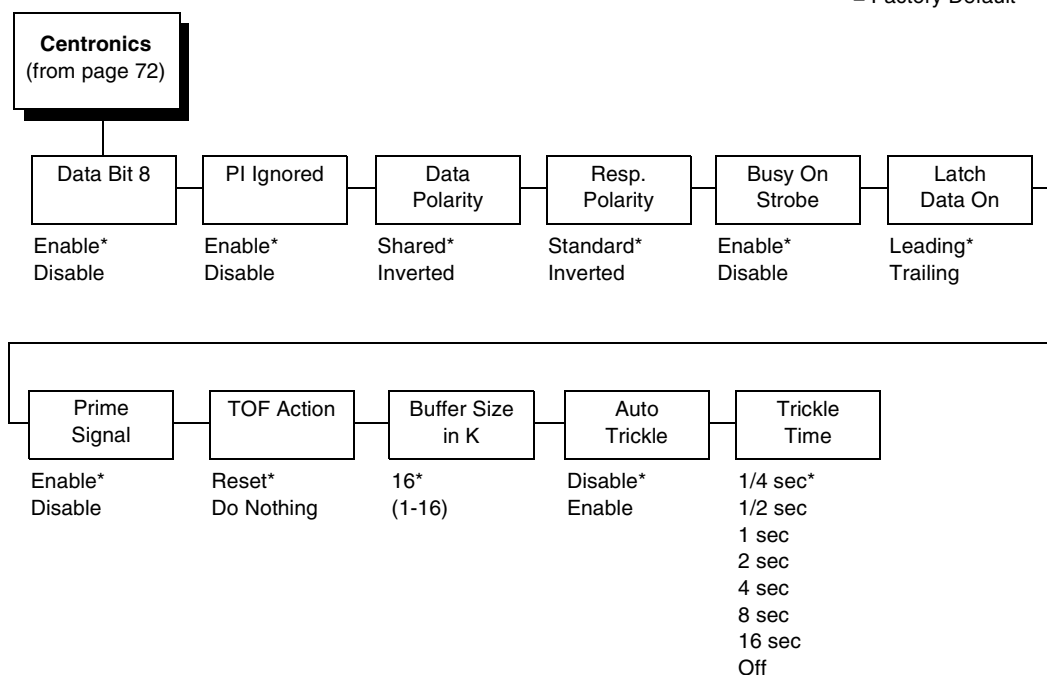
The selected value is the time that the printer waits before getting the next byte of data from the host. The Trickle Time value should be less than the host time out value, but not too much shorter or else the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

Offline Process

- Disable (the default). When set to disable, the printer does not process parallel/network data while offline.
- Enable. When set to enable, the printer continues to process (but not print) the current network/parallel job while the printer is offline until the printer's buffer is full.

Centronics (Parallel) Submenu

* = Factory Default



Data Bit 8

- **Enable** (default). Allows access to the extended ASCII character set.
- **Disable**. The printer interprets bit 8 of each incoming data character as a zero, regardless of its actual setting.

PI Ignored

The PI (Paper Instruction) signal is used to control vertical paper motion.

- **Enable** (default). Ignores the PI signal and treats the data as characters or control codes.
- **Disable**. Causes the printer to interpret the eight data lines as VFU commands when the PI signal is true.

Data Polarity

The Data Polarity parameter must be set to match the data polarity of your host computer.

- **Standard** (default). Does not expect the host computer to invert the data.
- **Inverted**. Expects the data received on the data lines from the host computer to be inverted. Ones become zeros, and vice versa.

Resp. Polarity

The Resp. Polarity parameter must be set to match the response polarity of your host computer.

- **Standard** (default). Does not invert the response signal.
- **Inverted**. Inverts the response signal sent to the host computer.

Busy On Strobe

- **Enable** (default). Asserts a busy signal after each character is received.
- **Disable**. Asserts a busy signal only when the print buffers are full.

Latch Data On

Specifies whether the data is read on the leading or trailing edge of the data strobe signal. The default is leading.

Prime Signal

- **Enable** (default). The parallel port will perform a warm start (reboot) if the host asserts the prime signal.
- **Disable**. The parallel port will not perform a warm start (reboot) if the host asserts the prime signal.

TOF Action

- **Reset** (default). A form feed is performed before a warm start when the prime signal is asserted from the host. This setting is used only if the prime signal parameter is enabled.
- **Do Nothing**. Nothing occurs before a warm start when the prime signal is asserted from the host.

Buffer Size in K

Configures the amount of memory allocated for the Centronics parallel port buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

Auto Trickle

Auto Trickle is used to prevent a host computer from timing out because the parallel interface was busy for too long. When Auto Trickle is enabled and the printer's buffers are almost full, the printer will begin to trickle data in (at the rate set in the Trickle Time menu) until the buffers start to empty out.

Trickle Time

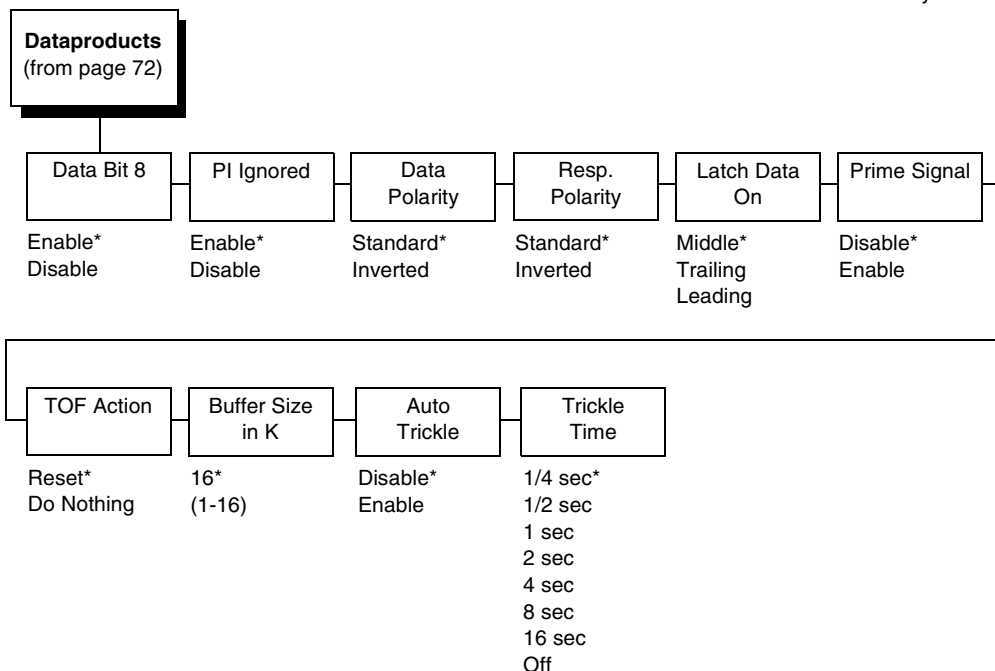
When the printer is printing data from a host and a second job is received by the printer from a different host, Trickle Time prevents the second host from timing out while it is waiting for its data to be printed. In order to support this feature, the port has to be able to accept data from the host and store it for future use.

For example, if the printer is printing a job from the serial port, and then receives a second print job from the parallel port, the data from the parallel port will “trickle” bit by bit into the printer buffer to prevent a timeout error from being sent back to the host connected to the parallel port.

The selected value is the time that the printer waits before getting the next byte of data from the host. The Trickle Time value should be less than the host time out value, but not too much shorter or else the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

Dataproducts Submenu

* = Factory Default



Data Bit 8

- **Enable** (default). Allows access to the extended ASCII character set.
- **Disable**. The printer interprets bit 8 of each incoming data character as a zero, regardless of its actual setting.

PI Ignored

The PI (Paper Instruction) signal is used to control vertical paper motion.

- **Enable** (default). Causes the printer to interpret the eight data lines as DVFU commands when the PI signal is true.
- **Disable**. Ignores the PI signal and treats the data as characters or control codes.

Data Polarity

The Data Polarity parameter must be set to match the data polarity of your host computer.

- **Standard** (default). Does not expect the host computer to invert the data.
- **Inverted**. Expects the data received on the data lines from the host computer to be inverted. Ones become zeros, and zeros become ones.

Resp. Polarity

The Response Polarity parameter must be set to match the response polarity of your host computer.

- **Standard** (default). Does not invert the response signal.
- **Inverted**. Inverts the response signal sent to the host computer.

Latch Data On

Specifies whether the data is read on the leading, middle, or trailing edge of the data strobe signal. The default is Middle.

Prime Signal

- **Disable** (default). The parallel port will not perform a warm start (reboot) if the host asserts the prime signal.
- **Enable**. The parallel port will perform a warm start (reboot) if the host asserts the prime signal.

TOF Action

- **Reset** (default). A form feed is performed before a warm start when the prime signal is asserted from the host. This setting is used only if the prime signal parameter is enabled.
- **Do Nothing**. Nothing occurs before a warm start when the prime signal is asserted from the host.

Buffer Size in K

Configures the amount of memory allocated for the Dataproducts parallel port buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments.

Auto Trickle

Auto Trickle is used to prevent a host computer from timing out because the parallel interface was busy for too long. When Auto Trickle is enabled and the printer's buffers are almost full, the printer will begin to trickle data in (at the rate set in the Trickle Time menu) until the buffers start to empty out.

Trickle Time

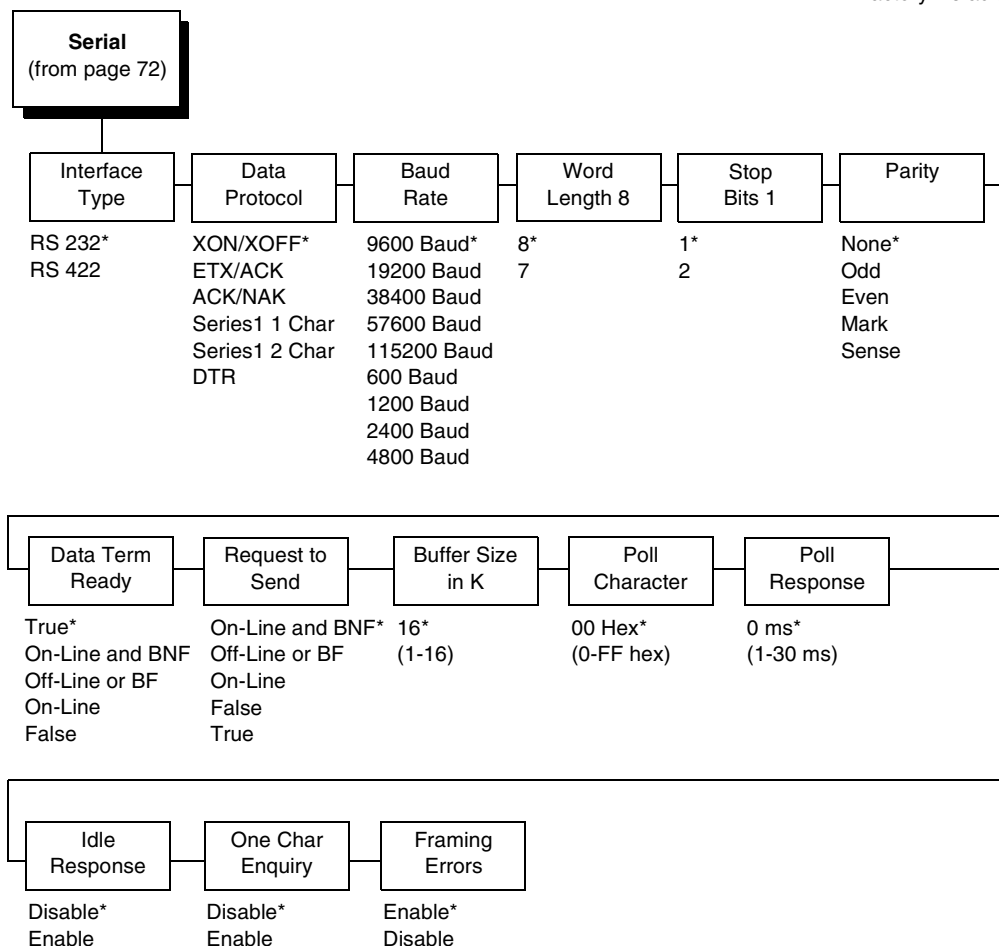
When the printer is printing data from a host and a second job is received by the printer from a different host, Trickle Time prevents the second host from timing out while it is waiting for its data to be printed. In order to support this feature, the port has to be able to accept data from the host and store it for future use.

For example, if the printer is printing a job from the serial port, and then receives a second print job from the parallel port, the data from the parallel port will “trickle” bit by bit into the printer buffer to prevent a timeout error from being sent back to the host connected to the parallel port.

The selected value is the time that the printer waits before getting the next byte of data from the host. The Trickle Time value should be less than the host time out value, but not too much shorter or else the printer fills up its buffer too fast. This function is not applicable for C/T hotport.

Serial Submenu

* = Factory Default



Interface Type

This parameter allows you to select either the RS-232 or RS-422 serial port interface. The default is RS-232.

Data Protocol

You can select one of the following serial interface protocols to meet the host interface requirements.

- **XON / XOFF** (default). The printer controls the flow of communication from the host by turning the transmission on and off. In some situations, such as when the buffer is full or the timing of signals is too slow or too fast, the printer will tell the host to stop transmission by sending an XOFF character. An XOFF character is sent when the number of empty bytes in the buffer is less than or equal to 25 percent of the buffer size. If the host keeps sending data after an XOFF is sent, the printer firmware will continue to send an XOFF for every 16 characters received. When cleared, the printer will resume receiving data (XON). The data does not have any End of Text codes; XON / XOFF is a non-block protocol.
- **ETX / ACK**. End of Text / Acknowledge. The host controls the flow of communication to the printer by sending a block of data and ending the block with an End of Text (ETX) signal. When the printer receives the ETX signal, it will acknowledge the ETX, thereby acknowledging it has received the entire block of data.
- **ACK / NAK**. ACK means acknowledge; the device acknowledges it has accepted a transmission. NAK means negative acknowledge; the device did not receive the transmission.
- **SERIES1 1 CHAR**. The printer controls the flow of communication from the host by turning the transmission on and off using response characters sent to the host. If the number of valid bytes in the buffer reaches 75 percent of the buffer size, the online or offline and buffer full response character is sent. If the buffer is completely full, an online or offline buffer full response is sent every time a character is sent from the host. Whenever the printer state changes to online or offline, the appropriate response character is sent. If the idle response option is enabled, the printer will send a response character every two seconds while the number of valid bytes in the buffer is less than 75 percent of the buffer size. If a poll character is received (configurable from the Poll Character xx Hex option on the front panel from hex 0 through FF), the printer will send a response character *n* milliseconds later (configurable from the Poll Character xx MS on the front panel from 0 through 30). This *n* milliseconds is called the poll delay. The poll character will be removed from the input data stream and will not be processed. This may cause problems with the transmission of binary data (e.g., control codes, bit image, etc.). If a poll delay is started due to the receipt of a poll character and another poll character is received, the second poll character has no effect and is removed from the input data stream. If a transition (from buffer full to empty or online to offline) occurs during a poll delay, the new printer state will be sent at the end of the poll delay.

The response characters are described in Table 3.

Table 3. Series1 1 Char Response Characters

| Printer State | Response |
|--------------------------|----------|
| Online and Buffer Empty | CR |
| Online and Buffer Full | 3 |
| Offline and Buffer Empty | 0 |
| Offline and Buffer Full | 2 |

- **SERIES1 2 CHAR.** This protocol behaves exactly the same as the Series1 Char except there is a two-character response to the host. The response characters are described in Table 4.

Table 4. Series1 2 Char Response Characters

| Printer State | Response |
|--------------------------|----------|
| Online and Buffer Empty | 1 CR |
| Online and Buffer Full | 3 CR |
| Offline and Buffer Empty | 0 CR |
| Offline and Buffer Full | 2 CR |

- **DTR.** The printer controls the data flow by sending this hardware signal to the host. If there is enough room in the printer buffer, the printer will send a high signal; if the buffer is full, the printer will send a low signal. DTR tells the host if it is safe to send more data. (If the host sends data during an unsafe condition, data will be lost.) DTR is not available when RS-422 is selected.

Baud Rate

Sets the baud rate of the serial interface in the printer. Baud rate is the speed at which serial data is transferred between the host computer and the printer. The choices for the RS-232 and RS-422 interfaces are 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 Baud. The default is 9600 Baud.

NOTE: If you select a baud rate that is greater than 19200, you may need to use RS-422 or select a lower baud rate to prevent data loss. You also may need to increase the Buffer Size in K parameter to improve performance.

Word Length

Sets the length of the serial data word. The length of the data word can be set to 7 or 8 bits, and must match the corresponding data bits setting in the host computer.

Stop Bits 1

Sets the number of stop bits in the serial data word. Either one or two stop bits can be selected. The setting must match the corresponding stop bit setting in the host computer.

Parity

Set for odd parity, even parity, mark, sense, or no parity. The setting must match the corresponding parity setting in the host computer.

Data Term Ready

This configuration is part of hardware flow control and determines when the Data Terminal Ready (DTR) signal is generated. This signal indicates if the printer is ready to receive data.

- **True** (default). Continuously asserts the DTR signal.
- **On Line and BNF (buffer not full)**. Asserts the DTR signal when the printer is online and the internal serial buffer is not full.
- **Off Line or BF (buffer full)**. Asserts the DTR signal when the printer is offline or the internal serial buffer is full.
- **On Line**. Asserts the DTR signal when the printer is online.
- **False**. Never asserts the DTR signal.

Request To Send

This configuration is part of hardware flow control and determines when the Request to Send (RTS) signal is generated. This signal indicates whether or not the printer is ready to receive data.

- **On Line and BNF** (default). Asserts the RTS signal when the printer is online and the internal serial buffer is not full.
- **Off Line or BF**. Asserts the RTS signal when the printer is offline or the internal serial buffer is full.
- **On Line**. Asserts the RTS signal when the printer is online.
- **False**. Never asserts the RTS signal.
- **True**. Continuously asserts the RTS signal.

Buffer Size in K

This option configures the amount of memory allocated for the serial port buffer. You may specify between 1 and 16 Kbytes, in 1-Kbyte increments.

NOTE: If you select a baud rate that is 19200 or greater, you may need to increase the Buffer Size in K parameter to improve performance.

Poll Character

This option is for the Series1 protocol. Whenever the printer receives this character, it sends a response to the host indicating the current state of the printer (see Series1 protocol). It may be configured from 0 through FF hexadecimal.

Poll Response

This option is for the Series1 protocol. After receiving a poll character, the printer will wait the poll response time in milliseconds before sending the response. It may be configured from 0 through 30.

Idle Response

This option is for the Series1 protocol.

- **Disable** (default)
- **Enable**. The printer will send a response character every two seconds while the number of valid bytes in the buffer is less than 75 percent of the buffer size.

One Char Enquiry

The One Char Enquiry mode uses the Poll Character to detect a request from the host and sends a response back to the host. This option also allows you to turn on and off this feature.

Table 5. One Char Enquiry Response Characters

| Printer State | Response (hex) |
|-----------------------------|----------------|
| Online and Buffer Not Full | 22 |
| Online and Buffer Full | 23 |
| Offline and Buffer Not Full | 20 |
| Offline and Buffer Full | 21 |

The Poll Character is removed from the data stream. If the Data Protocol is set to ETX/ACK, ACK/NAK, or Series 1, One Char Enquiry is automatically disabled.

Framing Errors

Possible errors that can occur when the printer's serial interface settings do not match those of the host computer.

- **Enable** (default). If a framing error occurs, a fault message will display on the control panel.
- **Disable**. If a framing error occurs, a fault message will not display on the control panel.

E-Net Adapter Submenu



The E-Net Adapter interface allows you to locate the printer on a LAN rather than attach the host directly into the printer. The detailed configuration of this option is given in the *PrintNet User's Manual*.

Buffer Size in K

This option configures the amount of memory allocated for the Ethernet buffer. You can specify between 1-16 Kbytes. The default is 16 Kbytes.

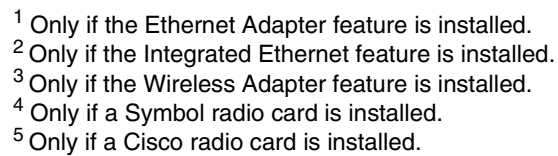
Ethernet Submenu



The Ethernet interface allows you to locate the printer on a LAN rather than attach the host directly into the printer. The detailed configuration of this option is given in the *Network Interface Card User's Manual*.

Buffer Size in K

This option configures the amount of memory allocated for the Ethernet buffer. You can specify between 1 and 16 Kbytes, in 1-Kbyte increments. The default is 16 Kbytes.



ADAPTER ADDRESS



Subnet Mask

A binary value used to divide IP networks into smaller subnetworks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.

Gateway Address

A gateway address is the IP address of a hardware device (gateway) that translates data between two incompatible networks, which can include protocol translation.

MAC Address

This menu item is the Manufacturer's Assigned Number, and is unique for each printer. It is read-only.

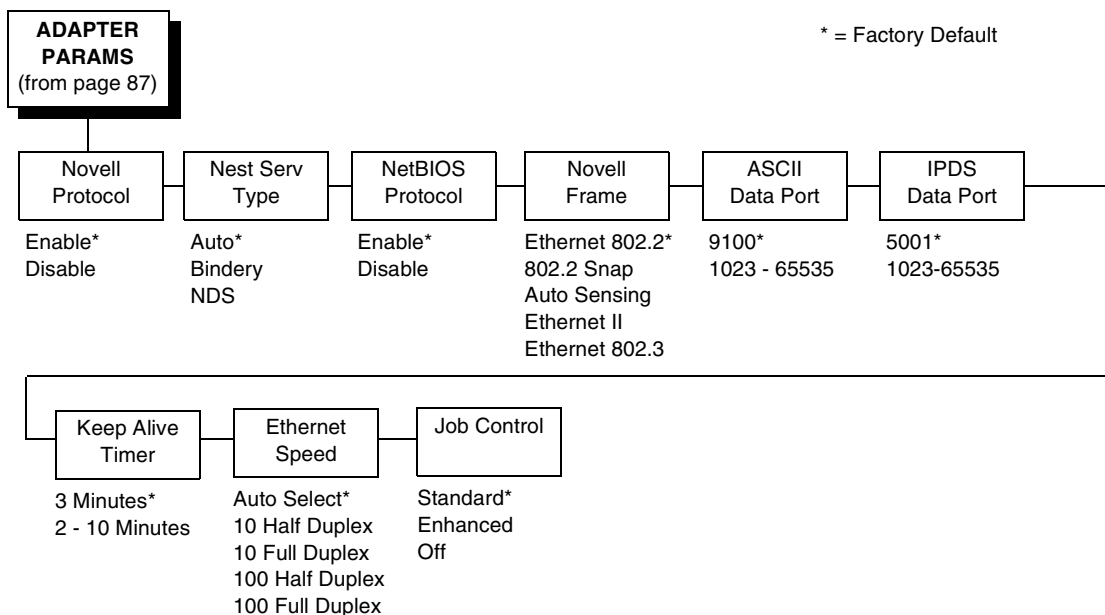
DHCP

You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

The options include:

- **Disable** (default)
- **Enable**.

ADAPTER PARAMS



You may enable or disable the Novell or NetBIOS Protocols within this menu, as well as selecting which Novell Frame scheme to use in processing Novell signals. See the Novell chapter in the *Network Interface Card User's Manual* for more details.

Novell Protocol

This option determines whether the Novell protocol will be available. The selections are as indicated below:

- **Enable** (default). Makes the Novell protocol available with the ethernet installed.
- **Disable**. Makes the Novell protocol unavailable during printer operation.

Nest Serv Type

You can change the Nest Server using this option, but consult your administrator for the appropriate setting.

The options are Auto (default), Bindery, and NDS.

NetBIOS Protocol

This option determines whether the NetBIOS protocol will be available. The selections are as indicated below:

- **Enable** (default). Makes the NetBIOS protocol available with the ethernet installed.
- **Disable**. Makes the NetBIOS protocol unavailable during printer operation.

Novell Frame

This selection determines which framing scheme will be used in processing Novell signals.

- **Ethernet 802.2** (default)
- **802.2 Snap**
- **Auto Sensing**
- **Ethernet II**
- **Ethernet 802.3**

ASCII Data Port

This option sets the port number for ASCII print jobs. The data port number needs to match your host system setting.

- **9100** (default)
- **1023 - 65535**

IPDS Data Port

This option allows you to set the port number for IPDS print jobs only if the IPDS option is installed.

The range is 0 - 5000, and the default is 5001.

Keep Alive Timer

This is the time that the Keep Alive Timer will run. With the Keep Alive Timer on, the tcp connection will stay connected even after the print job has terminated.

- **3 Minutes** (default)
- **2 - 10 Minutes**

Ethernet Speed

This menu option only appears if a 10/100Base-T network interface card (NIC) is installed. The Ethernet Speed menu allows compatibility with different systems and networks. The factory default is Auto Select.

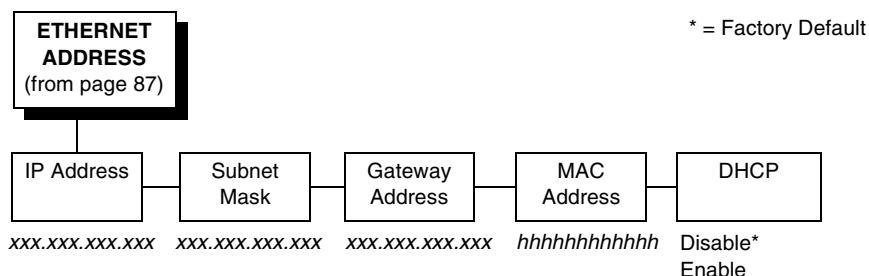
- **Auto Select.** (default) This setting tells the 10/100Base-T NIC to perform an auto detection scheme and configure itself to be 10 Half Duplex, 10 Full Duplex, 100 Half Duplex, or 100 Full Duplex.
- **10 Half Duplex.** Tells the 10/100Base-T NIC to communicate at 10 Megabits per second using half duplex.
- **10 Full Duplex.** Tells the 10/100Base-T NIC to communicate at 10 Megabits per second using full duplex.
- **100 Half Duplex.** Tells the 10/100Base-T NIC to communicate at 100 Megabits per second using half duplex.
- **100 Full Duplex.** Tells the 10/100Base-T NIC to communicate at 100 Megabits per second using full duplex.

Job Control

The job control mode has three options:

- **Standard** (default). The NIC waits for the printer to finish receiving the current job before sending another job. The status line shows “done” when the job is completely received by the NIC. This is the default.
- **Enhanced.** The NIC waits for the printer to finish receiving the current job before sending another job. The status line shows “done” when the job is fully printed.
- **Off.** No job synchronization between the NIC and the printer.

ETHERNET ADDRESS



IP Address

A numeric address such as 123.45.61.23 which identifies a printer or server in a LAN or WAN.

Subnet Mask

A binary value used to divide IP networks into smaller subnetworks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.

Gateway Address

A gateway address is the IP address of a hardware device (gateway) that translates data between two incompatible networks, which can include protocol translation.

MAC Address

This menu item is the Manufacturer's Assigned Number, and is unique for each printer. It is read-only.

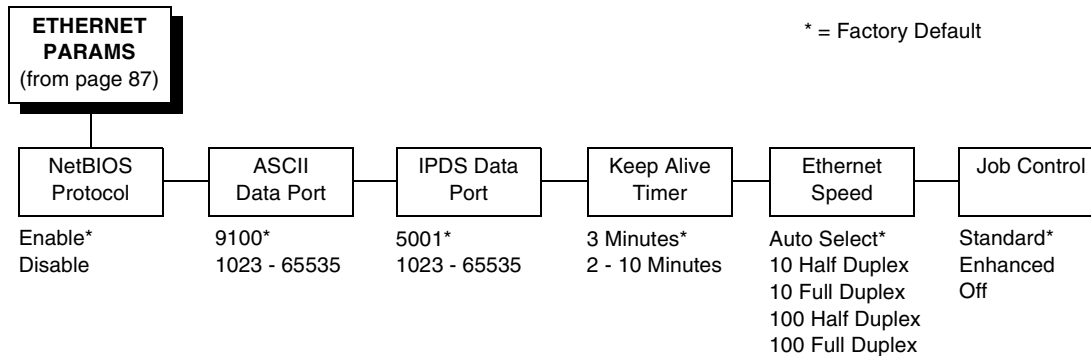
DHCP

You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

The options include:

- **Disable** (default)
- **Enable.**

ETHERNET PARAMS



The ETHERNET PARAMS menu helps your printer communicate on a network.

For information on assigning the IP Address, Gateway Address, Subnet Mask, and MAC Address, refer to the *Network Interface Card User's Manual*.

NetBIOS Protocol

This option determines whether the NetBIOS protocol will be available. The selections are as indicated below:

- **Enable** (default). Makes the NetBIOS protocol available with the ethernet installed.
- **Disable**. Makes the NetBIOS protocol unavailable during printer operation.

ASCII Data Port

This option sets the port number for ASCII print jobs. The data port number needs to match your host system setting.

- **9100** (default)
- **1023 - 65535**

IPDS Data Port

This option allows you to set the port number for IPDS print jobs only if the IPDS option is installed.

The range is 1023 - 65535, and the default is 5001.

Keep Alive Timer

This is the time that the Keep Alive Timer will run. With the Keep Alive Timer on, the tcp connection will stay connected even after the print job has terminated.

- **3 Minutes** (default)
- **2 - 10 Minutes**

Ethernet Speed

This menu option only appears if a 10/100Base-T network interface card (NIC) is installed. The Ethernet Speed menu allows compatibility with different systems and networks. The factory default is Auto Select.

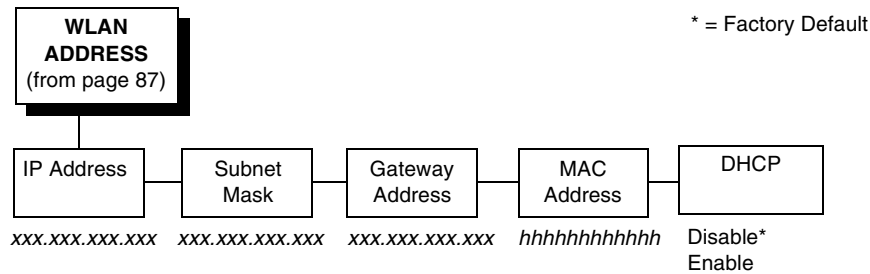
- **Auto Select.** (default) This setting tells the 10/100Base-T NIC to perform an auto detection scheme and configure itself to be 10 Half Duplex, 10 Full Duplex, 100 Half Duplex, or 100 Full Duplex.
- **10 Half Duplex.** Tells the 10/100Base-T NIC to communicate at 10 Megabits per second using half duplex.
- **10 Full Duplex.** Tells the 10/100Base-T NIC to communicate at 10 Megabits per second using full duplex.
- **100 Half Duplex.** Tells the 10/100Base-T NIC to communicate at 100 Megabits per second using half duplex.
- **100 Full Duplex.** Tells the 10/100Base-T NIC to communicate at 100 Megabits per second using full duplex.

Job Control

The job control mode has three options:

- **Standard** (default). The NIC waits for the printer to finish receiving the current job before sending another job. The status line shows “done” when the job is completely received by the NIC. This is the default.
- **Enhanced.** The NIC waits for the printer to finish receiving the current job before sending another job. The status line shows “done” when the job is fully printed.
- **Off.** No job synchronization between the NIC and the printer.

WLAN ADDRESS



IP Address

A numeric address such as 123.45.61.23 which identifies a printer or server in a LAN or WAN.

Subnet Mask

A binary value used to divide IP networks into smaller subnetworks or subnets. This mask is used to help determine whether IP packets need to be forwarded to other subnets.

Gateway Address

A gateway address is the IP address of a hardware device (gateway) that translates data between two incompatible networks, which can include protocol translation.

MAC Address

This menu item is the Manufacturer's Assigned Number, and is unique for each printer. It is read-only.

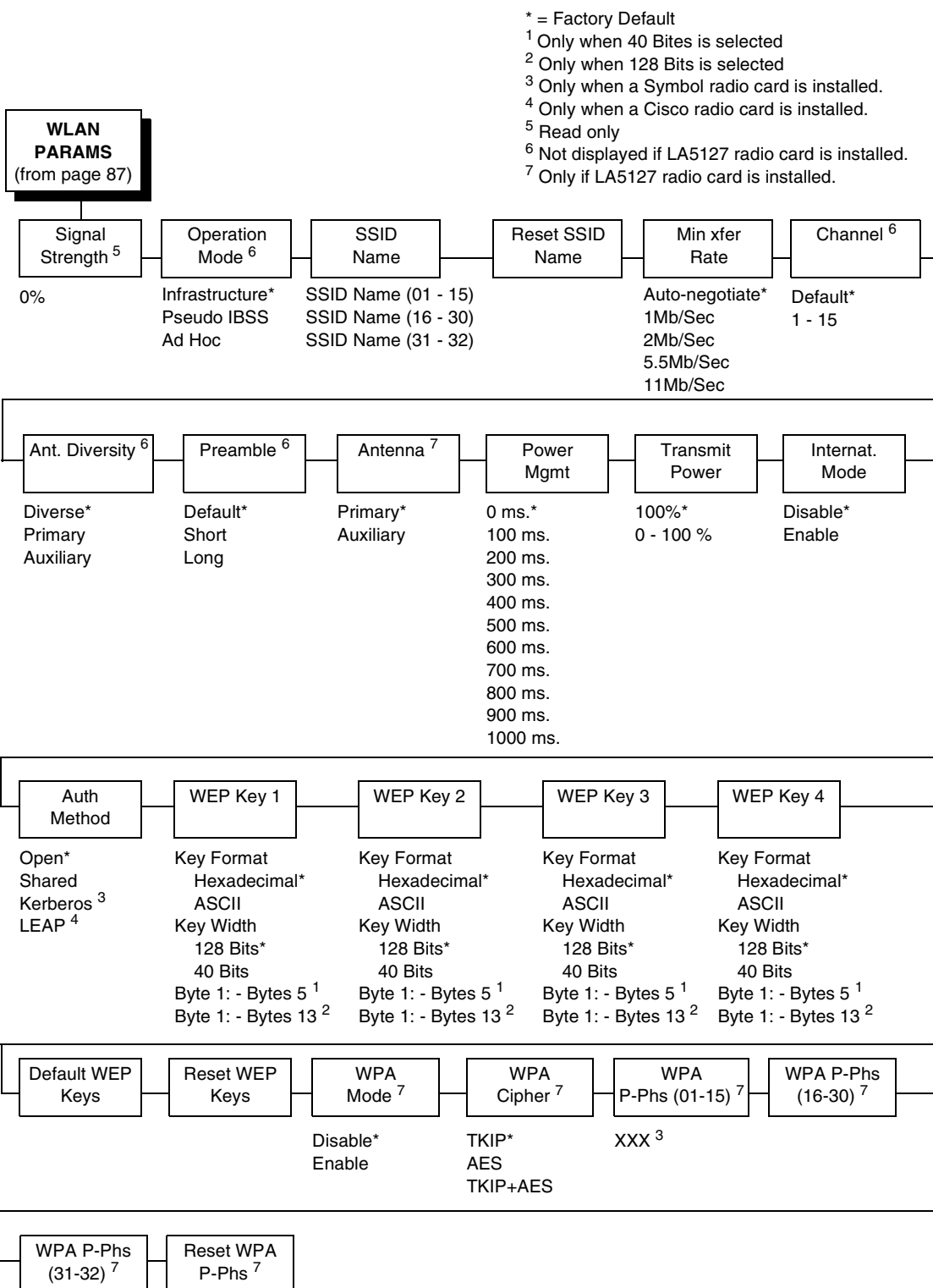
DHCP

You can enable/disable the DHCP protocol using this option, but consult your administrator for the appropriate setting.

The options include:

- **Disable** (default)
- **Enable**.

WLAN PARAMS



Signal Strength

This menu displays the strength of the wireless signal.

NOTE: This is a display value only and cannot be changed.

Operation Mode

Allows you to select the way the Wireless option communicates:

- **Infrastructure** (default). The Wireless option must go through a server.
- **Pseudo IBSS**. Proprietary, peer-to-peer communication (without a server). The two peers must be specific to one manufacturer.
- **Ad Hoc**. Standard, peer-to-peer communication (without a server). The two peers can be from different manufacturers.

SSID Name

A 1 - 32 character, case sensitive string that identifies the group the printer talks to.

NOTE: The SSID name may be edited in three parts (1-15), (16-30), and (31-32).

For each part of the SSID name, press the MICRO UP or MICRO DOWN keys to cycle through the values available for that character at the cursor location. Press the SCROLL UP key to move to the next character to be modified. Press the SCROLL DOWN key to go back to the name you want to give to this SSID name, then press ENTER to save. The name you entered will now represent this SSID name on the printer's front panel. To exit this menu without saving, press any key other than the ENTER key. The SSID name will revert to the last saved value.

Reset SSID Name

Allows you to reset the SSID name.

Min Xfer Rate

Allows you to set the minimum speed at which the Wireless Option will accept a connection (in million bits per second). The options are:

- **Auto-negotiate** (default)
- **1Mb/Sec.**
- **2Mb/Sec.**
- **5.5Mb/Sec**
- **11Mb/Sec**

Channel

Allows you to select the RF channel. The options are Default (the factory default) and 1-15.

Ant. Diversity

The type of antenna used:

- **Diverse** (default). Select when you want to use the antenna with the best reception.
- **Primary**. Select when you want to use the Primary antenna on the server.
- **Auxiliary**. Select when you want to use the Auxiliary antenna on the server.

Preamble

The length of the preamble in transmit packets.

- **Default** (default). The Wireless option automatically determines the length.
- **Short**. For newer printers which can handle higher transfer rate speeds.
- **Long**. For older printers which cannot handle higher transfer rate speeds.

Antenna

- **Primary** (default). Select when you want to use the Primary antenna on the RF card.
- **Auxiliary**. Select when you want to use the Auxiliary antenna on the RF card.

Power Mgmt

This allows you to set power-save mode and sleep time. A value specifying the sleep time in milliseconds will be provided. If set to zero, power-save mode will be disabled. The range includes:

- **0 ms.** (default)
- **100 ms. - 1000 ms.**

Transmit Power

The power level as a percentage of full power (0 - 100%).

Internat. Mode

When enabled, the Wireless option adapts to international frequency requirements in Europe. The options include:

- **Disable** (default)
- **Enable**

Auth Method

This feature allows the user to select the authentication method used for the wireless network interface.

- **Open** (default). Selects open authentication.
- **Shared**. Selects shared key authentication.
- **Kerberos**. Selects Kerberos authentication (for use when a Symbol RF card is installed).
- **LEAP**. Selects LEAP authentication (for use with a Cisco RF card installed).

WEP Key 1 Through WEP Key 4

- **WEP Key Format**. Allows you to format the WEP keys in ASCII or hexadecimal code. The default is hexadecimal.
- **WEP Key Width**. This is the encryption strength. The options are 40 Bits and 128 Bits; 40 Bits are weaker and 128 Bits are stronger.

NOTE: If you select 40 Bits, the WEP key BYTE6 through WEP Key BYTE13 menus will not display.

The default is 128 Bits.

- **WEP Key BYTE1 through BYTE13**. These are the individual characters of the encryption key.

Default WEP Key

This feature enables you to encrypt (scramble) information for security purposes. With this feature, you can set up to four encryption keys, in either ASCII or hexadecimal format, and in either 40 or 128 bits. (The more bits you choose, the more difficult it will be to decode the information.)

NOTE: None of the WEP Key Configuration menus display on the configuration printout.

Reset WEP Keys

Allows you to reset all four WEP keys (WEP Key 1 through WEP Key 4) at one time.

WPA Mode

Selects the WPA wireless security mode.

- **Disable** (default). WPA security is disabled.
- **Personal**. Selects personal or pre-shared key mode for WPA security.

WPA Cipher

Selects the WPA wireless security cipher setting. Options include:

- **TKIP** (default)
- **AES**
- **TKIP+AES**

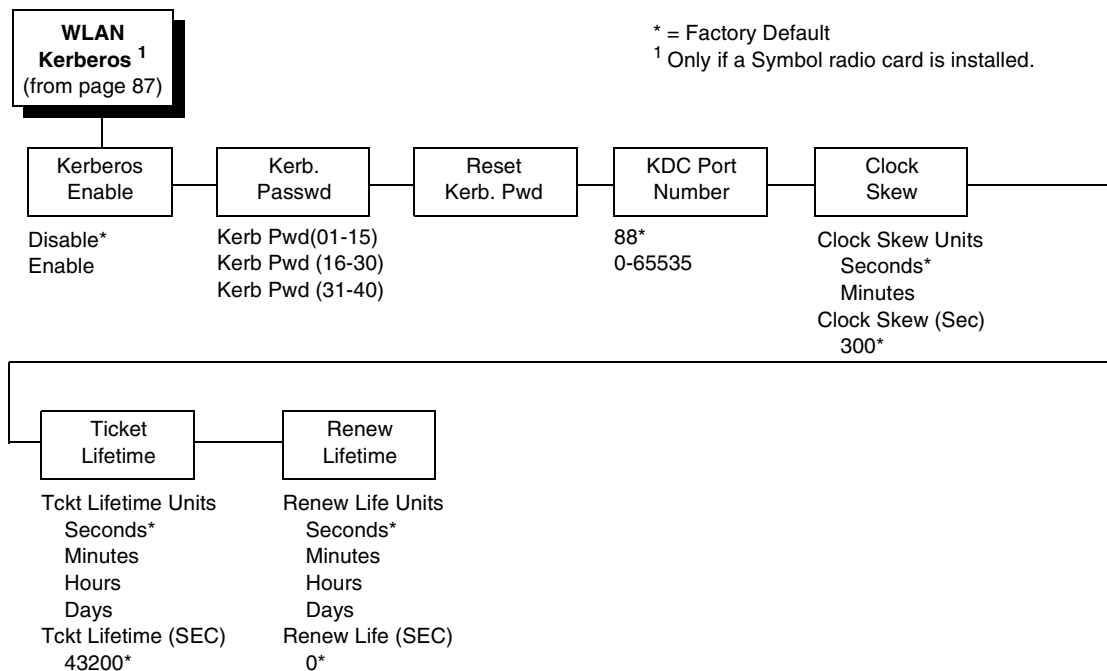
WPA P-Phs

Allows you to set the individual bytes of the WPA passphrase.

Reset WPA P-Phs

Allows you to reset all 32 bytes of the WPA passphrase at once.

WLAN KERBEROS



Kerberos Enable

- **Disable** (default). Disables Kerberos authentication in the wireless network interface.
- **Enable**. Enables Kerberos authentication in the wireless network interface.

Kerb. Passwd

- **Kerb. Pwd (01-15).** The first 15 characters of the Kerberos password (maximum number of characters is 40).
- **Kerb. Pwd (16-30).** Characters 16 to 30 of the Kerberos password (maximum number of characters is 40).
- **Kerb. Pwd (31-40).** Characters 31 to 40 of the Kerberos password (maximum number of characters is 40).

Reset Kerb. Pwd

Resets the Kerberos password to an empty string.

KDC Port Number

KDC (Key Distribution Center) port number is the 2-byte UDP/TCP port used for Kerberos Communication.

The range is 0-65535, and the default is 88.

Clock Skew

Sets the maximum allowable amount of time in seconds or minutes that Kerberos authentication will tolerate before assuming that a Kerberos message is valid. The range for Seconds is 60-900, and the default is 300. The range for Minutes is 1-15, and the default is 5.

Ticket Lifetime

Sets the maximum allowable amount of time in Seconds, Minutes, Hours, or Days that a ticket obtained from the Kerberos server is valid before getting a new one.

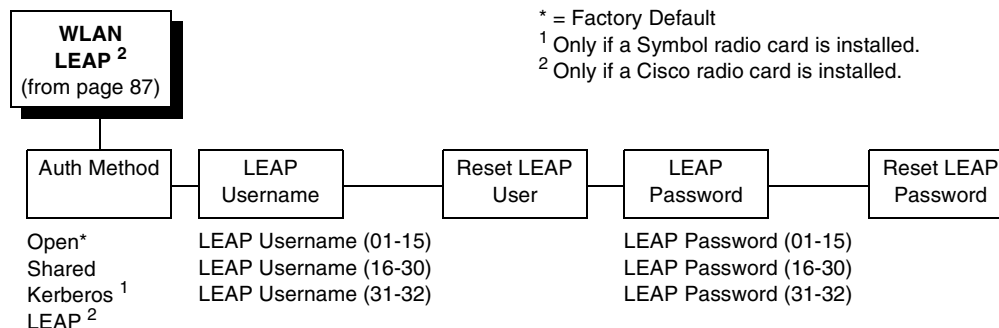
- **Seconds.** The range is 300-259200, and the default is 43200.
- **Minutes.** The range is 5-4320, and the default is 720.
- **Hours.** The range is 1-72, and the default is 12.
- **Days.** The range is 1-3, and the default is 1.
- **Tckt Lifetime (SEC).** The ticket lifetime unit in seconds. The default is 43200.

Renew Lifetime

Sets the maximum allowable amount of time in Seconds, Minutes, Hours, or Days before warning that a new Kerberos password is needed.

- **Seconds.** The range is 0-604800, and the default is 0.
- **Minutes.** The range is 0-10080, and the default is 0.
- **Hours.** The range is 1-168, and the default is 0.
- **Days.** The range is 0-7, and the default is 0.
- **Renew Life (SEC).** Renew lifetime unit in seconds. The default is 0.

WLAN LEAP



Auth Method

This feature allows the user to select the authentication method used for the wireless network interface.

- **Open** (default). Selects open authentication.
- **Shared**. Selects shared key authentication.
- **Kerberos**. Selects Kerberos authentication (for use when a Symbol RF card is installed).
- **LEAP**. Selects LEAP authentication (for use with a Cisco RF card installed).

LEAP Username

- **LEAP Username (01-15)**. The first 15 characters of the LEAP user name (maximum number of characters is 32).
- **LEAP Username (16-30)**. Characters 16 to 30 of the LEAP user name (maximum number of characters is 32).
- **LEAP User (31-32)**. Characters 31 to 32 of the LEAP user name (maximum number of characters is 32).

Reset LEAP User

Resets the LEAP user name to an empty string.

LEAP Password

- **LEAP Password (01-15)**. The first 15 characters of the LEAP password (maximum number of characters is 32).
- **LEAP Password (16-30)**. Characters 16 to 30 of the LEAP password (maximum number of characters is 32).
- **LEAP Password (31-32)**. Characters 31 to 32 of the LEAP password (maximum number of characters is 32).

Reset LEAP Password

Resets the LEAP password to an empty string.

ACTIVE IGP EMUL

* = Factory Default

**ACTIVE IGP
EMUL**
(from page 60)

IGP/PGL*
IGP/VGL
(not shown if any
below are installed)

ANSI (if installed)
PCL-II (if installed)
LG (if installed)
LP+ (with any above)

This ACTIVE IGP EMUL function allows you to activate the desired emulation. There are two methods for selecting the desired emulation. The first is by selecting the emulation directly from the printer menu. The second is by sending a host command which will switch the emulation automatically (see the appropriate Programmer's Reference Manual for details).

When changing from one emulation to the other, the printer will load the power-up configuration and the new emulation parameters. Any configuration settings performed before selecting these emulations that are not saved in NVRAM will be lost.

IMPORTANT To configure an IGP emulation, the IGP emulation must be selected in the ACTIVE IGP EMUL menu. The IGP emulation that is not selected will not appear in the EMULATION menu (see “Main Menu” on page 59).

ACTIVE EMULATION

The ACTIVE EMULATION menu allows you to activate the desired emulation to be used with your printer.

- ¹ If installed
- ² If ANSI is installed
- ³ If LG is installed
- ⁴ If PCL-II is installed

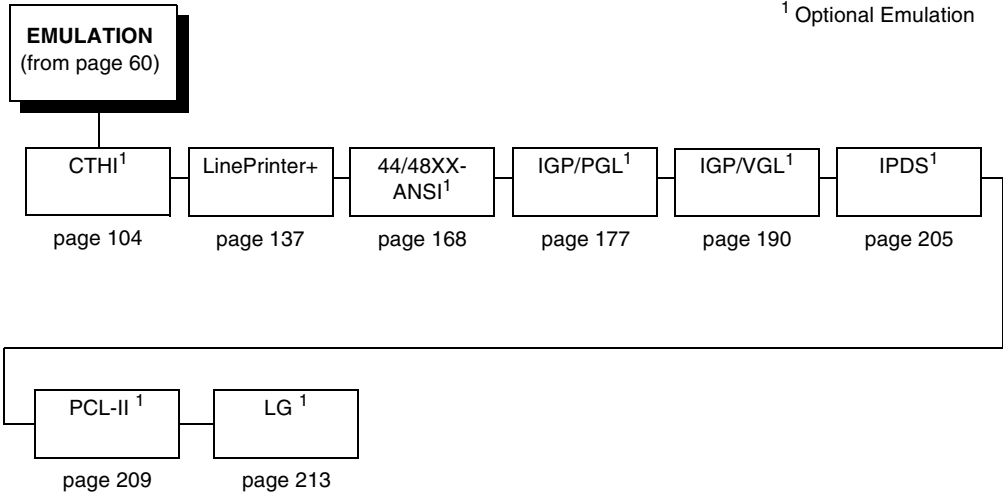
ACTIVE EMULATION ^{2, 3, 4}
(from page 60)

44/48XX-ANSI ¹
PCL-II ¹
LG ¹
IGP/PGL + LP+
IGP/VGL + LP+

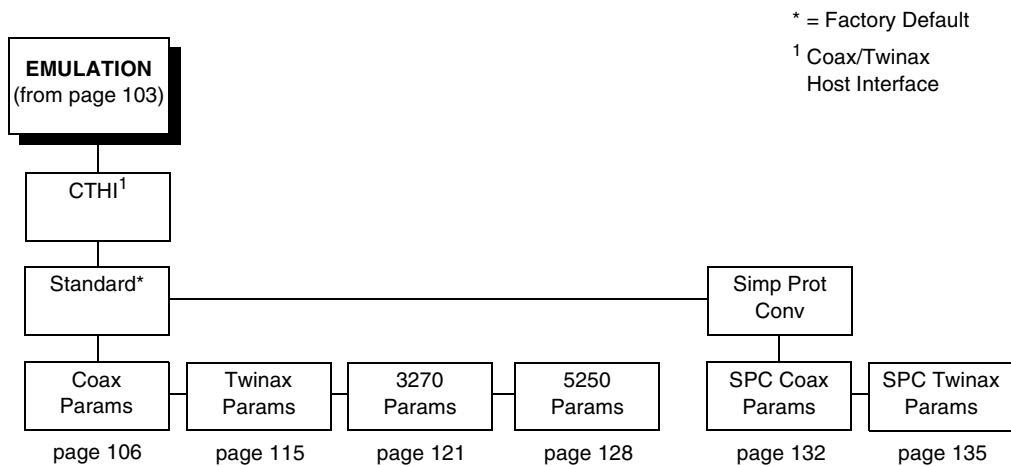
EMULATION

The EMULATION menu allows you to select the emulation to be used with your printer. The Proprinter XL, Epson FX, P-Series, P-Series XQ, and Serial Matrix emulations are all part of LinePrinter +. You can configure options for the active emulation via the EMULATION menu. Emulation options are further described in their corresponding Programmer's Reference Manual.

- * = Factory Default
- ¹ Optional Emulation



Coax/Twinax (CTHI) Emulation



Standard

With a standard coax interface, the printer emulates the following IBM coax printer models:

- 3287 Models 1 and 2
- 4234 Model 1

With a standard twinax interface, the printer emulates the following IBM twinax printer models:

- 4234 Models 2 and 12
- 5225 Models 1, 2, 3, and 4

NOTE: The standard Coax/Twinax emulation selection will only be available if Coax or Twinax is selected from the HOST INTERFACE menu. See page 72.

For more information, refer to the *Coax/Twinax Programmer's Reference Manual*.

The 3270 Params and 5250 Params selection is available only if the TN option is installed.

Simple Prot Conv

The Simple Protocol Converter (SPC) option allows those who use third party add-on Coax or Twinax protocol converters to produce the same output on a Line Matrix printer with the Coax/Twinax (CTHI) capability as done using a non-CT printer with the third party converter interfaces.

The SPC replaces the third party add-on protocol converters attached to older line matrix printers.

The SPC gives the printer the operational ability to connect to any PC, or network system supporting parallel or serial interfaces, and to three different IBM host systems: System 3x, AS/400[®], and 3270 Mainframes.

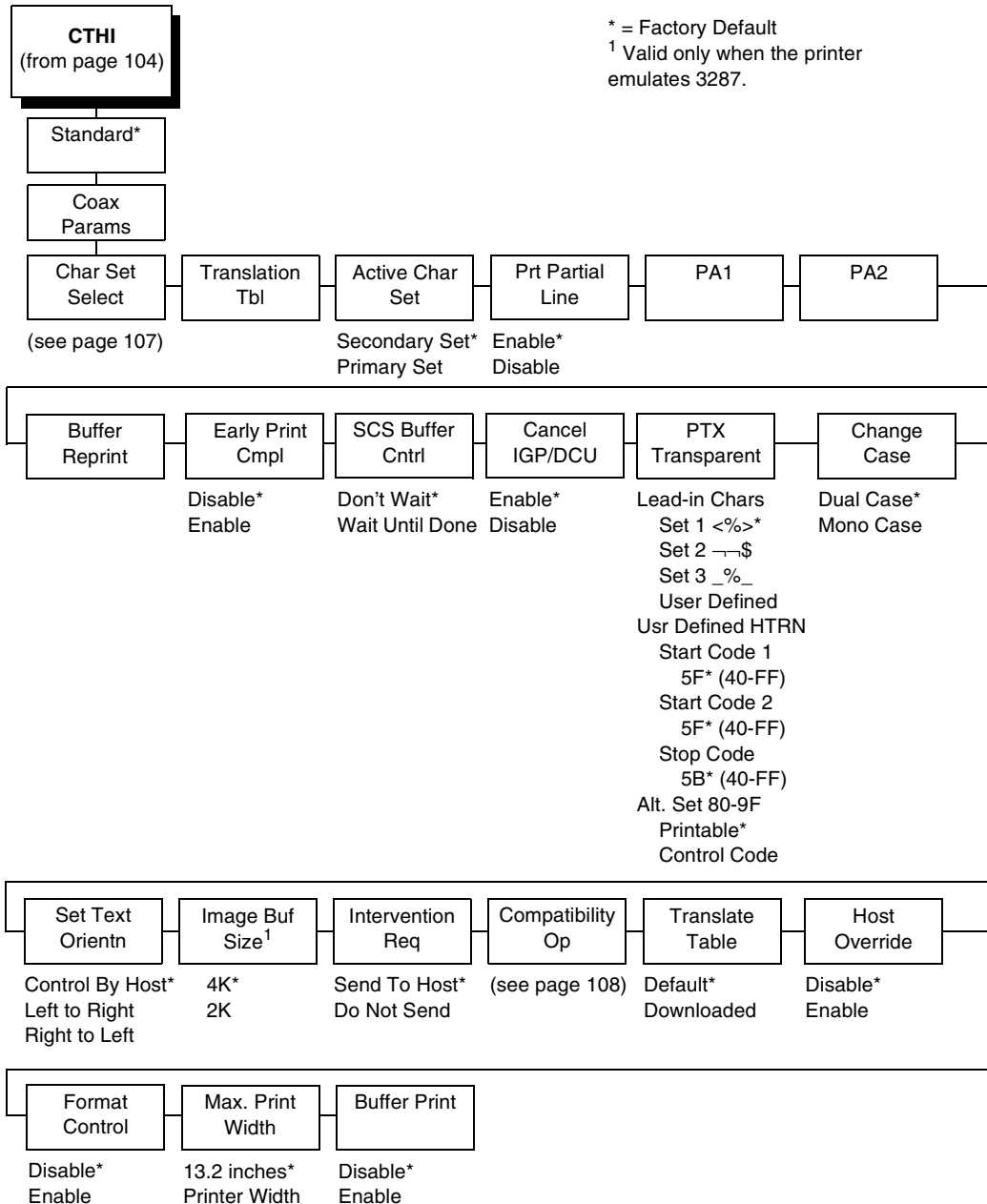
The SPC will support the following third party models for Twinax: MODE 219, MODE IBM, and MODE PROLINE.

The printer emulations supported by the SPC are Twinax 5225 and Coax 3287. The SPC also provides a range of interfaces available in your line matrix printer: Centronics, Dataproducts, Serial, Coax, and Twinax. Also supported are Epson, Proprinter, P-Series, Serial Matrix, IGP/VGL, and IGP/PGL emulations.

The SPC has the ability to handle multiple print jobs concurrently through Coax/Twinax and Parallel and Serial interfaces. This is accomplished through the Auto Switching feature (see page 73). Because of hardware restrictions, Coax and Twinax cannot be selected together.

For more information, consult the *Coax/Twinax Programmer's Reference Manual* for the Simple Protocol Converter Option.

Coax Emulation

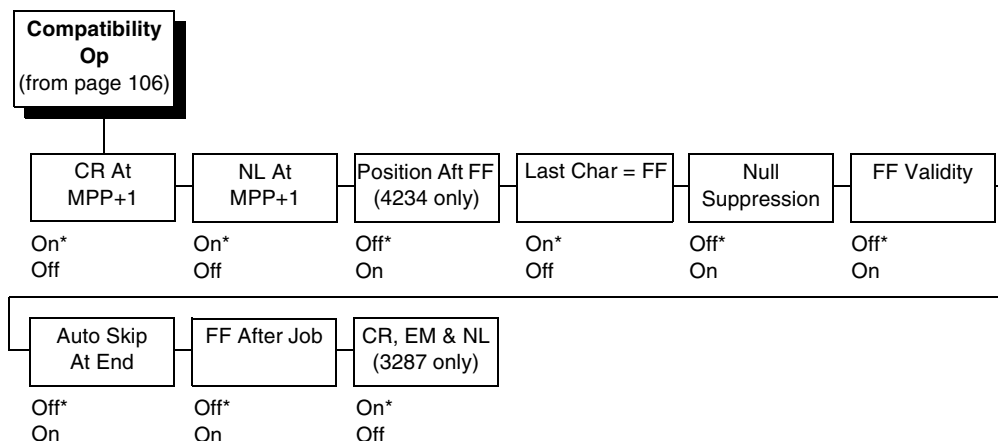


Char Set Select
 (from page 106)

* = Factory Default

| Primary Sets | Secondary Sets |
|------------------|-----------------|
| 0037 English US* | English US* |
| 0037 Eng Nether | English UK |
| 0285 English UK | Austrian/German |
| 0273 Austr/Germ | German (Alt) |
| 0274 Belg. Old | Belgian |
| 0275 Brazilian | Brazilian |
| 0260 Canad Fren | Canadian French |
| 0277 Danish | Danish/Norweg. |
| 0287 Danish Alt | Danish (Alt) |
| 0278 Finnish | Finnish/Swedish |
| 0288 Finn. Alt | Finnish (Alt) |
| 0297 French | French |
| 0500 Internat 5 | International |
| 0280 Italian | Italian |
| 0281 Japan. Eng | Japanese Eng. |
| 0282 Portuguese | Japanese Katak. |
| 0284 Span Speak | Portuguese |
| 0289 Span. Alt | Portug. (Alt) |
| 0500 Swiss Bil | Spanish |
| 0500 Belg. New | Spanish (Alt) |
| 0803 Hebrew Old | Spanish Speak. |
| 0424 Hebrew | Swiss Fren/Ger |
| 0892 OCR A | Old Hebrew |
| 0893 OCR B | Hebrew |
| 0420 Arabic | Farsi/Latin |
| 0880 Cyril. Old | Greek Old |
| 0423 Greek Old | Greek New |
| 0875 Gr New Euro | Arabic |
| 0871 Icelandic | Turkish |
| 0290 Japan Kata | Turkish Old |
| 0870 Latin 2 | Latin 2/ROECE |
| 0838 Thai | Yugoslavian |
| 1026 Turkish | |
| 0890 Yugos. Old | |
| 1097 Farsi | |
| 1025 Cyrillic | |
| 0905 Turk. Old | |
| 0256 Intern. 1 | |
| 0924 Euro Lat-9 | |
| 1140 Euro Eng. | |
| 1141 Euro Aust. | |
| 1142 Euro Dan. | |
| 1143 Euro Finn. | |
| 1144 Euro Ital. | |
| 1145 Euro Span. | |
| 1146 Euro UK | |
| 1147 Euro Fren. | |
| 1148 Euro Swiss | |
| 1149 Euro Ice. | |

* = Factory Default



Char Set Select

Specifies the print language used by the printer. Character sets are shown in detail in the *Character Sets Reference Manual*.

Translation Tbl

Prints out SCS and DSC/DSE tables of the Coax interface's current character set. This operation is valid only when the Coax interface is selected as the current interface (see "HOST INTERFACE" on page 72).

Active Char Set

Selects which group of character sets (Primary or Secondary) will be active. Secondary Set is the default.

Prt Partial Line

- **Enable** (default). Forces the printer to print if a partial line is in the printer (i.e., line not ending with a LF).
- **Disable**. The last partial line of data will not be printed.

PA1

PA1 is only valid when the printer is in the offline state and the coax Systems Network Architecture Character String (SCS) data stream is active. This function displays the "PA1 ENABLED" message when the ENTER key is pressed and sends a special operator request to the host when the printer is put back in Online mode. Refer to the *Coax/Twinax Programmer's Reference Manual* for more information about SCS.

NOTE: Selecting the PA1 menu item again ("PA1 DISABLED" appears on the operator panel) or selecting the PA2 menu item will reset the pending PA1 function.

PA2

PA2 is only valid when the printer is in the Offline state and the coax SCS data stream is active. This function displays the “PA2 ENABLED” message when the ENTER key is pressed and sends a special operator request to the host when the printer is put back in online mode.

NOTE: Selecting the PA2 menu item again (“PA2 DISABLED” appears on the operator panel) or selecting the PA1 menu item will reset the pending PA2 function.

Buffer Reprint

This option is valid only when the printer is printing in SCS mode. When the ENTER key is pressed, “Buffer Reprint Enabled” is displayed and an Intervention Required status is sent to the host. Pressing ENTER again cancels the Buffer Reprint function and displays “Buffer Reprint Disabled.”

Early Print Cmpl

Allows the printer to send print (order) complete status to the host before the printer is actually done printing all data. This option is valid only when the printer is in DSC/DSE mode.

- **Disable** (default). The printer will suppress the Early Print Complete response until all printing is complete.
- **Enable**. The printer will send an acknowledgment to the host when it is able to accept more data.

NOTE: When Early Print Complete is enabled and an error occurs, you may lose data.

SCS Buffer Cntrl

This option is used in Coax LU1/SCS mode only.

- **Don't Wait** (default). The printer does not wait for the job to be printed before sending the print completion to the host.
- **Wait Until Done**. The printer waits for the job to print before sending the print completion to the host.

This option speeds up the LU1 job printing for short jobs. If you select “Don't Wait,” there is a risk that you may not be able to recover the print job when the printer has fault.

Cancel IGP/DCU

- **Enable** (default). Cancels all buffers when a job is put on hold from the host or when the CANCEL key is pressed.
- **Disable**. Does not cancel any internal buffer in the printer when a job is put on hold from the host or when the CANCEL key is pressed.

PTX Transparent

Lead-in Chars

You can enable additional printer features which are not accessible through standard Coax emulations. To access these features, send text commands in the data stream. The commands must have a start and end code. Four sets are available:

- **Set 1.** start code: <%
stop code: >
- **Set 2.** start code: ┐┐
stop code: \$
- **Set 3.** start code: _%
stop code: _
- **User Defined.**

Usr Defined HTRN

This option is used in Twinax SPC emulation. The range is ASCII character. This option allows users to define their own lead-in characters for the Printronix Specific commands. Select a hex value for the following codes for the User Defined option:

- **Start Code 1 5F**
- **Start Code 2 5F**
- **Stop Code 5B**

Alt. Set 80-9F

- **Printable.** Prints data in the range of hex 80 through hex 9F.
- **Control Code.** Interprets data in the range of hex 80 through hex 9F as a control code.

Change Case

Specifies the font as Mono or Dual case. This option is available only in non-SCS mode. The host will be notified of the change when the printer is placed online. Mono Case prints the same as Dual Case if the character set is one of the following “right to left” sets: Katak., Hebrew, Old Hebrew, and Farsi. The default is Dual Case.

SCS (System Network Architecture Character String) mode is controlled by the host computer.

Set Text Orientn

Specifies the direction in which characters are printed on the page. This allows the printer to print languages which are printed right to left instead of left to right.

- **Control By Host** (default). Allows printers configured as a 4234 to use the "Set Text Orientation" command from the host.
- **Left to Right**.
- **Right to Left**. When a right to left language is selected, the host will be notified of print direction changes when the printer is placed online.

Image Buf Size

Allows you to select 2K or 4K as the image buffer size. This option is valid only when the printer emulates the 3287. For the 4234 emulation, the buffer size is fixed at 4K. A POR status is sent to the host when the printer is placed online.

Intervention Req

- **Send to Host** (default). The printer sends a signal to the host computer when a printer fault or hold mode time-out occurs.
- **Do Not Send**. No signal will be sent to the host computer.

Compatibility Op

The Compatibility Options allow you to select special printer functions in the non-SCS mode based on the capabilities of the printer emulated.

CR At MPP+1

MPP is Maximum Print Position, which is also known as line length. This option controls a carriage return at the end of a print line and at MPP+1.

- **On** (default). Produces a carriage return to the first print position of the next line.
- **Off**. Produces a carriage return to the first print position of the current line.

NL At MPP+1

Controls how many lines are skipped when the carriage returns to a new line.

- **On** (default). Moves to the first print position two lines down from the current position.
- **Off**. Moves to the first print position of the next print line.

Position Aft FF (4234 only)

Allows you to select the location of the print position after a form feed command is sent.

- **On** (default). Sets the printer to print at print position 1 of the first print line on the next form.
- **Off**. Sets the printer to print at print position 2 of the first print line on the next form.

Last Char = FF

Determines the print line position when a form feed command is the last code encountered in the print buffer.

- **On** (default). Moves to the first print position on the second line of the next form.
- **Off**. Moves to the first print position on the first line of the next form.

NOTE: This option is ignored if Auto Skip At End is on.

If configured as a 3287, and a form feed occurs in the middle of a print buffer, the printer defaults to the first print position on the second line of the next form regardless of the setting of this option.

Null Suppression

- **Off** (default). Ignores nulls. The print position does not move.
- **On**. Treats nulls as blank spaces.

FF Validity

Determines if the position of a form feed command affects its execution.

- **Off** (default). Performs a form feed only if it occurs at the first print position in a line or at Maximum Print Position +1. A form feed command at any other position is recognized as a space.
- **On**. Allows the printer to perform a form feed command anywhere in the data stream.

Auto Skip At End

Specifies whether or not to perform an automatic form feed at the end of a print buffer. If form feed is the last character in the print order, the form feed function is supplied by the Auto Skip At End option.

- **Off** (default). Sets the printer to print at print position 1 of the next line.
- **On**. Sets the printer to print at print position 1 of the first line of the next form.

FF After Job

Determines the print position after an operator-initiated local copy (print screen function).

- **Off** (default). Performs an automatic new line command after completing a print buffer (unless a new line, form feed, or carriage return command was the last one executed). The printer is set to print at print position 1 of the next line.
- **On**. Performs an automatic form feed command unless a form feed was the last one executed. The printer is set to print at print position 1 of the first line on the next form.

CR, EM, & NL (3287 only)

CR (Carriage Return), EM (Error Message), and NL (New Line) specify that the printer treat the CR, EM, and NL control codes either as spaces or as control codes.

- **On** (default). Treats the CR, EM, and NL commands as control codes.
- **Off**. Treats the CR, EM, and NL commands as spaces.

Translate Table

Defines which translate table to use for printing.

- **Default** (default). Translates data by using the default table of the current character set.
- **Downloaded**. Translates data from EBCDIC to internal code by using the downloaded translate table.

Host Override

Determines whether the printer accepts certain commands sent by the host or continues to use the current operator panel settings.

- **Disable** (default). Allows the following host commands to override operator panel settings: line length, forms length, lines per inch (LPI), characters per inch (CPI), print quality, and text orientation. Note the information appearing on the message display may not match the data stream setting. No values will change upon initial selection of the disable option.
- **Enable**. The operator panel settings override the host commands.

Format Control

Enables the printer to reflect the same spacing as CTPC model printers after absolute and relative move commands are executed.

- **Disable** (default). Reflects distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after horizontal and vertical tabs are executed).
- **Enable**. Does not reflect distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after horizontal and vertical tabs are executed).

Max. Print Width

Set the maximum print width at either 13.2 inches or the maximum width of the printer. The default is 13.2 inches.

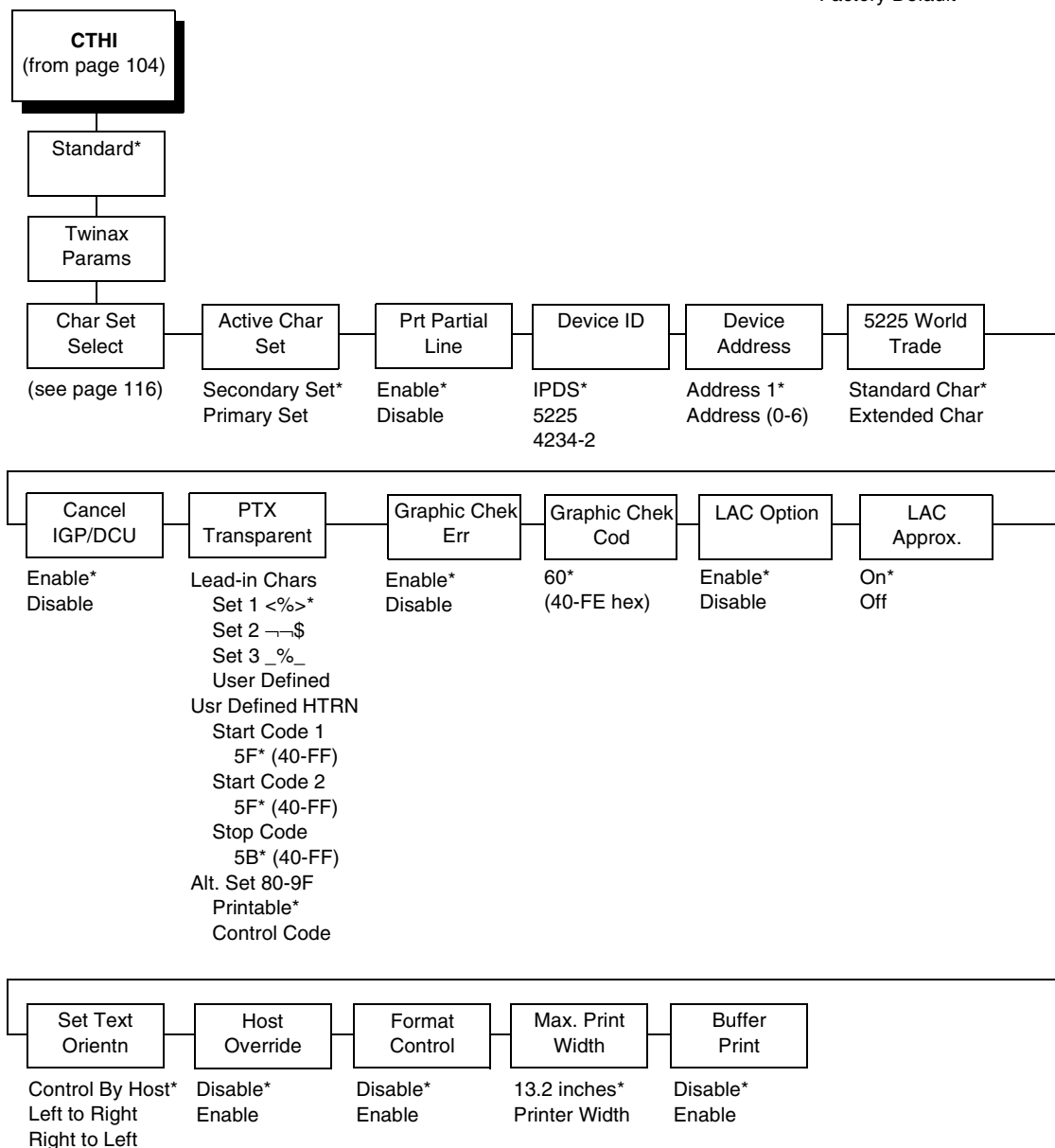
Buffer Print

- **Disable** (default). The printer will print normally.
- **Enable**. The printer prints the EBCDIC data and control codes received from the host as hex values. Refer to page 253 for information on how to obtain a hex code printout.

NOTE: Use of this parameter may alter print attributes set by the host computer. A power cycle may be required after changing Buffer Print from enable to disable.

Twinax Params

* = Factory Default





* = Factory Default

Char Set Select

Specifies the print language used by the printer. Character sets are shown in detail in the *Character Sets Reference Manual*.

Active Char Set

This option selects which group of character sets (Primary or Secondary) will be active. Secondary Set is the default.

Prt Partial Line

- **Enable** (default). Forces the printer to print a partial line (i.e., line not ending with a LF) before moving to the top of form on the next page.
- **Disable**. The last partial line of data will not be printed.

Device ID

This parameter defines the printer emulation as IPDS, 5225, or 4234-2. After the emulation has been changed, a POR status is sent to the host. IPDS is the default.

Device Address

Allows you to set the device address from 0 through 6. The host directs data and commands on the twinax line to a specific device based on its unique device address. After the address has been changed, a POR status is sent to the host.

5225 World Trade

The 5225 emulation has a standard multinational character set that serves as a base and 14 extended world trade character set assortments.

Cancel IGP/DCU

- **Enable** (default). Cancels all buffers when a job is put on hold from the host or the CANCEL key is pressed.
- **Disable**. Does not cancel any internal buffer in the printer when a job is put on hold from the host or the CANCEL key is pressed.

PTX Transparent

Lead-in Chars

You can enable additional features that are not available in standard Twinax emulations. To access these features, send text commands in the data stream. The commands must have a start and end code. Three sets (each containing a start and end code) are available:

- **Set 1.** start code: <%
stop code: >
- **Set 2.** start code: ┐┐
stop code: \$
- **Set 3.** start code: _%
stop code: _
- **User Defined**

Usr Defined HTRN

This option is used in Twinax SPC emulation. The range is ASCII character. This option allows users to define their own lead-in characters for the Printronix Specific commands. Select a hex value for the following codes for the User Defined option:

- **Start Code 1 5F**
- **Start Code 2 5F**
- **Stop Code 5B**

Alt. Set 80-9F

- **Printable** (default). Prints data in the range of hex 80 through hex 9F.
- **Control Code.** Interprets data in the range of hex 80 through hex 9F as a control code.

Graphic Chek Err

Allows overriding of the host setting for the SGEA (Set Graphic Error Action) command. For more information about the SGEA command, refer to the *Coax/Twinax Programmer's Reference Manual*.

- **Enable** (default). The host setting for the SGEA used by the printer. If the SGEA command is requested to stop on graphic errors, the printer will stop when a graphic error is detected.
- **Disable.** Ignores the SGEA command from the host. The printer does not stop when an error is detected; instead, it substitutes the character selected in the Graphic Chek Code parameter.

Graphic Chek Cod

Specifies the replacement character to print in place of any unprintable character that is received from the host. Choose a hex character from 40 through FE. The character becomes the printer default when:

- the printer is powered off and then powered on;
- an SGEA command specifies to use the operator panel default;
- the Graphic Chek Err parameter is disabled.

LAC Option

Allows the host system to load alternate character images into the printer. This may be used for designing graphics, barcodes, and charts, or for printing in foreign languages.

- **Enable** (default). Prints the LAC character as defined.
- **Disable**. Ignores the LAC definition from the host and prints from the currently selected character set.

LAC Approx.

A process that reorganizes columns of dots so that clean, readable printing is possible.

- **On** (default). Converts the emulated character cells to standard cells for the P7224 model.
- **Off**. Converts character cells byte by byte and not by LAC approximation.

Set Text Orientn

Specifies the direction in which characters are printed on the page. This allows the printer to print languages that are printed right to left instead of left to right. The options include:

- **Control By Host** (default)
- **Left to Right**
- **Right to Left**

Host Override

Determines whether the printer accepts certain commands sent by the host or continues to use the current operator panel settings.

- **Disable** (default). Allows the following host commands to override operator panel settings: line length, forms length, lines per inch (LPI), characters per inch (CPI), print quality, and text orientation. Note the information appearing on the message display may not match the data stream setting. No values will change upon initial selection of the disable option.
- **Enable**. The operator panel settings override the host commands.

NOTE: Host margin and tab settings will take precedence whether or not Host Override is enabled.

Format Control

Enables the printer to reflect the same spacing as CTPC model printers after absolute and relative move commands are executed.

- **Disable** (default). Reflects distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after absolute and relative move commands are executed).
- **Enable**. Does not reflect distance, generated by the IGP/VGL feature, IGP/PGL feature, and Hex Transparent control code sequence, in the new position (after absolute and relative move commands are executed).

Max. Print Width

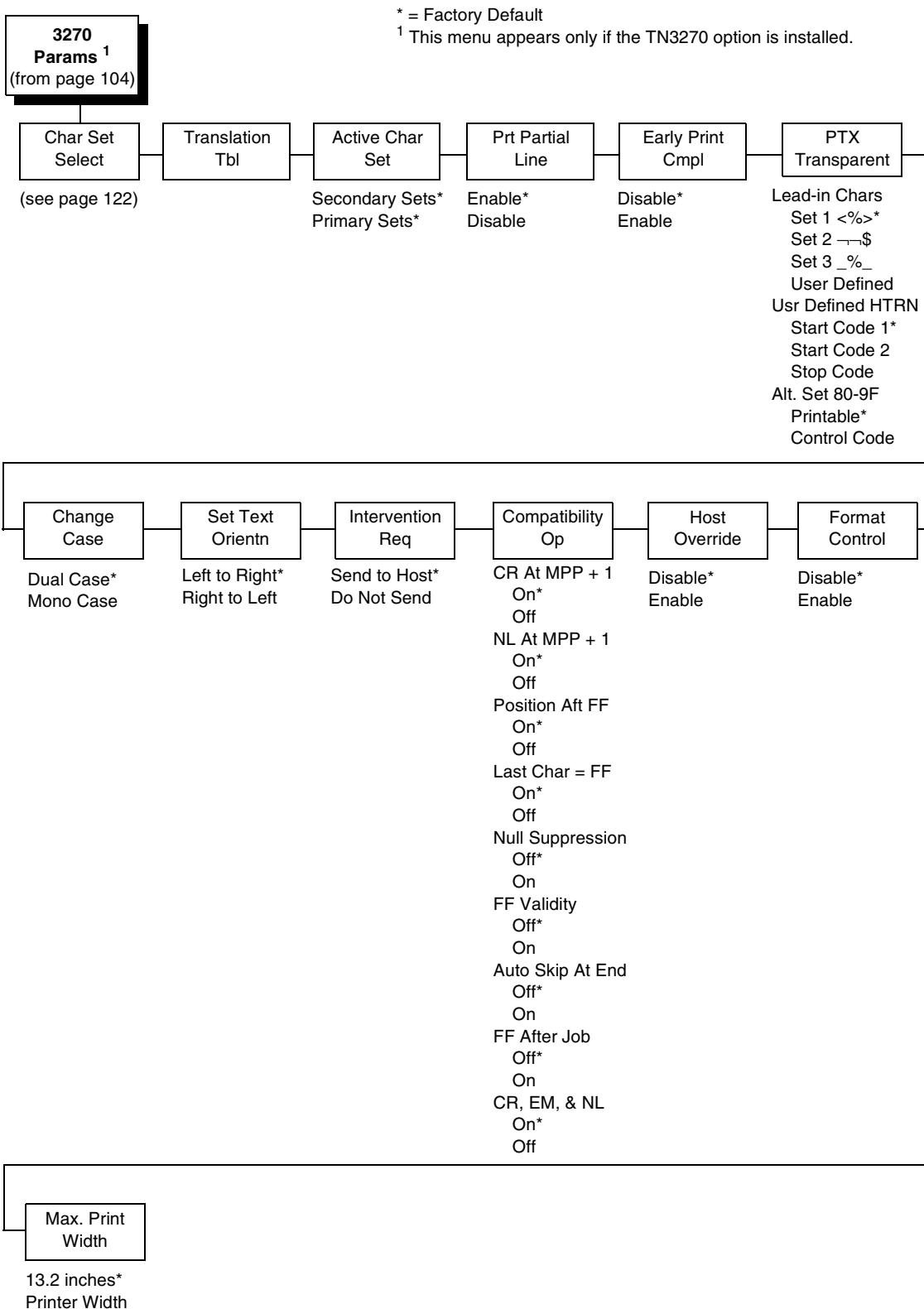
Set the maximum print width at either 13.2 inches or the maximum width of the printer. The default is 13.2 inches.

Buffer Print

- **Disable** (default). The printer will print normally.
- **Enable**. The printer prints the EBCDIC data and control codes received from the host as hex values. Refer to page 253 for information on how to obtain a hex code printout.

NOTE: Use of this parameter may alter print attributes set by the host computer. A power cycle may be required after changing Buffer Print from enable to disable.

3270 Params





* = Factory Default

Translation Tbl

Prints out a table of the Coax interface's current character set. This operation is valid only when the TN3270 interface is the current interface.

Active Char Set

Specifies which character language set will be the active set.

- **Secondary Sets** (default)
- **Primary Sets**

Prt Partial Line

- **Enable** (default). When this option is enabled, it forces the printer to print if a partial line is in the printer (i.e. line not ending with a LF).
- **Disable**. When disabled, the last partial line of data will not be printed.

Early Print Cmpl

Early Print Complete allows the printer to send Print Complete status to the host before the printer is actually done printing all data. Early Print Complete is only available if the IPDS feature is installed.

- **Disable** (default). Means the printer will suppress the Early Print Complete response until all printing is complete.
- **Enable**. Means the printer will send an acknowledgement to the host when it is able to accept more data.

NOTE: When an Early Print Complete is enabled and an error occurs, the data in the printer will remain in the buffer (regardless of the setting of the Cancel Buffer option). It is recommended that local procedures be followed to recover from the error.

Do not select Early Print Complete while a print job is in progress. If this is done you will need to restart the printer.

PTX Transparent

Lead-in Chars

You can enable additional printer features which are not accessible through standard TN3270 emulations. To access these features, send text commands in the data stream. The commands must have a start and end code. Four sets are available:

- **Set 1.** start code: <% (default)
stop code: >
- **Set 2.** start code: ␣␣
stop code: \$
- **Set 3.** start code: __%
stop code: __
- **User Defined.**

Usr Defined HTRN

This option is used to set user defined lead-in characters. The range is ASCII character. This option allows users to define their own lead-in characters for the Printronix Specific commands. Select a hex value for the following codes for the User Defined option:

- **Start Code 1 5F** (default)
- **Start Code 2 5F**
- **Stop Code 5B**

Alt. Set 80-9F

- **Printable** (default). Prints data in the range of hex 80 through hex 9F.
- **Control Code**. Interprets data in the range of hex 80 through hex 9F as a control code.

Change Case

Specifies the font as Mono or Dual case. This option is available only in non-SCS mode. The host will be notified of the change when the printer is placed online. Mono Case prints the same as Dual Case if the character set is one of the following “right to left” sets: Katak., Hebrew, Old Hebrew, and Farsi.

SCS (System Network Architecture Character String) mode is controlled by the host computer.

- **Dual Case** (default)
- **Mono Case**

Set Text Orientn

Specifies the direction in which characters are printed on the page. This allows the printer to print languages which are printed right to left instead of left to right.

- **Left to Right** (default).
- **Right to Left**. When a right to left language is selected, the host will be notified of print direction changes when the printer is put online.

Intervention Req

Select from the following:

- **Send To Host** (default). The printer sends a signal to the host computer when any of the following occur:
 - Printer faults occur.
 - Hold mode time-out occurs.
- **Not Send To Host**

If not selected, the printer will only send the signal on printer faults that cause data loss (paper jam, ribbon stall, online platen open, etc.).

Compatibility Op

The Compatibility Options allow you to select special printer functions in the non-SCS mode based on the capabilities of the printer emulated.

CR At MPP+1

MPP is Maximum Print Position, which is also known as line length. This option controls a carriage return at the end of a print line and at MPP+1.

- **On** (default). Produces a carriage return to the first print position of the next line.
- **Off**. Produces a carriage return to the first print position of the current line.

NL At MPP+1

Controls how many lines are skipped when the carriage returns to a new line.

- **On** (default). Moves to the first print position two lines down from the current position.
- **Off**. Moves to the first print position of the next print line.

Position Aft FF (4234 only)

Allows you to select the location of the print position after a form feed command is sent.

- **On** (default). Sets the printer to print at print position 1 of the first print line on the next form.
- **Off**. Sets the printer to print at print position 2 of the first print line on the next form.

Last Char = FF

Determines the print line position when a form feed command is the last code encountered in the print buffer.

- **On** (default). Moves to the first print position on the second line of the next form.
- **Off**. Moves to the first print position on the first line of the next form.

NOTE: This option is ignored if Auto Skip At End is on.

If configured as a 3287, and a form feed occurs in the middle of a print buffer, the printer defaults to the first print position on the second line of the next form regardless of the setting of this option.

Null Suppression

- **Off** (default). Ignores nulls. The print position does not move.
- **On**. Treats nulls as blank spaces.

FF Validity

Determines if the position of a form feed command affects its execution.

- **Off** (default). Performs a form feed only if it occurs at the first print position in a line or at Maximum Print Position +1. A form feed command at any other position is recognized as a space.
- **On**. Allows the printer to perform a form feed command anywhere in the data stream.

Auto Skip At End

Specifies whether or not to perform an automatic form feed at the end of a print buffer. If form feed is the last character in the print order, the form feed function is supplied by the Auto Skip At End option.

- **Off** (default). Sets the printer to print at print position 1 of the next line.
- **On**. Sets the printer to print at print position 1 of the first line of the next form.

FF After Job

Determines the print position after an operator-initiated local copy (print screen function).

- **Off** (default). Performs an automatic new line command after completing a print buffer (unless a new line, form feed, or carriage return command was the last one executed). The printer is set to print at print position 1 of the next line.
- **On**. Performs an automatic form feed command unless a form feed was the last one executed. The printer is set to print at print position 1 of the first line on the next form.

CR, EM, and NL (3287 only)

CR (Carriage Return), EM (Error Message), and NL (New Line) specify that the printer treat the CR, EM, and NL control codes either as spaces or as control codes.

- **On** (default). Treats the CR, EM, and NL commands as control codes.
- **Off**. Treats the CR, EM, and NL commands as spaces.

Host Override

Determines whether the printer accepts certain commands sent by the host, or continues to use the current operator panel settings.

- **Disable** (default). Allows these host commands to override operator panel settings: line length, forms length, lines per inch (LPI), characters per inch (CPI), print quality, and text orientation. Note the information appearing on the message display may not match the data stream setting. No values will change upon initial selection of the disable option.
- **Enable**. The operator panel settings override the host commands.

Format Control

Enables the printer to reflect the same spacing as CTPC model printers after absolute and relative move commands are executed.

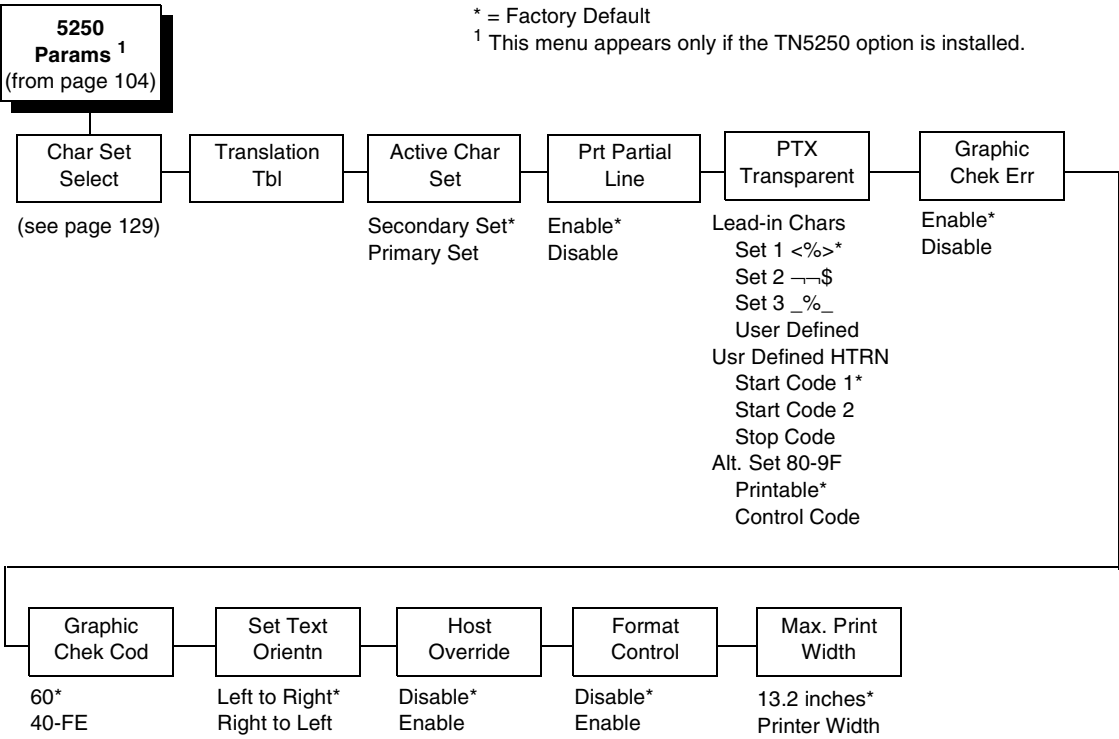
- **Disable** (default). Reflects distance, generated by the VGL feature, PGL feature, and Hex Transparent control code sequence, in the new position (after horizontal and vertical tabs are executed).
- **Enable**.

Max. Print Width

Set the maximum print width the printer will print when using a C/T host interface. Set for 13.2 inches when printing files larger than the width of the printer. All data exceeding the width of the maximum Printer Width will be truncated.

- **13.2 inches** (default)
- **Printer Width** (the maximum width of the printer)

5250 Params





* = Factory Default

Translation Tbl

Prints out a table of the TN5250 interface's current character set. This operation is valid only when the TN5250 interface is the current interface.

Active Char Set

Selects which group of character sets (Primary or Secondary) will be active.

- **Secondary Set** (default)
- **Primary Set**

Prt Partial Line

- **Enable** (default). When this option is enabled, it forces the printer to print if a partial line is in the printer (i.e. line not ending with a LF).
- **Disable**. When disabled, the last partial line of data will not be printed.

PTX Transparent

Lead-in Chars

You can enable additional printer features which are not accessible through standard TN5250 emulations. To access these features, send text commands in the data stream. The commands must have a start and end code. Four sets are available:

- **Set 1.** start code: <% (default)
stop code: >
- **Set 2.** start code: ┐┐
stop code: \$
- **Set 3.** start code: _%
stop code: _
- **User Defined.**

Usr Defined HTRN

This option is used to set user defined lead-in characters. The range is ASCII character. This option allows users to define their own lead-in characters for the Printronix Specific commands. Select a hex value for the following codes for the User Defined option:

- **Start Code 1 5F** (default)
- **Start Code 2 5F**
- **Stop Code 5B**

Alt. Set 80-9F

- **Printable** (default). Prints data in the range of hex 80 through hex 9F.
- **Control Code**. Interprets data in the range of hex 80 through hex 9F as a control code.

Graphic Chek Err

Allows overriding of the host setting for the SGEA (Set Graphic Error Action) command. For more information about the SGEA command, refer to the *Coax/Twinax Programmer's Reference Manual*.

- **Enable** (default). The host setting for the SGEA used by the printer. If the SGEA command is requested to stop on graphic errors, the printer will stop when a graphic error is detected.
- **Disable**. Ignores the SGEA command from the host. The printer does not stop when an error is detected; instead, it substitutes the character selected in the Graphic Chek Code parameter.

Graphic Chek Cod

Specifies the replacement character to print in place of any unprintable character that is received from the host. Choose a hex character from 40 through FE. The character becomes the printer default when:

- The printer is powered off and then powered on.
- An SGEA command specifies to use the operator panel default.
- The Graphic Chek Err parameter is disabled.

The value can be the following:

- **60** (default)
- **40 – F4**

Set Text Orientn

Specifies the direction in which characters are printed on the page. This allows the printer to print languages which are printed right to left instead of left to right.

- **Left to Right** (default)
- **Right to Left**. When a right to left language is selected, the host will be notified of print direction changes when the printer is put online.

Host Override

Determines whether the printer accepts certain commands sent by the host, or continues to use the current operator panel settings.

- **Disable** (default). Allows these host commands to override operator panel settings: line length, forms length, lines per inch (LPI), characters per inch (CPI), print quality, and text orientation. Note the information appearing on the message display may not match the data stream setting. No values will change upon initial selection of the disable option.
- **Enable**. The operator panel settings override the host commands.

Format Control

Enables the printer to reflect the same spacing as CTPC model printers after absolute and relative move commands are executed.

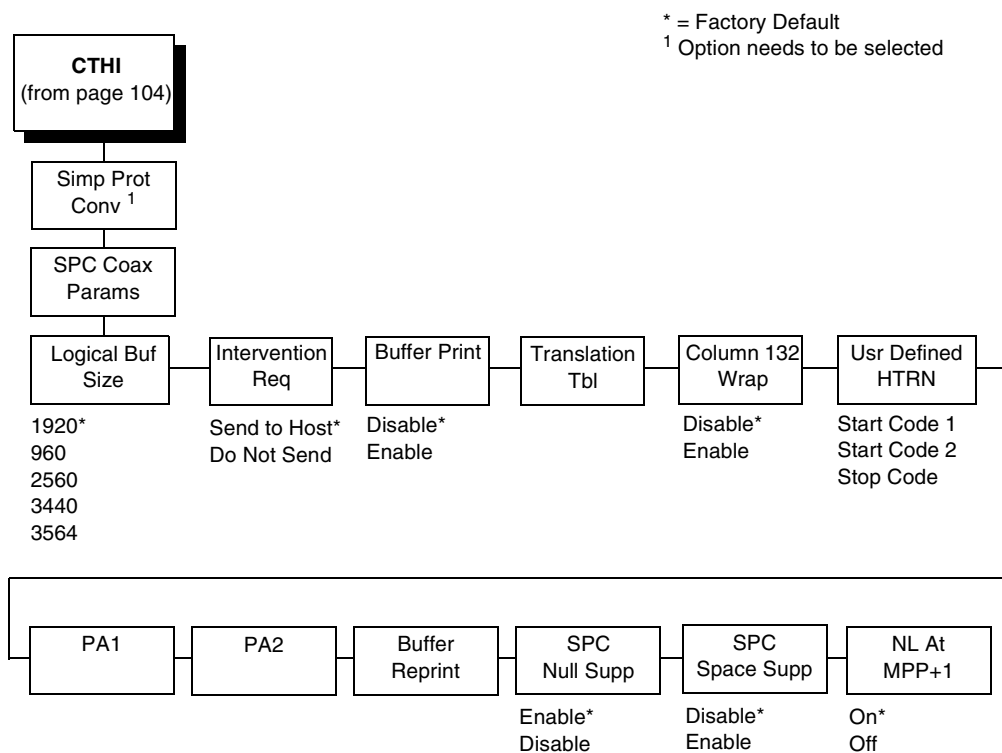
- **Disable** (default). Reflects distance, generated by the VGL feature, PGL feature, and Hex Transparent control code sequence, in the new position (after horizontal and vertical tabs are executed).
- **Enable**.

Max. Print Width

Set the maximum print width the printer will print when using a C/T host interface. Set for 13.2 inches when printing files larger than the width of the printer. All data exceeding the width of the maximum Printer Width will be truncated.

- **13.2 Inches** (default)
- **Printer Width** (the maximum width of the printer)

SPC Coax Params



Logical Buf Size

Refers to the size of the printer buffer, which should be set the same as the host screen (buffer) size. If the host screen size is unknown, use 1920. Do not change this parameter in the middle of a print job.

Intervention Req

- **Send to Host** (default). The printer sends a signal to the host computer when the CANCEL key is pressed or a printer fault or hold mode time-out occurs.
- **Do Not Send**. No signal will be sent to the host computer.

Buffer Print

- **Disable** (default). The printer will print normally.
- **Enable**. The printer prints the EBCDIC data and control codes received from the host as hex values. Refer to page 253 for information on how to obtain a hex code printout.

Translation Tbl

Prints a table of the Coax interface's current character set. This operation is valid only when the Coax interface is selected (see "HOST INTERFACE" on page 72).

Column 132 Wrap

When enabled, this option causes the printer to line wrap at 132 characters despite the current print density, allowing more characters per line. The options include:

- **Disable** (default)
- **Enable**

Usr Defined HTRN

This option is used in Twinax SPC emulation. The range is ASCII character. This option allows users to define their own lead-in characters for the Printronix Specific commands. Select a hex value for the following codes for the User Defined option:

- **Start Code 1 5F**
- **Start Code 2 5F**
- **Stop Code 5B**

PA1

PA1 is only valid when the printer is in the offline state and the Coax Systems Network Architecture Character String (SCS) data stream is active. This function displays the "PA1 ENABLED" message when the ENTER key is pressed and sends a special operator request to the host when the printer is placed online. Refer to the *Coax/Twinax Programmer's Reference Manual* for more information about SCS.

PA2

PA2 is only valid when the printer is in the OFFLINE state and the Coax SCS data stream is active. This function displays the “PA2 ENABLED” message when the ENTER key is pressed and sends a special operator request to the host when the printer is placed ONLINE.

Buffer Reprint

This option is valid only when the printer is printing in SCS mode. When the ENTER key is pressed, “Buffer Reprint Enabled” is displayed and an Intervention Required status is sent to the host. Pressing ENTER again cancels the Buffer Reprint function and “Buffer Reprint Disabled” is displayed.

SPC Null Supp

- **Enable** (default). Treats nulls as blank spaces.
- **Disable**. Ignores nulls. The print position does not move.

SPC Space Supp

This option is only available in Coax SPC emulation and is used in LU3/DSC/DSE mode only.

- **Disable** (default). Treats nulls and spaces normally.
- **Enable**. If the entire line consists of spaces and nulls, the line will be discarded.

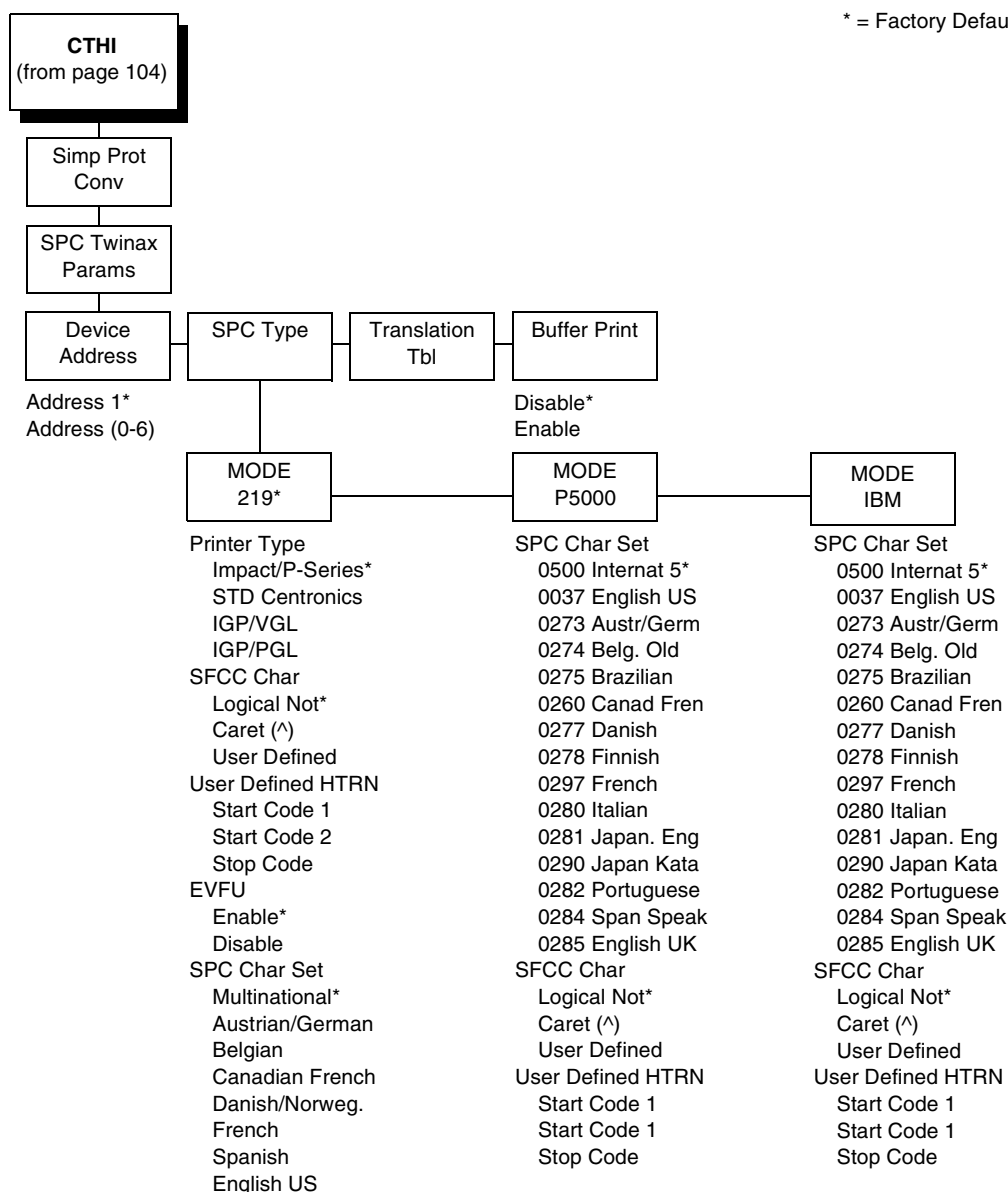
NL At MPP+1

Controls how many lines are skipped when the carriage returns to a new line.

- **On** (default). Moves to the first print position two lines down from the current position.
- **Off**. Moves to the first print position of the next print line.

SPC Twx Params

* = Factory Default



NOTE: To access the SPC Twinax Params menu, be sure to select the Twinax option in the Host Interface menu.

Device Address

Allows you to set the device address from 0 through 6. The host directs data and commands on the twinax line to a specific device based on its unique device address. After the address has been changed, a POR status is sent to the host.

SPC Type

Allows you to select a specific type of Simple Protocol Convertor (SPC) Twinax emulation: MODE 219 for Model 219 protocol convertor, MODE P5000 for Printronix protocol convertor, and MODE IBM for the IBM protocol convertor.

Printer Type

Determines the SPC Twinax emulation "Mode." When set to Std Centronics, IGP/VGL, or IGP/PGL, the Set Line Density and Set Print Density commands are translated into a Carriage Return (CR), and vertical format commands are ignored unless the EVFU is enabled.

SFCC Char

Determines what character is printed when an EBCDIC Logical Not character ¬ (Hex 5F) is received from the host.

User Defined HTRN

This option is used in Twinax SPC emulation. The range is ASCII character. This option allows users to define their own lead-in characters for the Printronix Specific commands. Select a hex value for the following codes for the User Defined option:

- **Start Code 1**
- **Start Code 2**
- **Stop Code**

EVFU

- **Enable.** The EVFU parameter allows vertical format control by the host in all four printer type modes.
- **Disable.** Vertical format control is only allowed in IMPACT/P-SERIES mode.

SPC Char Set

Allows you to select the print language character set.

Translation Tbl

Prints out a table of the Twinax interface's current character set. This operation is valid only when the Twinax interface is selected.

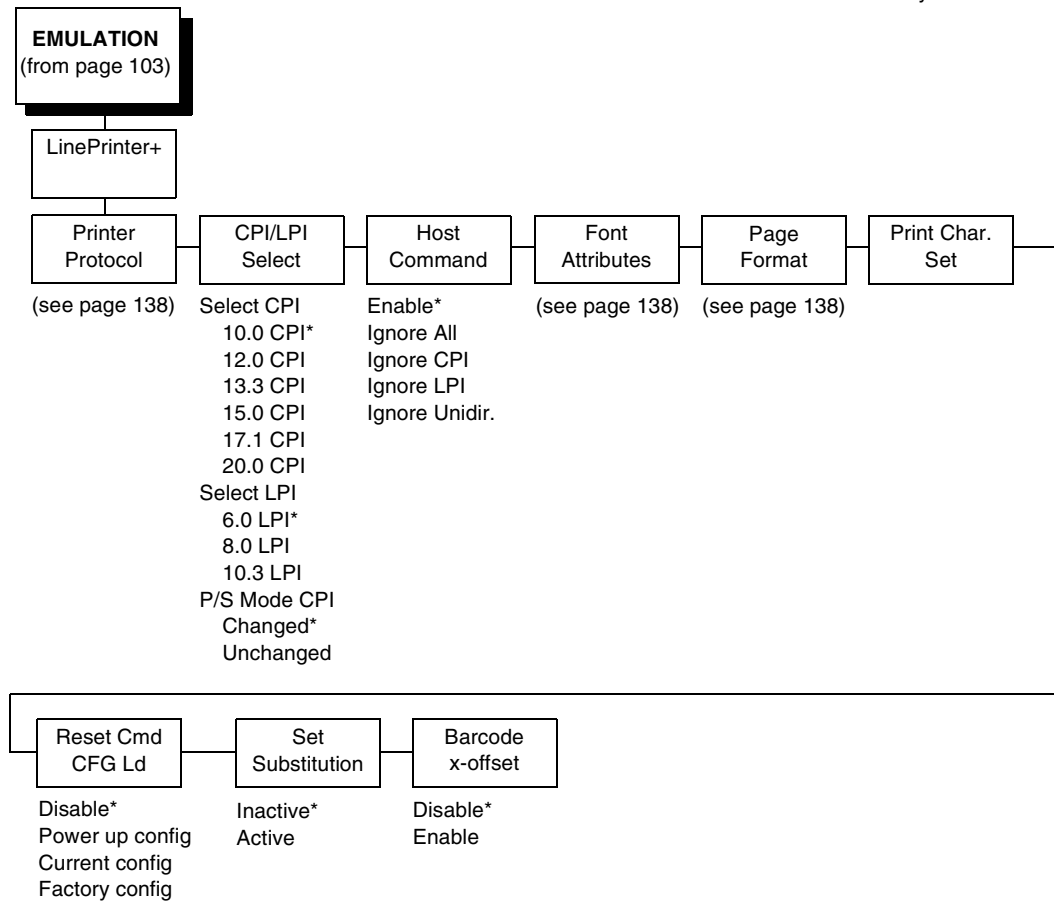
Buffer Print

- **Disable** (default). The printer will print normally.
- **Enable.** The printer prints the EBCDIC data and control codes received from the host as hex values. Refer to page 253 for information on how to obtain a hex code printout.

LinePrinter Plus Emulation

NOTE: When the printer is set to SPC Twx Params or SPC Coax Params, no LP+ menu items will take effect on the same offline. The LP+ Emulation resets when the printer is taken offline.

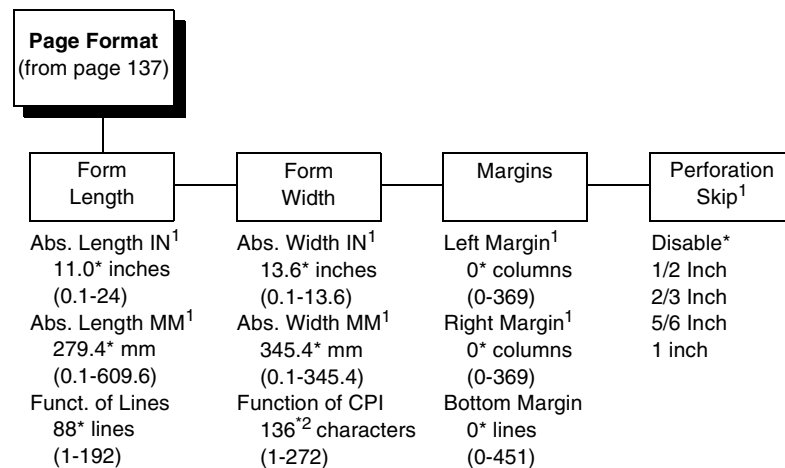
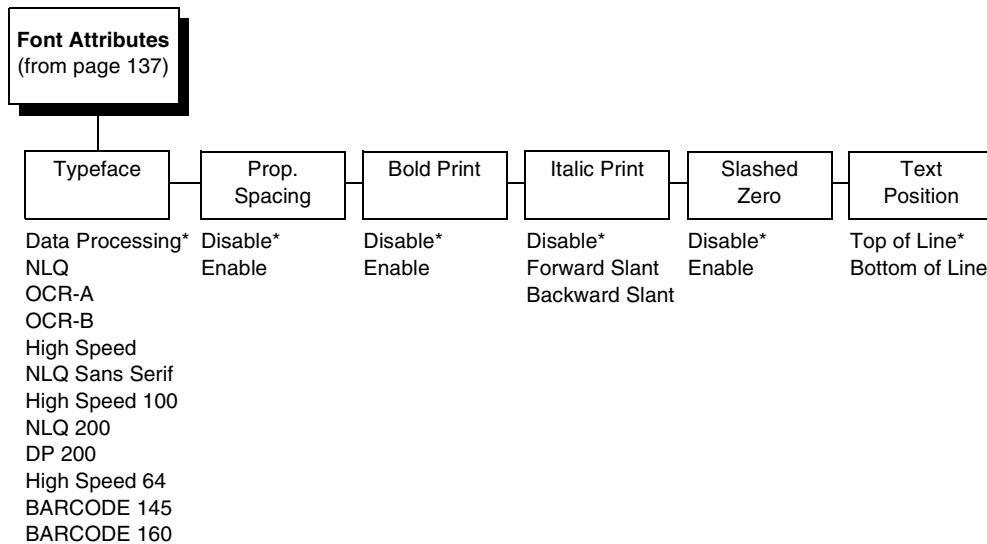
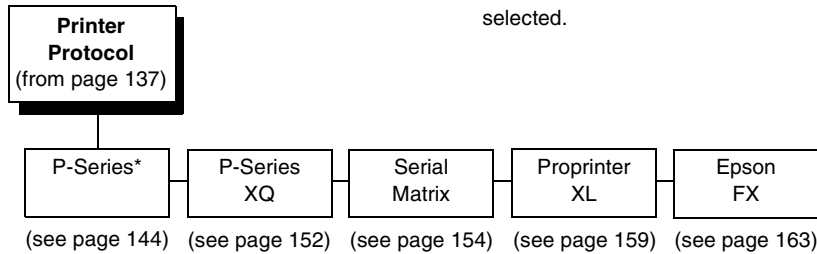
* = Factory Default



* = Factory Default

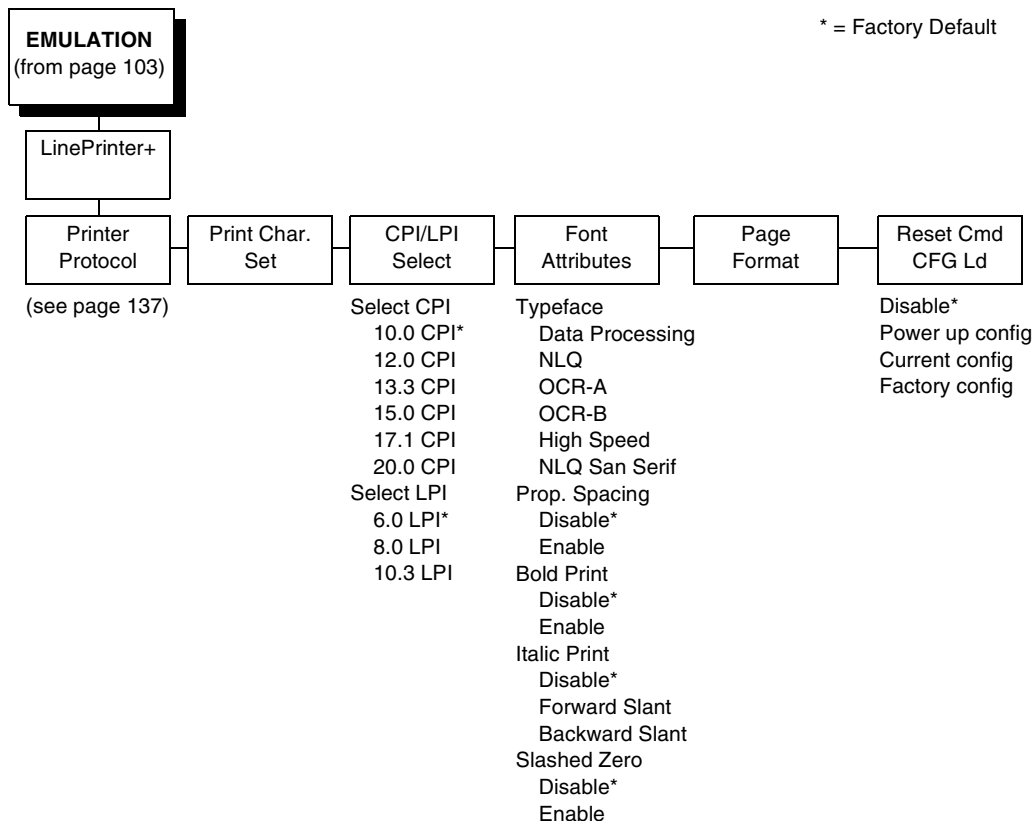
¹These menus do not appear if the Coax or Twinax host interface is selected. See page 72.

² This value is 132 if the Coax or Twinax host interface is selected.



LinePrinter Plus Emulation (With PCL-II)

NOTE: When the printer is set to SPC Twx Params or SPC Coax Params, no LP+ menu items will take effect on the same offline. The LP+ Emulation resets when the printer is taken offline.



Printer Protocol

Select the LinePrinter+ protocol you wish to use. Refer to the *LinePrinter Plus Programmer's Reference Manual* for more information.

CPI/LPI Select

This parameter lets you specify the characters per inch (cpi) and lines per inch (lpi) values.

Host Command

This parameter allows you to block certain host commands from being acknowledged by the printer.

- **Enable** (default). All host commands are acknowledged by the printer.
- **Ignore All**. All host commands are ignored by the printer.
- **Ignore CPI**. All CPI commands sent by the host are ignored by the printer.
- **Ignore LPI**. All LPI commands sent by the host are ignored by the printer.
- **Ignore Unidir**. All Unidirectional commands sent by the host are ignored by the printer.

Font Attributes

Typeface

- **Data Processing** (default). A general purpose font printing out at 120 dpi horizontally and 72 dpi vertically. The width of the font will vary with each cpi.
- **NLQ**. A high quality font printing at 180 dpi horizontally and 96 dpi vertically. This font has serifs and the width of the font varies with the cpi.
- **OCR-A / OCR-B**. Optical character recognition fonts printing at 120 dpi horizontally and 144 dpi vertically. Both fonts print only at 10 cpi.
- **High Speed**. A draft quality font printing at 120 dpi horizontally and 48 dpi vertically. The width of the font varies with the cpi.
- **NLQ Sans Serif**. A high quality font printing at 180 dpi horizontally and 96 dpi vertically. This font prints without serifs. The width of the font varies with the cpi.
- **High Speed 100**. A draft quality font printing at 100 dpi horizontally and 48 dpi vertically. When chosen from the front panel, it defaults to 10 cpi. The cpi can then be varied, but the width will not change.
- **NLQ 200**. This NLQ font prints at 200 dpi horizontally and 96 vertically. When chosen from the front panel, it defaults to 12 cpi. The cpi can then be varied, but the width will not change.
- **DP 200**. This Data Processing font prints at 200 dpi horizontally and 72 vertically. When chosen from the front panel, it defaults to 12 cpi. The cpi can then be varied, but the width will not change.
- **High Speed 64**. This font prints at 120 dpi horizontally and 64 vertically. When chosen from the front panel, it defaults to 10 cpi. The cpi can then be varied, but the width will not change.
- **BARCODE 145**. This Data Processing font prints at 145 dpi horizontally and 72 vertically. When chosen from the front panel, it defaults to 12 cpi. The cpi can then be varied, but the width will not change.
- **BARCODE 160**. This Data Processing font prints at 160 dpi horizontally and 72 vertically. When chosen from the front panel, it defaults to 13 cpi. The cpi can then be varied, but the width will not change.

Prop. Spacing (Proportional Spacing)

Each printed character is contained inside a character cell. The width of the character cell includes the character and the space around the character.

- **Disable** (default). Each character cell is printed with the same width. Each column in the printed text will line up.

```
This example is printed with  
proportional spacing disabled.
```

- **Enable**. The width of each character cell varies with the width of the character. For example, [i] takes less space to print than [m]. Using proportional fonts generally increases the readability of printed documents, which gives text a typeset appearance.

```
This example is printed with  
proportional spacing enabled.
```

Bold Print

- **Disable** (default). Text is printed normally.
- **Enable**. Text is printed with a heavy line thickness.

Italic Print

- **Disable** (default). Text is printed normally.
- **Forward Slant**. Text is printed with a forward slant.
- **Backward Slant**. Text is printed with a backward slant.

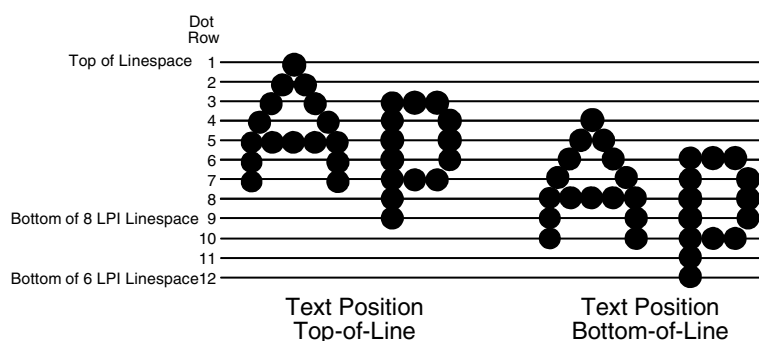
Slashed Zero

This parameter allows you to print the numeral “0” with or without the slash. This option applies to all character sets except OCR-A and OCR-B.

- **Disable** (default). Zero is printed without a slash.
- **Enable**. Zero is printed with a slash.

Text Position

Specifies where the text will be positioned in the line space. When set to Top-of-Line, text will be positioned at the top of the line space. When set to Bottom-of-Line, the text will be positioned as if it were at the bottom of a 6 lpi line space. The following example shows both Top-of-Line and Bottom-of-Line text positions:



Page Format

Form Length

Forms length is the number of lines that can be printed on a page. You can set the form length in inches, millimeters (mm), or as a function of the current lpi (lines per inch).

Form Width

The form width can be specified in inches, millimeters, or as a function of the current cpi (characters per inch). The forms width set should not exceed the actual paper width.

Margins

- **Left Margin.** Set in columns. Column zero is defined as the far left edge of the page, and column numbering increments from left to right.
- **Right Margin.** Set in columns. Column zero is defined as the far right edge of the page, and column numbering increments from right to left.
- **Bottom Margin.** Defined in lines, starting from line zero at the bottom of the page and incrementing from the bottom up.

Perforation Skip

- **Disable** (default). Allows printing on page perforation.
- **1/2 inch, 2/3 inch, 5/6 inch, 1 inch.** You may set up a skip-over margin of 1/2 inch, 2/3 inch, 5/6 inch, or 1 inch. For example, a skip-over margin of 1 inch allows a 1 inch margin at the bottom of the page.

Print Char. Set

When this selection is displayed and the ENTER key is pressed, the current character set is printed.

Reset Cmd CFG Ld

When the printer receives a host data stream reset command (ESC @ or ESC[K) in addition to resetting printer variables, the selected configuration is loaded.

- **Disable** (default). The active emulation parameters are loaded when the reset command is executed.
- **Power-Up Config**. The power-up configuration is loaded when the reset command is executed.
- **Current Config**. The currently selected configuration is loaded when the reset command is executed.
- **Factory Config**. The factory installed configuration is loaded when the reset command is executed.

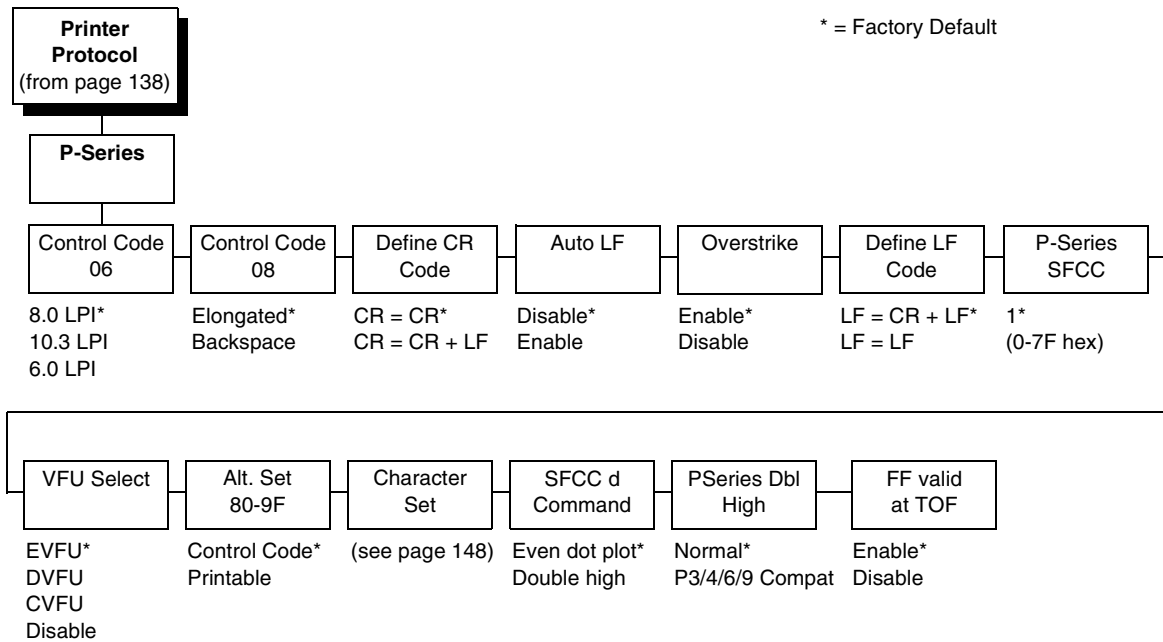
Set Substitution

When this option is activated, the character set overlay in RAM is activated. This can also be accomplished through a host command of **SFCC RX**. In either case, a flag is set indicating that the substitution table is active. If the power-up configuration has Ld Set at Pwrup and Set Substitution both enabled, the character set overlay is automatically activated at power-up or during a soft reset. See the *LinePrinter Plus Programmer's Reference Manual* for more information.

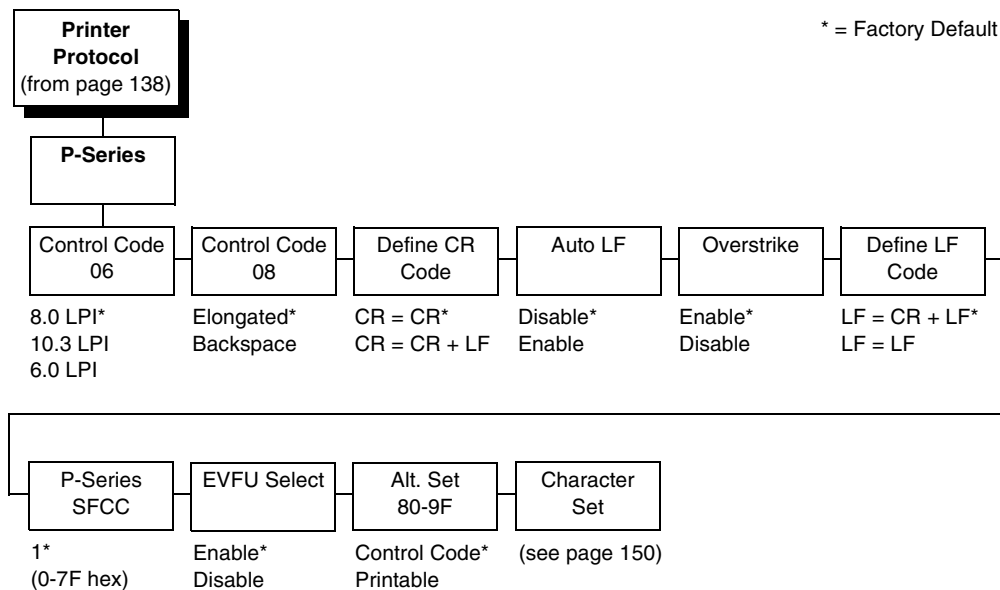
Barcode x-Offset

- **Disable** (default)
- **Enable**. Allows text to print next to a barcode when xxxx and yyyy are not set to the origin.

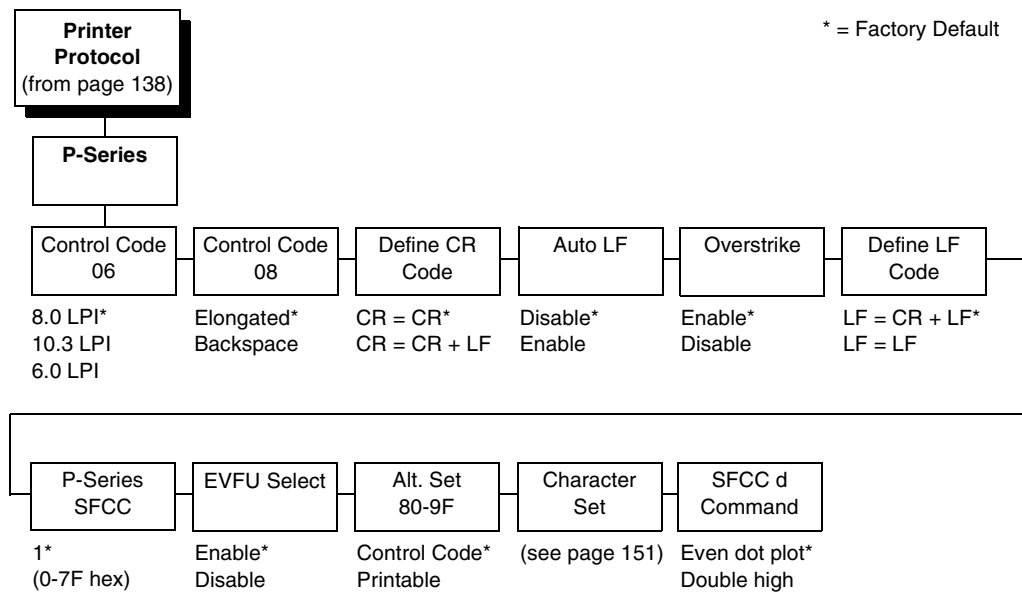
P-Series Emulation



P-Series Emulation (with PCL-II)



P-Series Emulation (With LG)



Control Code 06

Control Code 06 defines the function of ASCII code hex 06 (ACK). You can select an alternate line spacing of 6, 8, or 10.3 LPI.

Control Code 08

Control Code 08 defines the function of ASCII code hex 08 (BS). You can define the code to output the following character:

- **Elongated** (default).
- **Backspace**.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a carriage return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends Line feeds to the printer.

- **CR = CR** (default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return. The next print position will be print position 1 of the next line.

Auto LF

This option defines the printer action when print data is received past the forms width setting.

- **Disable** (default). Discards any data past the forms width.
- **Enable**. Performs an automatic carriage return and line feed when data is received past the forms width, causing the excess text to print on the next line.

Overstrike

This option enables you to print bold characters.

- **Enable** (disable). Turns on bold print. When enabled, overstrike printing slows down the printer.
- **Disable**. Turns off bold print.

Define LF Code

- **LF = CR + LF** (default). Forces an automatic carriage return with each line feed command. The next print position is print position 1 of the next line.
- **LF = LF**. Does not perform an automatic carriage return. The next print position will be the current print position of the next line.

P-Series SFCC

This parameter allows you to select which ASCII codes will function as the Special Function Control Code (SFCC) command delimiter.

P-Series codes can use hex 00 through hex 7F. Options include the following:

- ESC (hex 1B)
- SOH (hex 01)
- ETX (hex 03)
- CIRCUMFLEX (hex 5E)—also called caret (^)
- TILDE (hex 7E)—(~)

NOTE: SOH, ETX, and ESC are non-printables. The characters (^) and (~) are printable; however, do not use them as printables in the host data stream if either is chosen as a delimiter because print errors will occur.

VFU Select

Controls how the printer handles vertical formatting.

- **EVFU** (default). Enables the VFU and selects P-Series compatible Electronic Vertical Format Unit (EVFU).
- **DVFU**. Enables the VFU and selects the Dataproducts compatible Direct Access Vertical Format Unit (DVFU).
- **CVFU**. Enables the VFU and selects the Centronics compatible Direct Access Vertical Format Unit (CVFU).
- **Disable**. Disables all VFU processing.

Alt. Set 80-9F

Determines whether the printer processes ASCII codes hex 80 through hex 9F as control codes or as printable characters. The options include:

- **Control Code** (default)
- **Printable**.

Character Set

Specifies a character set as shown in the “P-Series Character Set Menu” on page 148. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as Roman 8) and press ENTER. Both the group and the desired set will be starred to indicate your selection. The UTF-8 selection allows printing of UTF-8 encoded Unicode TM. Character sets are shown in detail in the *Character Sets Reference Manual*.

SFCC d Command

- **Even dot plot** (default). This option interprets SFCC d Command as even dot plot.
- **Double High**. This option interprets SFCC d Command as double high. Select this option for backward compatibility.

PSeries Dbl High

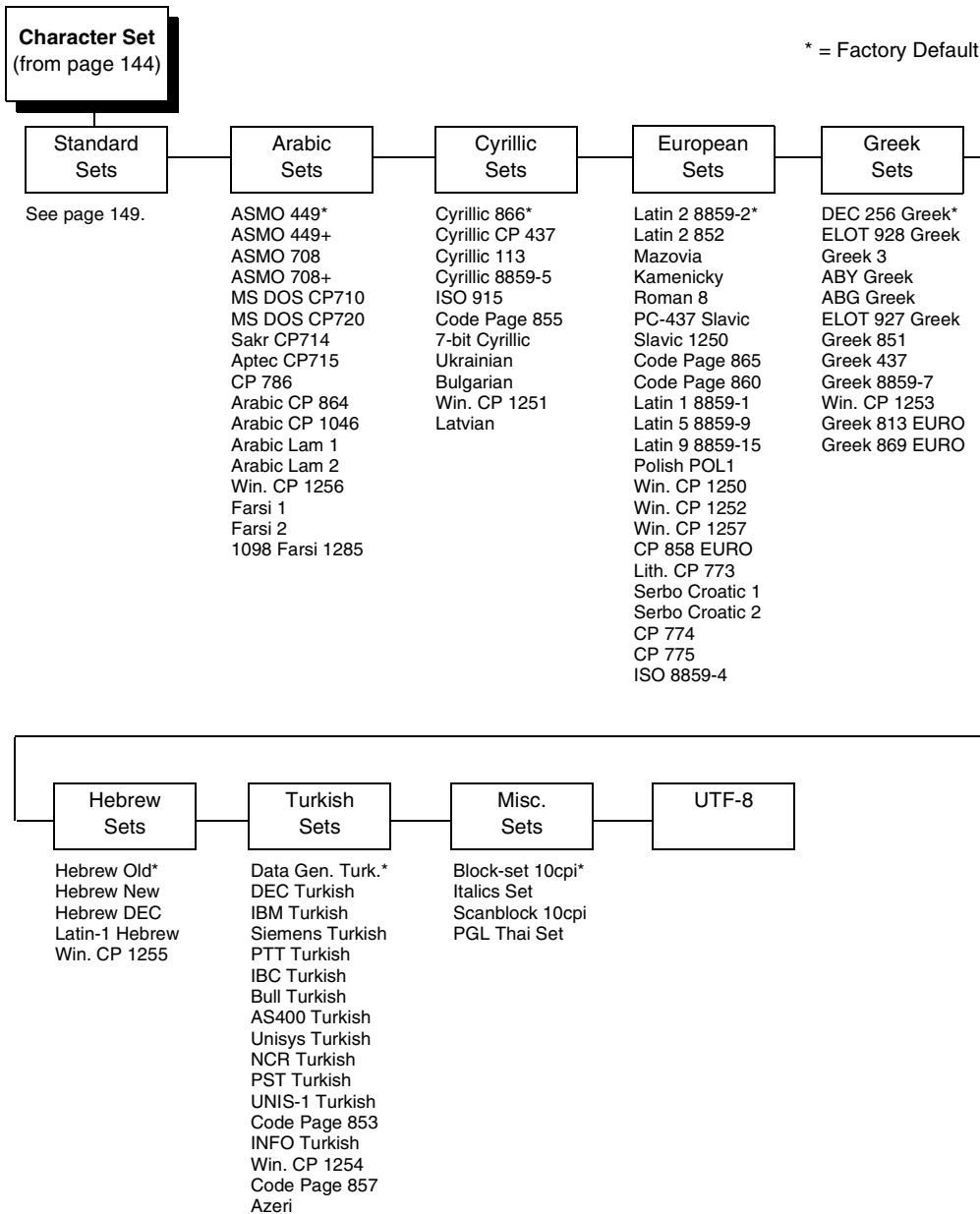
Allows printing compatibility between current and older model printers.

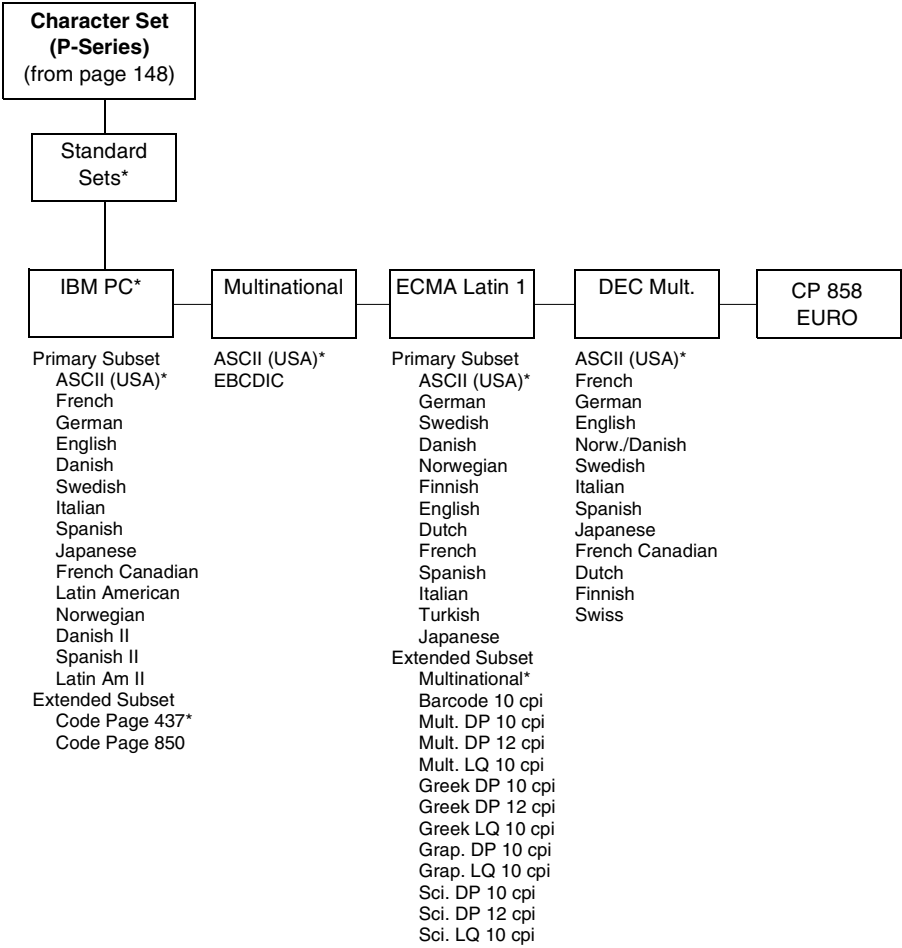
- **Normal** (default). This is normal, double-high printing for current model printers.
- **P3/4/6/9 Compat**. Where older printers print two dot rows higher, this option allows for compatibility by raising the print two dot rows to match the current models dot row value (two dot rows lower).

FF Valid at TOF

- **Enable** (default). Performs a form feed when the host sends a Form Feed command and the printer is at the top of form.
- **Disable**. Will not perform a form feed when the host sends a Form Feed command and the printer is at the top of form.

P-Series Character Set Menu





P-Series Character Set Menu (with PCL-II)

* = Factory Default

Character Set (from page 144)

IBM PC*
 Primary Subset
 ASCII (USA)*
 French
 German
 English
 Danish
 Swedish
 Italian
 Spanish
 Japanese
 French Canadian
 Latin American
 Danish II
 Spanish II
 Latin Am II
 Extended Subset
 Code Page 437*
 Code Page 850
 Extended Subset
 Multinational
 ASCII (USA)*
 EBCDIC
 ECMA Latin 1
 DEC Mult.
 OCR-A
 OCR-B
 Latin 2 8859-2
 Latin 2 852
 Bulgarian
 Latin 9 8859-15
 Polish POL1
 DEC 256 Greek
 ELOT 928 Greek
 Greek 3
 ABY Greek
 ABG Greek
 ELOT 927 Greek
 Greek 437
 Greek 8859-7
 PC851 LtGk [12G]
 Greek-7 [12N]
 Greek-8 [8G]
 Hebrew Old
 Hebrew New
 Hebrew DEC

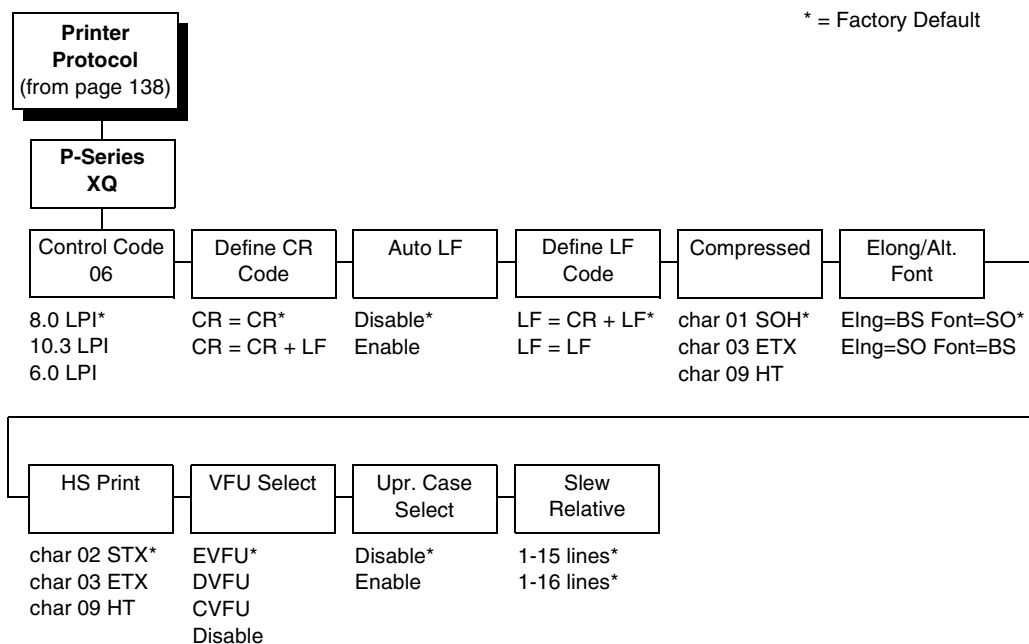
P-Series Character Set Menu (with LG)

Character Set
(from page 144)

* = Factory Default

| | |
|-----------------|-----------------|
| IBM PC* | DEC Mult. |
| Primary Subset | ASCII (USA)* |
| ASCII (USA)* | French |
| French | German |
| German | English |
| English | Norw./Danish |
| Danish | Swedish |
| Swedish | Italian |
| Italian | Spanish |
| Spanish | Japanese |
| Japanese | French Canadian |
| French Canadian | Dutch |
| Latin American | Finnish |
| Danish II | Swiss |
| Spanish II | OCR-A |
| Latin Am II | OCR-B |
| Extended Subset | Latin 9 8859-15 |
| Code Page 437 | CP 858 Euro |
| Code Page 850 | |
| Multinational | |
| ASCII (USA)* | |
| EBCDIC | |
| ECMA Latin 1 | |
| Primary Subset | |
| ASCII (USA)* | |
| German | |
| Swedish | |
| Danish | |
| Norwegian | |
| Finnish | |
| English | |
| Dutch | |
| French | |
| Spanish | |
| Italian | |
| Turkish | |
| Japanese | |
| Extended Subset | |
| Multinational* | |
| Barcode 10 CPI | |
| Mult. DP 10 CPI | |
| Mult. DP 12 CPI | |
| Mult. LQ 10 CPI | |
| Greek DP 10 CPI | |
| Greek DP 12 CPI | |
| Greek LQ 10 CPI | |
| Grap. DP 10 CPI | |
| Grap. LQ 10 CPI | |
| Sci. DP 10 CPI | |
| Sci. DP 12 CPI | |
| Sci. LQ 10 CPI | |

P-Series XQ Emulation



Control Code 06

Control Code 06 defines the function of ASCII code hex 06 (ACK). You can select an alternate line spacing of 6, 8, or 10.3 LPI.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **CR = CR** (default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return. The next print position will be print position 1 of the next line.

Auto LF

This option defines the printer action when print data is received past the forms width setting.

- **Disable** (default). Discards any data past the forms width.
- **Enable**. Performs an automatic carriage return and line feed when data is received past the forms width.

Define LF Code

- **LF = CR + LF** (default). Forces an automatic carriage return with each line feed command received. The next print position is print position 1 of the next line.
- **LF = LF**. Does not perform an automatic carriage return when a line feed command is received. The next print position will be the current print position of the next line.

Compressed Print

Controls which host command sets compressed printing.

- **Char 01 SOH** (default)
- **Char 03 ETX**
- **Char 09 HT**

Elong/Alt. Font

Controls which host command sets elongated (double high) fonts and extended character set.

- **EIng=BS Font=SO** (default)
- **EIng=SO Font=BS**

HS Print (High Speed Print)

Controls which host command sets high speed printing.

- **Char 02 STX** (default)
- **Char 03 ETX**
- **Char 09 HT**

VFU Select

Controls how the printer handles vertical formatting. The choices are:

- **EVFU** (default). Enables the VFU and selects P-Series compatible Electronic Vertical Format Unit (EVFU).
- **DVFU**. Enables the VFU and selects the Dataproducts compatible Direct Access Vertical Format Unit (DVFU).
- **CVFU**. Enables the VFU and selects the Centronics compatible Direct Access Vertical Format Unit (CVFU).
- **Disable**. Disables all VFU processing.

Upr. Case Select

Controls how the printer handles lowercase characters it receives from the host computer. When enabled, all characters will be printed in uppercase.

- **Disable** (default). Prints lowercase characters received from the host computer as lowercase, and prints uppercase characters received from the computer as uppercase.
- **Enable**. Prints lowercase characters received from the host computer as their corresponding uppercase equivalents; uppercase characters received from the computer print as uppercase.

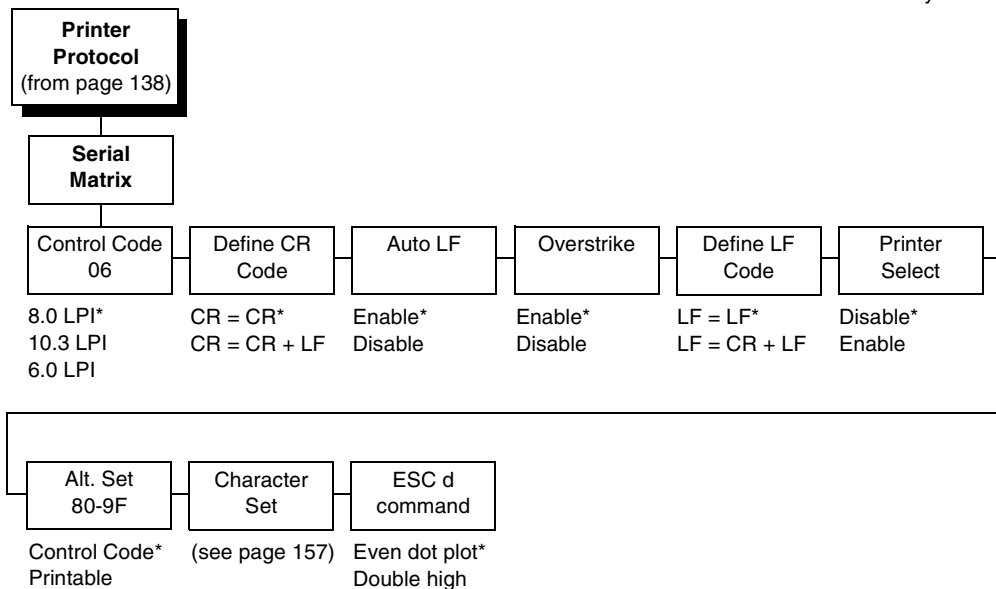
Slew Relative

“Slewing” is rapid vertical paper movement. This parameter determines the number of lines slewed (either 1-15 lines or 1-16 lines) when an EVFU Slew Relative command is received. The options include:

- **1-15 Lines** (default)
- **1-16 Lines**

Serial Matrix Emulation

* = Factory Default



Control Code 06

Control Code 06 defines the function of ASCII code hex 06 (ACK). You can select an alternate line spacing of 6, 8, or 10.3 LPI.

Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **CR = CR** (default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return. The next print position will be print position 1 of the next line.

Auto LF

The Auto LF option defines the printer action when print data is received past the forms width setting.

- **Enable** (default). Performs an automatic carriage return and line feed when data is received past the forms width.
- **Disable**. Discards any data past the forms width.

Overstrike

This option enables you to print bold characters.

- **Enable** (default). Turns on bold print. When enabled, overstrike printing slows down the printer.
- **Disable**. Turns off bold print.

Define LF Code

- **LF = LF** (default). Does not perform an automatic carriage return when a line feed command is received. The next print position will be the current print position of the next line.
- **LF = CR + LF**. Forces an automatic carriage return with each line feed command received. The next print position is print position 1 of the next line.

Printer Select

- **Disable** (default). Ignores the ASCII DC1 and DC3 control codes.
- **Enable**. Disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.

Alt. Set 80-9F

- **Control Code** (default). Interprets data in the range of hex 80 through hex 9F as a control code.
- **Printable**. Prints data in the range of hex 80 through hex 9F.

Character Set

Specifies a character set as shown in the “Serial Matrix Character Set Menu” on page 157. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as Roman 8) and press ENTER. Both the group and the desired set will be starred to indicate your selection. Character sets are shown in detail in the *Character Sets Reference Manual*.

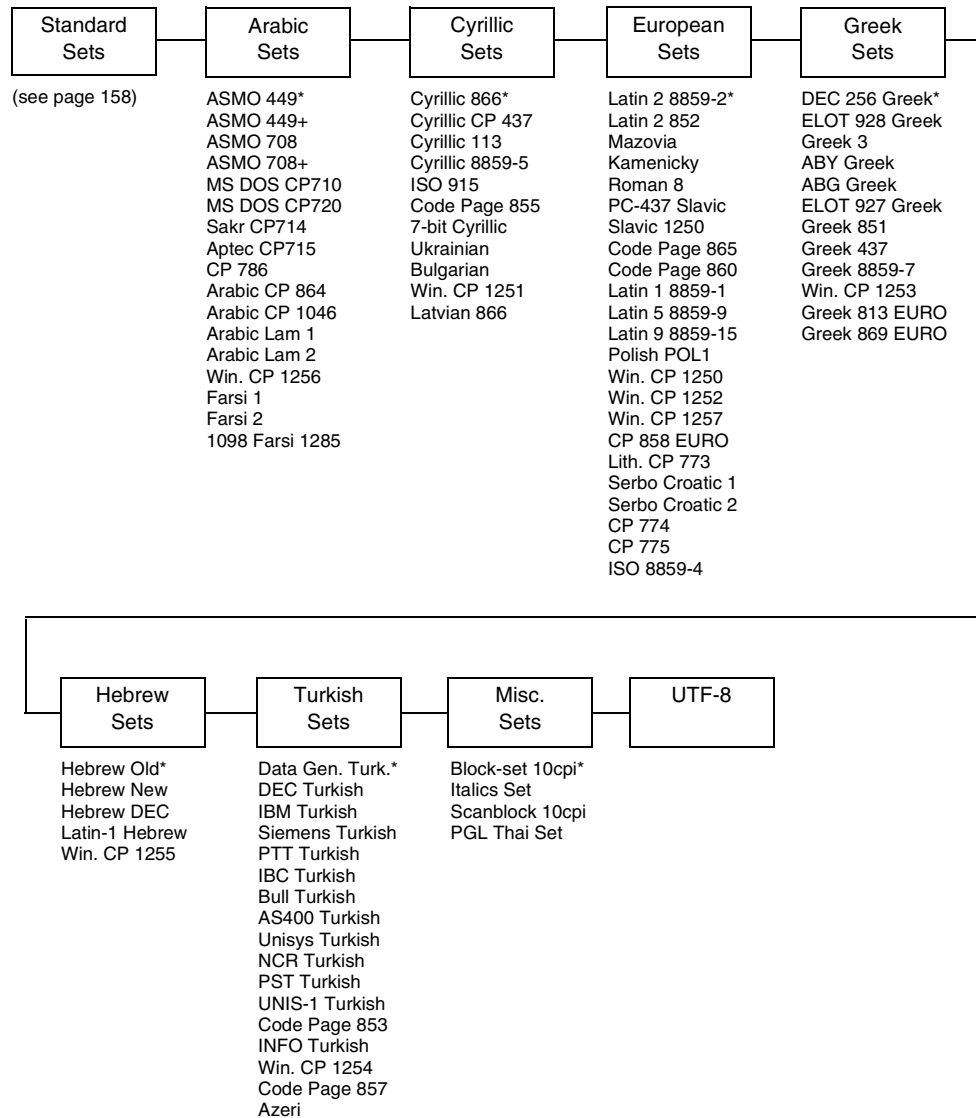
ESC d command

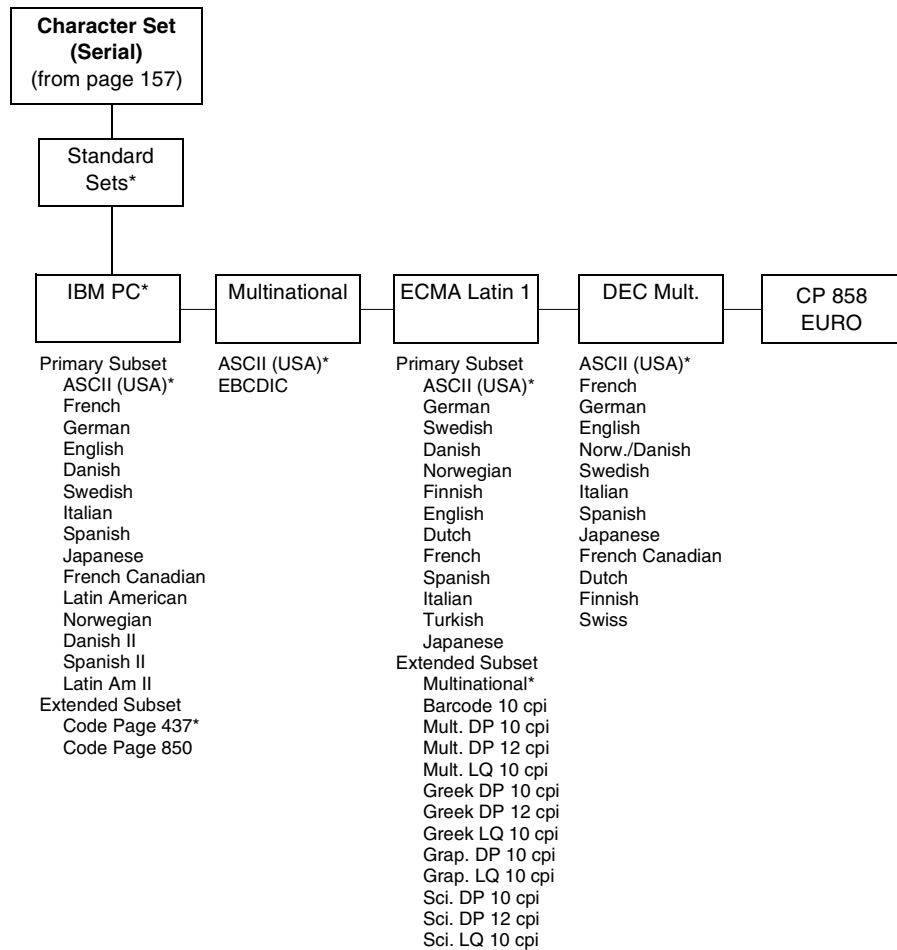
- **Even dot plot** (default). Interprets the ESC d command as even dot plot.
- **Double high**. Interprets the ESC d Command as double high. Select this option for backward compatibility.

Serial Matrix Character Set Menu

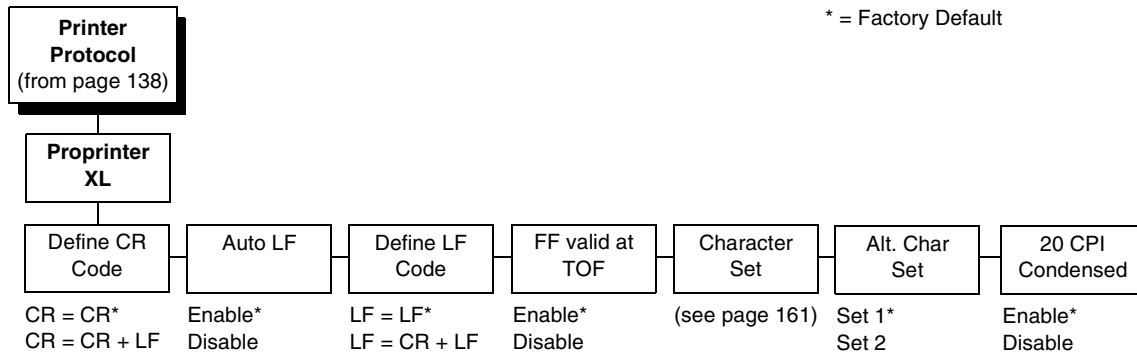
Character Set
(from page 154)

* = Factory Default





Proprinter XL Emulation



Define CR Code

This option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **CR = CR** (default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return.

Auto LF

This option defines the printer action when print data is received past the forms width setting.

- **Enable** (default). Performs an automatic carriage return and line feed when data is received past the forms width.
- **Disable**. Discards any data past the forms width.

Define LF Code

- **LF = LF** (default). Does not perform an automatic carriage return when a Line Feed command is received. The next print position will be the current print position of the next line.
- **LF = CR + LF**. Forces an automatic carriage return with each Line Feed command received. The next print position is print position 1 of the next line.

FF Valid at TOF

- **Enable** (default). Performs a form feed when the host sends a Form Feed command and the printer is at the top of form.
- **Disable**. Will not perform a form feed when the host sends a Form Feed command and the printer is at the top of form.

Character Set

Specifies a character set as shown in the “Proprinter XL Character Sets Menu” on page 161. To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as Roman 8) and press ENTER. Both the group and the desired set will be starred to indicate your selection. The UTF-8 selection allows printing of UTF-8 encoded Unicode [™]. Character sets are shown in detail in the *Character Sets Reference Manual*.

Alt. Char Set

This option determines if data in the range of hex 80 through hex 9F should be interpreted as a control code or as a printable character.

- **Set 1** (default). Interprets data in the range of hex 80 through hex 9F as a control code.
- **Set 2**. Prints data for the characters at hex locations 03, 04, 05, 06, 15, and 80 through 9F.

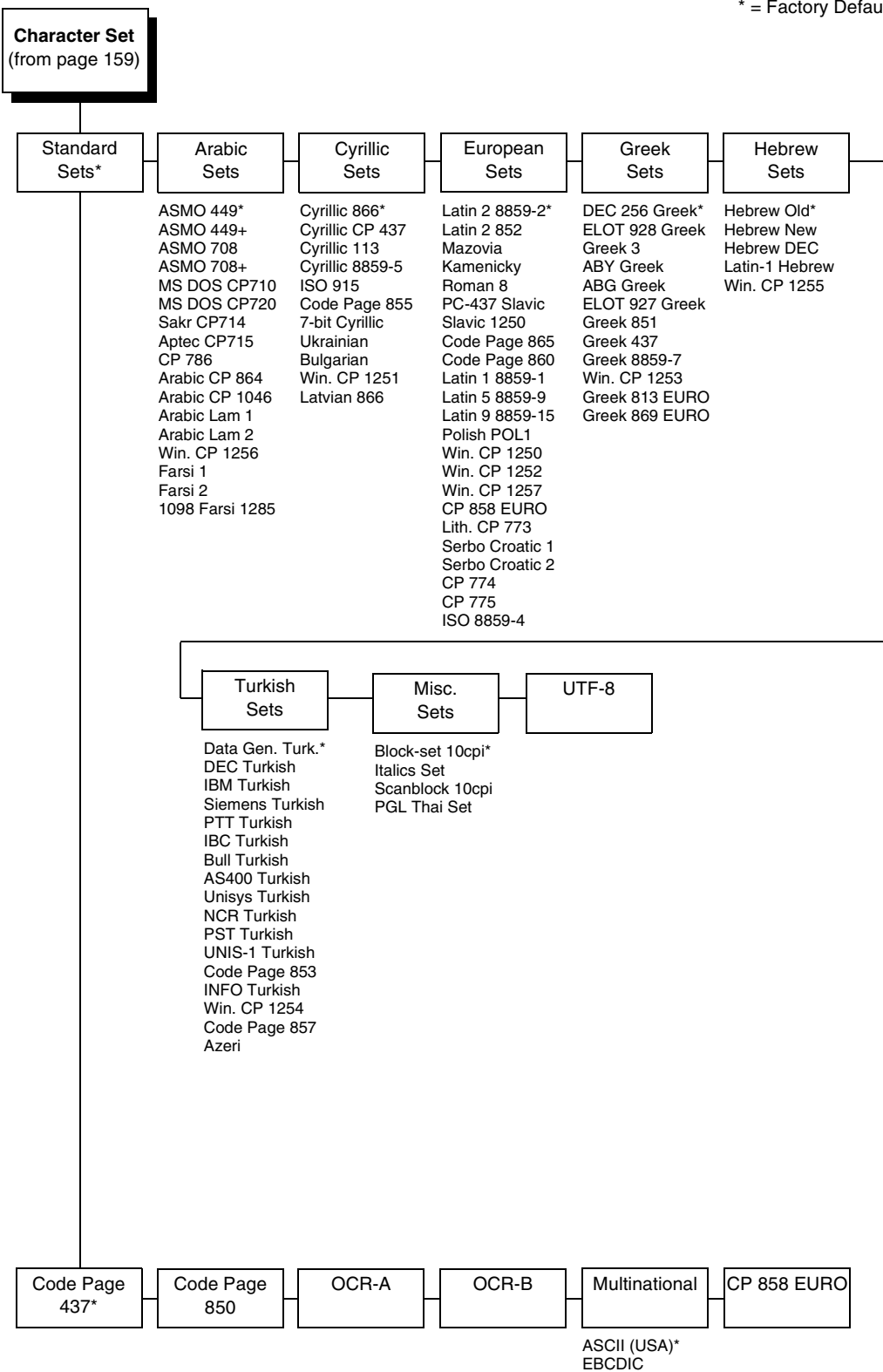
20 CPI Condensed

Compressed print characters are narrower than the normal character set. This is helpful for applications where you need to print the maximum amount of information on a page.

- **Enable** (default). Prints characters about 60 percent the width of normal characters when compressed print is chosen by the host computer.
- **Disable**. Does not compress print widths, even if condensed print is chosen by the host.

Proprinter XL Character Sets Menu

* = Factory Default



Proprinter XL Character Sets Menu (with PCL-II)

Character Set
(from page 159)

* = Factory Default

Code Page 437*
Code Page 850
OCR-A
OCR-B
Latin 2 8859-2
Latin 2 852
Bulgarian
Latin 9 8859-15
Polish POL1
Multinational
DEC 256 Greek
ELOT 928 Greek
Greek 3
ABY Greek
ABG Greek
ELOT 927 Greek
Greek 437
Greek 8859-7
PC851 LtGk [12G]
Greek-7 [12N]
Greek-8 [8G]
Hebrew Old
Hebrew New
Hebrew DEC

Proprinter XL Character Sets Menu (with LG)

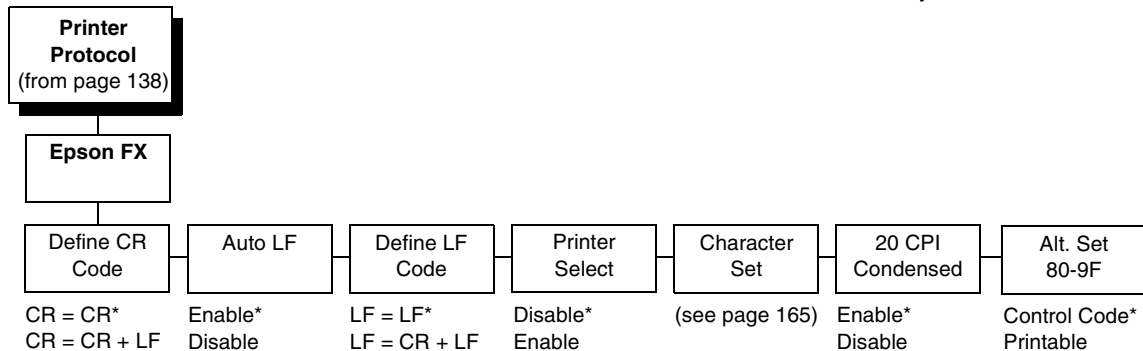
Character Set
(from page 159)

* = Factory Default

Code Page 437*
Code Page 850
OCR-A
OCR-B
Code Page 210
Code Page 220
Code Page 852
Code Page 855
Code Page 857
Code Page 862
Code Page 866
Lithuanian 1
Lithuanian 2
Hebrew New
Hebrew Dec
Hebrew Old
Latin 9 8859-15
CP 858 Euro

Epson FX Emulation

* = Factory Default



Define CR Code

The Define CR Code option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a carriage return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **CR = CR** (default). Does not insert an extra line feed after each carriage return.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return.

Auto LF

This option defines the printer actions when print data is received past the forms width setting.

- **Enable** (default). Performs an automatic carriage return and line feed when data is received past the forms width.
- **Disable**. Discards any data past the forms width.

Define LF Code

The Define LF Code option controls the action of the printer when it receives a Line Feed code (hex 0A) from the host computer. If this feature is enabled, each time the printer receives a Line Feed, it inserts an additional Carriage Return code (hex 0D) into the data stream. This feature is required if the host computer does not send carriage returns to the printer.

- **LF = LF** (default). Does not add a carriage return with a line feed.
- **LF = CR + LF**. Adds an extra carriage return with each line feed.

Printer Select

- **Disable** (default). Ignores the ASCII DC1 and DC3 control codes.
- **Enable**. Disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.

Character Set

This parameter selects a character set for the Epson emulation, as shown in the “Epson FX Character Set Menu” on page 165. Note that when OCR-A or OCR-B is selected as the print language, the Font Attribute Typeface option under the LinePrinter Plus menu (page 140) is changed to OCR-A or OCR-B, respectively.

To use one of these sets, choose the desired group heading (such as European Sets) and press ENTER. Then choose the desired set within that group (such as Roman 8) and press ENTER. Both the group and the desired set will be starred to indicate your selection. The UTF-8 selection allows printing of UTF-8 encoded Unicode TM. Character sets are shown in detail in the *Character Sets Reference Manual*.

20 CPI Condensed

Compressed print characters are narrower than the normal character set. This is helpful for applications where you need to print the maximum amount of information on a page.

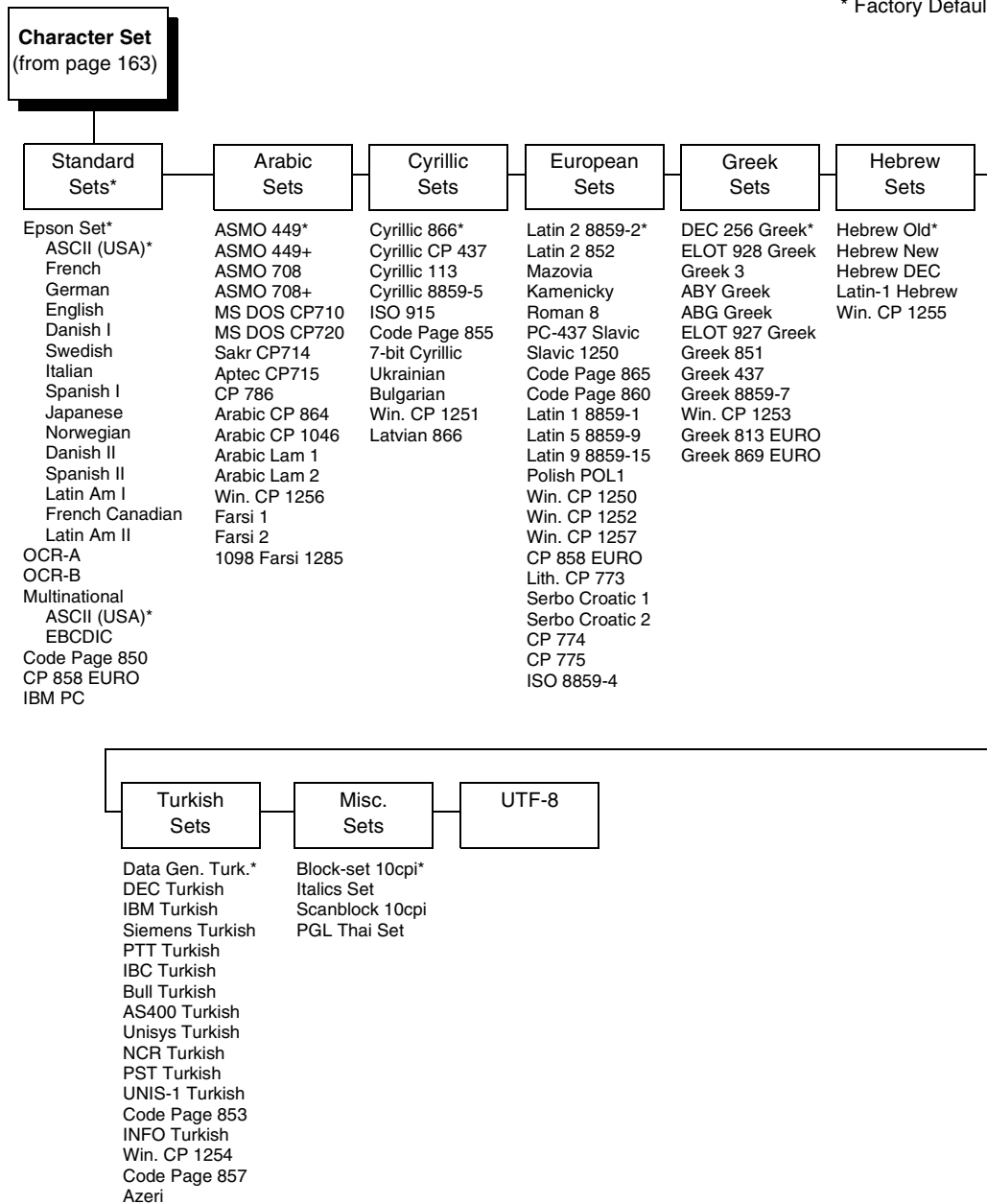
- **Enable** (default). Prints about 60 percent of the width of normal characters when compressed print is chosen by the host computer. For example, a 12 CPI Draft font will compress to 20 CPI.
- **Disable**. Does not compress print widths, even if condensed print is chosen by the host.

Alt. Set 80-9F

- **Control Code** (default). Interprets data in the range of hex 80 through hex 9F as a control code.
- **Printable**. Prints data in the range of hex 80 through hex 9F.

Epson FX Character Set Menu

* Factory Default



Epson FX Character Set Menu (with PCL-II)

* Factory Default

Character Set
(from page 163)

Epson Set*
 ASCII (USA)*
 French
 German
 English
 Danish I
 Swedish
 Italian
 Spanish I
 Japanese
 Norwegian
 Danish II
 Spanish II
 Latin Am I
 French Canadian
 Latin Am II
OCR-A
OCR-B
Latin 8859-2
Latin 2 852
Cyrillic 866
Bulgarian
Latin 9 8859-15
Polish POL1
Multinational
 ASCII (USA)*
 EBCDIC
DEC 256 Greek
ELOT 928 Greek
Greek 3
ABY Greek
ABG Greek
ELOT 927 Greek
Greek 437
Greek 8859-7
PC851 LtGk [12G]
Greek-7 [12N]
Greek-8 [8G]
Hebrew Old
Hebrew New
Hebrew DEC
IBM PC

Epson FX Character Set Menu (with LG)

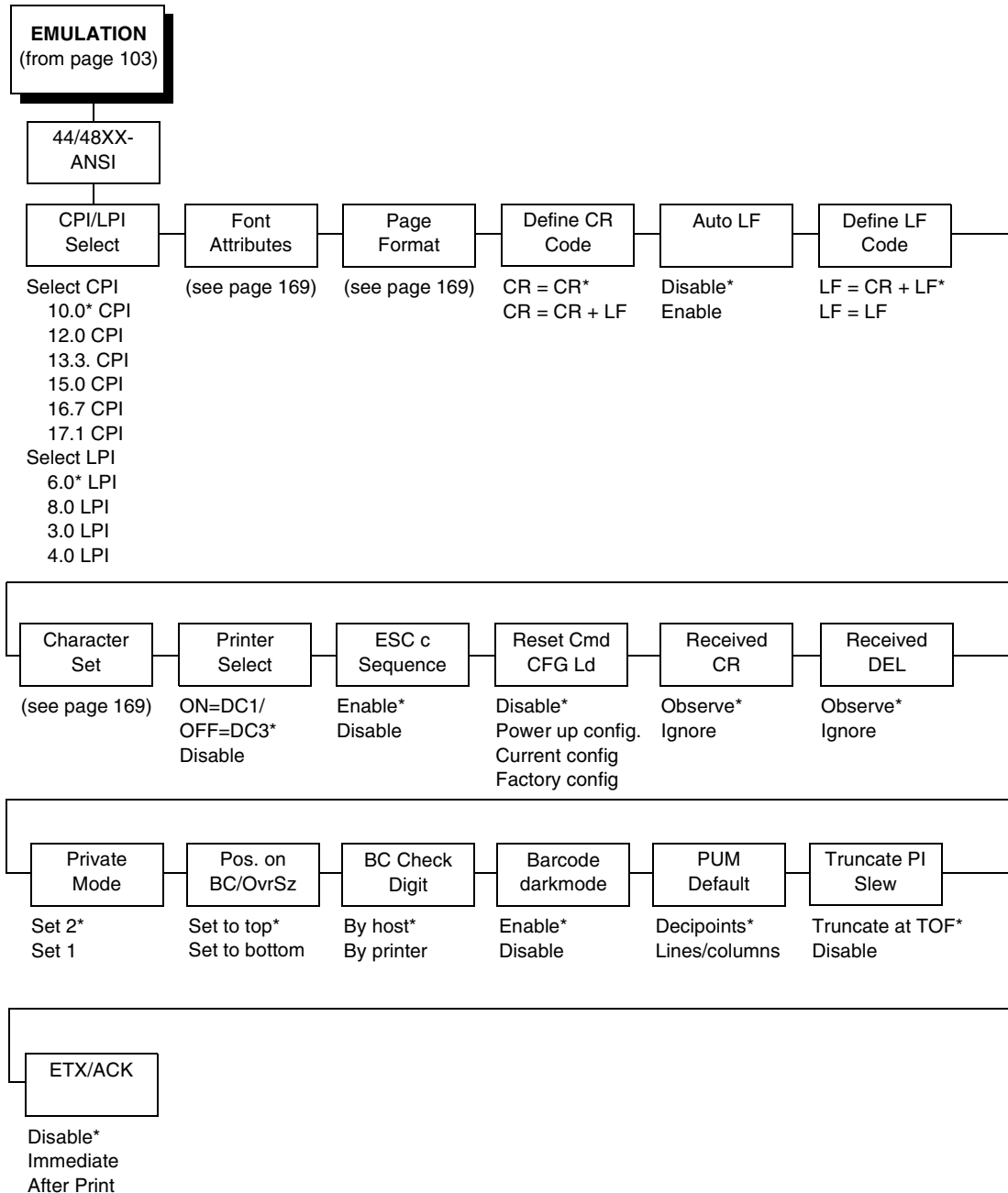
Character Set (from page 163)

* Factory Default

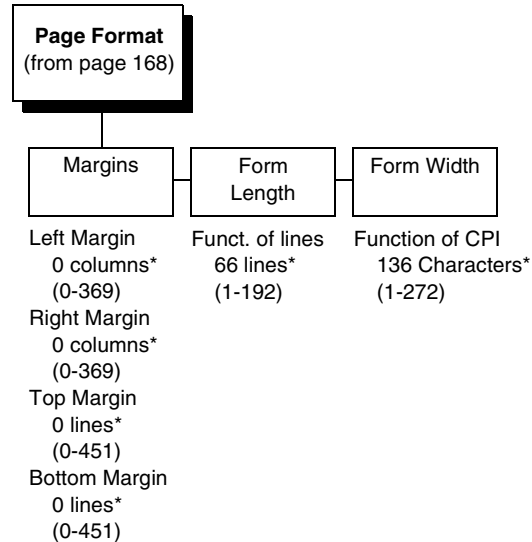
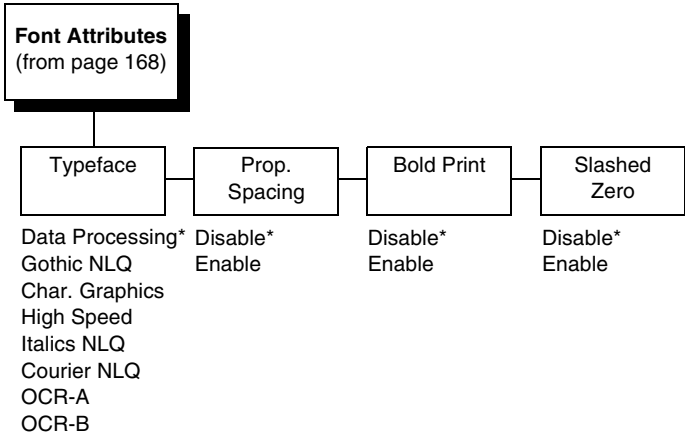
Epson Set*
 ASCII (USA)*
 French
 German
 English
 Danish I
 Swedish
 Italian
 Spanish I
 Japanese
 Norwegian
 Danish II
 Spanish II
 Latin Am I
 French Canadian
 Latin Am II
OCR-A
OCR-B
Code Page 210
Code Page 220
Code Page 852
Code Page 855
Code Page 857
Code Page 862
Code Page 866
Lithuanian 1
Lithuanian 2
Hebrew Old
Hebrew New
Hebrew Dec
Latin 9 8859-15
CP 858 Euro
IBM PC

ANSI Emulation

* Factory Default



* = Factory Default



CPI/LPI Select

Defines the default values for the horizontal and vertical character spacing. The number of characters per inch can range from 10.0 through 17.1. The number of lines per inch can range from 3.0 through 8.0.

Font Attributes

Typeface

Choose a typeface from the available options.

Prop. Spacing (Proportional Spacing)

Each printed character is contained inside a character cell. The width of the character cell includes the character and the space around the character.

- **Disable** (default). Each character cell is printed with the same width. Each column in the printed text will line up.

```
This example is printed with  
proportional spacing disabled.
```

- **Enable**. The width of each character cell varies with the width of the character. For example, [i] takes less space to print than [m]. Using proportional fonts generally increases the readability of printed documents, giving text a typeset appearance.

```
This example is printed with  
proportional spacing enabled.
```

Bold Print

- **Disable** (default). Text is printed normally.
- **Enable**. Text is printed with a heavy line thickness.

Slashed Zero

This parameter allows you to print the numeral “0” with or without the slash. This option applies to all character sets except OCR-A and OCR-B.

- **Disable** (default). Zero is printed without a slash.
- **Enable**. Zero is printed with a slash.

Page Format

Margins

- **Left Margin.** Defines where the first print column is located. The left margin is specified as the number of characters from the left edge of the form.
- **Right Margin.** Defines where the last print column is located. The right margin is specified as the number of characters from the right edge of the form.
- **Top Margin.** Defines the location of the first print line on the page. The top margin is specified as the number of lines from the top of the form's position.
- **Bottom Margin.** Defines the location of the last print line on the page. The bottom margin is specified as the number of lines from the bottom of the form's position.

Form Length

Specifies the form length in lines. The maximum form length in lines depends on the current LPI setting; it is equal to the maximum form length in inches multiplied by the current LPI setting. For example, at 6 LPI the maximum form length is 6 LPI x 24 inches = 144 lines.

Only valid form length values will be accepted. If you select a length that is larger than the maximum length for the current LPI, the maximum length will be used. If you need a longer page length, you must first change the LPI.

IMPORTANT

If the form length is set in lines and you change the LPI, the effective page length changes to the form length in characters divided by the new LPI.

NOTE: Receipt of a data stream control code which changes the form length overrides the form length previously specified via the operator panel.

Form Width

Allows you to input the form width in characters from 1 through 272. The maximum form width in characters depends on the current CPI setting; it is equal to the maximum form width in inches multiplied by the current CPI setting.

Only valid form width values will be accepted. If a width is selected that is larger than the maximum width for the current CPI, then the maximum width will be used. If a larger width value is desired, then the CPI value must be changed first.

Table 6 lists the maximum number of characters that can be printed for a given Characters Per Inch (CPI) setting.

IMPORTANT

If the form width is set in characters and the CPI is changed, the effective page width is changed to be equal to the form width in characters divided by the new CPI.

Table 6. Form Width

| CPI Setting | Maximum Form Width (in characters) |
|-------------|---------------------------------------|
| 10.0 | 136 |
| 12.0 | 163 |
| 13.3 | 181 |
| 15.0 | 204 |
| 16.7 | 227 |
| 17.1 | 272 |

Define CR Code

The Define CR Code option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a carriage return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **CR = CR** (default). No extra line feeds are inserted.
- **CR = CR + LF**. Inserts an extra line feed after each carriage return.

Auto LF

Defines the printer actions when print data is received past the form width setting.

- **Disable** (default). Discards any data past the form width.
- **Enable**. Performs an automatic carriage return and line feed when data is received past the form width.

Define LF Code

Controls the action of the printer when it receives a Line Feed code (hex 0A) from the host computer. If this feature is enabled, each time the printer receives a line feed, it inserts an additional carriage return code (hex 0D) into the data stream. This feature can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

- **LF = CR + LF** (default). Adds an extra carriage return with each line feed.
- **LF = LF**. Does not add a carriage return with a line feed.

Character Set

This parameter selects a character set for the ANSI emulation. Note that when 0876 OCR-A or 0877 OCR-B is selected as the print language, the Font Attributes Typeface parameter is changed to OCR-A or OCR-B, respectively. Character sets are shown in detail in the *Character Sets Reference Manual*.

Printer Select

- **ON = DC1/OFF = DC3** (default). Disables the printer when a DC1 control code is received, and enables the printer when a DC3 control code is received.
- **Disable**. Ignores the DC1 and DC3 control codes.

ESC c Sequence

- **Enable** (default). An ESC c code received from the host resets the printer parameters to the factory defaults.
- **Disable**. An ESC c code received from the host is ignored.

Reset Cmd CFG Ld

When the printer receives a host data stream reset command (ESC @ or ESC[K) in addition to resetting printer variables, the selected configuration will be loaded.

- **Disable** (default). The active emulation parameters are loaded when the reset command is executed.
- **Power-Up Config**. The power-up configuration is loaded when the reset command is executed.
- **Current Config**. The currently selected configuration is loaded when the reset command is executed.
- **Factory Config**. The factory installed configuration is loaded when the reset command is executed.

Received CR

- **Observe** (default). A CR code received from the host is handled as a carriage return.
- **Ignore**. A CR code received from the host is ignored.

Received DEL

- **Observe** (default). A DEL code received from the host is handled as a Delete command.
- **Ignore**. A DEL code received from the host is ignored.

Private Mode

Determines the default type of character set (Set 1 or Set 2). This can also be set by ESC sequences ESC [>5h and ESC [>5l. Refer to these descriptions in the *ANSI Programmer's Reference Manual* for further details.

Pos. on BC/OvrSz

- **Set to top** (default). The paper is fed back to the top of barcodes or oversized characters after they are printed. This allows printing on the same line.
- **Set to bottom**. The printer will continue printing without backing up.

BC Check Digit

- **By host** (default). The host calculates the barcode check digit and sends it along with the barcode. The check digit is not verified by the printer but printed as it was received.
- **By printer**. The barcode is sent without the check digit, and the printer calculates and adds it in.

Barcode Darkmode

- **Enable** (default). The barcodes are printed at a higher resolution.
- **Disable**. The barcodes are printed at lower resolution but at a higher speed.

PUM Default

This is the Unit of Measure (UOM) as it is used within the ANSI emulation. Coordinates received in ESC sequences can be sent in two UOMs:

- **Decipoints** (default). A unit of 1/720 inch
- **Lines or columns**. Uses the current LPI and CPI values.

The UOM used is determined by this configuration setting.

Truncate PI Slew

- **Truncate at TOF** (default). The slew is terminated when the next Top-of-Form is reached. (This function applies to the ANSI EVFU only.)
- **Disable**. PI slews will be completed independent of their length.

ETX/ACK

End of Text/Acknowledge. The host controls the flow of communication to the printer by sending a block of data and ending the block with an End of Text (ETX) signal. When the printer receives the ETX signal, it acknowledges the ETX, thereby acknowledging it has received the entire block of data.

- **Disable** (default)
- **Immediate**
- **Afterprint**

IGP/PGL Emulation

The PGL emulation is the software based Intelligent Graphics Processor (IGP) for the line matrix family of printers. It is based upon, and is compatible with, the IGP-100/200/400 board using the PGL. The IGP graphics processing features are detailed below.

Features

On-Line Form and Label Generation makes it easy to create forms or labels with a “preprinted” look for each application. IGP programs control all graphic functions, dramatically reducing host computer programming and processing time.

Graphic capabilities include boxes, vertical and horizontal lines with user-selectable thickness, logos, and special alphanumeric print features. Forms and graphic designs can be duplicated horizontally and vertically.

Alphanumeric data can appear as prepositioned “fixed” information (entered when the form is created), be overlayed onto the form (positioned in a specific location after the form is created), or can be dynamically merged with the form.

Selectable Barcodes provide you with the appropriate barcode for your application using standard wide-to-narrow ratios. A wide selection of barcodes is available: Code 39, Interleaved 2 of 5, UPC-A, UPC-E, MSI A through D, Code 128 Subset A, B, and C, EAN/UCC-128, EAN 8, EAN 13, POSTNET, PostBar, Royal Mail, and PDF417. UPC and EAN barcodes can specify add-on data.

Expanded and Compressed Character Print attract attention where needed. Alphanumeric height and width are controlled independently for a wide range of character sizes up to 113 times the standard character size (up to 11.3 inches wide and tall). Compressed print sizes of 10, 12, 13, 15, 17, and 20 characters per inch (cpi) are available.

Logos are created using alphanumeric commands and add many print and shading features for a “customized” appearance to forms, reports, and labels.

Rotated Alphanumerics permit new concepts in form design. Normal, expanded, and compressed character strings can be rotated 90 degrees clockwise or counterclockwise, or they can be printed upside down.

Reversed Print permits highlighting and contrasting by printing white characters on a dark background.

Automatic Increment/Decrement Capability allows batch form processing. Individual alphabetic, numeric, and barcode data fields can be identified and automatically incremented or decremented by any amount, beginning from a specified reference point.

Scaling Capability permits graphic elements, such as corners or boxes, to retain their physical shapes and sizes when printed in a horizontal and vertical density other than the base density of 60 x 72 dpi.

Multinational Character Sets provide many international character sets, each 96 characters in length. This feature also allows you to create your own character sets using characters defined and stored in memory.

Extended Character Sets provide 33 extended character sets, also containing 96 characters in length. These are also stored in memory.

Configuring The Emulation With The Control Panel

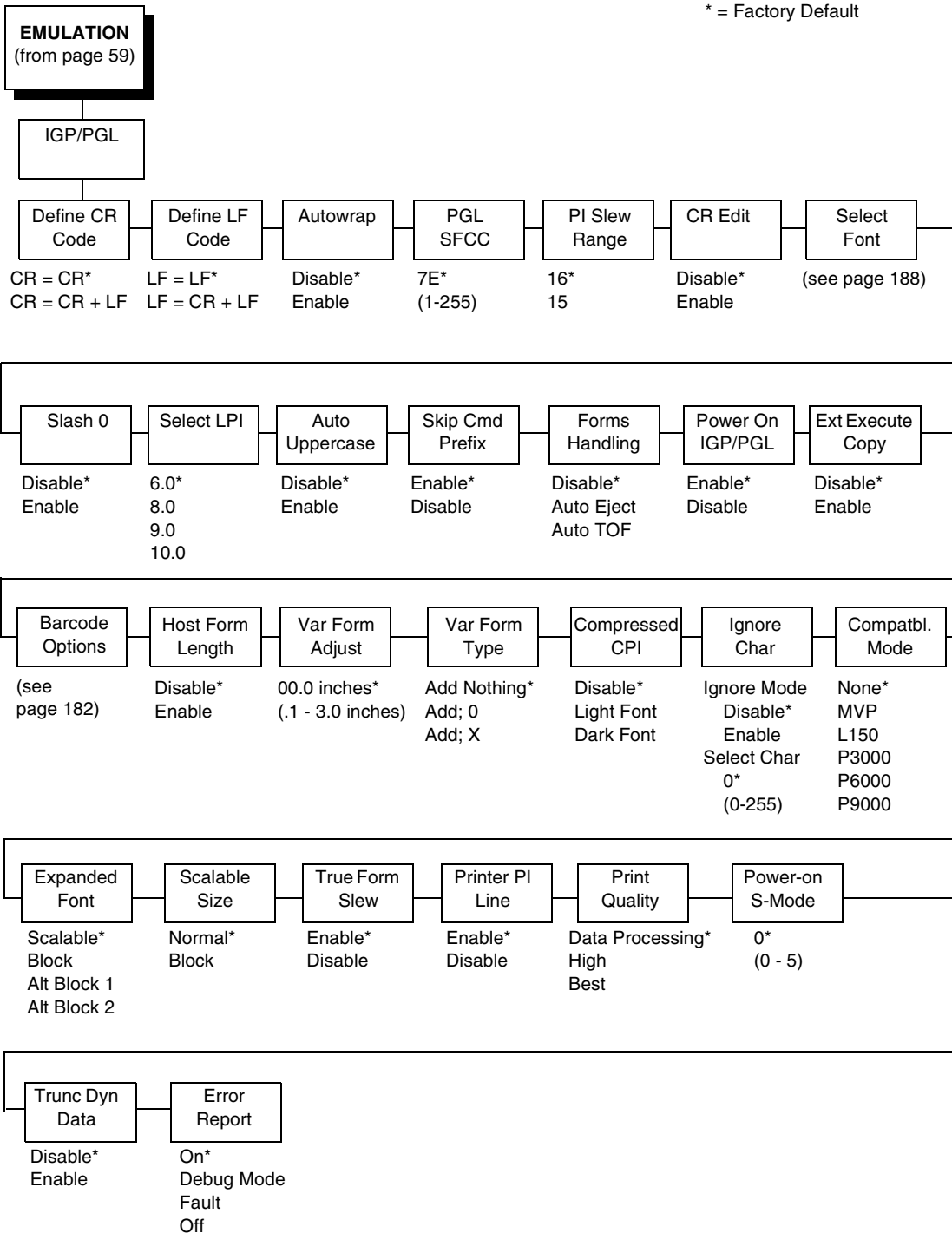
You can select PGL default parameters directly from the control panel or by control codes as explained in the *IGP/PGL Programmer's Reference Manual*. The PGL parameters are described on the following pages. Parameters marked with an asterisk (*) indicate the default value. The printer must be offline to enter the configuration structure.

Pressing an invalid key to enter a parameter value may move you to another level in the configuration or exit the configuration menu completely. Configure the IGP/PGL according to your specific requirements.

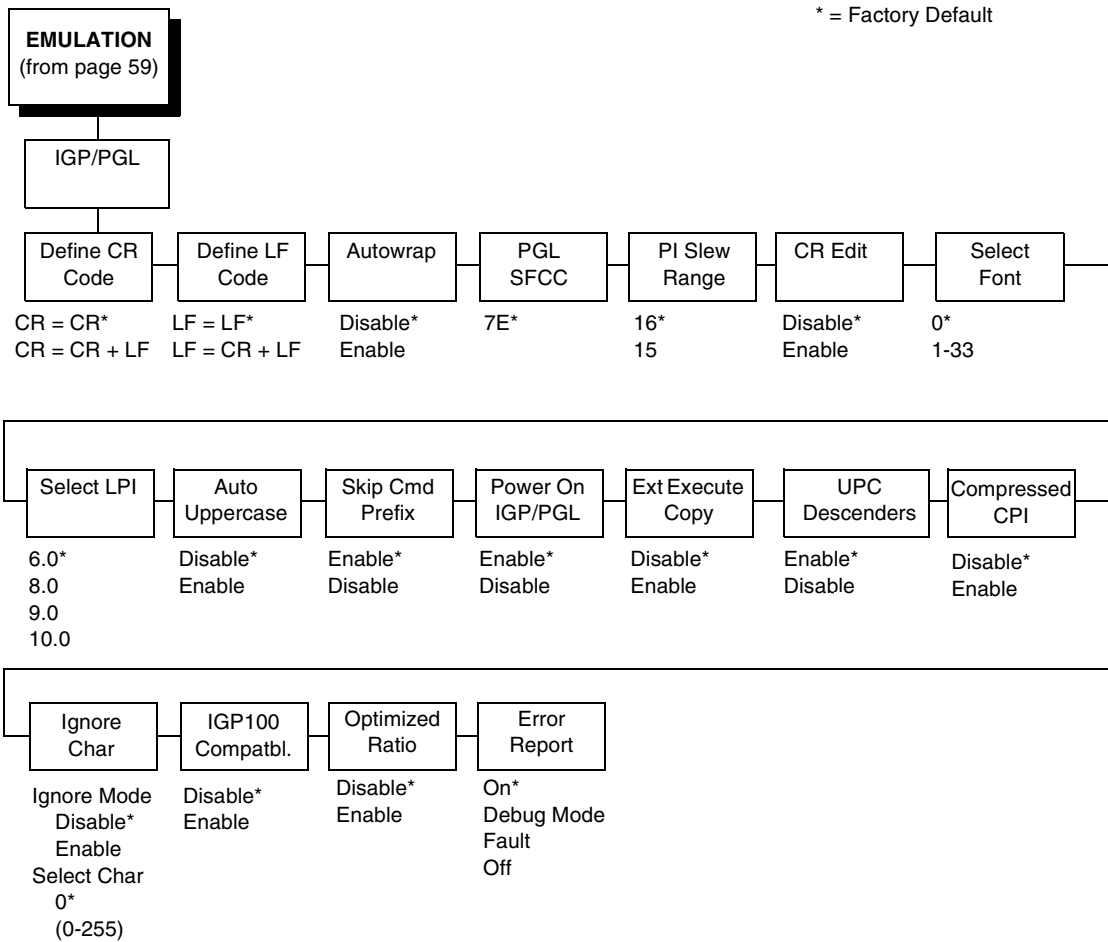
IMPORTANT **BEFORE you reconfigure the IGP/PGL, print a configuration sheet to see all of the current settings.**

IGP/PGL Submenu

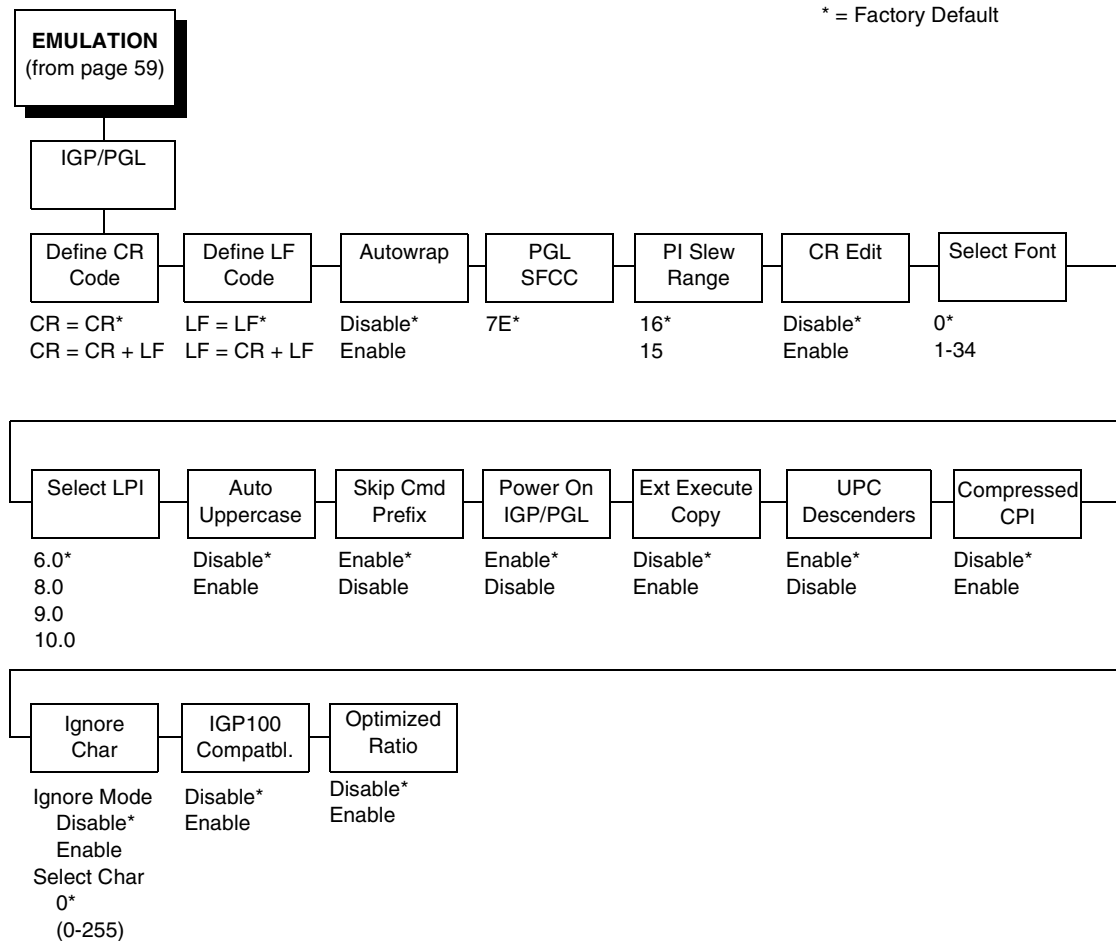
* = Factory Default



IGP/PGL Submenu (With PCL-II)



IGP/PGL Submenu (With LG)



Define CR (Carriage Return) Code

This parameter forces the printer to insert an automatic Line Feed code into the data stream whenever a Carriage Return code occurs. This is to be used only if the host computer does not send line feeds to the printer.

- **CR = CR** (default). Does not perform a line feed. The next print position will be print position 1 of the current line.
- **CR = CR + LF**. Performs an automatic line feed. The next print position will be print position 1 of the next line.

Define LF (Line Feed) Code

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Line Feed code occurs. This can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

- **LF = LF** (default). Does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- **LF = CR + LF**. Performs an automatic carriage return. The next print position will be print position 1 of the next line.

Autowrap

This parameter determines if text will wrap to the next line when the line of text exceeds the right margin.

- **Disable** (default). Truncates the text beyond the right margin until a CR or CR + LF is received.
- **Enable**. Automatically inserts a CR + LF after a full print line.

PGL SFCC

You can specify which hex code (1-255) will be used as the Special Function Control Code (SFCC). The factory default setting is 126. The SFCC denotes that the following data is a PGL command.

PI Slew Range

You can specify how many lines the paper will feed.

- **16** (default). A paper slew of 0-15 will move 1-16 lines.
- **15**. A paper slew of 1-15 will move 1-15 lines. A paper slew of 0 will move 1 line.

CR Edit

This parameter determines if a carriage return will be followed by a line feed.

- **Disable** (default). The printer ignores all carriage returns that are not followed by line feeds.
- **Enable**. The printer processes all carriage returns, even for those that are not followed by line feeds.

Select Font

Select Font specifies which language is currently selected for use with the PGL. Refer to “IGP/PGL Font Set Menu” on page 188 for available selections.

Slash 0

This parameter allows you to print the numeral “0” with or without the slash. This option applies to all character sets except OCR A and OCR B.

- **Disable** (default). Zero is printed without a slash.
- **Enable**. Zero is printed with a slash.

Select LPI

This is the number of lines to be printed per inch. For example, at 6 lpi there is 1/6 inch from the top of one print line to the top of the next print line. The options are:

- **6.0** (default)
- **8.0**
- **9.0**
- **10.0**

Auto Uppercase

This parameter enables the printer to print text in all uppercase when using the ALPHA command.

- **Disable** (default). The printer will print text in upper and lowercase.
- **Enable**. The printer will print text in uppercase only.

Skip Cmd Prefix

This parameter determines if the printer will print any data before a PGL command is received.

- **Enable** (default). The printer ignores all data on the current line before an IGP command.
- **Disable**. The printer will print all data on the current line before an IGP command.

Forms Handling

This submenu allows the user to handle the form in the following ways:

- **Disable** (the default). No effect.
- **Auto Eject**. Automatically ejects a page at the end of the job to spill out the last page.
- **Auto TOF**. Automatically does a form feed (FF) at the end of each form to the next top of form.

Power On IGP/PGL

You can set the IGP feature so that it is enabled or disabled when the printer is powered on.

- **Enable** (default). The PGL is enabled when the printer is powered on. (The PGL feature is initialized in the Normal mode.)
- **Disable**. The PGL is disabled when the printer is powered on. (The PGL feature is initialized to the Quiet mode.)

Ext Execute Copy

- **Disable** (default). Dynamic data and overlay data are not allowed if the optional Form Count parameter (number of forms to print) is specified as part of the Execute command. (This setting is IGP-100 compatible.)
- **Enable**. Only dynamic data is allowed within a form in which the Form Count parameter is specified in the Execute command. In this case, the exact same form (with identical dynamic data, etc.) is printed for the Form Count. However, incremental data is not incremented since the page that is printing is exactly the same. Also, each form is printed on a separate page.

Barcode Options (from page 177)

* = Factory Default

| UPC Descenders | Optimized Ratio | I-2/5 Selection | AI 00 Spaces | Select SO Char | User-Def Ratio | C39 Compatbl. |
|-----------------------------------|--------------------|--|--------------------|----------------|--------------------|--------------------|
| Always* Never Only with PDF | Disable* Enable | Leading Zero* Trailing Space X2 DPD Modulo 7 CD | Disable* Enable | 14* (0-255) | Enable* Disable | Disable* Enable |

Barcode Options

The following sub-options help define specific options regarding barcode printing.

UPC Descenders

This parameter allows you to print barcode descenders when human readable data is not present in the UPC/EAN barcodes.

- **Always** (default). UPC/EAN barcodes are printed with descenders, even if there is no human readable data.
- **Never**. UPC/EAN barcodes are printed without descenders if there is no human readable data.
- **Only with PDF**. UPC/EAN barcodes are printed with descenders only when the PDF command is present.

Optimized Ratio

This option selects different barcode ratios for certain barcodes including Code 39 and I-2/5. It is included for compatibility with the IGP-X00 printers.

- **Disable** (default). Use standard barcode ratios.
- **Enable**. Select the alternate barcode ratios.

I-2/5 Selection

This option is added to be compatible with a special IGP-X00 customization. Usually, if I-2/5 barcodes have an odd number of digits, a leading zero is inserted in front of the data. However, this special IGP-X00 customization gives you the option of adding a space character at the end of the barcode instead.

- **Leading Zero** (default). A leading zero is inserted in front of the printable data field.
- **Trailing Space**. A space is inserted at the end of the printable data field and a zero is encoded with the corresponding space in the end of the barcode.
- **X2 DPD**. When selected, an I-2/5 barcode with an X2 magnification will use the specially configured ratios 3:3:6:5 rather than 3:6:9:12 for compatibility issues.
- **Modulo 7 CD**. The I-2/5 barcode uses a modulo 7 check digit instead of the default modulo 10 check digit.

AI 00 Spaces

This option is designated for EAN/UCC-128 barcodes whose application identifier (AI) is 00.

- **Disable** (default). The printable data field is printed with the AI enclosed in parentheses. This is the standard EAN/UCC-128 format.
- **Enable**. The printable data field is printed with the UCC fields separated by spaces. This option is IGP-X00 compatible.

Select SO Char

Allows you to specify a decimal code from 0 through 255 to be used in place of SO (Shift Out) as the control code. This allows access for the alternate set of control function characters. See the description of the Code 128 barcodes in the *IGP/PGL Programmer's Reference Manual* for details.

User-Def Ratio

- **Enable** (default). User-defined ratios are accepted for barcodes. This is the default.
- **Disable**. User-defined ratios are ignored and the magnification X1 is used in its place.

C39 Compatbl.

This menu makes the old method of decoding C39 alternative character set compatible with the new.

- **Disable** (default) Uses the current way of decoding.
- **Enable**. Matches the old method of decoding.

Host Form Length

Determines whether the form length specified in the CREATE command changes the form length designated in the LP+ menu (see “LinePrinter Plus Emulation” on page 137) when the form is printed by the EXECUTE command.

- **Disable** (default). The LP+ form length is unaffected by the form being printed.
- **Enable**. The LP+ form length changes to match the length of the PGL form being printed.

Var Form Adjust

(Ranges from 0 - 30). Default is 0. This menu value is tenths of inches. The value of this menu specifies the amount of distance to add to PGL forms that have variable form lengths. Variable length forms are forms that are defined by using a “;0” in the CREATE statement: ~CREATE;FORM;0. Variable form lengths are defined by the contents within the form - the form is only as long as necessary to print the form. Changing this menu value adds additional lengths to the form (in tenths of inches). Again, this only applies to forms that use the “;0” variable length forms.

Var Form Type

This menu option applies only to the host command, CREATE;NAME or CREATE;NAME;DISK. The host command CREATE;NAME followed by ;0, ;X or a form length number will always override the menu option.

- **Add Nothing** (default). No action.
- **Add; 0**. When selected, the form length ends at the longest printed element. Same as CREATE;NAME;0.
- **Add; X**. When selected, the form length is the same as the physical page length.

Compressed CPI

This parameter allows you to choose a compressed character (60% shorter) for 17 or 20 cpi instead of the normal height character.

- **Disable** (default). The PGL does not use compressed 17 or 20 cpi font.
- **Light Font**. Uses the standard compressed 17 or 20 cpi font.
- **Dark Font**. Uses a darker compressed 17 or 20 cpi font compatible with the IGP-X00 printers.

Ignore Char

- **Ignore Mode**

This parameter instructs the PGL to ignore the character selected under the Select Character menu.

- **Disable** (default). The PGL does not ignore any characters.
- **Enable**. The PGL ignores the characters specified in the Select Character menu.

- **Select Char**

Instructs the PGL which decimal character (0-255) to ignore from the host.

Compatbl. Mode

This option instructs the PGL to behave similarly to older versions of the IGP with respect to certain commands.

All new users with new applications should select the “None” option. Selecting this mode insures the printer will behave as described in this manual.

When replacing an older product operating with an existing application, especially those using the PMODE and SMODE commands, you may need to select a compatibility mode. In this case, select the printer model number option that most closely matches the printer being replaced. The Compatibility Mode options include:

- **None** (default)
- **MVP**
- **L150**
- **P3000**
- **P6000**
- **P9000**

Expanded Font

This option defines the type of expanded characters the PGL will select:

- **Scalable** (default). These expanded characters have rounded edges.
- **Block**. These are block characters compatible with the IGP-X00 printers.
- **Alt Block 1 / Alt Block 2**. Reserved block sets used only for compatibility purposes.

Scalable Size

- **Normal** (default). Controls the size of scalable characters to be either normal size (as set by the user) or adjusted to match the size of block fonts. This is the default.
- **Block**. Adjusts the size of scalable characters to exactly match its block font alternative.

True Form Slew

This option is related to slewing within forms when using the PMODE command. Customers with new applications are advised to keep this option enabled.

- **Enable** (default). Form length is accurate according to the form length parameter in the CREATE command.
- **Disable**. Form length is IGP-X00 compatible when using PMODE.

Printer PI Line

This option enables the IGP to send PI instructions to the printer to slew the form.

- **Enable** (default). Send the PI instructions to the printer (LinePrinter Plus) during form slew. This is IGP-X00 compatible.
- **Disable**. Do not send PI instructions to the printer. LFs are sent instead.

Print Quality

- **Data Processing** (default). The emulation prints at 60 x 72 dpi and lets you choose between normal alphanumerics and barcodes and dark mode alphanumerics and barcodes. This mode should be set if you want the highest speed.
- **High**. The emulation prints at 120 x 72 dpi, but all alphanumerics and barcodes are automatically printed in dark mode.
- **Best**. The emulation prints at 120 x 144 dpi and dark mode, which produces a higher resolution, better-looking print image.

Power-on S-Mode

This option instructs the PGL to behave similarly to older versions of the IGP with respect to certain commands.

All new users with new applications should select “0,” the default option. Selecting this mode insures the printer will behave as described in this manual.

Power on S-Mode sets the printer in an SMODE compatibility state at power-up. The default is 0 (disabled, no power-on mode). To use this feature, select a mode from 1 through 5, which puts IGP/PGL in an SMODE state according to the compatibility mode set. If the compatibility mode set is None, then MVP is assumed by default.

For more information, see the *IGP/PGL Programmer's Reference Manual*.

Trunc Dyn Data

This submenu allows the user to truncate the dynamic data up to the maximum data length specified in Create Mode.

- **Disable** (default). If the dynamic data exceeds the maximum data length, an error will report.
- **Enable**. If the dynamic data exceeds the maximum data length, the data truncates.

Error Report

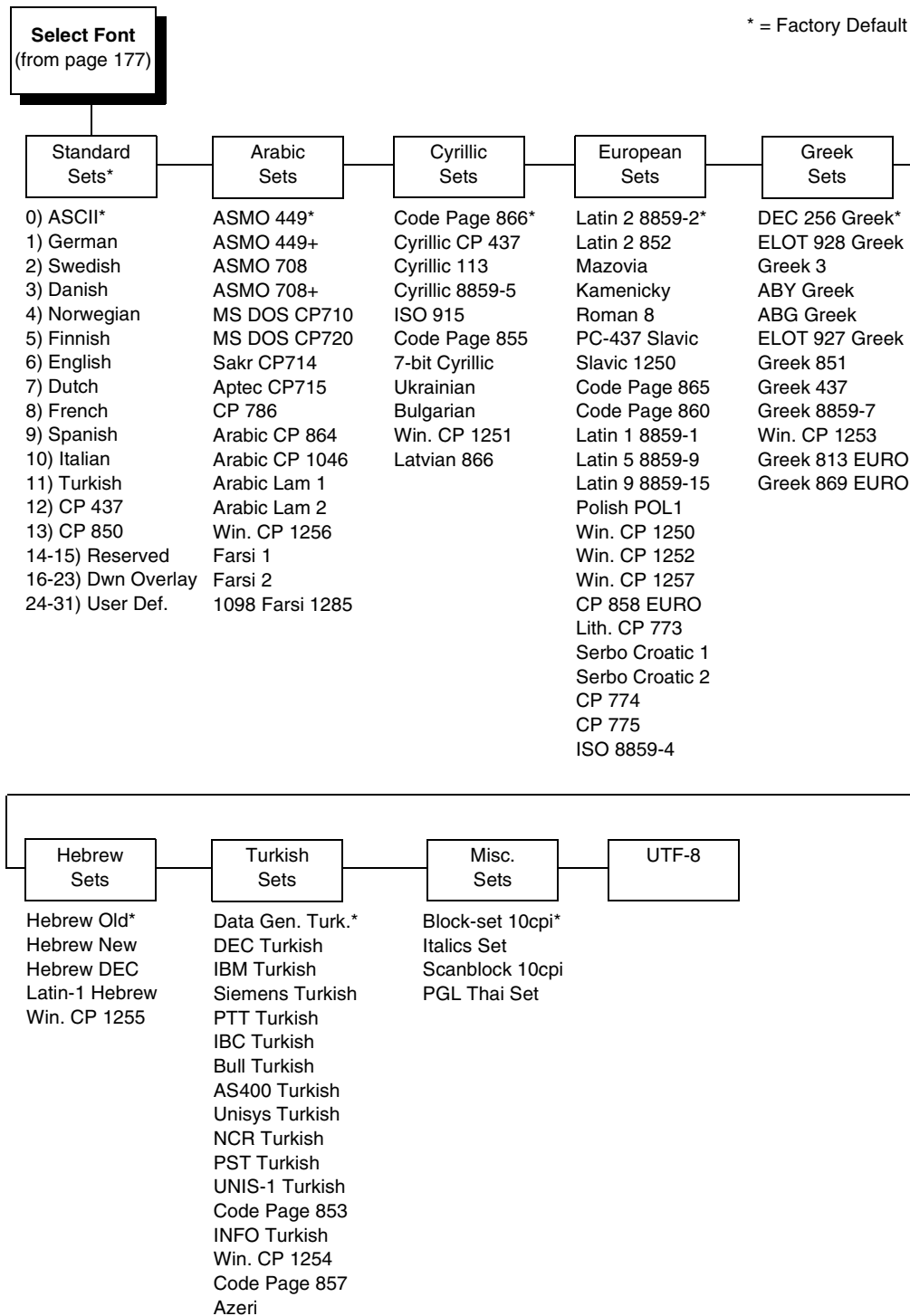
Sets the error reporting capability for IGP/PGL forms.

- **On** (default). Form boundary error checking reported. Any element which falls off the current page is reported as an error.
- **Debug Mode**. The printer is put in debug mode whenever a form is defined in Create Form mode. Each line of the Create Form is printed along with an error if one occurred. This is the same functionality as if there were a slash (/) entered before the Create Form Name.
- **Fault**. When an error occurs, the error is printed and the message "IGP/PGL ERROR" appears on the printer front panel. The printer then stops printing and goes offline. The error must be cleared before the printer can resume normal operation.
- **Off**. No form boundary checking. Graphic elements appear clipped if they are beyond the page boundaries.

Select Font

Allows you to choose from various character sets, including IGP/PGL Standard sets, 256 character multinational sets, and UTF-8 encoded Unicode™.

IGP/PGL Font Set Menu



IGP/VGL Emulation

Code V Graphics language (VGL) is an Intelligent Graphics Printing (IGP) software emulation designed for your Line Matrix printer. The IGP Code V emulation of the QMS[®] Code V Version II programming language produces online forms, barcodes, and alphanumeric text-generation. The graphics processing features are detailed below.

Features

OnLine Form and Label Generation makes it easy to create forms or labels with the “preprinted” look for each application. VGL programs control all graphics functions, dramatically reducing host computer programming and processing time. Graphics capabilities include boxes, vertical and horizontal, solid and dashed lines with a variety of thickness, logos, and special alphanumeric print features.

Variable Barcodes allow the barcode for your application to print with standard or user-defined ratios in vertical or horizontal orientations. Available barcodes are Codabar, Code 39, Code 93, Code 128 with Subsets A, B, and C, and Code EAN/UCC 128, EAN 8, EAN 13, Interleaved 2 of 5, MSI, UPC-A, UPC-E, POSTNET, PostBar, Royal Mail, and UPC Shipping. POSTNET is available only in the horizontal direction. A dark print mode is included for darker, high-contrast barcodes. The IBARC barcode command prints barcodes in four orientations: horizontal, rotated 90, rotated 180, or rotated 270 degrees.

Expanded and Compressed Print draws attention where needed. Alphanumeric height and width are controlled independently for a tremendous range of character sizes up to 9.9 inches wide and tall. Several compressed print sizes are available: 12, 13.33, 15, 17.65, and 20 (dpi), permitting up to 170 columns in an 8.5 inch printed area (20 dpi).

Rotated Alphanumerics permit new concepts in form design. Normal, expanded, and compressed character strings can be rotated 90 degrees clockwise, counterclockwise, or printed upside down.

Logos are easily created using alphanumeric commands and a variety of print and shading features, which provides a “customized” appearance for forms, reports, and labels. The registered trademark, copyright, TUV[®], GS-Mark, UL[®], and CSA[®] symbols are provided as standard designs on the VGL, and you can also define custom symbols.

Reverse and Shaded Print permit highlighting and contrasting by printing white characters on a dark background or white characters on a gray, shaded background. Various levels or patterns of gray shading and reverse printing may combine with the many other print features to create distinctive designs.

Automatic Increment/Decrement Capability allows batch form processing. Individual alphabetic, numeric, and barcode data fields can be identified and automatically incremented or decremented by any amount, beginning from a specified reference point.

Standard Character Sets provide you with many different character sets. Based on the Multinational Character Set, you can create your own character sets using characters defined and stored in flash memory.

Configuring The Emulation With The Control Panel

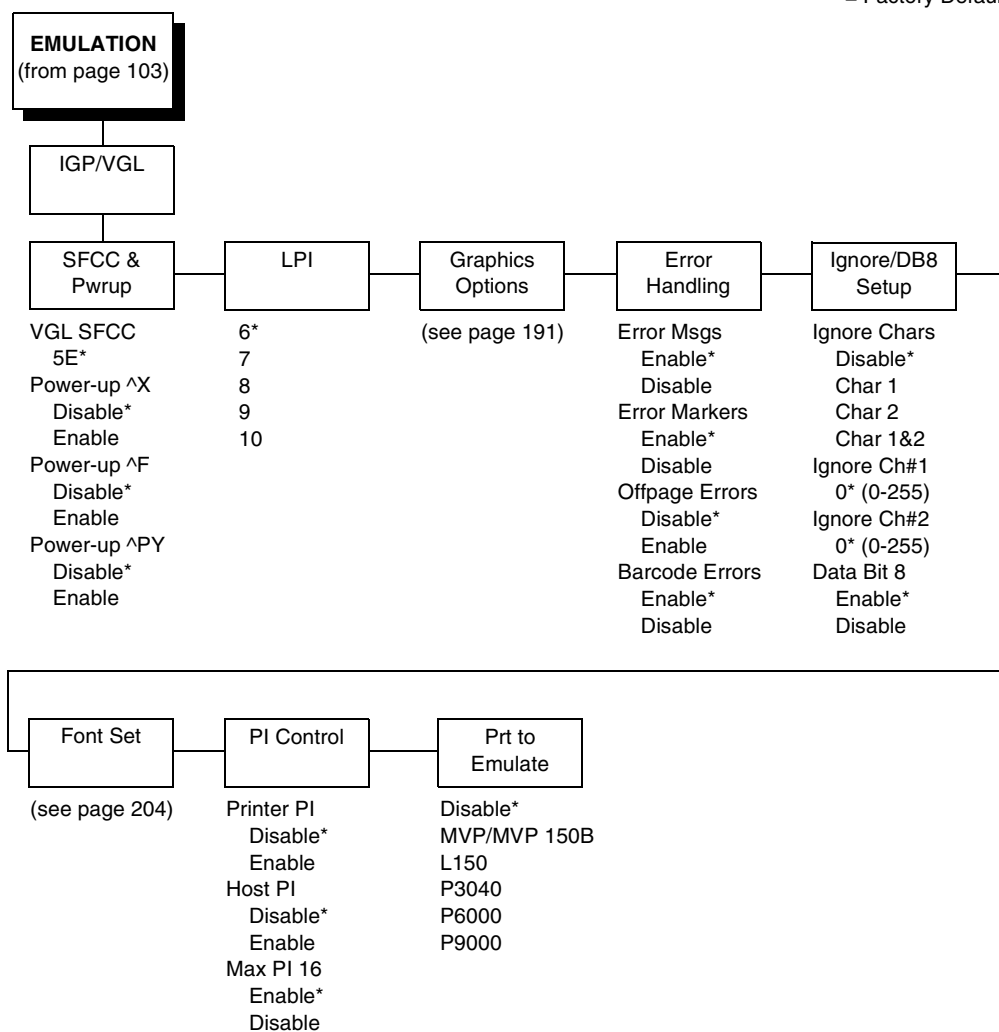
You can select VGL default parameters directly from the control panel or by control codes as explained in the *IGP/VGL Programmer's Reference Manual*. The VGL parameters are described on the following pages. Parameters marked with an asterisk (*) indicate the default value. The printer must be offline to enter the configuration structure.

IMPORTANT BEFORE you reconfigure the IGP/VGL, print a configuration sheet to see all of the current settings.

Pressing an invalid key to enter a parameter value may move you to another level in the configuration menu or exit the menu completely.

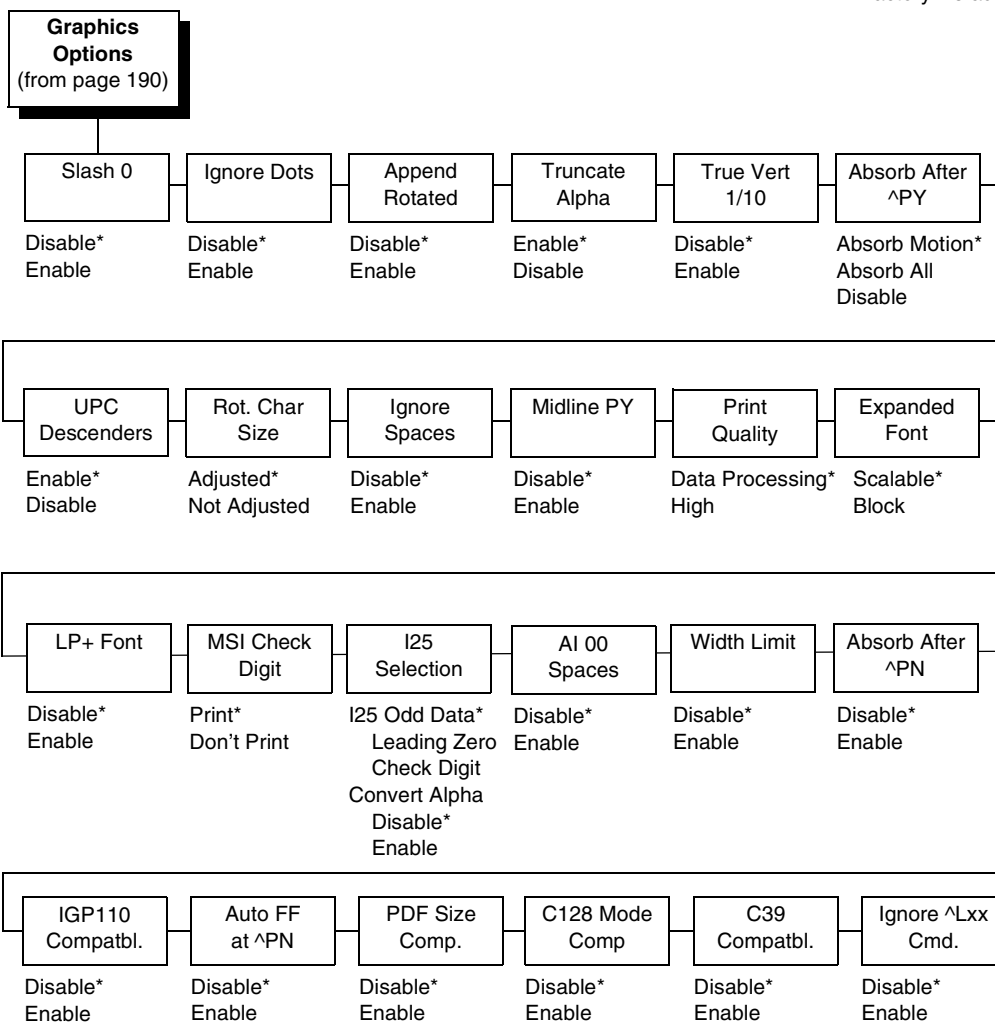
IGP/VGL Submenu

* = Factory Default



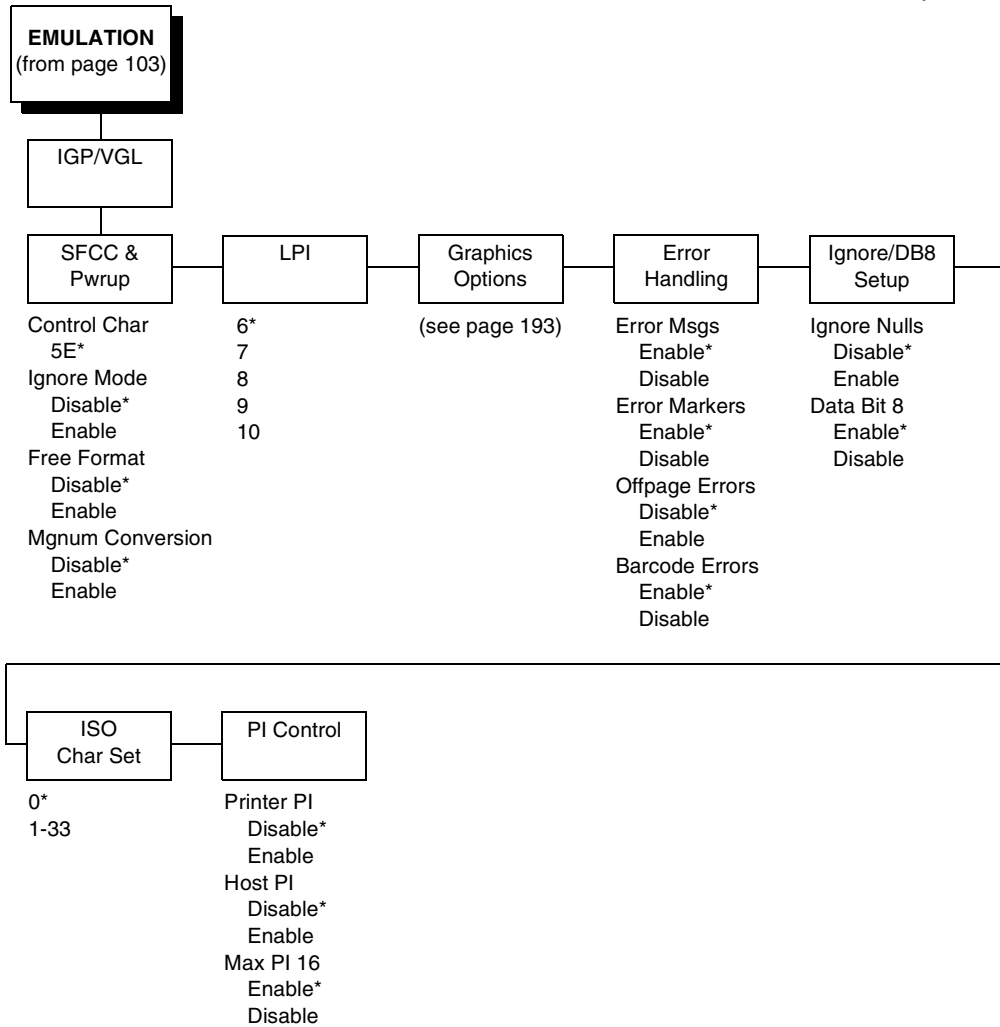
IGP/VGL Graphics Options Submenu

* = Factory Default

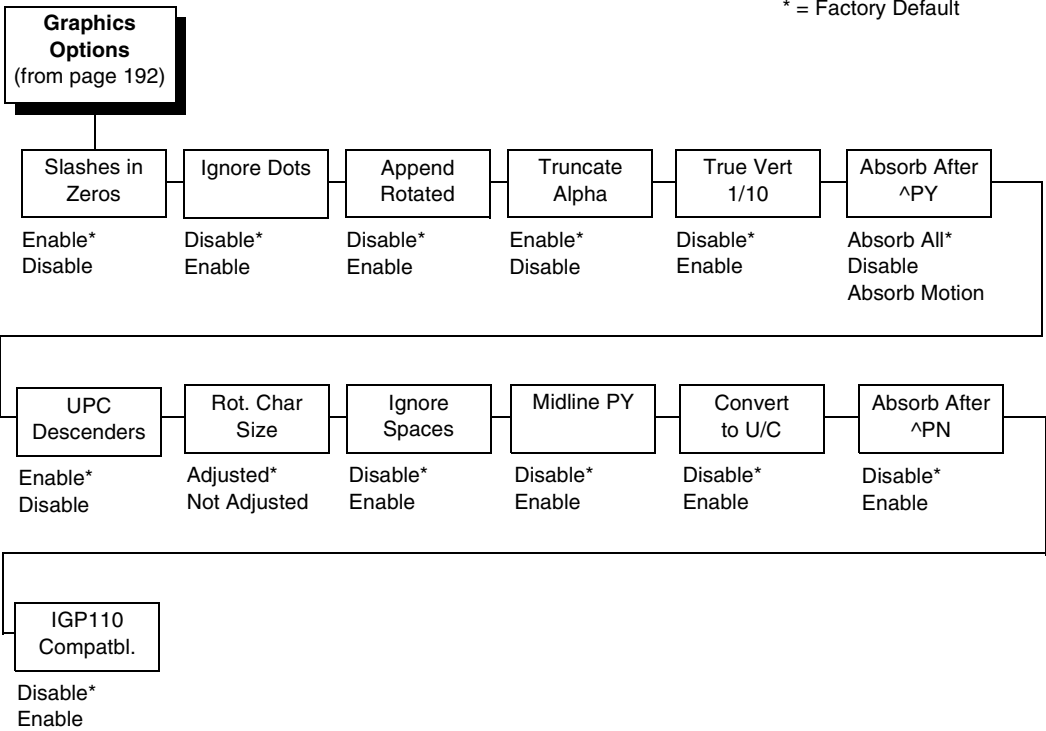


IGP/VGL Submenu (with PCL-II)

* = Factory Default

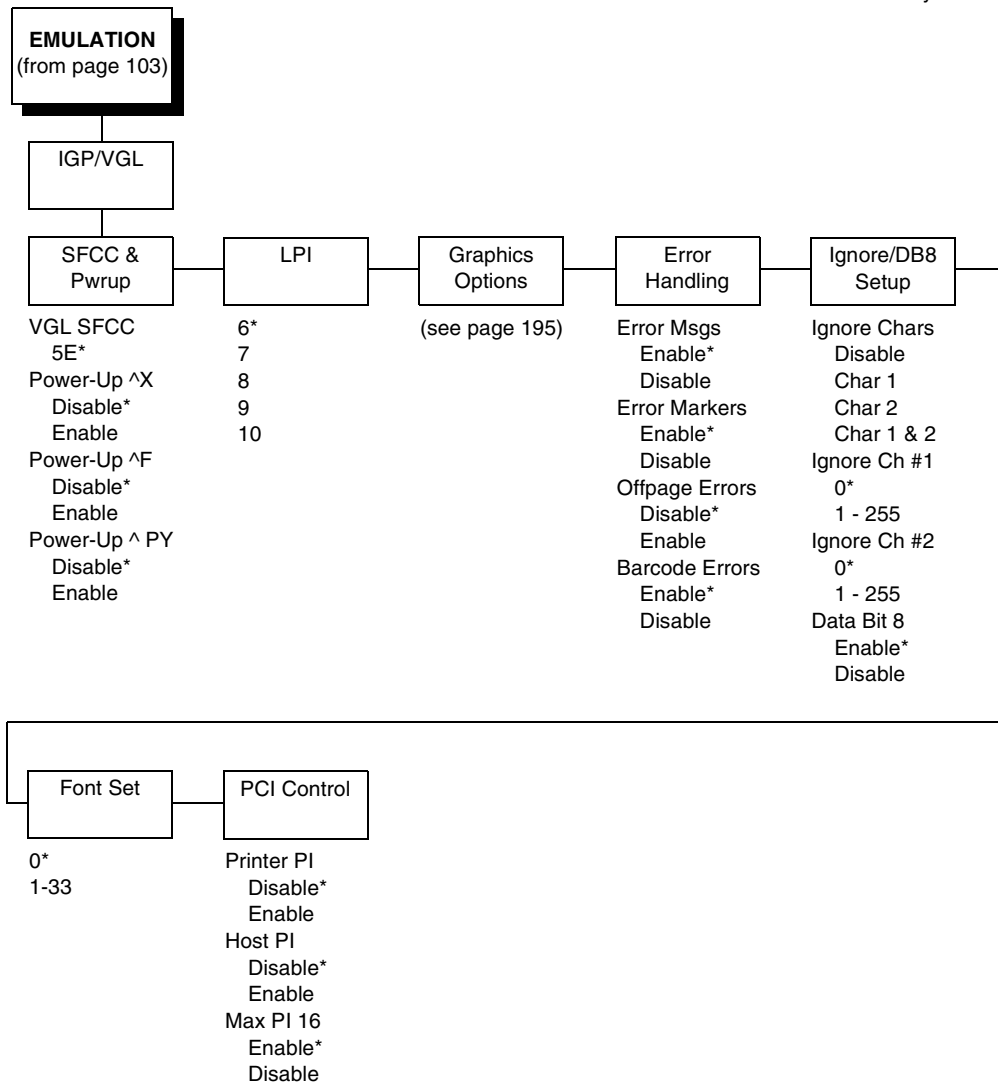


IGP/VGL (with PCL-II) Graphics Options

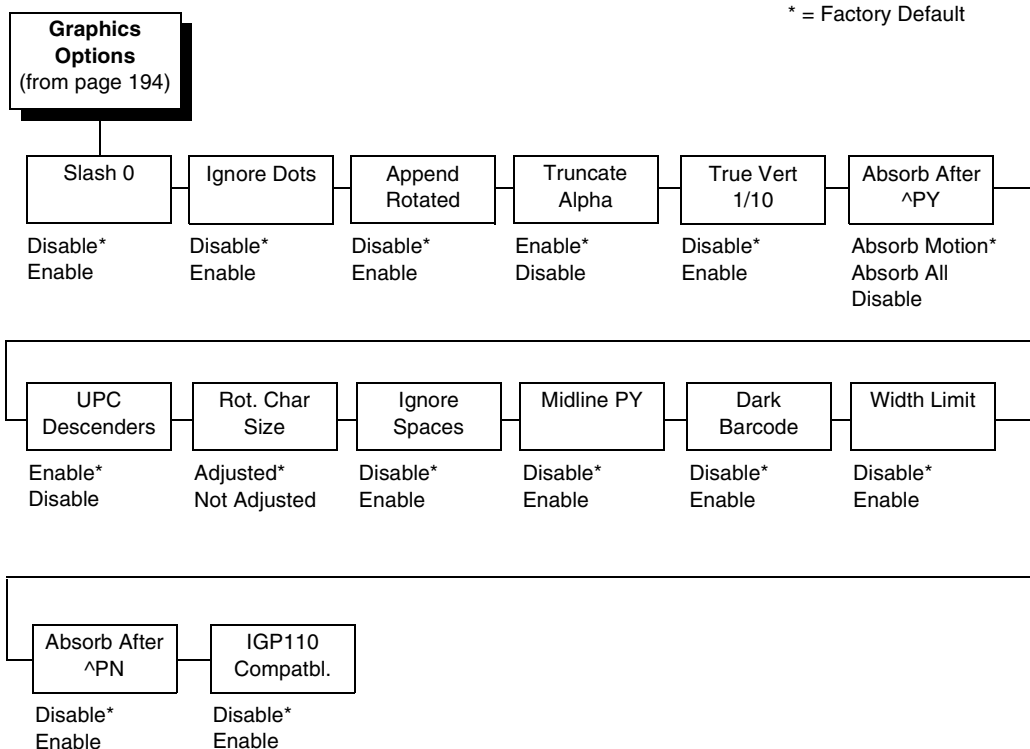


IGP/VGL Submenu (with LG)

* = Factory Default



IGP/VGL (with LG) Graphics Options



SFCC & Pwrap

This option has several sub-options which define the SFCC and power-up configuration used with VGL.

VGL SFCC

This option selects the Special Function Control Code. The default value 5E. Run a configuration printout to determine the currently selected VGL SFCC.

Power Up ^X

- **Disable** (default).
- **Enable**. Selects the ignore mode as the power-up default and selects the graphics mode ^PY as the power-up default. All characters are ignored until a ^A command is received.

Power Up ^F

- **Disable** (default).
- **Enable**. Selects free format mode as the power-up default and selects the graphics mode ^PY as the power-up default. Free format causes the VGL to ignore carriage returns, line feeds, and all characters below hex 20 sent from the host.

Power Up ^PY

- **Disable** (default).
- **Enable**. Selects the graphics mode ^PY as the power-up default.

LPI

The number of lines to be printed per inch. For example, at 6 lpi there is 1/6 inch from the top of one print line to the top of the next print line.

Graphics Options

The following are several options which configure printing output.

Slash 0

This parameter allows you to print the numeral “0” with or without the slash. This option applies to all character sets except OCR-A and OCR-B.

- **Disable** (default). Zero is printed without a slash.
- **Enable**. Zero is printed with a slash.

Ignore Dots

- **Disable** (default).
- **Enable**. Causes the VGL to expect position values to be specified in only 1/10ths of an inch. If the dot position is also given, it is treated as text.

Append Rotated

- **Disable** (default). Logos and alphanumeric strings are treated as separate elements.
- **Enable**. Appends logos to an alphanumeric string rotated in a clockwise, counterclockwise, or inverted orientation.

Truncate Alpha

When enabled, this parameter prevents the printing of Error 48 (Element Off Page Error) if alphanumeric data, including spaces, extends beyond the right side of the form. The options include:

- **Enable** (default)
- **Disable**

True Vert 1/10

- **Disable** (default). A vertical 1/10 of an inch parameter is used as 7/72 of an inch. The absolute move is slightly smaller than expected. For example, a one-inch move would be 70/72 of an inch. Vertical moves that have the same value are identical in length.
- **Enable**. A vertical 1/10 inch parameter is used as 1/10 inch. Rounding occurs to the nearest 1/72 inch. This can cause vertical moves that have the same value to differ by $\pm 1/72$ inch.

Absorb After ^PY

- **Absorb Motion** (default). The first paper motion following a ^PY command is ignored.
- **Absorb All**. The system ignores all the data and terminator until a host generated motion terminator is detected.
- **Disable**. System terminators following a graphics command are sent to the printer and result in paper motion.

UPC Descenders

- **Enable** (default). UPC/EAN barcodes are printed with descenders, even if there is no human readable data.
- **Disable**. UPC/EAN barcodes are printed without descenders if there is no human readable data.

Rot. Char Size

- **Adjusted** (default). Rotated (clockwise/counterclockwise), expanded characters have a different size than an unrotated character with the same size parameters.
- **Not Adjusted**. Rotated, expanded characters are the same size as unrotated characters with the same size parameters.

Ignore Spaces

- **Disable** (default). Trailing spaces are not deleted from the last alphanumeric element in a graphics pass.
- **Enable**. Trailing spaces are deleted from the last alphanumeric element in a graphics pass.

Midline PY (includes ^PN)

- **Disable** (default). The Graphics mode Enable command, ^PY, must be the first three characters of a line.
- **Enable**. The ^PY or ^PN can occur anywhere in a line.

Print Quality

- **Data Processing** (default). ALPHA text and barcodes are printed in normal mode at 60 x 72 dpi. This mode should be set if the highest speed is desired.
- **High**. ALPHA text and barcodes are printed in dark mode at 120 x 72 dpi.

Expanded Font

- **Scalable** (default). These expanded characters have rounded edges.
- **Block**. These are block characters compatible with IGP-X10 printers.

LP+ Font

- **Disable** (default). The IGP/VGL uses its default half-dot font, which is slightly different from the standard bitmap font used by LP+ at 12, 13, 15 and 17 cpi.
- **Enable**. The IGP/VGL uses the same font as used by LP+ at all cpi.

MSI Check Digit

- **Print** (default). The check digit is appended at the end of the printable data field for MSI barcodes.
- **Don't Print**. The check digit for MSI barcodes does not print.

I25 Selection

- **I25 Odd Data** (default). When an odd number of data is provided, the default setting, Leading Zero, will add a zero to the beginning of the bar code data. The setting, Check Digit, will add a check digit to the end of the bar code data so that the results add up to an even number of data.
- **Convert Alpha**. Disable is the default. When enabled, each non-digit I25 bar code character will convert to "0."

NOTE: If you use an Interleaved 2/5 barcode that automatically adds the check digit (type code k or l, IBARC type code INT2/5CD or INT2/5CDA), the check digit is added regardless of how this parameter is set.

AI 00 Spaces

This option is designated for EAN/UCC-128 barcodes whose application identifier (AI) is 00.

- **Disable** (default). The printable data field is printed with the AI enclosed in parentheses. This is the standard EAN/UCC-128 format.
- **Enable**. The printable data field is printed with the UCC fields separated by spaces. This option is IGP-X00 compatible.

Width Limit

- **Disable** (default).
- **Enable**. The system will limit the length and width for expanded characters to a limit shown in Table 7, which displays the maximum width allowed for a specific height in the range of 00 through 40 (0.0 through 4.0 inches).

Table 7. Width Limit Table

| Height Param. | Max. Width Allowed | Height Param. | Max. Width Allowed |
|---------------|--------------------|---------------|--------------------|
| 00 | 99 | 21 | 51 |
| 01 | 99 | 22 | 53 |
| 02 | 3 | 23 | 56 |
| 03 | 6 | 24 | 58 |
| 04 | 8 | 25 | 61 |
| 05 | 11 | 26 | 63 |
| 06 | 13 | 27 | 66 |
| 07 | 16 | 28 | 68 |
| 08 | 18 | 29 | 71 |
| 09 | 21 | 30 | 73 |
| 10 | 23 | 31 | 76 |
| 11 | 26 | 32 | 78 |
| 12 | 28 | 33 | 81 |
| 13 | 31 | 34 | 83 |
| 14 | 33 | 35 | 86 |
| 15 | 36 | 36 | 88 |
| 16 | 38 | 37 | 91 |
| 17 | 41 | 38 | 93 |
| 18 | 43 | 39 | 96 |
| 19 | 46 | 40 | 98 |
| 20 | 48 | | |

Absorb After ^PN

- **Disable** (default). All line terminators that follow the ^PN command are sent to the printer and processed.
- **Enable**. The first motion line terminator that follows the ^PN command is ignored.

IGP110 Compatbl.

This option instructs the VGL to behave similarly to the IGP-10 with respect to certain commands. All new users with new applications should select the “Disable” option. Selecting this mode insures the printer will behave as described in this manual.

- **Disable** (default). The IGP does not emulate the IGP-10 mode.
- **Enable**. The IGP emulates the IGP-10 version.

Auto FF at ^PN

- **Disable** (default). A form feed will not be generated automatically when the ^PN command is encountered.
- **Enable**. A form feed will be generated automatically to slew to the top of the next form when the ^PN command is encountered and when the current vertical position is not at top of form.

PDF Size Comp.

This option is for compatability of the font size of the barcode printable data field on the old build.

- **Disable** (default). Uses the normal font size.
- **Enable**. Matches the font size of the old build.

C128 Mode Comp

The menu is for compatibility of the old build in auto mode switch.

- **Disable** (default). Uses auto mode switch.
- **Enable**. Matches the old build on the auto mode switch.

C39 Compatbl.

This menu makes the old method of decoding C39 alternative character set compatible with the new.

- **Disable** (disable). Uses the current way of decoding.
- **Enable**. Matches the old method of decoding.

Ignore ^Lxx Cmd.

- **Disable** (default).
- **Enable**. The ^Lxx command will always be ignored.

Error Handling

Following are several options which define how errors are reported.

Error Msgs

- **Enable** (default). Command syntax is checked and error messages printed when command parameters are incorrect.
- **Disable**. Error checking and error messages are suppressed.

Error Markers

- **Enable** (default). Prints the following error markers for those elements that print beyond the page boundaries:
 - >> for elements that begin off the right side of the page;
 - << for elements that begin at the indicated position but end off the page; ♦ for elements where the starting position of the command contains an error other than an off-page error.

Offpage Errors

- **Disable** (default). Does not report errors for elements that start or end beyond the right edge of the page.
- **Enable**. Reports errors for elements that start or end beyond the right edge of the page.

Barcode Errors

- **Enable** (default). An error message will print when invalid barcode data is encountered.
- **Disable**. VGL will not print an error for illegal barcode data; the barcode will be skipped.

NOTE: When the Barcode Errors option is disabled, the VGL emulation will try to make the best use of invalid data by either truncating extra digits or adding zeros to the end of barcode data to meet minimum data length requirements for some barcodes. Not all errors will be corrected.

Ignore / DB8 Setup

Following are several options which define character filtering and Data Bit 8.

Ignore Chars

- **Disable** (default). Character filtering is not enabled.
- **Char 1**. Character 1 will be filtered. Select the option “Ignore CH#1” to specify character 1.
- **Char 2**. Character 2 will be filtered. Select the option “Ignore CH#2” to specify character 2.
- **Char 1 & 2**. Characters 1 & 2 will be filtered. Select the options “Ignore CH#1” and “Ignore CH#2” to specify values for these characters.

Ignore CH#1

Specifies character 1 for the character filtering option. Valid decimal values are from 0 through 255.

Ignore CH#2

Specifies character 2 for the character filtering option. Valid decimal values are from 0 through 255.

Data Bit 8

- **Enable** (default). The PI line is not passed directly from host to printer; all 8 bits are used for data bits, and characters in the hex 80-FF range can be accessed.
- **Disable**. When the host PI line is enabled, Data Bit 8 internally indicates PI line status. To use the PI line, disable Data Bit 8, and enable the Host PI configuration option (under the PI Control option, below).

NOTE: Data Bit 8 is interpreted as either Data Bit 8 or PI signal, but never both. When enabled as Data Bit 8, Data Bit 8 has priority over the PI signal, and all data above hex 7F is used to access character data and not to interpret PI line data.

Conversely, when Data Bit 8 is disabled and the PI signal is used, Data Bit 8 of the data is reserved for use as the PI function, and you cannot access characters in the hex 80-FF range. Therefore, to access characters in the hex 80-FF range, Data Bit 8 must be enabled.

Font Set

The Font Set specifies which language is currently selected for use with the VGL. Refer to “IGP/VGL Font Set Menu” on page 204 for available selections.

PI Control

Printer PI

- **Disable** (default). The ASCII emulation is configured with the PI line disabled.
- **Enable**. The ASCII emulation is configured with the PI line enabled.

Host PI

- **Disable** (default). The host does not send PI signals.
- **Enable**. The host sends PI signals. The Data Bit 8 configuration option must be disabled to transmit the PI line to the printer.

Max PI 16

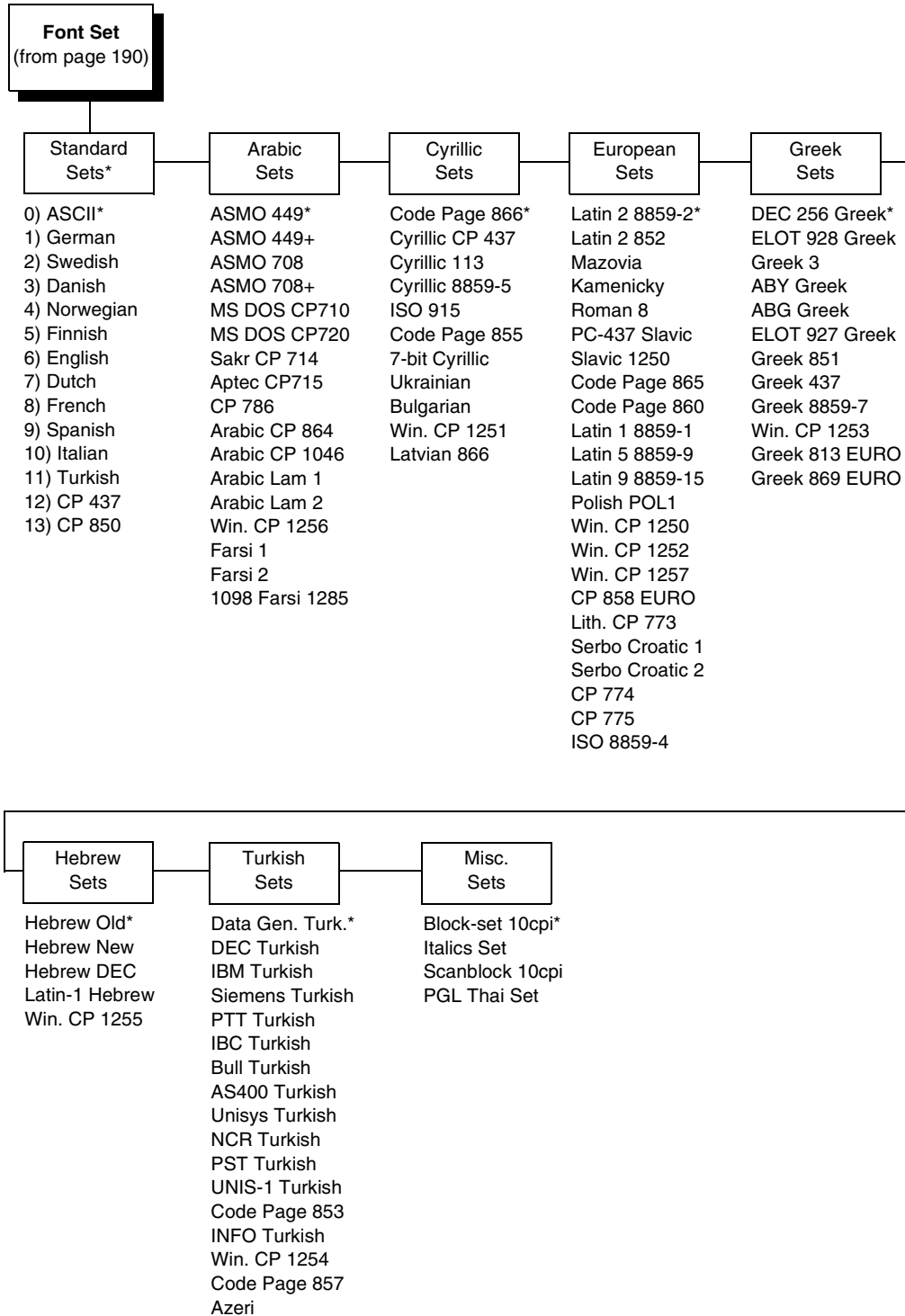
- **Enable** (default). A paper slew of 0-15 will move 1-16 lines.
- **Disable**. A paper slew of 1-15 will move 1-15 lines. A paper slew of 0 will always move 1 line.

Prt To Emulate

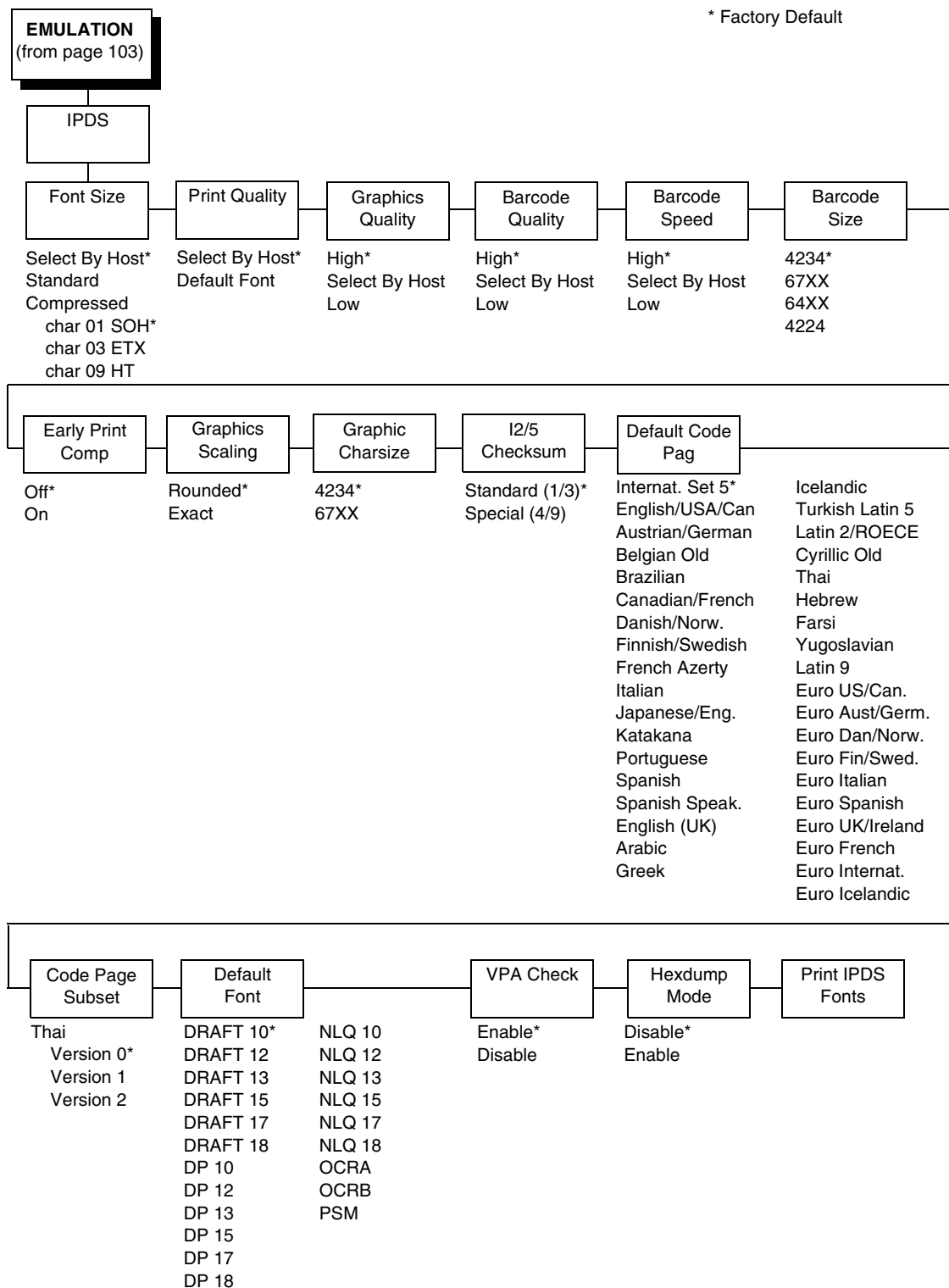
This option allows you to select an earlier model printer/IGP board combination to emulate. When a printer emulation is selected, the scaling command causes the printer to generate a graphic image in the same density as the printer emulation chosen. Five types of printers can be emulated: MVP or MVP 150B, L150, P3040, P6000, and P9000. Once a printer emulation is selected, it remains active until the printer is turned off or another printer emulation is selected. All new users with new applications should select the "Disable" option, which insures the printer behaves as described in this manual. The other compatibility modes are required to emulate the behaviors of older printers which may be inconsistent with the documented VGL functionality. Proper use of this feature requires the printer to be equipped with high resolution hammer bank tips (12 mil).

IGP/VGL Font Set Menu

* = Factory Default



IPDS Emulation



Your IPDS printer emulates the IBM 4234 twinax models 008 and 012.

IPDS Twinax printers can only print IPDS data streams and nothing else. Even a simple job, such as a screen print, is IPDS data in a twinax attachment. Because the printer definition on a twinax host is either set automatically (by auto configuration) or manually, the printer type is already known.

NOTE: A general discussion about starting and stopping IPDS can be found in the IBM 4234 Product and Programming Reference Manual (GC31-3879). Sending a non-IPDS data stream to an IPDS printer and vice versa will result in a hung spool file or writer.

Font Size

This parameter chooses the font size which will be used by IPDS.

- **Select By Host** (default). The font ID is only affected by host commands.
- **Standard**. The font ID is converted to a decompressed font ID.
- **Compressed**. The font ID is converted to a compressed font ID.

Print Quality

This parameter chooses the print quality.

- **Select By Host** (default). The application decides the print quality.
- **Default Font**. The default font the printer uses.

Graphics Quality

This parameter chooses the print quality of graphics.

- **High** (default). Graphics are printed at 144 dot rows per inch.
- **Select By Host**. The application decides the quality of the graphics.
- **Low**. Graphics are printed at 72 dot rows per inch.

Barcode Quality

This parameter chooses the horizontal print quality of barcode labels.

- **High** (default). Label is printed at 144 dots per inch.
- **Select By Host**. The application decides the quality of the labels.
- **Low**. Label is printed at 72 dots per inch.

Barcode Speed

This parameter chooses the vertical print quality of barcode labels.

- **High** (default). Barcodes are printed with less vertical dots, increasing printing speed, but decreasing print quality.
- **Select By Host**. The application decides the quality of the labels.
- **Low**. Barcodes are printed with more vertical dots, decreasing printing speed, but increasing print quality.

Barcode Size

This parameter will emulate the barcode sizes of the selected printer model.

- **4234** (default). IBM 4234
- **67XX**. Decision Data 67XX
- **64XX**. IBM 6400 series
- **4224**. IBM 4224

Early Print Comp (Complete)

This parameter chooses when to send a Print Comp to the controller.

- **Off** (default). Print Comp is sent if page is printed completely.
- **On**. Print Comp is sent immediately. The next page will be created. This improves the print performance when starting the next page.

NOTE: When Early Print Comp is enabled and an error occurs, you may lose data.

Graphics Scaling

This parameter chooses the scaling factor for graphics when the Mappin. Control option of the IPDS Write Graphics Control command is SCALE TO FIT:

- **Rounded** (default). Calculations are rounded up in the desired output resolution.
- **Exact**. Graphics will be scaled as accurately as possible.

Graphic CharSize

This parameter will emulate the graphic character size of the selected printer model.

- **4234** (default). IBM 4234
- **67XX**. Decision Data 67XX

I2/5 Checksum

This parameter defines the printer checksum calculation method for Interleaved 2 of 5 barcodes.

- **Standard (1/3)** (default). The odd numbers will be multiplied by 3 and the even numbers by 1 for calculation of the checksum.
- **Special (4/9)**. The odd numbers will be multiplied by 4 and the even numbers by 9 for calculation of the checksum.

NOTE: "Odd" refers to the 1st, 3rd, 5th... character in the barcode, while "even" refers to the 2nd, 4th, 6th... character in the barcode.

Default Code Pag

Choose which code page to use with the IPDS emulation. This option is independent of the Character Set selection in the CTHI emulation.

Code Page Subset

When the Thai code page is selected as the default, either from the front panel or by a host command, you may choose from three different versions.

Default Font

Choose a font quality and size from the available selections. All fonts in the Default Font menu are available in standard and compressed vertical resolution (see page 205).

VPA Check

- **Enable** (default). The printer checks for dots that fall outside the intersection of the logical and physical pages. If dots fall outside the area, the printer reports an error to the host if the IPDS Exception Handling Control command setting requires error reporting.
- **Disable**. The printer does not report dots outside the valid printable area.

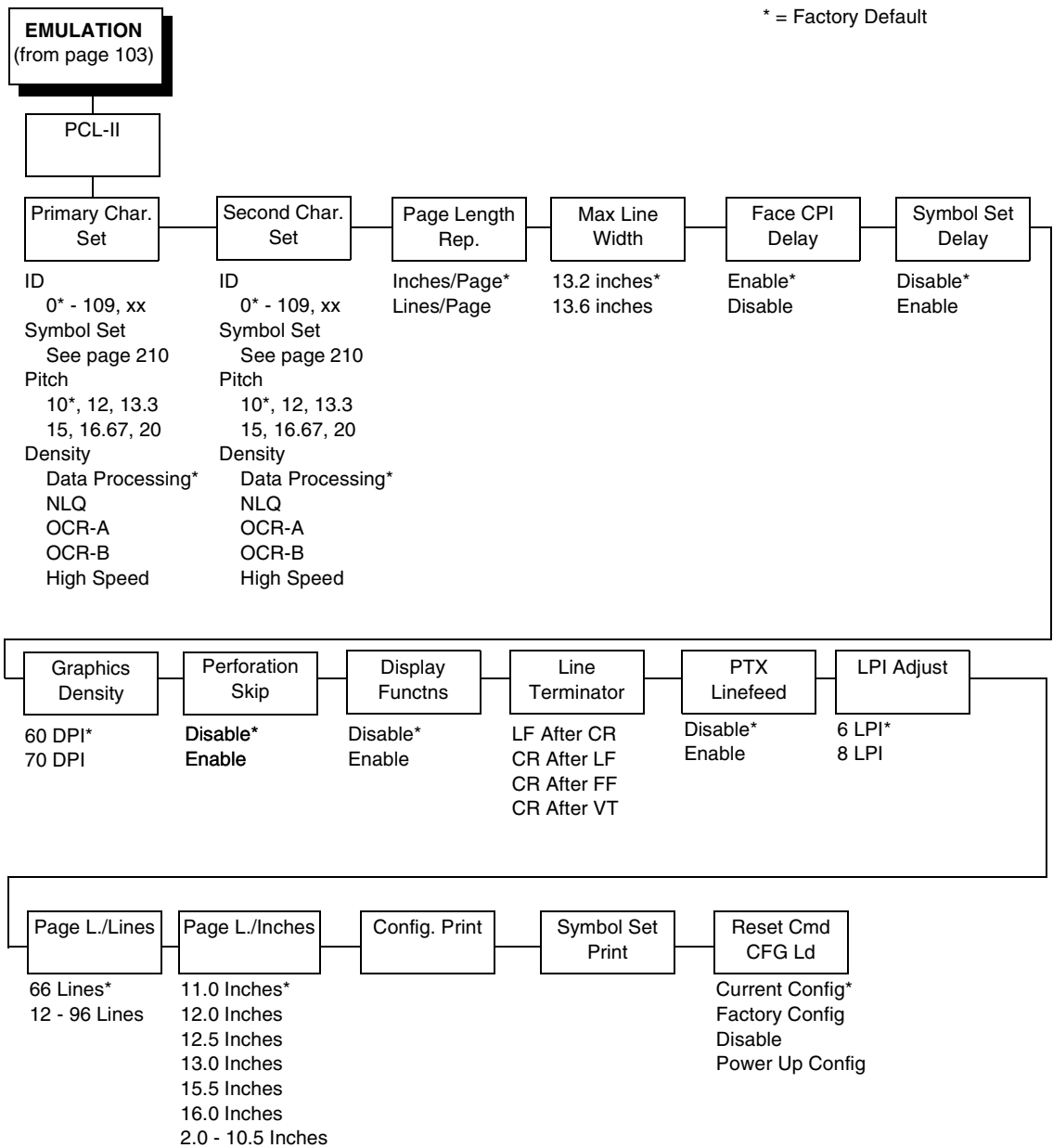
Hexdump Mode

A hex code printout (or hex dump) translates all incoming data to hexadecimal equivalents. A hex dump lists each ASCII data character received from the host computer, together with its corresponding two-digit hexadecimal code. Hex dumps can be used to troubleshoot some types of printer data reception problems.

Print IPDS Fonts

This feature allows you to print a list of all resident fonts currently available in the active IPDS emulation

PCL - II Emulation





Primary Char. Set

You can select one of 92 pre-defined character sets by ID (although character sets range from 0 - 109, not all sets are available on the LJ500 printer), or you can select pitch, symbol set, and typeface individually. If the combination you choose matches one of the 92 predefined sets, the ID submenu will reflect that selection. If not, the ID menu will display xx to indicate that the current character set does not match a pre-defined set. Set 0 is the default, and its attributes are 10 cpi, Data Processing typeface, and Roman 8 symbol set.

Second Char. Set

Your printer can store an additional character set. To toggle between them, send the Shift In (Decimal 15, to select the Primary character set) or Shift Out (Decimal 14, to select the Secondary character set).

Page Length Rep.

- **Inches/Page** (default). All page length calculations are based on the inches displayed on the panel.
- **Lines/Page**. All changes in LPI or density will be changed accordingly. The length of the page is the number of lines per inch, or lpi.

For example, if the form in use is 82 lines at 6 lpi, the page is physically 13.67 inches. Since 13.67 inches is not selectable from the Length in Inches menu, change the representation to lines, then set the number of lines to 82. The inches menu will display 13.6 inches although the printer internally keeps the exact form length of 13.67 inches.

Max Line Width

Set the maximum line width at 13.2 inches (default) or 13.6 inches.

Face CPI Delay

Allows the combination of different font densities on the same line.

- **Enable** (default). Different font densities can be used on the same line.
- **Disable**. Only the same font densities are allowed on the same line.

Graphics Density

Graphics can be printed in 60 DPI (default) or 70 DPI.

Perforation Skip

- **Disable** (default). Allows printing on page perforation.
- **Enable**. You may set up a skip-over margin. For example, a skip-over margin of one inch creates a one inch margin at the bottom of the page.

Display Functions

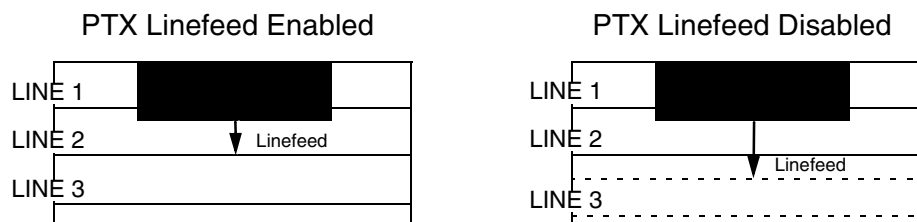
- **Disable** (default). The default. Control characters are not printed.
- **Enable**. Control characters are printed before they get executed. This is a useful debugging tool.

Line Terminator

You can define the action of the line. Four options are available: LF after CR, CR after LF, CR after FF, and CR after VT. Each of these options may be enabled or disabled independent of one another.

PTX Linefeed

- **Disable** (disable). The default. Linefeed is to be performed as calculated from the bottom of the graphics or barcode, thereby disrupting the vertical text alignment.
- **Enable**. The Linefeed moves to the next line as calculated from the Top of Form position, thereby retaining vertical text alignment. When printing graphics or bar codes, you may want to set the PTX Linefeed parameter to Enable to maintain text alignment.



LPI Adjust

This parameter lets you specify the lines per inch (lpi) values: 6 LPI (default) or 8 LPI.

Page L./Lines

This parameter lets you set physical page length in lines from 12 to 96 at 6 lpi, or 16 to 128 at 8 cpi. The default is 66 lines at 6 lpi.

NOTE: If 6 lpi is selected, you will be able to scroll the menu to 128 (an invalid length). However, when you press ENTER to select this value, the menu will return with the maximum lines for 6 lpi (i.e., 96 lines). Similarly, selecting too few lines for 8 lpi will cause the menu to return with 16 lines.

Page L./Inches

This parameter allows you to set physical page length from 2 to 16 inches, in increments of half an inch. The default is 11 inches.

Config Print

This option prints the emulation's parameters and the currently selected values.

Symbol Set Print

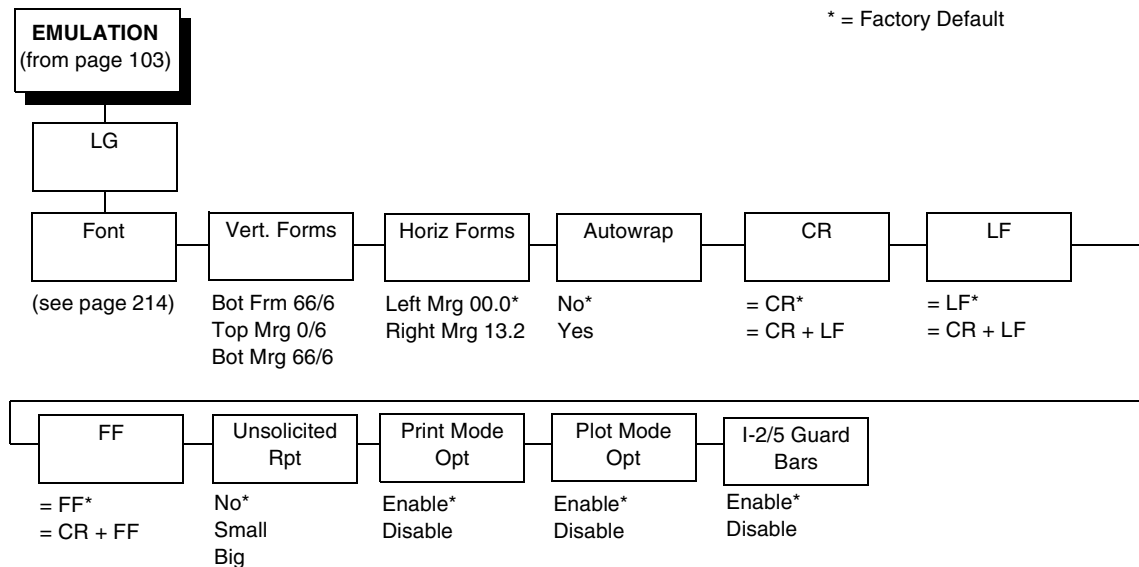
This option prints a list of all the available sets. The character set number prints to the left of the character set sample.

Reset Cmd CFG Ld

When the printer receives a host data stream reset command in addition to resetting printer variables, the selected configuration will be loaded.

- **Current Config** (default). If you have preset and presaved multiple configurations, then the currently selected presaved configuration is loaded when the reset command is received.
- **Factory Config**. The factory installed configuration is loaded when the reset command is received.
- **Disable**. The printer ignores the reset command when it is received and continues to use the currently loaded configuration.
- **Power-Up Config**. The power-up configuration is loaded when the reset command is received.

LG Emulation



| Font (from page 213) | |
|-------------------------|-----------------|
| Style | Character Set |
| DP 10 6* | GL Char Set |
| DP 10 8 | U.S. ASCII* |
| DP 12 6 | DEC Finnish |
| DP 12 8 | French |
| DP 15 6 | DEC Fr. Can. |
| DP 15 8 | German |
| DP 15 10 | Italian |
| HS 10 6 | JIS Roman |
| Corespon 5 6 | DEC Nor./Dan. |
| Corespon 5 8 | Spanish |
| Corespon 6 6 | DEC Swedish |
| Corespon 6 8 | DEC Great Brit. |
| Corespon 10 6 | ISO Nor./Dan. |
| Corespon 10 8 | DEC Dutch |
| Corespon 12 6 | DEC Swiss |
| Corespon 12 8 | DEC Portuguese |
| Corespon 15 6 | VT100 Graphics |
| Corespon 15 8 | DEC Suppl. |
| Corespon 15 10 | DEC Technical |
| OCR A | ISO Katakana |
| OCR B | 7-Bit Hebrew |
| Compress 6 6 | 7-Bit Turkish |
| Compress 6 8 | Greek Suppl. |
| Compress 8 6 | Hebrew Suppl. |
| Compress 8 8 | Turkish Suppl. |
| Compress 13 6 | GR Char Set |
| Compress 13 8 | DEC Suppl.* |
| Compress 13 10 | DEC Technical |
| Compress 16 6 | VT100 Graphics |
| Compress 16 8 | ISO Katakana |
| Compress 16 10 | ISO Latin 1 |
| DP 5 6 | ISO Latin 2 |
| DP 5 8 | ISO Latin 5 |
| DP 6 6 | ISO Latin 9 |
| DP 6 8 | ISO Cyrillic |
| | ISO Greek |
| | ISO Hebrew |
| | Hebrew Suppl. |
| | Turkish Suppl. |

Font

Select a default font style and character set for the LG emulation, as follows:

- **Style.** This option allows you to specify a print quality that includes a characters per inch (cpi) and lines per inch (lpi) setting, in the format Type cpi lpi. The default setting is DP 10 6 (Data Processing, 10 cpi, 6 lpi). The print quality types you may choose from are as follows:
DP = Data Processing (standard quality)
CORESPON = Correspondence (near letter quality)
COMPRESS = Compressed (vertically compressed for printing long graphs and charts)
OCR A & OCR B = Optical Character Recognition, sets A and B
HS = High Speed (Draft quality for high speed printing)
- **Character Set.** This option allows you to select a character set. The character set you select can be any of the Digital Multinational sets, which include the U.S. ASCII set and several foreign language and special character sets.

Vert Forms

- **Bot Frm 66/6** (default). This option sets the bottom margin for the forms. You must specify the bottom margin in lines (at 6 lines per inch), ranging from 0 to 198 lines (33 inches). The default setting is 66. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. Selecting a value for this option resets the top margin to 0, so the top margin must be redefined after this option is selected.
- **Top Mrg 6/0.** This option sets the top margin for the forms. You must specify the top margin in lines (at 6 lines per inch), ranging from 0 to 198 lines (33 inches). The default setting is 0. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. The margins will automatically adjust so that the top and bottom margins do not cross each other.
- **Bot Mrg 66/6.** This option sets the bottom margin for the forms. You must specify the bottom margin in lines (at 6 lines per inch), ranging from 0 to 198 lines (33 inches). The default setting is 66. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. Selecting a value for this option resets the top margin to 0, so the top margin must be redefined after this option is selected.

Horiz Forms

- **Left Mgr 0.00** (default). This sets the left margin for the forms. You must specify the left margin in 1/10 inch increments, from 0 to 13.1 inches. The default value is 0. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. The margins will automatically adjust so that the left and right margins do not cross each other.
- **Right Mrg 13.2**. This sets the right margin for the forms. You must specify the right margin in 1/10 inch increments, from 0.1 to 13.2 inches. The default value is 13.2. Press the right arrow to increase the value, left arrow to decrease the value, and ENTER to change units. The margins will automatically adjust so that the left and right margins do not cross each other.

Autowrap

This parameter determines if text will wrap to the next line when the line of text exceeds the right margin.

- **No** (default). Any print data received past the forms width setting is discarded.
- **Yes**. An automatic carriage return and line feed is performed when data is received past the forms width setting.

CR

This option controls the action of the printer when it receives a Carriage Return code (hex 0D) from the host computer. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. Do not use this feature if the host computer sends line feeds to the printer.

- **= CR** (default). Does not insert an extra line feed after each carriage return.
- **= CR + LF**. If this feature is enabled, each time the printer receives a Carriage Return, it inserts an additional Line Feed code (hex 0A) into the data stream. (Do not use this feature if the host computer sends Line Feeds to the printer with each Carriage Return.)

LF

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Line Feed code occurs. This can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

- **= LF** (default). Does not perform an automatic carriage return. The next print position will be the current print position of the next line.
- **= CR + LF**. Each time the printer receives a Line Feed, it inserts an additional Carriage Return code (hex 0D) into the data stream. This feature can be used in most installations, but it is required if the host computer does not send Carriage Returns to the printer.

FF

This parameter forces the printer to insert an automatic Carriage Return code into the data stream whenever a Form Feed code occurs. This can be used in most installations, but it is required if the host computer does not send carriage returns to the printer.

- **= FF** (default). Does not perform an automatic carriage return. The next print position will be the current print position of the next form.
- **= CR + FF**. Performs an automatic carriage return. The next print position will be print position 1 of the next form.

Unsolicited Rpt

This option enables or disables Printer Device Status Reports to be sent to the host when a reportable status or error condition has occurred.

- **No** (default). Disables all unsolicited status reports from the printer.
- **Small**. Enables brief unsolicited status reports and sends an extended status report to the host.
- **Big**. Enables extended, unsolicited status reports and sends an extended status report to the host.

Print Mode Opt

When enabled, this option affects the SPI, SHS, and DECShORP commands. The printer will no longer be forced into these commands and print speed improves significantly when in portrait orientation. For SHS and DECShORP, the character size will change with the selected pitch. In addition, SGR attributes such as bold, crossed-out, and italics, will be done in print mode with greater efficiency.

- **Enable** (default). Enables the print mode option.
- **Disable**. Disables the print mode option. This provides compatibility with older LG printer products.

Plot Mode Opt

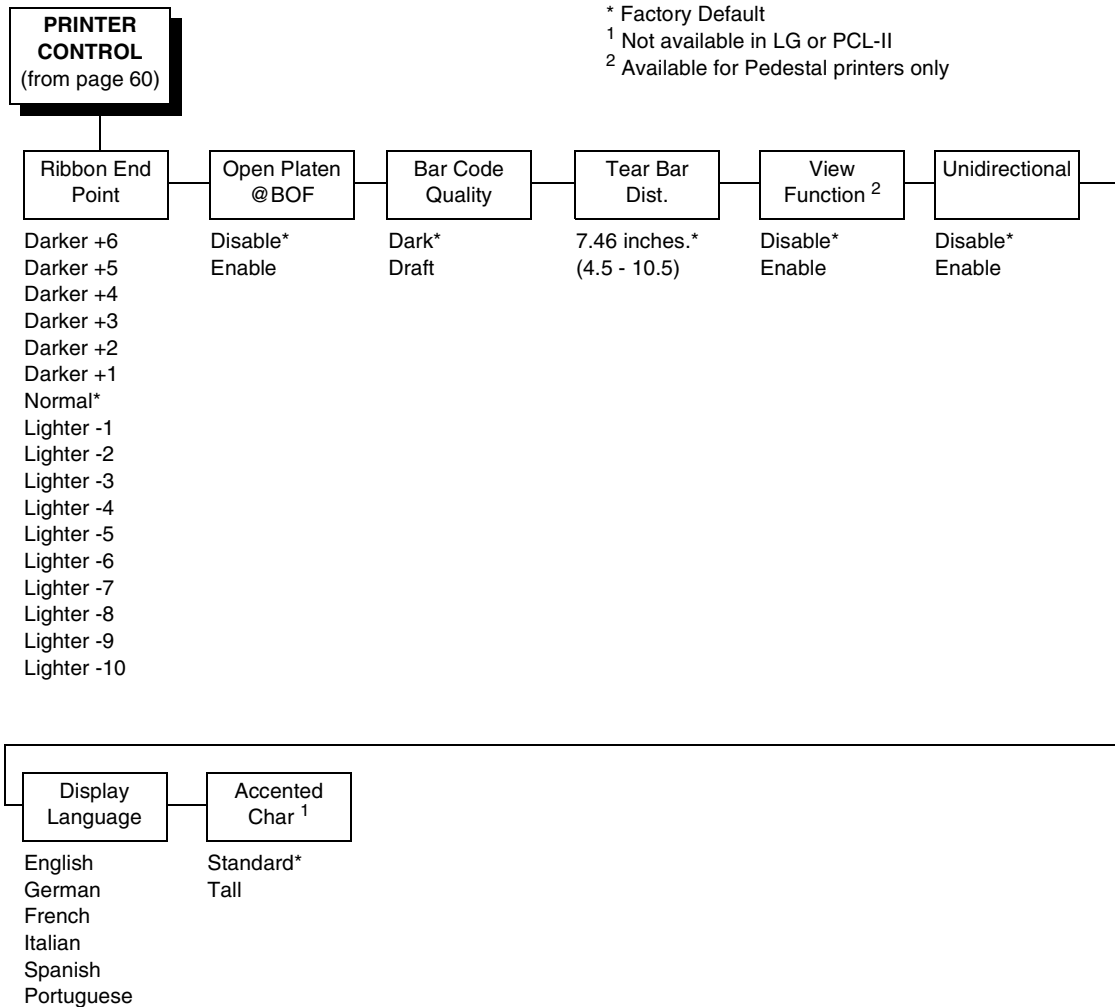
When enabled, this option will plot with greater efficiency, particularly with respect to the Postnet barcode. Postnet is printed in the same density as the current print mode font so that reverse motion will be inhibited when possible.

- **Enable** (default). Enables the print mode option.
- **Disable**. Disables the print mode option. This provides compatibility with older LG printer products.

I-2/5 Guard Bars

- **Enable** (default). Horizontal guard bars are printed above and below each Interleaved 2/5 bar code. This option only applies to Interleaved 2/5 bar codes.
- **Disable**. Interleaved 2/5 bar codes are printed normally, with no guard bars.

PRINTER CONTROL



Ribbon End Point

This parameter adjusts the point at which the system will declare the ribbon as being expended. The life count will always be from 100% to 0%, but if a darker setting is selected 0% will be reached more quickly. If a lighter setting is selected, the system will extend the time it takes to reach 0%. The range of values are as follows:

- **Normal** (default)
- **Darker +1 through Darker +6**
- **Lighter -1 through Lighter -10**

NOTE: This value can be adjusted at any time and the display will automatically adjust to show the correct percentage relative to the new end point.

Open Platen @ BOF (Bottom of Form)

Some special forms have perforation areas that are too thick to pass through the print station. This parameter, when enabled, opens and closes the platen when the perforations move across the platen. When enabling this parameter, you must set the forms length to match the physical distance between perforations.

Bar Code Quality

Determines the bar code resolution for all emulations, except IPDS. (See “IPDS Emulation” on page 205 to set the bar code quality for IPDS.)

- **Dark** (default). Bar code resolution is set at 120 x 72.
- **Draft**. Bar code resolution is set at 60 x 72.

Tear Bar Dist. (Distance)

Allows fine and course adjustment of the tear bar position. For a pedestal model printer using the top paper exit, the default (7.46 inches) is used. You can specify 4.5 to 10.5 inches in .01 inch increments to accommodate variations in cover and form design.

View Function

- **Disable** (default). Disables the View Function which allows you to press the VIEW/EJECT key to move the last data printed to the tractor area for viewing.
- **Enable**. Enables the View Function

Unidirectional

The Unidirectional feature affects both print quality and printing speed. By setting this feature, you can configure the printer to print in both directions of the shuttle sweep (bidirectional), or to print in one direction only (unidirectional).

- **Disable** (default). The printer will print all data in both directions of the shuttle sweep (bidirectional printing). This choice produces higher printing speed.
- **Enable**. The printer will print all data in only one direction of the shuttle sweep (unidirectional printing). Although enabling this feature reduces print speed, it enhances the vertical alignment of dots and produces cleaner, sharper barcodes and text.

Display Language

This parameter chooses the language that will appear on the LCD: English, German, French, Italian, Spanish, or Portuguese. The factory default is English.

Accented Char

Selects whether the accented characters are standard or tall. See Figure 23 for an example. Selecting tall will slow print speed and may cause the printer to back up during printing.

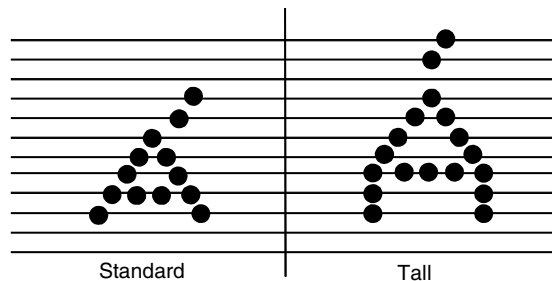
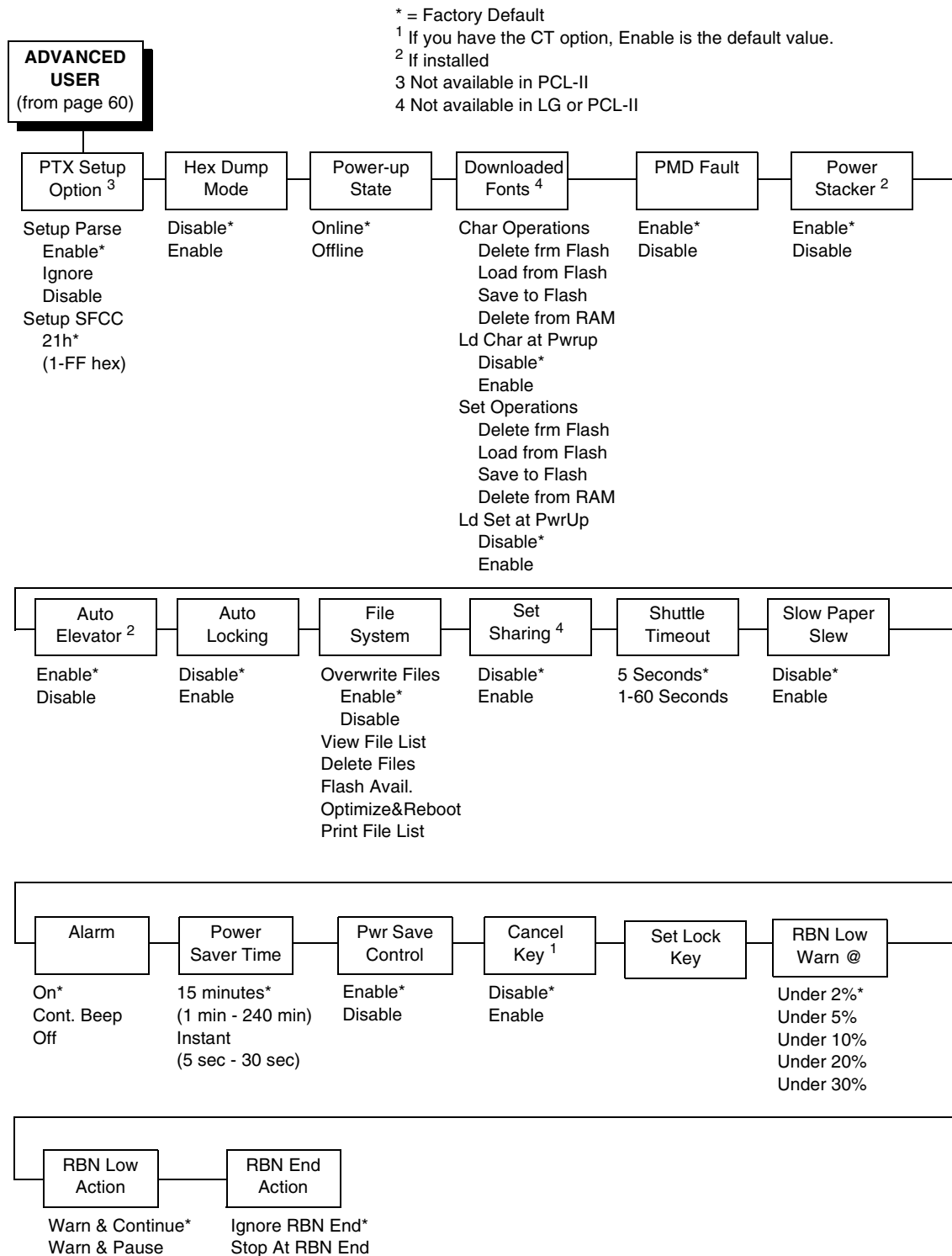


Figure 23. Accented Characters

ADVANCED USER



PTX Setup Option

Selects the Special Function Control Code for the PTX_SETUP command and functions.

- **Setup Parse.** Disables or enables the PTX_SETUP command.
- **Setup SFCC.** Allows you to choose the hex value of the ASCII character you wish to use as the SFCC for the PTX_SETUP command. Valid hex values are 01-FF. The default value is hex 21, which corresponds to the “!” character.

Hex Dump Mode

A hex code printout (or hex dump) translates all incoming data to hexadecimal equivalents. A hex dump lists each ASCII data character received from the host computer, together with its corresponding two-digit hexadecimal code. Hex dumps can be used to troubleshoot some types of printer data reception problems. The options include:

- **Disable** (default)
- **Enable**

Figure 28 on page 253. shows a hex dump sample.

Power-Up State

- **Online** (default). The printer powers up in the online state.
- **Offline.** The printer powers up in the offline state.

NOTE: This option is not available in the PCL-II or LG emulation.

Downloaded Fonts

Allows you to download a substitution table to replace any character in the current character set with a different character in the same font.

- **Char Operations.** Allows you to delete a character from flash, load a character from flash, save a character to flash, and delete a character from RAM.
- **Ld Char at Pwrup.** Allows you to disable or enable loading a character at power up.
- **Set Operations.** Allows you to delete a character set from flash, load a character set from flash, save a character set to flash, and delete a character set from RAM.
- **Ld Set at PwrUp.** Allows you to disable or enable loading a character set at power up.

NOTE: This option is not available in the PCL-II or LG emulation.

PMD (Paper Motion Detection) Fault

- **Enable** (default). In the event of a paper jam, an audible alarm beeps, “CLEAR PAPER JAM” appears on the message display, and the printer stops printing.
- **Disable**. You should disable PMD only if special paper requires it.

CAUTION

Once PMD is disabled, paper motion is not monitored. If a paper jam occurs, the printer ignores the condition and continues to print, possibly causing damage to the printer.

Power Stacker

This parameter allows you to enable or disable the power paper stacker (provided this option is installed).

Auto Elevator

This parameter exists only on printers with the power paper stacker installed. The power stacker has a sensor which detects paper movement and raises the stacker as the printed paper stack grows. If the printer has been printing for three minutes continually and the sensor has not detected any growth in the paper stack, the stacker raises itself 1/4 inch automatically.

- **Enable** (default). The automatic elevator on the power stacker operates normally.
- **Disable**. The stacker does not raise automatically every three minutes and is entirely dependent on the sensor. Disable is used with extremely high-quality print jobs that take a long time to print.

Auto Locking

- **Disable** (default). The ENTER key must be locked manually.
- **Enable**. The printer automatically locks the ENTER key five minutes after the last front panel key press.

File System

- **Overwrite Files**. Allows you to prevent files from being overwritten by disabling the overwrite function.
- **View File List**. Displays the list of files in the file system. Pressing the DOWN key displays the file size.
- **Delete Files**. Displays the list of files in the file system. Pressing the ENTER key deletes the file displayed on the front panel.
- **Flash Avail**. The amount of flash available for the user to save or download files into flash.
- **Optimize&Reboot**. Reclaims flash space from deleted flash files. After pressing ENTER, wait for the printer to reboot.

NOTE: When the Optimize&Reboot option is executed, the message, “Optimizing Flash Files” does not display before printer rebooting takes place.

- **Print File List.** Prints a summary of the files stored in flash memory and several statistics on File System usage.

IMPORTANT Do not turn the printer off until it has completely rebooted and is either back online or offline.

Set Sharing

This option allows character sets to be shared between the active LP+ protocol and the active IGP emulation. If CT is installed and active, choosing a character set in the CT activates that character set in the active IGP and LP+ protocols. (These changes will not be visible on the front panel.) If Set Sharing is not selected, only the LP+ will share the CT's character set.

Switching host interfaces from CT to Centronics when the Set Sharing is enabled will cause the LP+ character set to be activated to the same character set of the active IGP, if possible.

In a non-CT system, changing characters sets in LP+ causes the active IGP to change to the same character set if the selected set exists in IGP. If the active IGP has no access to the selected set, no changes are made. Selecting a new character set in the active IGP causes the LP+ to change to the same character set if the selected character set exists in the active LP+ protocol. Not all sets are shared between emulations in the Standard group of character sets. As a result, selecting a set in the Standard group of LP+ or IGP emulation may or may not cause the other emulation to have the same set.

NOTE: The Set Sharing front panel option has no effect on the LP+ and CT/LP+ builds. The option only applies to the builds with IGP.

This option is not available in the PCL-II or LG emulation.

Shuttle Timeout

The amount of time the shuttle continues moving after no data is received. If your host is slow, setting the number to a higher value will prevent the printer from spending time shuttling up and down between data bursts.

Slow Paper Slew

- **Disable** (default). The paper will slew and stack paper at maximum speed.
- **Enable.** Causes the paper to stack at a slower rate. This ensures that certain forms will stack neatly.

Alarm

- **On** (default). An audible alarm sounds (3 beeps) when a fault occurs, such as a paper jam.
- **Cont. Beep.** A continuous audible alarm sounds when a fault occurs, which can be stopped by pressing CLEAR.
- **Off.** No audible alarm will sound.

Power Saver Time

The time interval you specify for this parameter sets the amount of idle time before the printer goes into Power Saver mode. When Instant is chosen, the printer goes into Power Saver mode as soon as it is able to stop the shuttle properly. The time allotted to perform this function depends upon the shuttle timeout value which can be set in the menu.

NOTE: Power Saver Mode will not be shown on the control panel even though the function still exists. Sending a print job to the printer will turn off Power Saver mode.

Pwr Save Control

Allows you to enable or disable the Power Save (Energy Star) mode.

- **Enable** (default). Allows you to enable the Power Save (Energy Star) mode.
- **Disable**. Allows you to disable the Power Save (Energy Star) mode.

Cancel Key

- **Disable** (default)
- **Enable**. The CANCEL key may be used to clear all data in the print buffer without printing any of the data.

Set Lock Key

Normally, to lock or unlock the printer menu, the UP and DOWN keys are pressed at the same time. The Set Lock Key parameter lets you choose different keys to lock or unlock the printer menu. You may choose almost any group of keys as the new lock and unlock keys. You cannot use the ENTER key or any key combinations which are already used for another function. There is no limit to how many keys you can select.

To set the new lock key, follow these steps:

1. Work your way through the configuration menu until the display reads "Set Lock Key" (follow the menu structure on page 221).
2. Press ENTER. The display reads, "Select a new lock key."
3. Press the combination of keys you want to be the new lock key. Make sure you press all keys selected at the same time.
4. If the selection is valid, the display will read, "Enter the new lock key again." If the selection is invalid, the display will read, "Invalid key selection." Return to step 2 and start over.
5. Press the same combination of keys a second time. If the new lock key combination is entered again correctly, the display will read, "Lock key has been changed." If it was entered incorrectly, the display will read "Verification failed." Start over at step 2.
6. After entering the new lock combination successfully, press the ON LINE key to put the printer back online.

NOTE: The new lock combination will remain even if the printer is powered off and back on.

RBN Low Warn @

This option allows the user to select the Ribbon Life value at which point the printer will declare a ribbon low condition and display the "RIBBON UNDER XX% / Change RBN Soon" warning message. The default is Under 2%. See "RBN Low Action" below for details of how the printer behaves once a ribbon low condition is reached.

The values are Under 2% (default), Under 5%, Under 10%, Under 20%, and Under 30%.

RBN Low Action

This menu determines how the printer behaves once a ribbon low condition is reached.

- **Warn & Continue** (default). Once a ribbon low condition is reached the printer beeps and displays the "RIBBON UNDER XX% / Change RBN Soon" warning message. Printing will continue without interruption. The warning message can be cleared by pressing the ONLINE/Clear button, however the message will persist again in two minutes. This action will continue until a ribbon out (ribbon life reaches 0%) condition occurs.
- **Warn & Pause**. This setting is similar to the Warn & Continue selection with one exception. When a ribbon low condition is reached the printer will still display the "RIBBON UNDER XX%/Change RBN Soon" warning message, however the printer will stop printing. This is meant to get the user's attention. To resume printing the user must press the ONLINE/Clear key.

NOTE: Printing will only stop on the first occurrence of a ribbon low condition. Once the user clears the warning message, subsequent warnings will display the warning message but printing will continue.

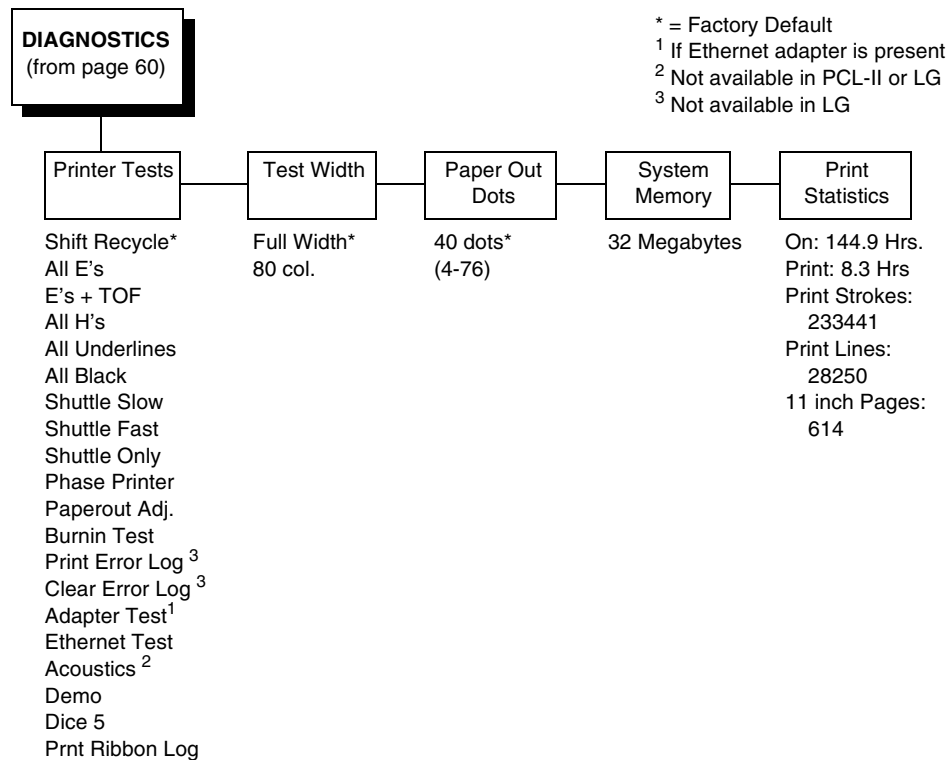
RBN End Action

This menu allows the user to override the normal ribbon low warning and ribbon out conditions.

- **Stop At RBN End** (default). When this factory default option is selected the printer displays a warning message when a ribbon low condition is reached and display a ribbon out fault when ribbon life reaches 0%.
- **Ignore RBN End**. When this menu option is selected it overrides the ribbon low and ribbon out conditions, i.e. no warning or fault messages is displayed and printing continues even after ribbon life reaches 0%. However, once the ribbon life reaches an excess wear condition as indicated by the fault message "EXCESS RBN WEAR / Install New RBN", printing will stop and the user must install a new ribbon before printing can resume.

NOTE: The excess ribbon wear is set below the "Lighter -10" Ribbon End Point setting.

DIAGNOSTICS



Printer Tests

These tests are used to check the print quality and operation of the printer.

NOTE: Your authorized service representative will typically run the tests. They are described in more detail in the *Maintenance Manual*.

- **Shift Recycle.** A sliding alphanumeric pattern which identifies missing or malformed characters, improper vertical alignment, or vertical compression.
- **All E's.** A pattern of all uppercase E's which identifies missing characters, misplaced dots, smeared characters, improper phasing problems, or light/dark character variations.
- **E's + TOF.** A pattern of all E's followed by a form feed to the next page top-of-form, which identifies paper motion or feeding problems.
- **All H's.** A pattern of all uppercase H's used to detect missing characters, misplaced dots, smeared characters, or improper phasing.
- **All Underlines.** An underline pattern useful for identifying hammer bank misalignment.
- **All Black.** A condition where all dot positions are printed, creating a solid black band.
- **Shuttle Slow.** Verifies proper operation by exercising shuttle and ribbon motion at low speed.

- **Shuttle Fast.** Verifies proper operation by exercising shuttle and ribbon motion at fast speed.
- **Shuttle Only.** Exercises only the shuttle at fast speed.
- **Phase Printer.** Checks for wavy print. The initial phase value is set in the factory. Run the test and check the quality. (The phase value prints on the left margin.) If the print looks too wavy, change the Phase Value parameter while the test is running. While the phase printer test runs, press the DOWN key. To change the value, press the PREV or NEXT key until the desired value displays and then press ENTER.
- **Paperout Adj..** Verifies the current Paper Out Dots setting, which determines where the last line of text will print when there is a paper out condition. Setting this parameter correctly prevents printing on the platen.
- **Burnin Test.** Reserved for factory use.
- **Print Error Log.** Prints the current log of errors. Most non-routine faults (ribbon stall, voltage faults) are stored in the error log.
- **Clear Error Log.** Clears entries in the error log.
- **Adapter Test.** Prints the Ethernet adapter statistics stored on the Ethernet adapter (if present).
- **Ethernet Test.** Prints the Ethernet statistics stored on the Ethernet (if present).
- **Acoustics.** A particular test pattern that is used to measure acoustics.
- **Demo.** Demonstration of various print attributes.
- **Dice 5.** Pattern used to measure print density.
- **Prnt Ribbon Log.** Prints log of ribbons that have been used in the printer.

Test Width

Set this parameter to run the self-tests at full width or 80 columns.

Paper Out Dots

CAUTION

Only authorized service representatives should set this parameter.

This parameter is used to adjust the paper out distance from the perforation; you can specify where the last line on the page will print when there is a paper out condition. Setting this parameter correctly prevents printing on the platen.

System Memory

Displays the amount of RAM installed.

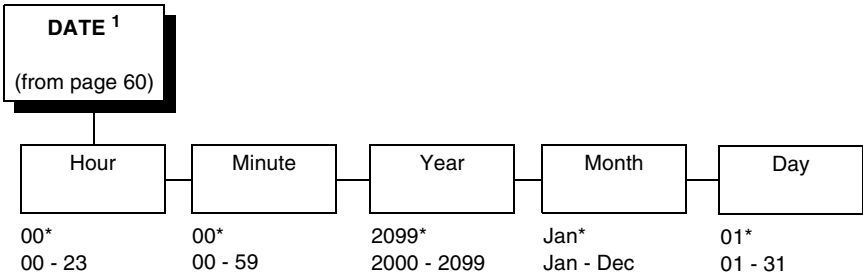
Print Statistics

You can view various printer statistics and refer to them for preventive maintenance purposes. Printer statistics accumulate continuously; they do not reset when you turn off the printer. All of the printer statistics are set to zero at the factory after burn-in testing.

- **On.** The cumulative time in hours the printer has been powered on. The range is 0 to 30,000 hours.
- **Print.** The cumulative time in hours the printer has actually been printing. The range is 0 to 30,000 hours.
- **Print Strokes.** The cumulative number of back-and-forth shuttle strokes the printer has printed during normal printer operation. The range is 0 to 2,147,483,647 shuttle strokes.
- **Print Lines.** The cumulative number of lines the printer has printed. The range is 0 to 2,147,483,647 print lines.
- **11 inch Pages.** The cumulative number of pages the printer has printed. The range in print pages is 0 to 2,147,483,647 total inches of paper movement divided by 11.

DATE

* = Factory Default
1 Appears only if the real time clock option is installed.



Hour

This option allows you to set the hour. The factory default is 00 and the range is from 00 to 23 hours.

Minute

This option allows you to set the minutes. The factory default is 00 and the range is from 00 to 59 minutes.

Year

This option allows you to set the year. The factory default is 2099 and the range is from the year 2000 to 2099.

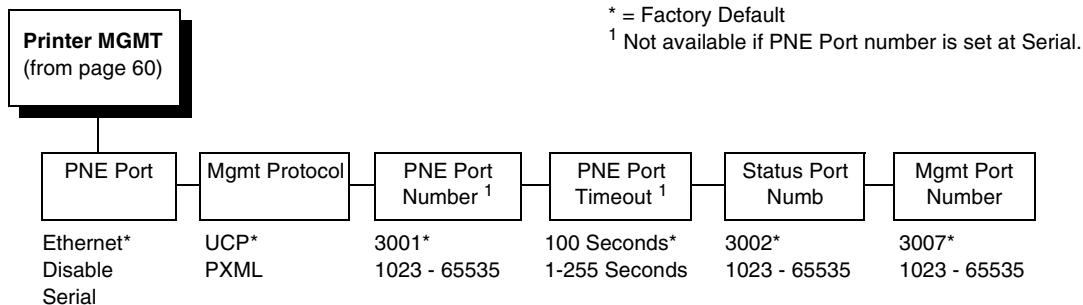
Month

This option allows you to set the month. The factory default is Jan and the range is from Jan to Dec.

Day

This option allows you to set the day. The factory default is 01 and the range is from 01 to 31 days.

Printer MGMT



PNE Port

This menu selects which port the printer expects PNE to connect to, via Ethernet or Serial. The factory default is Ethernet.

Mgmt Protocol

Since PXML and UCP management protocols share the same Ethernet Port, only one can be active at a time. This menu selects the active Management Protocol Interface, either PXML or UCP. The factory default is UCP.

PNE Port Number

This menu selects the port number the printer expects the PNE to connect through. The factory default is 3001 and the range is from 1023 to 65535.

PNE Port Timeout

If the PNE has not communicated to the printer within a timeout period, the PNE session closes. The factory default is 100 seconds. The range is from 1 to 255 seconds.

Status Port Numb

This menu selects the port number the printer sends the emulation status. The factory default is 3001 and the range is from 1023 to 65535.

Mgmt Port Number

This menu selects the port number the printer expects the PXML or UCP to connect through. The factory default is 3007 and the range is from 1023 to 65535.

5

Interfaces

Overview

This chapter describes the host interfaces provided with the printer. The printer interface is the point where the data line from the host computer plugs into the printer. The interface processes all communications signals and data to and from the host computer. Plus, with the Auto Switching feature, you can configure the printer to accept several interfaces at the same time (see “Auto Switching Submenu” on page 73).

IMPORTANT

To comply with Electromagnetic Compatibility (EMC) regulatory requirements all electrical signal interface cables connected to this printer must be of a minimal quality level, be of the correct length, and be properly installed.

The RS-232 port and parallel port interface cables must meet the following specifications:

- **The cable design must be double shielded with a copper braid over an aluminum mylar foil and not just a conductive foil spiral wrapped around a drain wire.**
- **The shield must terminate coaxially (360 degrees) to a metal connector housing and not be terminated by just a simple wire lead.**
- **The cable length, including connectors, must be 3 meters or less.**
- **The cable connector anchor screws must be securely seated into the printer receptor hardware.**

For reference purposes only, two specific Centronics parallel port cables that have been tested and found to comply with these requirements are Belkin® part number F2A046-10 and Primelogic® part number PLU 2823224. Other electrically equivalent cables are acceptable.

This chapter describes the interfaces provided with the printer.

Standard Host Interfaces:

- Centronics parallel
- IEEE 1284 parallel bidirectional
- High Speed Serial Port (RS-232/RS-422)

NOTE: RS-422 is optional.

Optional Host Interfaces:

- Coax / Twinax
- Dataproducts parallel
- Ethernet 10/100BaseT

In addition to descriptions for the multi-line interfaces, this chapter also provides instructions for configuration of terminating resistors for the parallel interfaces.

Dataproducts Parallel Interface

**Table 8. Dataproducts Parallel Interface Connector Pin Assignments
(with a 50-pin AMP HDH-20 Data Cable Connector)**

| Input Signals | | Output Signals | | Miscellaneous | |
|--|-----|------------------|-----|---------------|--------|
| Signal | Pin | Signal | Pin | Signal | Pin |
| DATA LINE 1 | 19 | READY | 22 | CABLE VERIFY | 45, 46 |
| Return | 3 | Return | 6 | | |
| DATA LINE 2 | 20 | ONLINE | 21 | GROUND | 39 |
| Return | 4 | Return | 5 | | |
| DATA LINE 3 | 1 | DEMAND/DATA REQ. | 23 | | |
| Return | 2 | Return | 7 | | |
| DATA LINE 4 | 41 | PARITY ERROR | 27 | | |
| Return | 40 | | 11 | | |
| DATA LINE 5 | 34 | | | | |
| Return | 18 | | | | |
| DATA LINE 6 | 43 | | | | |
| Return | 42 | | | | |
| DATA LINE 7 | 36 | | | | |
| Return | 35 | | | | |
| DATA LINE 8 | 28 | | | | |
| Return | 44 | | | | |
| DATA STROBE | 38 | | | | |
| Return | 37 | | | | |
| PAPER INSTRUCTION | 30 | | | | |
| Return | 14 | | | | |
| BUFFER CLEAR | 31 | | | | |
| Return | 15 | | | | |
| NOTE: Pins not listed are not connected. | | | | | |

The length of the data cable from the host computer to the printer must not exceed 40 feet (12 meters).

Dataproducts Parallel Interface Signals

Data Lines 1 through 8. Provides eight standard or inverted levels from the host that specify character data, plot data, or a control code. Data Line 8 allows access to the extended ASCII character set. You can enable or disable this line via the Data Bit 8 parameter on the Dataproducts submenu (see page 79).

Data Strobe. Carries a high true pulse from the host when data is ready. The data strobe remains high until the Data Request line goes false. The active edge of the strobe signal can be configured as leading, middle (default), or trailing.

Paper Instruction (PI). Carries a DVFU signal from the host with the same timing and polarity as the data lines.

Ready. Carries a high true signal from the printer when AC power and DC voltages are present, paper is loaded properly, and the printer is not in a check condition.

Online. Carries a high true signal from the printer when the Ready Line is true and the ON LINE key on the control panel has been pressed. When the printer is in online mode, it may accept data from the host.

Demand/Data Request. Carries a high true signal from the printer when the printer is ready to accept character data from the host. This signal changes to false shortly after the leading edge of the data strobe signal.

Cable Verify. Two pins on the interface connector are jumpered together to allow the user to verify proper installation of the interface connector.

Buffer Clear. A high true level from the host to indicate the printer should perform a reboot.

Parity Error. Always carries a low false signal from the printer indicating there is no parity error.

Centronics Parallel Interface

Table 9. Centronics Interface Connector Pin Assignments

| Input Signals | | Output Signals | | Miscellaneous | |
|-------------------|-----|----------------|-----|----------------|--------------|
| Signal | Pin | Signal | Pin | Signal | Pin |
| DATA LINE 1 | 2 | ACKNOWLEDGE | 10 | CHASSIS GROUND | 17 |
| Return | 20 | Return | 28 | | |
| DATA LINE 2 | 3 | ONLINE | 13 | GROUND | 30 |
| Return | 21 | Return | 28 | | |
| DATA LINE 3 | 4 | FAULT | 32 | Spares | 14 |
| Return | 22 | Return | 29 | | |
| DATA LINE 4 | 5 | PAPER EMPTY | 12 | No Connection | 34,35, 36 |
| Return | 23 | Return | 28 | | |
| DATA LINE 5 | 6 | BUSY | 11 | +5 Volts | 18 |
| Return | 24 | Return | 29 | | |
| DATA LINE 6 | 7 | | | | |
| Return | 25 | | | | |
| DATA LINE 7 | 8 | | | | |
| Return | 26 | | | | |
| DATA LINE 8 | 9 | | | | |
| Return | 27 | | | | |
| DATA STROBE | 1 | | | | |
| Return | 19 | | | | |
| PAPER INSTRUCTION | 15 | | | | |
| Return | 29 | | | | |
| PRIME | 31 | | | | |
| Return | 30 | | | | |

The length of the data cable from the host computer to the printer must not exceed 15 feet (5 meters).

Centronics Parallel Interface Signals

Data Lines 1 through 8. Provides eight standard or inverted levels from the host that specify character data, plot data, or a control code. Data Line 8 allows access to the extended ASCII character set. You may enable or disable this line via the Data Bit 8 parameter on the Centronics submenu (see page 76).

Data Strobe. Carries a low true, 100 ns minimum pulse from the host that clocks data into the printer.

Acknowledge. A low true pulse from the printer indicating the character or function code has been received and the printer is ready for the next data transfer.

Online. A high true level from the printer to indicate the printer is ready for data transfer and the ON LINE key on the control panel has been activated. When the printer is in online mode, it may accept data from the host.

Paper Empty (PE). A high true level from the printer to indicate the printer is in a paper empty or paper jam fault.

Busy. A high true level from the printer to indicate the printer cannot receive data.

Prime. A high true level from the host to indicate the printer should perform a warm start (printer is reset to the power-up configuration values).

Paper Instruction (PI). Carries a CVFU signal from the host with the same timing and polarity as the data line.

Fault. A low true level from the printer indicates a printer fault.

IEEE 1284 Parallel Interface

The 1284 supports three operating modes, which are determined by negotiation between the printer and the host.

Compatibility Mode

This mode provides compatibility with Centronics-like host I/O (see Table 10). Data is transferred from the host to the printer in 8-bit bytes over the data lines.

Compatibility Mode can be combined with Nibble and Byte Modes to provide bidirectional communication.

Nibble Mode

Eight bits equals one byte. When a byte of data is sent to the printer, the eight bits are sent over eight data lines.

Some devices cannot send data over their eight data lines. To bypass this, the 1284 permits data to be sent as half a byte over four status lines. (Half a byte equals one nibble.) Two sequential four-bit nibbles are sent over the lines.

Data is transferred from printer to host in four-bit nibbles over the status lines, and the host controls the transmission.

Byte Mode

The printer and host send data to each other along eight data lines (one bit per line).

If bidirectional communication is supported by the printer and the host, the host will take control of the data transfer.

Signals

Table 10 lists each of the signals associated with the corresponding pins on the 1284 interface. Descriptions of the signals follow.

Table 10. 1284 Signals

| Pin | Source of Data | Type of Mode | | |
|-----|----------------|-------------------------|------------|------------|
| | | Compatible | Nibble | Byte |
| 1 | Host | nStrobe | HostClk | Host/Clk |
| 2 | Host/Printer | Data 1 (LSB) | | |
| 3 | Host/Printer | Data 2 | | |
| 4 | Host/Printer | Data 3 | | |
| 5 | Host/Printer | Data 4 | | |
| 6 | Host/Printer | Data 5 | | |
| 7 | Host/Printer | Data 6 | | |
| 8 | Host/Printer | Data 7 | | |
| 9 | Host/Printer | Data 8 (MSB) | | |
| 10 | Printer | nAck | PtrClk | PtrClk |
| 11 | Printer | Busy | PtrBusy | PtrBusy |
| 12 | Printer | PError | AckDataReq | AckDataReq |
| 13 | Printer | Select | Xflag | Xflag |
| 14 | Host | nAutoFd | Host Busy | HostAck |
| 15 | | Not Defined | | |
| 16 | | Logic Grid | | |
| 17 | | Chassis Grid | | |
| 18 | Printer | Peripheral Logic High | | |
| 19 | | Signal Ground (nStrobe) | | |
| 20 | | Signal Ground (Data 1) | | |
| 21 | | Signal Ground (Data 2) | | |
| 22 | | Signal Ground (Data 3) | | |
| 23 | | Signal Ground (Data 4) | | |
| 24 | | Signal Ground (Data 5) | | |
| 25 | | Signal Ground (Data 6) | | |

Table 10. 1284 Signals (continued)

| Pin | Source of Data | Type of Mode | | |
|-----|----------------|---|-------------|-------------|
| | | Compatible | Nibble | Byte |
| 26 | | Signal Ground (Data 7) | | |
| 27 | | Signal Ground (Data 8) | | |
| 28 | | Signal Ground (PErr, Select, nAck) | | |
| 29 | | Signal Ground (Busy, nFault) | | |
| 30 | | Signal Ground (nAutoFd, nSelectIn, nInit) | | |
| 31 | Host | nInit | | |
| 32 | Printer | NFault | nDataAvail | aDataAvail |
| 33 | | Not Defined | | |
| 34 | | Not Defined | | |
| 35 | | Not Defined | | |
| 36 | Host | nSelectIn | 1284 Active | 1284 Active |

NOTE: The length of the data cable from the host computer to the printer should not exceed 32 feet (10 meters).

Host Clock / nWrite. Driven by host. Data transferred from host to printer. When printer sends data, two types are available. If Nibble mode, signal is set high. If Byte mode, signal is set low.

Data 1 through Data 8. These pins are host-driven in Compatibility mode and bidirectional in Byte mode. They are not used in Nibble mode. Data 1 is the least significant bit; Data 8 is the most significant bit.

Printer Clock / Peripheral Clock / Interrupt. Driven by the printer. A signal from the printer indicating the character or function code has been received and the printer is ready for the next data transfer.

Printer Busy / Peripheral Acknowledge / nWait. Driven by the printer. Indicates the printer cannot receive data. (Data bits 4 and 8 in Nibble mode.)

Acknowledge Data Request / nAcknowledge Reverse. Driven by the printer. Indicates the printer is in a fault condition. (Data bits 3 and 7 in Nibble mode.)

Xflag. Driven by the printer. A high true level indicating the printer is ready for data transfer and the printer is on line. (Data bits 2 and 6 in Nibble mode.)

Host Busy / Host Acknowledge / NDStrobe. Driven by the host. Activates auto-line feed mode.

Peripheral Logic High. Driven by the printer. When the line is high, the printer indicates all of its signals are in a valid state. When the line is low, the printer indicates its power is off or its signals are in an invalid state.

nReverse Request. Driven by the host. Resets the interface and forces a return to Compatibility mode idle phase.

nData Available / nPeripheral Request. Driven by the printer. Indicates the printer has encountered an error. (Data bits 1 and 5 in Nibble mode.)

1284 Active / nAStrobe. Driven by the host. A peripheral device is selected.

Host Logic High—Driven by the host. When set to high, the host indicates all of its signals are in a valid state. When set to low, the host indicates its power is off or its signals are in an invalid state.

nInit —Resets init interface from the host.

Terminating Resistor Configurations

V5 Controller Board

The factory equips the printer with several resistors that are used for parallel interface configurations and are suitable for most applications. These 470 ohm pull-up and 1K ohm pull-down terminating resistors are located at RP1 and RP2, shown in Figure 24.

If the values of these terminating resistors are not compatible with the particular interface driver requirements of your host computer, you may need to install resistors with different pull-up and pull-down values.

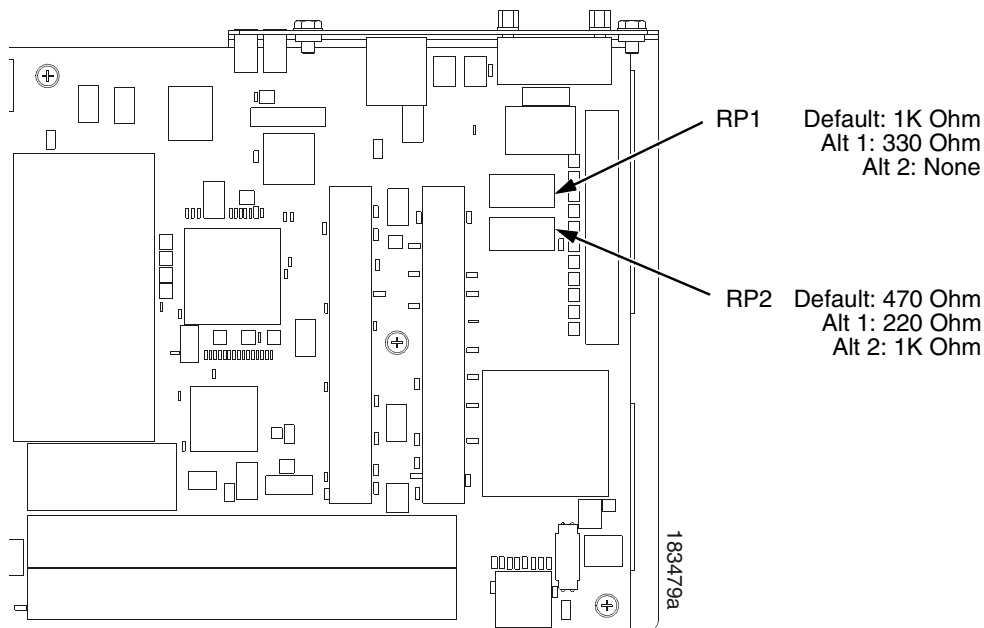


Figure 24. Resistor Locations, V5 Controller Board

The shipping kit for this printer includes 220 ohm pull-up and 330 ohm pull-down alternate terminating resistors. If you install the 220 ohm pull-up resistor, you must also install the 330 ohm pull-down resistor. Table 11 lists the three terminating resistor configurations you can install:

Table 11. Terminating Resistor Configurations

| Configuration | Pull-Down (RP1) | Pull-Up (RP2) |
|-----------------|-----------------|---------------|
| Factory Default | 1K ohm | 470 ohm |
| Alternate 1 | 330 ohm | 220 ohm |
| Alternate 2 | none | 1K ohm |

V6 Controller Board

For parallel interface configurations, the printer is equipped with 470 Ohm and 1K Ohm terminating resistors on the controller board. These are suitable for most applications. See Figure 25.

If the standard terminating resistor pack is not compatible with the particular interface driver requirements of the host computer, other RP1 and RP2 values may be required. 220 Ohm and 330 Ohm alternate terminating resistors are provided with the printer. If you install the 220 Ohm resistor, you must also install the 330 Ohm resistor. Possible terminating resistor combinations are shown below.

| Configuration | RP1 | RP2 |
|-----------------|---------|---------|
| Factory Default | 470 Ohm | 1K Ohm |
| Alternate | 220 Ohm | 330 Ohm |

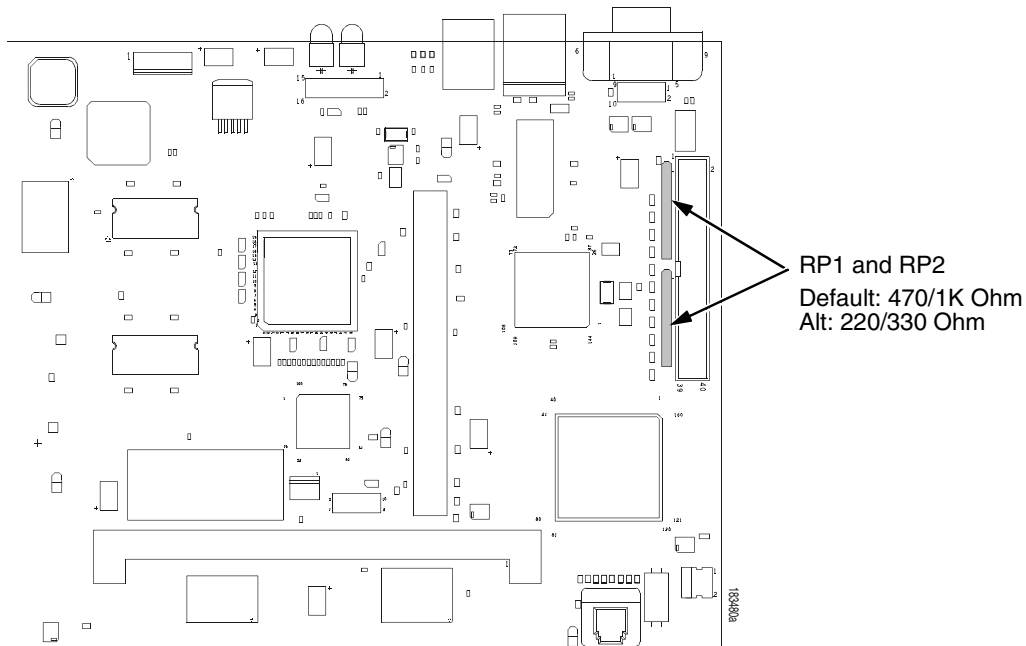


Figure 25. Terminating Resistors, V6 Controller Board

Removal And Installation

The procedure for removing and installing terminating resistors is provided in your *Maintenance Manual*.

CAUTION

This is an involved maintenance procedure. To avoid damage to the equipment, only a trained technician should perform this procedure.

RS-232 And RS-422 Serial Interfaces

NOTE: The RS-232 and RS-422 serial interface circuit characteristics are compatible with the Electronic Industry Association Specifications EIA-232-E and EIA-422-B.

The RS-232 and RS-422 serial interfaces enable the printer to operate with bit serial devices that are compatible with an RS-232 controller. The input serial data transfer rate (in baud) is selectable from the printer's control panel. Baud rates of 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200 baud rates are available.

NOTE: If you select a baud rate that is greater than 19200, you may need to use RS-422 to prevent data loss.

The length of the data cable from the host computer to the printer must not exceed 50 feet (15 meters) for RS-232 or 4000 feet (1220 meters) for RS-422. (A copper conductor, twisted-pair telephone cable with a shunt capacitance of 16 pF/foot [52.5 pF/meter] terminated in a 100 ohm resistive load must be used for the RS-422.)

RS-232

**Table 12. Standard 500, 1000, 1500 lpm Models
RS-232 Serial Interface Connector Pin Assignments**

| Input Signals | | Output Signals | | Miscellaneous | |
|---------------------------|-----|--------------------------------------|-----|----------------|-----|
| Signal | Pin | Signal | Pin | Signal | Pin |
| Receive Data (RXD) | 3 | Transmit Status & Control Data (TXD) | 2 | Chassis Ground | 1 |
| Clear To Send (CTS) | 5 | Request To Send (RTS) | 4 | Signal Ground | 7 |
| Data Set Ready (DSR) | 6 | Data Terminal Ready (DTR) | 20 | | |
| Data Carrier Detect (DCD) | 8 | | | | |

Table 13. RS-232 Serial Interface Connector Pin Assignments

| Input Signals | | Output Signals | | Miscellaneous | |
|---------------------------|-----|--------------------------------------|-----|-----------------------|-----|
| Signal | Pin | Signal | Pin | Signal | Pin |
| Receive Data (RXD) | 2 | Transmit Status & Control Data (TXD) | 3 | Chassis/Signal Ground | 5 |
| Clear To Send (CTS) | 8 | Request To Send (RTS) | 7 | | |
| Data Set Ready (DSR) | 6 | Data Terminal Ready (DTR) | 4 | | |
| Data Carrier Detect (DCD) | 1 | | | | |

Receive Data (RXD). Serial data stream to the printer.

Transmit Data (TXD). Serial data stream from the printer for transmitting status and control information to the host. Subject to protocol selection.

Request To Send (RTS). Control signal from the printer. Subject to configuration.

Clear To Send (CTS). Status signal to the printer indicating the host is ready to receive data/status signals from the printer.

Data Set Ready (DSR). Status signal to the printer indicating the host is in a ready condition.

Data Carrier Detect (DCD). Status signal to the printer. The ON condition is required for the printer to receive data.

Data Terminal Ready (DTR). Control signal from the printer. Subject to configuration.

RS-422

Table 14. PSA3 RS-422 Serial Interface Connector Pin Assignments

| Input Signals | | Output Signals | | Miscellaneous | |
|-----------------------|-----|------------------------|-----|-----------------------|-----|
| Signal | Pin | Signal | Pin | Signal | Pin |
| - Receive Data (-RXD) | 1 | - Transmit Data (-TXD) | 3 | Chassis/Signal Ground | 5 |
| + Receive Data (+RXD) | 6 | + Transmit Data (+TXD) | 8 | | |

+RXD, -RXD. Serial data stream differentially received by printer.

+TXD, -TXD. Differentially driven serial data stream for transmitting status and control information to the host. Subject to protocol selection.

NOTE: \pm RXD and \pm TXD form signal and return paths of a differential line signal.

6

Reprogramming the Security Key

Reprogramming The Security Key

The security key on the PSA3 controller board can be reprogrammed with a Software Program Exchange (SPX) module. The SPX is an intelligent module that plugs into the debug port on the back of printers equipped with the PSA3 "Hurricane" controller board. The SPX is used only once; it automatically overwrites itself after successfully reprogramming a security key. This allows the end user or a service technician to enable features such as new emulations without having to remove covers and install a new security key on the controller board.

The SPX is used at power-up only and is not left in the printer during normal operation. Because it is a single-use disposable item the user is not required to return it to the vendor or manufacturer.

How To Program The Security Key

1. Power off the printer.
2. On cabinet models, open the rear door. On pedestal models, refer to Figure 26 to locate the debug port at the rear of the printer.
3. Insert the SPX into the debug port as shown.

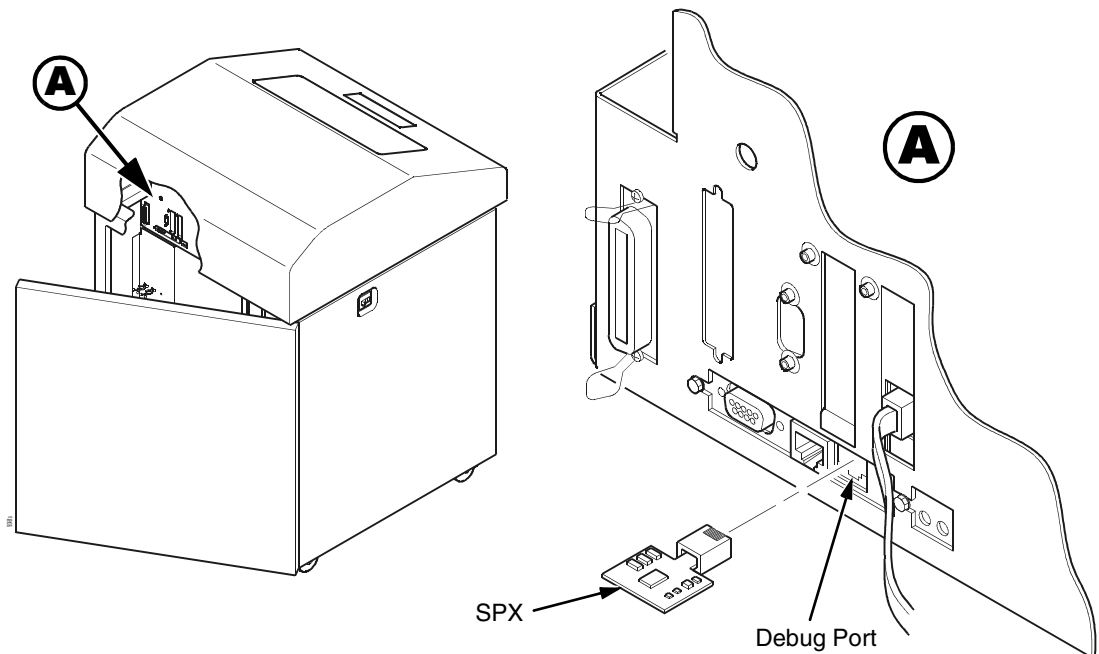


Figure 26. Inserting The SPX into the Debug Port

4. Power on the printer. The printer will begin its boot-up sequence.
 5. When the printer detects a valid SPX, the control panel displays: "NEW SPX DETECTED
PRESS ENTER"
- NOTE:** If an error message displays, find the message in the Message List in Chapter 7 and follow the troubleshooting instructions.
6. Press the **ENTER** key to activate the reprogramming sequence. The display will read:
"PROGRAMMING. PLEASE WAIT."
 7. When the security key is reprogrammed, the display will read:
"REMOVE USED SPX
THEN PRESS ENTER"
 8. Remove the SPX from the debug port at the rear of the printer.
 9. Press the **ENTER** key. The printer will reboot itself and you may resume normal printing.
 10. You may need to download a new program file to use the new feature.
 11. You may need to set additional menu parameters for any new features that have been added or enabled.

7

Troubleshooting

Cleaning Requirements

Clean the printer every six months or after every 1000 hours of operation, whichever occurs first. If the printer is located in a dusty area or is used for heavy duty printing, clean it more often.

WARNING

Disconnect the power source before cleaning the printer.

Vor dem Säubern des Druckers ist die Netzverbindung zu unterbrechen.

Débranchez l'alimentation avant de nettoyer l'imprimante.

Desconecte la fuente de energía antes de limpiar la impresora.

Staccare la fonte di energia prima della pulitura della stampante.

Exterior Cleaning

Clean the outside of the cabinet with a soft, lint-free cloth and mild detergent soap. (Dishwashing liquid works well.) Do not use abrasive powders or chemical solvents. Clean the windows with plain water or mild window cleaner. Always apply the cleaning solution to the cloth; never pour cleaning solution directly onto the printer.

Interior Cleaning

Over time, particles of paper and ink accumulate inside the printer. This is normal. Paper dust and ink build-up must be periodically removed to avoid degraded print quality. Most paper dust accumulates around the ends of the platen and ribbon path.

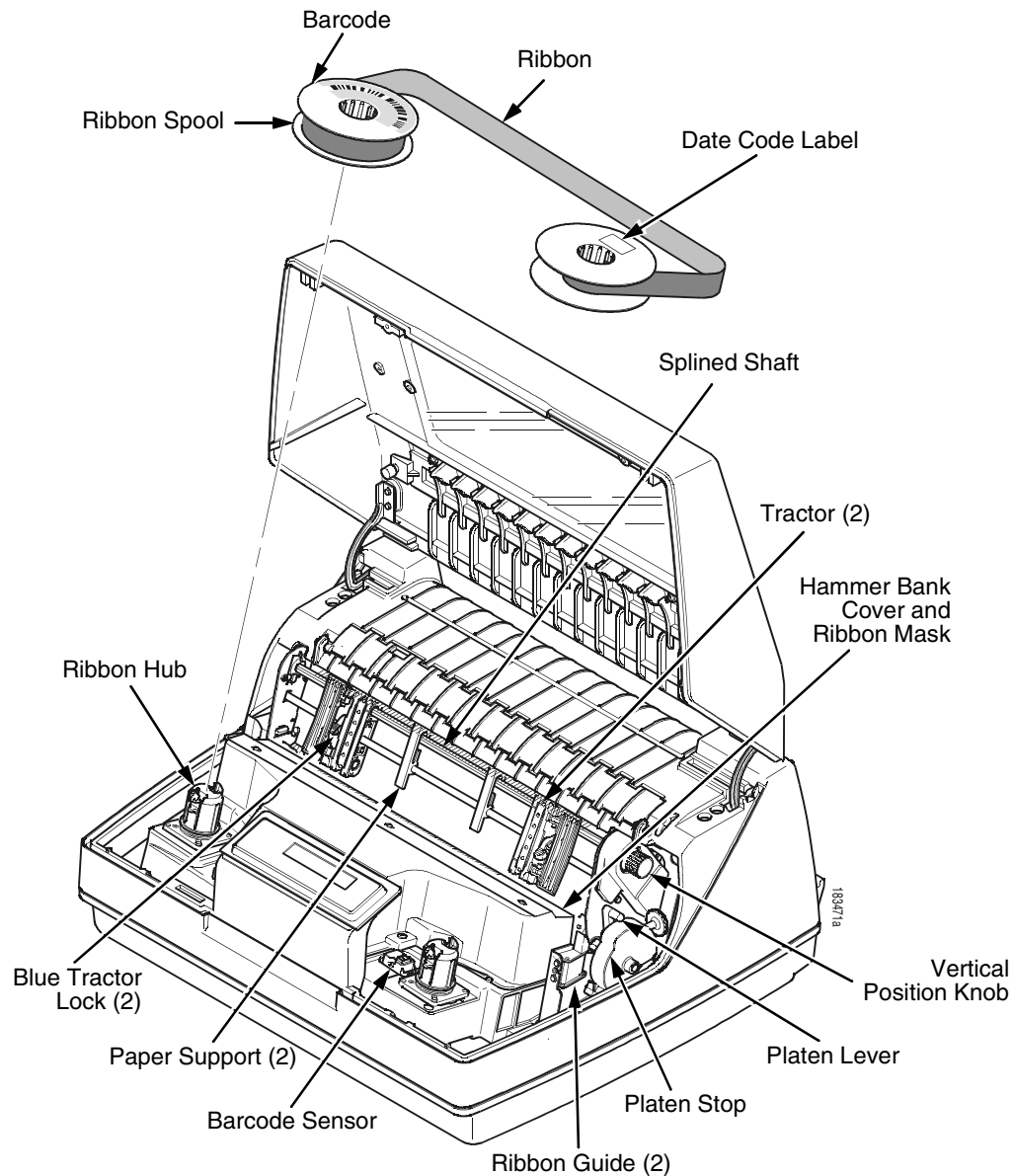


Figure 27. Interior Printer Components

To clean the interior of the printer perform the following steps.

1. Power off the printer and unplug the printer power cord.
2. Open the printer cover.
3. Fully raise the platen lever.
4. Unload the paper.
5. Unlatch the ribbon and ribbon spool and carefully lift them off the hubs.

NOTE: If there are ink stained fingerprints on the ribbon barcode (located on the ribbon spool), wipe it clean with a soft cloth or towelette moistened with alcohol.

6. Lift the ribbon out of the ribbon path.
7. Brush the paper dust and ribbon lint off the tractors, shuttle cover assembly, base casting, and ribbon guides with a soft-bristled, non-metallic brush (such as a toothbrush). Vacuum up the residue.

CAUTION Vacuum carefully around the hammer bank and surrounding area to avoid damage. To avoid corrosion damage, use only alcohol when cleaning the printer mechanical elements. Solutions used to clean mechanical elements must contain no water.

8. Wipe the splined shaft with a soft cloth.
9. Check the ribbon mask and hammer bank cover for bits of torn paper or ribbon lint.
10. Remove dust and ink from the platen using a soft cloth lightly moistened with anhydrous alcohol. (The platen is the thick silver bar behind the hammer bank cover that rotates when the platen lever is rotated.)

CAUTION When cleaning the platen, be very careful not to get any alcohol in the hammer bank, because alcohol will cause severe damage to the hammer bank. Only a trained service technician should clean the shuttle assembly.

11. Clean the ribbon guides by wiping the medal guideposts and area between them with a soft cloth or towelette moistened with alcohol.
12. Brush and vacuum the accumulated dust or residue inside the lower cabinet.
13. Wipe the lower cabinet interior with a clean, lint-free cloth dampened (not wet) with water and mild detergent or window cleaning solution. Dry the lower cabinet interior by wiping it down with a clean, lint-free cloth.
14. Install the ribbon and load paper.

Diagnosing Problems

This section is designed to help you fix problems which may arise with normal printer operation.

Bar Code Verification

The most important consideration when printing a bar code is to ensure that the bar code will be scanned properly. Incorporating a bar code quality procedure in the printing process is the best way to ensure that bar codes are being printed correctly. A properly implemented verification procedure will increase overall bar code quality, reduce waste from misprinted bar codes, and achieve high first-time read rates. A high first-time read rate is an increasingly important factor in newer, more efficient systems where manually entered data is not acceptable as a backup function. Verification also minimizes the costs of returned products due to poor reading or unaccountable bar codes.

RJS designs and manufactures the world's most complete line of bar code verification products, including their portable Inspector and Laser Inspector models, On-Line Inspector and AutoScan II series. For more information on RJS bar code verifiers, visit their web site at www.rjs1.com.

Printing A Hex Dump

A hex code printout (or hex dump) is a translation of all host interface data to its hexadecimal equivalent, listing all ASCII character data received from the host computer with their corresponding two-digit hexadecimal codes. Hex dumps are used to troubleshoot printer data reception problems.

Printable characters print as the assigned symbol; nonprintable characters are indicated by a period (.).

Figure 28 shows an example of a hex dump.

```

!"#$%&'()*+,-./ 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F
0123456789:;<=>? 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F
@ABCDEFGHIJKLMNO 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D 4E 4F
PQRSTUVWXYZ[\]^_ 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D 5E 5F
`abcdefgijklmno 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D 6E 6F
pqrstuvwxyz{|}~ 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D 7E 7F
!"#$%&'()*+,-./ 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30
123456789:;<=>?@ 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40
ABCDEF GH. .!"#$%& 41 42 43 44 45 46 47 48 0D 0A 21 22 23 24 25 26
'()*+,-./0123456 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36
789:;<=>?@ABCDEF 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46
GHIJKLMN O PQRSTU 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54 55 56
WXYZ[\]^_`abcdef 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64 65 66
ghijklmno pqrstuv 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74 75 76
wxyz{|}~!"#$%&' 77 78 79 7A 7B 7C 7D 7E 20 21 22 23 24 25 26 27
'()*+,-./0123456 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35 36 37
89:;<=>?@ABCDEF 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45 46 47
HI. .!"#$%&'()*+,- 48 49 0D 0A 22 23 24 25 26 27 28 29 2A 2B 2C 2D
./0123456789:;<= 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D
>?@ABCDEF GHIJKLM 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B 4C 4D
NOPQRSTU VWXYZ[\]^ 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B 5C 5D
^_`abcdefg hijklm 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B 6C 6D
nopqrstuv wxyz{|} 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B 7C 7D
~!"#$%&'()*+,-. 7E 20 21 22 23 24 25 26 27 28 29 2A 2B 2C 2D 2E
/0123456789:;<= 2F 30 31 32 33 34 35 36 37 38 39 3A 3B 3C 3D 3E
?@ABCDEFGHIJ. .## 3F 40 41 42 43 44 45 46 47 48 49 4A 0D 0A 23 24
%&'()*+,-./01234 25 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34
56789:;<=>?@ABCD 35 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44
EFGHIJKLMN O PQRST 45 46 47 48 49 4A 4B 4C 4D 4E 4F 50 51 52 53 54
UVWXYZ[\]^_`abcd 55 56 57 58 59 5A 5B 5C 5D 5E 5F 60 61 62 63 64
efghijklmno pqrst 65 66 67 68 69 6A 6B 6C 6D 6E 6F 70 71 72 73 74
uvwxyz{|}~!"#$% 75 76 77 78 79 7A 7B 7C 7D 7E 20 21 22 23 24 25
&'()*+,-./012345 26 27 28 29 2A 2B 2C 2D 2E 2F 30 31 32 33 34 35
6789:;<=>?@ABCDE 36 37 38 39 3A 3B 3C 3D 3E 3F 40 41 42 43 44 45
FGHIJK. .%&'()*+ 46 47 48 49 4A 4B 0D 0A 24 25 26 27 28 29 2A 2B
,-./0123456789: 2C 2D 2E 2F 30 31 32 33 34 35 36 37 38 39 3A 3B
<=>?@ABCDEFGHIJK 3C 3D 3E 3F 40 41 42 43 44 45 46 47 48 49 4A 4B
LMNOPQRSTU VWXYZ[ 4C 4D 4E 4F 50 51 52 53 54 55 56 57 58 59 5A 5B
\]^_`abcdefg hijk 5C 5D 5E 5F 60 61 62 63 64 65 66 67 68 69 6A 6B
lmnopqrstuvw xyz{ 6C 6D 6E 6F 70 71 72 73 74 75 76 77 78 79 7A 7B
}|}~!"#$%&'()*+ 7C 7D 7E 20 21 22 23 24 25 26 27 28 29 2A 2B 2C

```

Figure 28. Hex Dump Sample

Fault Messages

If a fault condition occurs in the printer, the status indicator on the control panel flashes on and off, and the message display indicates the specific fault. Fault messages are summarized in Table 15.

Displayed faults fall into one of two categories:

- Operator correctable
- Field service required

For the operator-correctable faults, follow the suggested solution in Table 15. After correcting the displayed fault, press the CLEAR key to clear the error message and status indicator and resume printing. If the fault message reappears, contact your authorized service representative.

NOTE: The *Maintenance Manual* provides more detailed information and procedures for resolving fault conditions. However, many of the procedures described there must be performed only by your authorized service representative.

Fault Messages Requiring Field Service Attention

If a fault is not correctable by the operator, the fault message is followed by an asterisk (*). This usually indicates that an authorized service representative is needed. You may try two steps to clear the fault before calling your authorized service representative:

1. Set the printer power switch to O (Off), wait 15 seconds, then turn the printer on again. Run your print job again. If the message does not appear, it was a false indication and no further attention is required.
2. If the message reappears, press the CLEAR key. If the message disappears, it was a false indication and no further attention is required. If the message reappears, call your authorized service representative.

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|-----------------------|-------------------|---|--|
| 06 HOST REQUEST | Yes | Host attention message. | The host computer or printer controller requires attention. |
| 08 HOLD PRINT TIMEOUT | Yes | Printer was offline more than 10 minutes, and the "Intervention Required" parameter is set to "Send to Host." | Press ON LINE to put printer in online state. |
| 8.5V PWR FAIL * | No | 8.5 Volt power failed. Internal power failure. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|---------------------------------|-------------------|--|---|
| 15 COMM CHECK | Yes | A message that appears in the CT emulation meaning the line is not active on a twinax interface. | Check cable connection. |
| 15V CTL FAIL * | No | Controller voltage failure. | Contact your authorized service representative. ¹ |
| 22 INVALID ADDR | Yes | Unit address not recognized by printer. (Twinax interface) | Ensure that printer address matches host setting. |
| 23.5V CTL FAIL * | No | 23.5 Volt Controller failed: a voltage failure on the controller board. | Contact your authorized service representative. ¹ |
| 31 PAPER OUT TIMEOUT | Yes | A timeout message is sent to the host if paper is not loaded 10 minutes after CLEAR was pressed to clear the paper out fault. | Load paper and run a print test. If the message reappears, contact your authorized service representative. ¹ |
| 32 PAPER JAM TIMEOUT | Yes | A timeout message is sent to the host if no paper motion has occurred for 10 minutes after CLEAR was pressed to clear the jam fault. | Clear paper jam and reload paper. |
| 33 PLATEN OPEN TIMEOUT | Yes | The forms thickness lever has been open for at least one minute. | Load paper, close the forms thickness lever, and press CLEAR. |
| 34 RIBBON STALL TIMEOUT | Yes | In the CT emulation with a coax interface, the ribbon has not moved for 10 minutes after CLEAR was pressed to clear the ribbon drive fault. | Reload the ribbon. |
| 48V CIRCUIT* See User Manual | No | Either the power supply is not generating a proper 48 Volts or the controller board is not detecting a 48 Volt output from the power supply board. | Contact your authorized service representative. ¹ |
| 48V PWR FAIL * | No | Internal power failure. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|--|
| 426 BC READ ERR See User Manual | Yes | Bar code read error: The printer does not detect the presence of the ribbon bar code sensor. | <ol style="list-style-type: none"> 1. Power down the printer. 2. Remove the ribbon and wipe the two lenses of the ribbon bar code sensor with a lint-free cloth or cotton swab. 3. Install the ribbon and power on the printer. If the message reappears, replace the ribbon. |
| 733 DP FIFO Busy* | Yes | There is a timing problem in the Engine Controller firmware. | <ol style="list-style-type: none"> 1. Cycle power. Run the print job again. If the message reappears, download the emulation software again. 2. Cycle power. Run the print job again. If the message reappears, contact your authorized service representative.¹ |
| A TO D OVERUN* | No | Analog to Digital Overrun. The analog-to-digital converter overflowed. | Contact your authorized service representative. ¹ |
| ACCESS NULL PTR* | No | Access Null Pointer: The processor tried to access a pointer that contains nothing (null). | Contact your authorized service representative. ¹ |
| ACTIVATE LOST | No | The printer detects a twinax protocol communication error and reports the error. | Contact your authorized service representative. ¹ |
| B00 STATUS: SDRAM DETECTION 166MHZ | No | Status message: the printer has begun its boot-up routines and is checking for the presence of SDRAM. | No action required. |
| B01 STATUS: 8245 SDRAM TEST 32MB | No | Status message: printer boot-up routines are testing SDRAM. | No action required. |
| B10 ERROR: NO DRAM DETECTED* | No | SDRAM DIMM may not be properly installed. Boot-up routines did not detect the presence of the SDRAM DIMM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|-------------------------------|-------------------|--|--|
| B11 ERROR: RAM TEST FAILED* | No | SDRAM failed the boot initialization test. SDRAM DIMM may not be properly installed. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B12 ERROR: PROGRAM MISSING* | Yes | The printer does not see a program in flash memory. | There is no program in printer memory. Download an emulation. |
| B13 ERROR: NOT COMPATIBLE* | No | Attempting to download a program that is not compatible with the printer. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B19 ERROR: DC RETURNED* | No | The message indicates an incorrectly assembled and tested machine. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B20 STATUS :00% DOWNLOAD MODE | No | Status message informing the operator that software is being downloaded. Percentage figure indicates approximate amount loaded into the printer. | No action is required. |
| B21 STATUS: PRINTER RESET | No | Status message informing the operator that the printer is undergoing a system reset. | No action is required. |
| B22 ERROR: DECOMPRESS SIZE* | No | FLASH memory has not passed boot initialization tests. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B23 ERROR: DECOMPRESS CKSUM* | No | FLASH memory has not passed boot initialization tests. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B30 STATUS: INITIALIZING... | N/A | Status message: the printer is running its initialization routines after startup and successful memory tests. | No action is required. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|--|--|
| B35 STATUS: WAITING FOR EC STATUS | N/A | Status message: the DC on the controller board is waiting for communication with the EC. If this message does not clear within a few seconds there is an electrical or electronic problem on the controller board. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B40 ERROR: SDRAM EEPROM CKSUM BAD* | No | Flash memory has not passed boot initialization tests. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B41 ERROR: DIM MEMORY NOT SDRAM* | No | The DRAM DIMM installed on the controller board is not Synchronous DRAM (SDRAM). | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B42 ERROR: SDRAM ROWS NOT ALLOWED* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B43 ERROR: SDRAM TOO MANY BANKS* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B44 ERROR: SDRAM NOT 64 BITS WIDE* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B45 ERROR: SDRAM IS WRONG VOLTAGE* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B46 ERROR: SDRAM HAS MIXED SIZES* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B47 ERROR: SDRAM LARGER THAN 256M* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B49 ERROR: SDRAM # LOGICAL BANKS* | No | Printer boot initialization tests detect incorrect SDRAM. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B50 ERROR: SDRAM LOGIC COMB BANKS* | No | SDRAM DIMM is not compatible with the computer. SDRAM DIMM may not be properly installed. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|---------------------------------|-------------------|--|--|
| B51 STATUS: XX% LOADING... | No | Status message: printer boot-up routines are loading printer system software into flash memory and SDRAM. | No action required. |
| B53 ERROR: 12C NO ARBITRATION | No | There is a problem on the 1 ² C bus which allows the SDRAM DIMM to communicate with the GPIO or CT interface. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| B54 ERROR: SDA LINE STUCK LOW | No | The SDRAM or a PCI card is shorting out the serial data bus on the controller board. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| BARCODE DAMAGED Reverse Spools | Yes | Barcode detected, but not fully decoded. | If barcode appears damaged, reverse ribbon spools. If barcode label is present and undamaged, clean sensor lens using damp cloth or swab. Check that platen gap may be too tight constricting ribbon motion. Loosen gap if needed. |
| BARCODE MISSING Install New RBN | Yes | The ribbon sensor does not detect the presence of the ribbon spool, indicating a missing label or a damaged sensor. | If label is missing, install new ribbon. If barcode label is present and undamaged, clean sensor lens using damp cloth or swab. |
| BC SENSOR ERR See User Manual | Yes | Bar code read error: The printer does not detect the presence of the ribbon bar code sensor. | <ol style="list-style-type: none"> 1. Power down the printer. Remove the ribbon and wipe the two lenses of the ribbon bar code sensor with a lint-free cloth or cotton swab. 2. Install the ribbon and power on the printer. If the message appears again, replace the ribbon. |
| BUFFER OVERRUN | Yes | The print buffer has overflowed on a serial interface. The printed output may contain random * (asterisk) characters. Make a configuration printout. | Verify that the printer matches the host serial interface configuration settings for Data Protocol, Baud Rate, Data Bits, Stop Bits, Parity, Data Terminal Ready, and Request to Send. Set printer serial interface parameters to match those of the host. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|--------------------------------|-------------------|---|--|
| CLEAR PAPER JAM | Yes | No paper motion. | Clear jam and reload paper. If this message recurs, contact your authorized service representative. ¹ |
| CLEARING PROGRAM FROM FLASH | No | Status message: emulation software successfully loaded into printer RAM and the checksum matched. The old program is now being deleted from flash memory. | No action is required. |
| CLOSE PLATEN | Yes | The platen lever is open. | Close the platen lever. |
| CTL VOLT FAIL* | No | Controller Voltage Failure. 15 V failure on the controller board. | Contact your authorized service representative. ¹ |
| D50 Status %XX Clearing Flash | No | Status message: The printer is clearing its flash memory, where %XX represents the percentage completed. | No action is required. |
| D51 Status %XX Programming... | No | Status message: The printer is loading firmware, where %XX represents the percentage completed. | No action is required. |
| D55 Status: Send Program to EC | No | Status message: The printer is loading the engine controller program into the engine controller (EC). | No action is required. |
| DIAGNOSTIC PASSED | No | Status message: the printer passed its memory and hardware initialization tests. | No action is required. |
| DO NOT POWER OFF | No | Status message: The printer is performing an operation that must be completed before you can cycle power. | No action is required, but do not power off the printer until the operation is complete. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| DP FIFO Busy* | Yes | There is a timing problem in the Engine Controller firmware. | <ol style="list-style-type: none"> 1. Cycle power. Run the print job again. If the message appears, download the emulation software again. 2. Cycle power. Run the print job again. If the message appears again, contact your authorized service representative.¹ |
| DRVR CIR BAD* | No | Driver Circuit Bad. The hammer coil count test failed. | Contact your authorized service representative. ¹ |
| E00 EXE @ ADDR0 See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E01A TYPE 0x40 See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E01B TYPE 0x60 See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E02 MACHINE CHK See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E03A DSI HASH L See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E03B DSI HASH S See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E03C DSI BAT PL See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E03D DSI BAT PS See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E03E DSI CXIWX See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E03F DSI CXOWX See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E03G DSI ECXIWX See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E03H DSI ECXOWX See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E04A ISI NO TRA See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E04B ISI DIRECT See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E04C ISI PROTEC See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E06 NOT ALIGNED See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E07 ILLEGAL INS See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E08 FLOATINGPNT See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E12 SYSTEM CALL See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E13 TRACE INT See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E16 ITRANS MISS See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E17 DLOAD MISS See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E18 DSTORE MISS See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E19 BREAKPOINT See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E20 SYS MANAGE See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E30 DEBUGGER See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E31A EVENT O BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E31B EVENT 1 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E31C EVENT 2 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E31D EVENT 3 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E31E EVENT 4 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E31F EVENT 5 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E31G EVENT 6 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E31H EVENT 7 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E32A CND 0 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|----------------------------------|-------------------|---|---|
| E32B CND 1 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E32C CND 2 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E32D CND 3 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E32E CND 4 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|----------------------------------|-------------------|---|---|
| E32F CND 5 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E32G CND 6 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E32H CND 7 BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E33 WRITE BP See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| E34 TRACE CMPLT See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E99 UNKNOWN INT See User Manual | Yes | An illegal or unsupported instruction was attempted in the application program. | <ol style="list-style-type: none"> 1. Cycle Power. Run the print job again. If the message appears, load the latest emulation software. 2. Cycle power. Run the print job again. If the message appears, record the display message and send it to your next higher support facility. |
| E Net Test Unavailable | Yes | The ethernet PCBA did not initialize correctly. | Cycle power. Wait for "E Net Ready" to display, then retry operation. If it still fails, contact your authorized service representative. ¹ |
| ERROR OCCURRED FLUSHING QUEUES* | Yes | An interim message that displays while the printer discards host data it cannot use because a fault condition exists. While this message displays, the asterisk (*) rotates. | Wait. When the asterisk (*) stops rotating, a different fault message will appear: troubleshoot the final message. |
| ERROR: CPLD NOT PROGRAMMED | No | The Complex Programmable Logic Device (CPLD) on the controller board is not programmed. The EC cannot read the version bits in the CPLD which tell the EC which configuration version is installed. | Contact your authorized service representative. ¹ |
| ERROR: DC PROGRAM NOT VALID | Yes | The printer cannot find the data controller program or the validation checksum is corrupt. | Download the program again. If the message appears, contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|--|-------------------|--|---|
| ERROR: DRAM AT ADDRESS XXXXXXXX | Yes | The printer cannot find the engine controller program or the validation checksum is corrupt. | Download the program again. If the message appears, contact your authorized service representative. ¹ |
| ERROR: EC PROGRAM NOT VALID | | The printer cannot find the engine controller program or the validation checksum is corrupt. | Download the program again. If the message occurs again, contact your authorized service representative. ¹ |
| ERROR: EC STOPPED AT STATE XXXX | No | XXXX is a number from 0000 to 0010. The Engine Controller has stopped and is in the state identified by the number displayed. | Contact your authorized service representative. ¹ |
| ERROR: FLASH DID NOT PROGRAM | Yes | The printer encountered an error trying to program flash memory. | Download the program again. If the message displays again, contact your authorized service representative. ¹ |
| ERROR: FLASH NOT DETECTED | No | The printer could not find flash memory. | Contact your authorized service representative. ¹ |
| ERROR: LOCKED SN=nnnnnnnnnnnnnnnnnn nnnnnn | No | nnnnnnnnnnnnnnnnnnnn is the serial number of the printer's security key. The SPX serial number does not match the printer's serial number and cannot be used with the printer. | Contact your authorized service representative. ¹ |
| ERROR: NO DRAM DETECTED | No | The printer could not find any DRAM. | Contact your authorized service representative. ¹ |
| ERROR: NVRAM FAILURE | No | The non-volatile SRAM on the controller board has failed. | Contact your authorized service representative. ¹ |
| ERROR: PROGRAM NEEDS MORE DRAM | No | The printer requires more DRAM to run the downloaded program. | Contact your authorized service representative. ¹ |
| ERROR: PROGRAM NEEDS MORE FLASH | No | The printer requires more flash memory to run the downloaded program | Contact your authorized service representative. ¹ |
| ERROR: PROGRAM NOT COMPATIBLE | Yes | The printer is not compatible with the downloaded program. | Use the correct emulation software options(s) for this printer model. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|--|
| ERROR: PROGRAM NOT VALID | Yes | The printer does not see a program in flash memory. | There is no program in printer memory. Download the emulation. |
| ERROR: SECURITY KEY NOT DETECTED | No | The security key is not present or failed. | Contact your authorized service representative. ¹ |
| ERROR: SHORT AT ADDRESS XXXX | No | Hardware failure in SDRAM or controller circuitry. | Contact your authorized service representative. ¹ |
| ERROR: WRITING TO FLASH | No | Hardware or software fault in flash memory. | Contact your authorized service representative. ¹ |
| ERROR: WRONG CHECKSUM | No | The printer received the complete program but the checksum did not match. The data may have been corrupted during downloading. | Contact your authorized service representative. ¹ |
| ERROR: WRONG OEM | No | The SPX inserted in the debug port is not intended for this model printer or this OEM. | Contact your authorized service representative. ¹ |
| ERROR: WRONG PRINTER TYPE | No | The SPX inserted in the debug port is not intended for this model printer or this OEM. | Contact your authorized service representative. ¹ |
| ETHERNET ADAPTER BEING INITIALIZED | N/A | Status message indicating that the ethernet interface is processing the boot procedure. | No action is required. |
| ETHERNET DETECTED | N/A | Status message indicating that the Network Interface Card has established connection. | No action is required. |
| ETHERNET INITIALIZING | No | Status message: the internal Network Interface Card is processing the boot procedure. (May occur with older versions of microcode.) | No action is required. |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|---|-------------------|--|---|
| EXCESS RBN WEAR Install New RBN | Yes | Status message that displays when ribbon reaches end of life, whether the Integrated Print Management System is enabled or not. | Install a new ribbon. |
| EXHAUST FAN FLT (Cabinet model only) | Yes | Sensors cannot detect current in fan circuit. | Power off the printer and remove the paper path (see <i>Maintenance Manual</i>). Check that the fan cable connector is connected. Check for obstruction of vents and fan airway, and remove any obstructions. Check for items beneath the printer blocking cabinet vents. Power back on the printer. If this message appears again, contact your authorized service representative. ¹ |
| FIRMWARE ERROR* | No | Application software tried to perform an illegal printer function or damaged memory detected on the controller board. | Contact your authorized service representative. ¹ |
| FM HEADER ERROR* | No | Frame Header Error. Application software has violated header parameters. | Contact your system administrator. |
| FRAMING ERROR | Yes | The printed output may contain random ! (exclamation point) characters. | Make a configuration printout. Set printer serial interface parameters to match host configuration settings for Data Protocol, Baud Rate, Data Bits, Stop Bits, Parity, Data Terminal Ready, and Request to Send. |
| GRF CHK ERROR PRESS STOP | Yes | Graphic Check Error: in the CT emulation over a twinax interface, the printer received a non-printable character. | Press CLEAR and then ON LINE. |
| H00: PCI SLOT ? See User Manual | No | The controller board is not communicating with a PCI card. This could indicate a bad PCI card, poor connection, or problem in the PCI bus. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|-------------------------------------|-------------------|--|---|
| H01: PCI J12 See User Manual | No | The controller board is not communicating with the PCI card in PCI slot J12. This could indicate a bad PCI card, poor connection, or problem in the PCI bus. | Contact your authorized service representative. ¹ |
| H02: PCI J13 See User Manual | No | The controller board is not communicating with the PCI card in PCI slot J13. This could indicate a bad PCI card, poor connection, or problem in the PCI bus. | Contact your authorized service representative. ¹ |
| <Online, etc...> Half Speed Mode | No | Status message: The controller samples the operating temperature of key components of the print mechanism. When higher than normal temperatures are sensed, the print speed is automatically reduced by 50% and the message sent the LCD. When the components cool down, the print speed returns to 100% and the message clears. | No action is required. If the message appears often, contact your authorized service representative. ¹ |
| HAM. COIL OPEN* | No | Hammer Coil Open. Electrical malfunction of one or more hammer coils. | Contact your authorized service representative. ¹ |
| HAMMER COIL BAD* #, #, #, ...etc | No | Hammer coil # failed current test at power up. | Contact your authorized service representative. ¹ |
| HAMMER SHORT* See User Manual | No | Electrical malfunction of one or more hammer coils. | Contact your authorized service representative. ¹ |
| HB NOT INSTALLED* | No | Hammer Bank Not Installed. Self-test routines do not detect hammer coils at printer start-up. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|-------------------------------|-------------------|---|--|
| HMR BANK FAN FLT | Yes | Sensors cannot detect current in fan circuit. | Check that fan cable is connected. Check for obstruction of vents and fan airway; remove any obstructions. Check for items beneath the printer blocking cabinet vents. Power back on the printer. If this message recurs, contact your authorized service representative. ¹ |
| ILL EXT BUS ACC* | No | Illegal External Bus Access. Firmware error on the controller board. | Contact your authorized service representative. ¹ |
| ILL INST ACCSS* | No | Illegal Instruction Accessed. Firmware error on the controller board. | Contact your authorized service representative. ¹ |
| ILLGL OPR ACCSS* | No | Illegal Operand Accessed. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| INCOMPAT E-NET Remove NIC | Yes | Incompatible network interface card (NIC) is installed. | Install a compatible NIC to the printer then reboot. If this message still appears, contact your authorized service representative. ¹ |
| INTAKE FAN FAULT | Yes | Sensors cannot detect current in fan circuit. | Cycle power. If the message appears, press CLEAR. If the message does not clear, contact your authorized service representative. ¹ |
| INTERRUPT UNUSED VECTOR 00 | No | The controller board receives an interrupt it does not understand. The problem can be created by electrical noise, by a software problem, or by a hardware problem. | Cycle power. If this message occurred once and never again, you can ignore it. If the message reappears or appears consistently, contact your authorized service representative. ¹ |
| INVALID ACTIVATE | No | Printer detects a twinax protocol communication error. | Contact your authorized service representative. ¹ |
| INVALID COMMAND | No | Printer detects a twinax protocol communication error and reports the error. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|-------------------------------|-------------------|---|--|
| LO DRV. SHORT * | No | Lower Driver Short. Circuit(s) on the hammer bank or in the hammer bank power cable shorted to ground. | Contact your authorized service representative. ¹ |
| LOAD PAPER | Yes | Printer is out of paper. | Load paper and press CLEAR. |
| LOADING PROGRAM FROM PORT XX% | No | Status message: the new emulation program is loading into printer RAM. XX% indicates how much of the program has loaded. | No action is required. |
| LOADING PROGRAM INTO FLASH | No | The printer has deleted the previous program from flash memory and is loading the new program into flash memory. | No action is required. |
| NEW SPX DETECTED PRESS ENTER | No | The printer detects an SPX installed at the debug port and the SPX is valid for the printer. | Contact your authorized service representative. ¹ |
| NON VOLATILE MEMORY FAILED | No | Large emulations reduce the amount of space available for saving configurations, which means that sometimes fewer than eight configurations can be saved. | Contact your authorized service representative. ¹ |
| OLD RIBBON Install New RBN | Yes | The sensor detects a ribbon that was previously declared to be at the end of its service life. | Install a new ribbon. |
| ON LINE | N/A | Printer state message: printer is online and in communication with host. | No action is required. |
| ONLINE 28 CU NOT ENAB | Yes | Controller Unit Not Enabled. Poll time-out error. The printer was not polled for one minute across a coax interface. | Check cable connection and host system. |
| ONLINE 8344 FAILED* | No | Link-level code test detects hardware failure. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|--------------------------------|-------------------|---|--|
| ONLINE CU TIMED OUT | Yes | Controller Unit Timed Out. The printer was not enabled for one minute or more on a coax interface. | Check cable connection and host system. |
| PAP BAD TABLE* | No | Paper Bad Table. The paper feed process on the controller board has a corrupted table. | Contact your authorized service representative. ¹ |
| PAP BSY TOO LNG* | No | Paper Busy Too Long. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP FD DRVR CIR* See Manual | No | Paper Feed Driver Circuit. The paper feed driver circuit on the controller board is drawing too much current. | Contact your authorized service representative. ¹ |
| PAP FIFO OVERFL* | No | Paper First In First Out Overflow. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP FIFO UNDRFL* | No | Paper First In First Out Underflow. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP ILLGL ST* | No | Paper Illegal State. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP INCMPL ENER* | No | Paper Incompletely Energized. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP INVLD CMD* | No | Paper Invalid Command. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP INVLD PARM* | No | Paper Invalid Parameter. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PAP NOT SCHED* | No | Paper Not Scheduled. The paper feed process is not scheduling on the controller board, and the printer cannot feed paper. | Contact your authorized service representative. ¹ |
| PAP NT AT SPEED* | No | Paper Not At Speed. Firmware error on controller board. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|--|-------------------|---|--|
| PAP UNEXP INT* | No | Paper Unexpected Interrupt. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PARAMETER ERROR* | No | Illegal parameter value received in command code over a coax/twinax interface. | Contact your system administrator. |
| PARITY ERROR | Yes | The printed output may contain a random ? (question mark) characters. | Check your printer serial interface parameter settings; if necessary, adjust them so that they match the settings of the attached host. |
| PLAT INV CMD* | No | Platen Invalid Command. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PLAT INV PARM* | No | Platen Invalid Parameter. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PLAT INV STATE* | No | Platen Invalid State. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| PLEASE WAIT... RESET IN PROGRESS | N/A | Status message: the printer finished loading the program into flash memory and is automatically resetting itself. | No action is required. |
| POWER SUPPLY HOT | Yes | Power supply sensors report high temperatures. | Check printer environment. If hot or dusty, relocate printer. Contact your authorized service representative if this occurs frequently. ¹ |
| PRINTER HOT | Yes | This message indicates internal temperatures over 60° Celsius (140° Fahrenheit). | Check printer environment. If hot or dusty, relocate printer. Contact your authorized service representative if this occurs frequently. ¹ |
| PRINTER UNDER REMOTE CONTROL | No | Status message: The printer is under the control of PrintNet Enterprise (PNE) remote management software. | No action is required. |
| PROTECTED INSTR* | No | Protected Instruction. Firmware error on controller board. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| PWR SUPP VOLT * | No | Power Supply Voltage. The power supply has failed. | Replace power supply board. |
| QUEUE OVERRUN | No | In CT twinax emulation, the print buffer has overflowed. | Contact your authorized service representative. ¹ |
| REMOVE USED SPX THEN PRESS ENTER | No | Status message: An SPX is depleted because it has successfully reprogrammed the security key on the controller board. | Contact your authorized service representative. ¹ |
| RESTORING BOOT CODE | No | Normal download initialization message. | No action is required. |
| RIB INVLD CMD* See User Manual | Yes | Ribbon Invalid Command. Firmware error on the controller board. | Cycle power. Run the print job again. If the message appears, download the emulation software again. If the message appears again, contact your authorized service representative. ¹ |
| RBN AT END POINT Change Ribbon | Yes | Integrated Print Management System software has determined that the ribbon is out of ink. | Install a new ribbon. |
| RIBBON STALL | Yes | The controller board does not detect ribbon movement. | Check the ribbon path for jams; if necessary, install a new ribbon. |
| RIBBON UNDER 2% Change RBN Soon | Yes | Status message indicating the Integrated Print Management System is enabled and ribbon ink level is 2%. | Install a new ribbon. |
| SCS COMMAND ERROR* | No | In the CT emulation, the printer received undefined control character (hex 40). | Contact your system administrator. |
| SECURITY VIOLATION* | No | Security code of PAL on controller board does not match code of firmware on the controller board. | Contact your authorized service representative. ¹ |
| SECURITY KEY NOT DETECTED | No | The security key is not present or has failed. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|-----------------------------------|-------------------|---|--|
| SENDING PROGRAM TO EC PROCESSOR | No | Status message: the printer is loading the engine controller program into the engine controller. | No action is required. |
| SF ERROR | No | Structured Field Error. Application software has violated structured data field parameters. | Not a printer problem. Have the system administrator correct applications data or configuration. |
| SHUT DRVR CIR* See User Manual | No | The shuttle driver circuit on the controller board is drawing too much current. | Contact your authorized service representative. ¹ |
| SHUTL INV CMD* | No | Shuttle Invalid Command. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| SHUTL INV PARM* | No | Shuttle Invalid Parameter. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| SHUTL OVR SPEED* | No | The shuttle is oscillating too rapidly. | Contact your authorized service representative. ¹ |
| SHUTTLE JAM | Yes | No shuttle movement or shuttle moving at the wrong speed. | Check for obstruction to shuttle, a twisted ribbon, or platen lever closed too tightly. If fault source is not apparent, contact your authorized service representative. ¹ |
| SHUTTLE STALL | Yes | The shuttle is not moving. See "SHUTTLE JAM" on page 282. | Set the platen lever to match the thickness of paper, but not too tightly. Check and adjust the platen gap. Inspect the ribbon mask for deformation that snags and interferes with shuttle movement. If fault source is not apparent, contact your authorized service representative. ¹ |
| SHUTTLE TYPE NOT SUPPORTED* | No | The shuttle type was not detected at power-up or the shuttle installed in the printer is not supported by the firmware. | Contact your authorized service representative. ¹ |
| SOFTWARE ERROR* CYCLE POWER | No | Application software tried to perform illegal printer function, or damaged logic circuits found on controller board. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|------------------------------------|-------------------|---|---|
| SPX FOUND, ERROR: KEY NOT DETECTED | No | The controller board does not have a security key. | Contact your authorized service representative. ¹ |
| SPX NOT NEEDED OPTIONS ENABLED | No | The user has attempted to use the SPX to turn on printer options that are already enabled. | Contact your authorized service representative. ¹ |
| STACK OVERFLOW* | No | Firmware error on controller board. | Contact your authorized service representative. ¹ |
| STACK UNDERFLOW* | No | Firmware error on the controller board. | Contact your authorized service representative. ¹ |
| STACKER FAULT | Yes | Stacker is not functioning correctly. | Check for obstructions in the stacker area. If fault persists, contact your authorized service representative. ¹ |
| STACKER FULL | Yes | Status message: the power paper stacker is full of paper. | Unload the stacker. If fault persists, contact your authorized service representative. ¹ |
| STACKER JAM | Yes | This message is triggered if there is paper inside the throat of the stacker elevator, but the elevator is not moving. | 1. Open the cabinet rear door and check for obstructions preventing elevator movement. Remove any obstructions. 2. Run the print job again. If the message appears again, contact your authorized service representative. ¹ |
| TCB CORRUPTED* | No | Task Control Block Corrupted. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| TCP PORT BUSY | Yes | Error message reported by the Printer Manager when ethernet interface option is installed. The network address given in the printer properties was reached, but the printer port is busy. | Refer to the <i>Printronix P7000 Maintenance Manual</i> . |
| UNDEF INTERRUPT* | No | Undefined Interrupt. Firmware error on controller board. | Contact your authorized service representative. ¹ |
| UNDFNED OPCODE* | No | Undefined Opcode. Firmware error on controller board. | Contact your authorized service representative. ¹ |

Table 15. LCD Message Troubleshooting Table

| Displayed Message | Can User Correct? | Explanation | Solution |
|---|-------------------|---|--|
| UNKNOWN RBN1 Install New RBN | Yes | The sensor detects a bar code, but the ribbon model is not permitted on this printer. | Install a new ribbon. |
| UNKNOWN RBN2 Install New RBN | Yes | The sensor detects a bar code, but the region code does not match the printer. | Install a new ribbon. |
| UP DRV. SHORT* | No | Upper Driver Short. Hammer driver circuits on the boards shorted to ground. | Cycle power to see if the message clears, if not, contact your authorized service representative. ¹ |
| WAITING FOR ETHERNET ADAPTER | N/A | Status message: Appears when the printer is first powered on if the optional Network Interface Card is installed. | No action is required. |
| ¹ Before contacting an authorized service representative, power off the printer, wait 15 seconds, then power it back on and rerun your print job. If the message reappears, press CLEAR. If the fault message still displays, then contact your authorized service representative. | | | |

A

Printer Specifications

Ribbon Specifications

| Standard Ribbons | Part Number |
|---|--------------------|
| P7000 Ultra Capacity (recommended for most text and barcode OCR) | 179499-001 |
| P7000 High Label (recommended for coated or shiny label stock) | 179488-001 |
| Specialty Ribbons | |
| P7000 Red Ribbon | 179490-001 |
| P7000 Blue Ribbon | 179491-001 |
| P7000 Green Ribbon | 179492-001 |
| P7000 Security Ribbon | 179493-001 |
| P7000 Quick Dry Ribbon | 179494-001 |
| P7000 Tamper Evident | 179496-001 |
| P7000 UV Ribbon | 179497-001 |
| P7000 Laundry Ribbon | 179498-001 |

Paper Specifications

| | |
|------------------|--|
| Type: | Edge-perforated, fan-fold, 3 to 17 inches (7.62 to 43.18 cm) wide, 2 to 12 inches (5.08 to 30.48 cm) long. SureStak Power Stacker option works with forms 5 to 12 inches (12.7 to 30.48 cm) long and up to 16 inches (41 cm) wide without the paper tent or 15.5 inches (39.5 cm) wide with the paper tent installed. |
| Thickness: | Single-part: 15 to 100 pound (6.80 to 45.36 kg) stock; Multi-part: 1- to 6-part forms (maximum 12 lb [5.44 kg] ply of upper plies) |
| Sheet Thickness: | 0.025 inch (0.064 cm) maximum |
| Drive: | Adjustable tractors (6-pin engagement) |

Labels

| | |
|-------------|---|
| On Backing: | One-part continuous perforated fanfold back form. Labels must be placed at least 1/6 inch (0.42 cm) from the fan-fold perforation. Backing adhesive must not be squeezed out during printing. |
| Sheet Size: | 3 to 17 inches (7.62 to 43.18 cm) wide, including the two standard perforated tractor feed strips. A maximum sheet length of 16 inches (40.64 cm) between top and bottom perforations. NOTE: A 16 inch rear door is needed for the cabinet model. Power Paper Stacker option is 5 to 12 inches (12.7 to 30.48 cm) long. |
| Thickness: | Not to exceed 0.025 inch (0.064 cm) (including backing sheet) |

Printer Weight And Dimensions

| Cabinet Type | Dimensions | | | Weight | |
|---------------|-------------|-----------|------------|------------|------------|
| | Height | Width | Depth | Unpacked | Packaged |
| Floor Cabinet | 42.5 inches | 27 inches | 29 inches* | 225 lbs. | 285 lbs.* |
| Pedestal | 35 inches* | 26 inches | 21 inches | 105 lbs.** | 115 lbs.** |

* With a power stacker, the weight increases by 21 lbs. and the depth increases by 4.75 inches for a deeper rear door.

** With the ZTP option, the weight increases by 12 lbs. and the height is increased by 7 inches.

Environmental Characteristics

Temperature:

Operating: 50° to 104° F (10° to 40° C) up to 5000 feet (1524 meters)
50° to 90° F (10° to 32° C) up to 8000 feet (2438 meters)

Storage: -40° to 158° F (- 40° to 70° C)

Relative Humidity

Operating: 15% to 80% (noncondensing)

Storage: 15% to 90% (noncondensing)

Acoustic Noise Level

| Acoustic Noise Levels per ISO 9296 | Cabinet Models | Pedestal Models |
|------------------------------------|--|----------------------------|
| Printing | 50 dB (500 lpm/1000 lpm) 52 dB (1500 lpm) 54 dB (2000 lpm) | 65 dB 65 dB NA NA |
| | 6.8 Bel | 8.0 Bel |
| Standby | 48 dB | 50 dB |
| | 6.3 Bel | 6.5 Bel |
| Geraeuschemission nach ISO 9296 | | |
| Druckend | 52 dB 52 dB (1500 lpm) 54 dB (2000 lpm) | 65 dB 65 dB NA NA |
| | 6.8 Bel | 8.0 Bel |
| Betriebsbereit | 48 dB | 50 dB |
| | 6.3 Bel | 6.5 Bel |

Energy Star

The printers described in this *User's Manual* comply with the requirements of the ENERGY STAR[®] Office Equipment Program of the U.S. Environmental Protection Agency.

Electrical Characteristics

| | Voltage (+/-10%) | Freq (+/-10%) | Amps | Watts | BTU/Hr |
|--------------|------------------|---------------|------|-------|--------|
| P7005 | AC 100-120V | 50-60 Hz | 3A | 275W | 940 |
| | AC 200-240V | 50-60 Hz | 1.5A | 275W | 940 |
| P7010 | AC 100-120V | 50-60 Hz | 3.5V | 300W | 1025 |
| | AC 200-240V | 50-60 Hz | 1.6A | 300W | 1025 |
| P7015 | AC 100-120V | 50-60 Hz | 4.5A | 430W | 1469 |
| | AC 200-240V | 50-60 Hz | 1.9A | 430W | 1469 |
| P7205 | AC 100-120V | 50-60 Hz | 3.5A | 350W | 1195 |
| | AC 200-240V | 50-60 Hz | 1.6A | 350W | 1195 |
| P7210 | AC 100-120V | 50-60 Hz | 3.5A | 350W | 1195 |
| | AC 200-240V | 50-60 Hz | 1.6A | 350S | 1195 |
| P7215 | AC 100-120V | 50-60 Hz | 5A | 460W | 1571 |
| | AC 200-240V | 50-60 Hz | 2A | 460W | 1571 |
| P7220 | AC 100-120V | 50-60 Hz | 5.5A | 540W | 1844 |
| | AC 200-240V | 50-60 Hz | 2.1A | 540W | 1844 |

The above values are calculated while printing 136 column, all upper case high speed "E's". The stand-by (Energy Saver mode) wattage is 28W (96 BTU/Hr) for all models.

Interfaces

| | | |
|-----------------|-----------|--|
| Type: | Standard: | IEEE 1284 Parallel, Centronics Parallel, RS-232 serial, Dataproducts Parallel |
| | Optional: | Coax, Twinax, RS-422 serial, Ethernet 10/100Base-T. |
| Logic Levels: | | TTL/EIA [®] -232E/EIA-422B |
| Transfer Rates: | | Up to 200 Kilobytes on parallel interface. Up to 19.2K baud on RS-232 serial interface. Up to 115.2K baud on RS-422 serial interface |

Printing Rates

The printing speed of text is measured in lines per minute (lpm) and is a function of the selected font and the vertical dot density. Printing speed is independent of the number of characters configured in the character set repertoire. Print rates for lines containing attributes such as bold or emphasized printing, superscripts, subscripts, or elongated attributes will decrease to not less than half the rates of the font without such attributes. The exact print rate of lines containing these attributes depends on the specific print job, but software maximizes the throughput by dynamically determining which dot rows contain adjacent dots and must be printed in two strokes.

The reverse paper feed capability allows the printing of multiple densities on a single line. This is useful in printing forms and text together or in mixing different fonts on a print line. Use of multiple densities and reverse paper feed also affects throughput.

C

Zero Tear Printer

Overview

The P7000 Zero Tear (ZT) printer can print a form and present it for tear off without losing a form between print jobs. The printer automatically presents the current print line to the tear bar when it finishes printing and no data are being sent to the printer. When it receives more data from the host computer, the printer pulls the form down to the print station and resumes printing.

The ZT printer is available as a 500 lpm, 1000 lpm, 1500 lpm standard ASCII printer and as a 200 lpm, 300 lpm, and 600 lpm H-Series (DBCS) printer.

Operation

Position The Paper Input And Adjust The Paper Guides

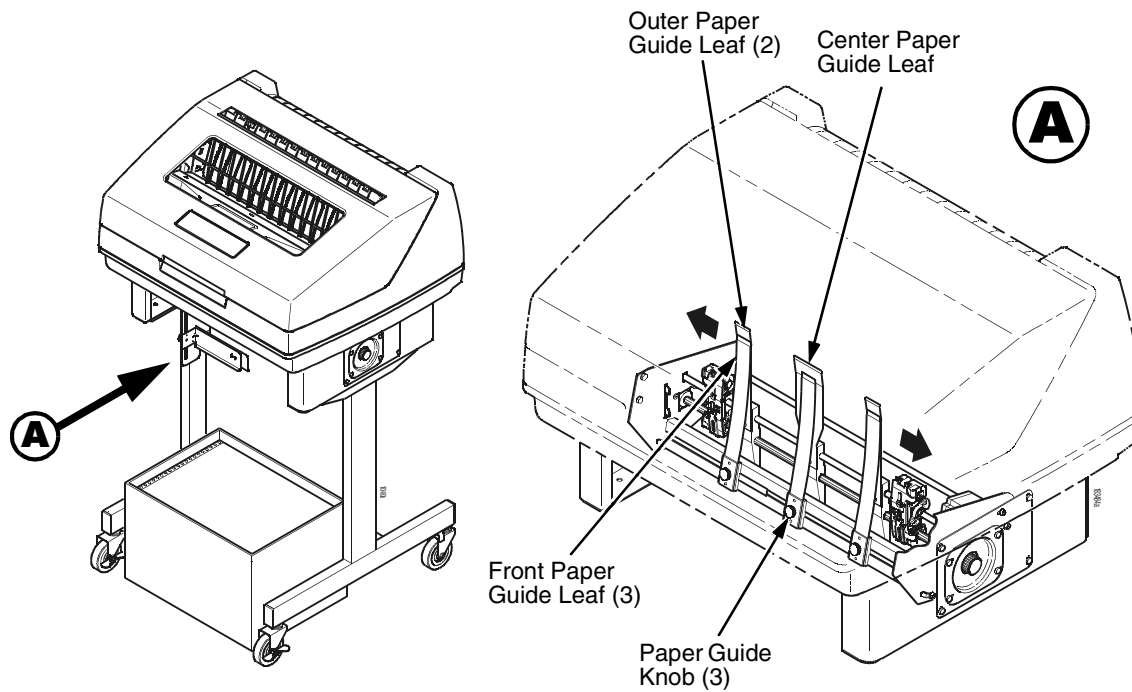


Figure 29. Adjusting The Paper Guides

NOTE: Ensure that the paper guides are not damaged.

1. Remove the left paper guide knob and the left, front paper guide leaf. (See Figure 29.)
2. Remove the right paper guide knob and the right, front paper guide leaf.
3. Remove the center paper guide knob and the center, front paper guide leaf.

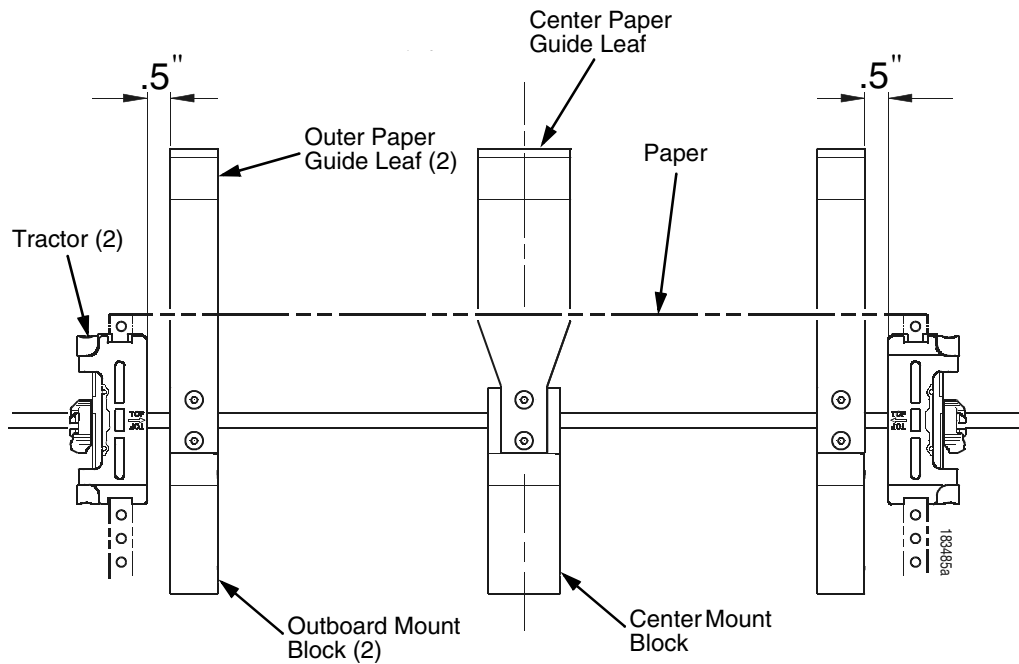


Figure 30. Adjusting Paper Guide Leaves

4. Slide the left outboard mount block so that the left outer paper guide leaf is .5 inches from the left tractor. (See Figure 30).
5. Slide the right outboard mount block so that the right outer paper guide leaf is .5 inches from the right tractor.
6. Slide the center mount block so that the center paper guide leaf is centered between the left and right outer paper guide leaves.
7. Install the paper guide knobs and front paper guide leaves. (See Figure 29.)

Load Paper

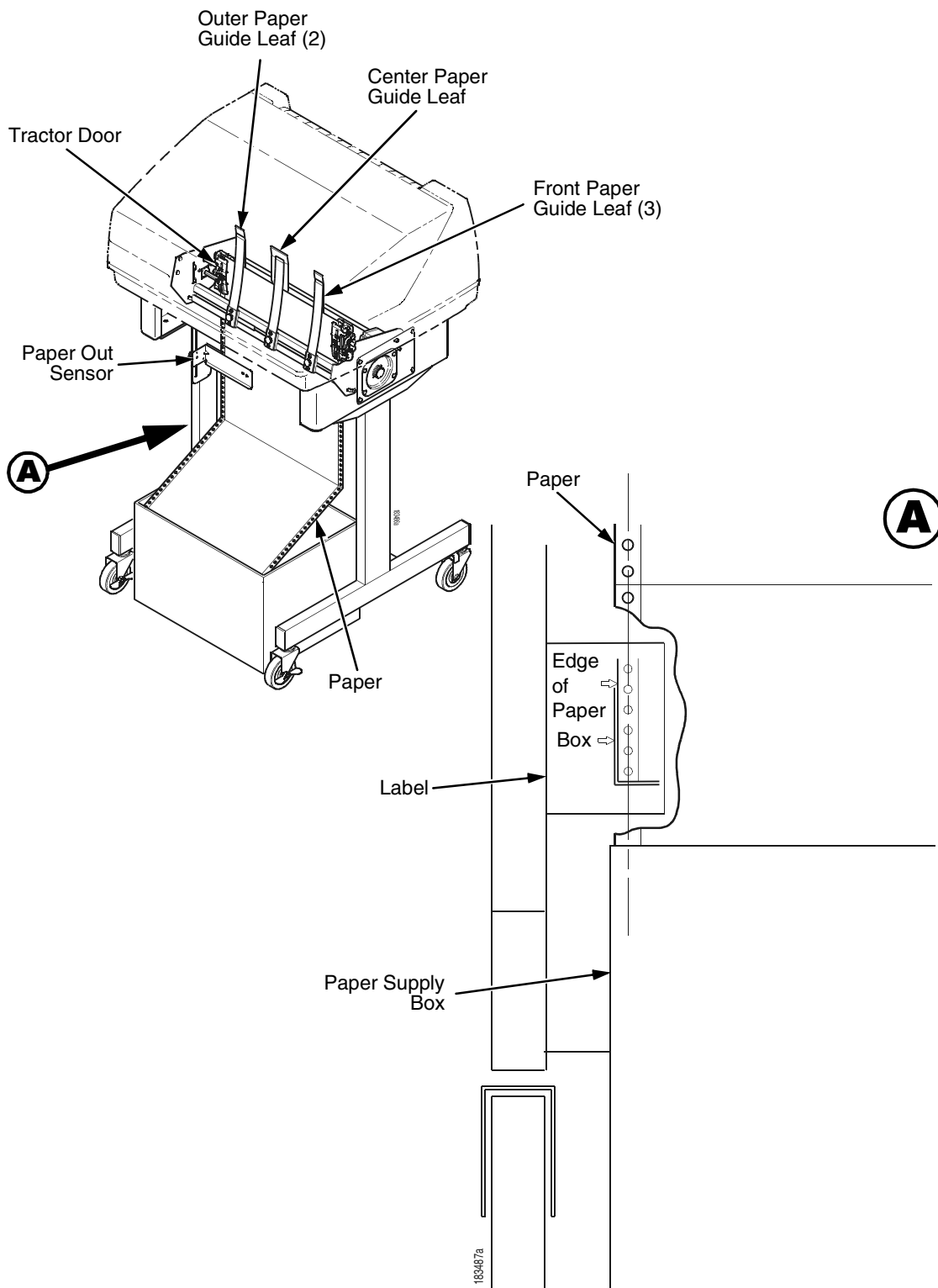


Figure 31. Loading Paper Onto The Printer

1. Align the paper supply box with the label on the bottom left side of the modesty panel. (See Figure 31 on page 296.)
2. Unlock and open the tractor doors and slide the paper from below, through the black paper out sensor slot on the left side, and up between all front and rear paper guides.
3. Load the paper on the left tractor sprockets and close the tractor door.
4. Load the paper onto the right tractor sprockets and close the tractor door.

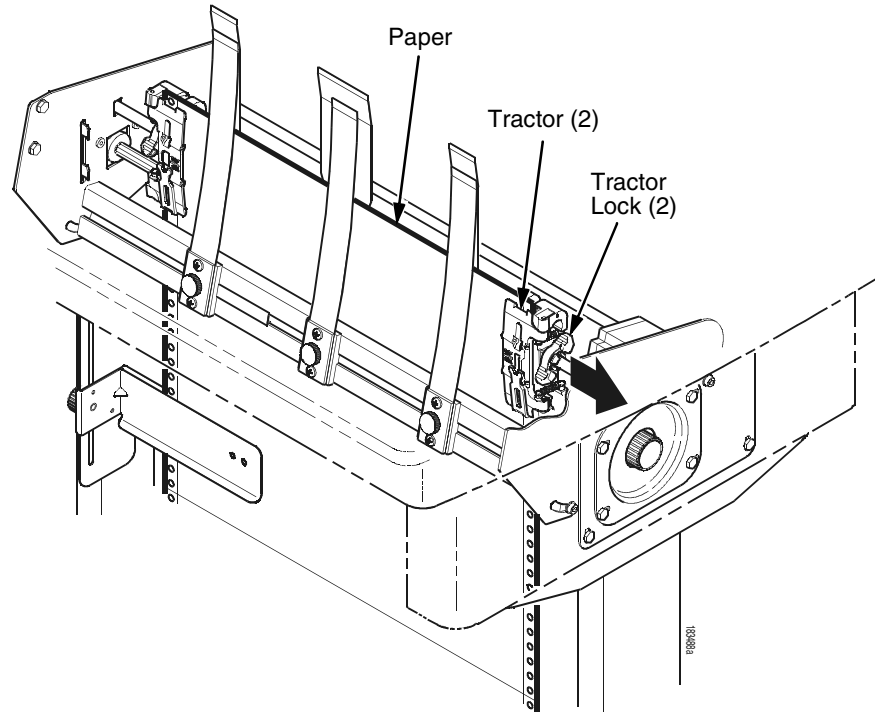


Figure 32. Adjusting the Horizontal Paper Tension

5. Adjust the paper web tightness by sliding the right tractor to remove slack or to adjust for various paper widths. (See Figure 32.)
6. Lock the tractors in position by pressing down on the tractor locks.

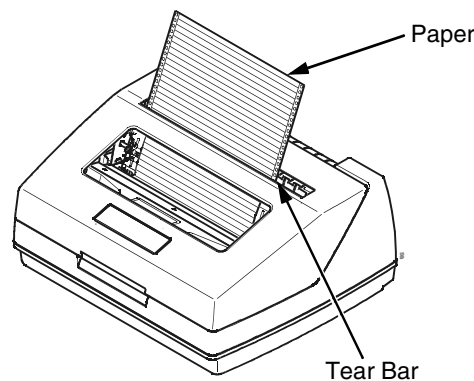


Figure 33. Paper Exiting the Top of the Printer

Position The Paper Out Sensor

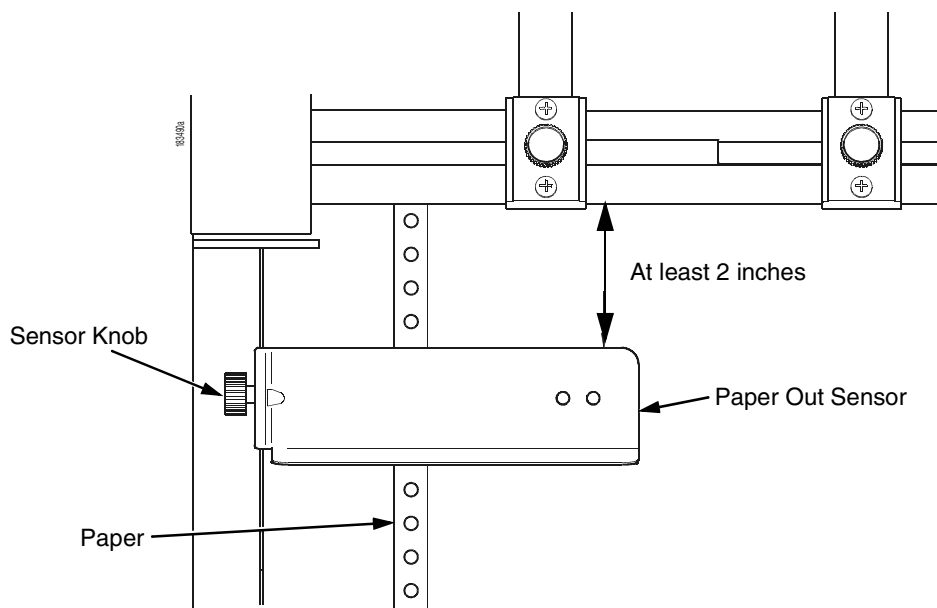


Figure 34. The Paper Out Sensor

The paper out sensor indicates when the printer runs out of paper. (The sensor does not work with black backed forms.) Unlike the standard pedestal printer, the ZT printer requires you to load the paper through the paper out sensor slot (Figure 31 and Figure 34). Correct positioning of the paper out sensor ensures that the last form the printer prints will be properly presented to the tear bar. To position the paper out sensor, do the following:

1. Position the paper properly at the tear bar (page 300).
2. Loosen the paper out sensor by turning the sensor knob counterclockwise.
3. Position the paper out sensor so that there are at least 2 inches between the bottom of the aluminum extrusion bar and the top of the paper out sensor.

IMPORTANT

For optimal performance, 2 inches is recommended for 11 inch forms. For shorter forms, position the paper out sensor so that there are at least 2 inches between a perforation and the top of the paper out sensor.

4. Tighten the paper out sensor by turning the sensor knobs clockwise.
5. Press **ONLINE/CLEAR**. When the first print job is sent to the printer, the paper is drawn into the printer, the top of form aligns with the print station, and the print job begins.

Set The Tear Bar Distance

To set the tear bar distance, do the following steps:

1. Make sure the printer is offline.
2. Press the right arrow \leftarrow until "OFFLINE/ZTP SETTINGS" displays.
3. Press the down arrow \blacktriangledown . "ZTP DataTime" displays.
4. Press the right arrow \leftarrow until "ZTP TearDist" displays.
5. Press the down arrow \blacktriangledown . "ZTP TearDist/xx/144 Inch" displays.
6. Press the **Enter** key. A scale prints to indicate the tear bar distance in relation to the tear bar.
7. Press the left arrow \leftarrow or right arrow \rightarrow to decrease or increase the tear bar distance in increments of 1/144th of an inch.
8. Press **Enter** to select the desired value. An asterisk appears next the selected value.
9. Press **Enter** again to print a new scale. For correct tear bar distance, the zero should align with the tear bar. See Figure 35.

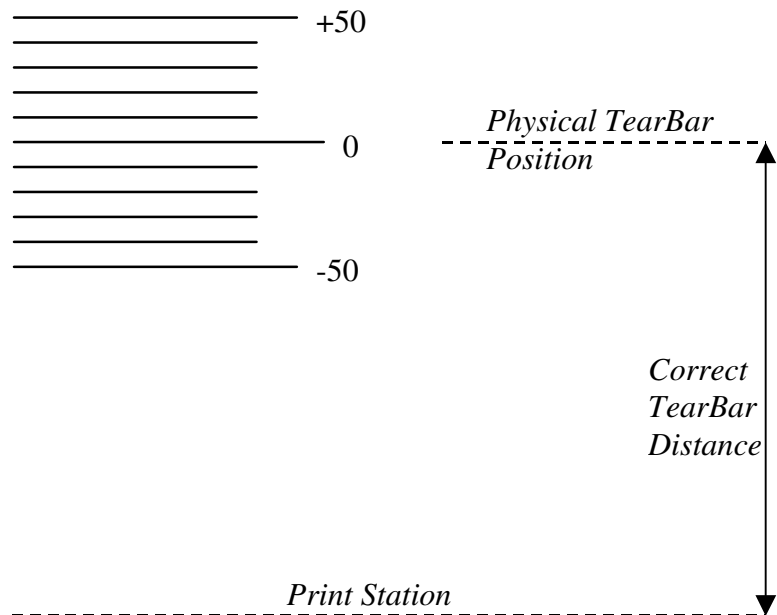


Figure 35. Correct Tear Bar Distance

NOTE: When a new ZTP Tear Bar Dist value is selected, the printer will lose the current print position until you reset the top of form to automatically save the new value.

10. Reset the top of form using the procedure on page 300.

Set The Top Of Form

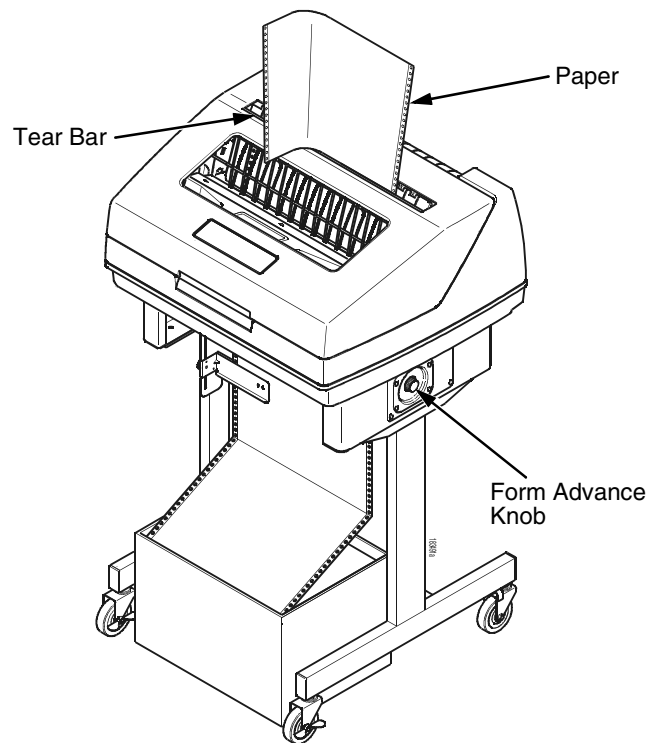


Figure 36. Setting The Tear Off Position

The ZT printer uses the tear bar as the reference point for setting the tear off position. To set the position of the forms perforation to the tear bar, use the **SET TOF** button as follows:

1. Make sure the paper guides are adjusted correctly and the paper is properly loaded.
2. Press the **SET TOF** button on the control panel. The printer display will read "Align at TearBar/Then Press TOF".
3. Use the form advance knob to move the top of the form to the tear off bar.
4. Position the perforation so it aligns with the tear off bar.

NOTE: This is easily done by advancing one complete sheet above the tear off bar and folding it over at the perforation.

5. Position the fold exactly at the tear bar.
6. Tear the sheet off to ensure proper positioning.

NOTE: If you do not want to lose a form, position the top of the form at the tear bar. Run a finger along the back of the form along the tear bar to ensure the perforation is presented at the tear off point.

7. Press the **SET TOF** button again. The printer display will read "Top Of Form Set/Press ONLINE". The printer will then be brought OFFLINE and the top of form will be set.
8. Press the **ONLINE/CLEAR** key to bring the printer online.

Control Panel Menus

The ZTP SETTINGS menu includes the ability to enable and disable features unique to the Zero Tear printer (ZTP), set the tear bar distance, set the auto present data time, and set the auto present wait time. This section defines these options.

ZTP Function

This option enables or disables all unique ZTP functions. The default is Enable.

NOTE: When the ZTP Function is enabled, the View/Eject key is disabled and Slow Paper Slew is enabled.

ZTP TearDist

This option sets the tear off distance from the current print position to the tear bar. Adjustable values in increments of 1/144th of an inch range from 200 to 2880. The up and down arrows adjust the display value. When you press the **Enter** key, the selected value is stored and a scale is printed to indicate the current tear off position. The default value is 1060.

NOTE: When a new value is selected, the printer will lose the current print position. You must reset the top of form to automatically save the new value.

ZTP DataTime

This option sets the pause time in the data stream that the ZTP requires before moving the form to the tear bar once a print job is completed. The values range from .5 to 5 seconds. The default is .5 seconds.

ZTP WaitTime

This option sets the minimum amount of time that the form stays at the tear bar. This allows you time to remove the form before the form is retracted to print the next form. The adjustable values range from 500 to 5000 milliseconds in increments of 500 milliseconds. The default value is 2 seconds.

ZTP Platen Open

This option allows the user to have the platen open whenever forms are reversed. Enabled is the default, used for most papers and labels. The feature can be disabled as required by some multi-part forms.

Performance Limitations

Forms Type

The paper feed tractors on the ZT printer push the paper up through the print station instead of pulling it through, as in the standard pedestal printer. This limits the variety of forms the ZT printer can use. If the forms do not fall within the range specified in Table 16, dot compression and line separation may occur. The user should match the media to the application to ensure acceptable print quality. Also, because paper is pushed from below the print station, the last form in the tractors may not print fully or may not be presented to the printer exit for retrieval.

All paper used in the ZT printer requires standard half inch spaced tractor feed holes. Cut sheet and continuous friction fed paper is not supported. The forms specified in Table 16 can have no more than one form per page horizontally.

Table 16. Forms Type

| Description | Length | Width (edge to edge) |
|--|----------------|-------------------------|
| One to three part, continuous, with carbon, fan-folded, edge-perforated paper forms | 3 to 12 inches | 7 to 16.5 inches |
| One to four part, continuous, with carbon, fan-folded, edge-perforated paper forms | 3 to 12 inches | 7 to 12 inches |
| One to four part, continuous, carbonless, fan-folded, edge-perforated paper forms | 3 to 12 inches | 7 to 16.5 inches |
| One to six part, continuous, carbonless, fan-folded, edge-perforated paper forms | 3 to 12 inches | 7 to 12 inches |
| Forms with a paper weight of 20 to 100 pounds and a maximum thickness of 0.025 inches | 3 to 12 inches | 7 to 16.5 inches |
| Forms with a paper weight of 18 to 100 pounds and a maximum thickness of 0.025 inches | 3 to 12 inches | 7 to 12 inches |
| Forms with all approved types of interleaf edge attachment except those using metallic or other hard devices | | |

NOTE: If you use forms outside these limits, the print quality may not be optimum, the printer may lose top-of-form, or the frequency of paper jams will increase.

Paper Jams

Printer jams can occur if you tear off the form incorrectly. If you experience two or more paper jams per box of forms, follow these guidelines to help reduce jams:

- Position the lower paper guides properly
- Align the paper web tightness properly
- Position the form perforation against the tear bar
- Time the tear, while the paper is not moving
- Direct the tear force toward the user and across the tear bar, not upward.

To Clear Paper Jams

1. Raise the platen lever to open the platen.
2. Open the left and right tractor doors.
3. Pull the paper upward through the top of the printer.

NOTE: DO NOT pull the paper downwards from the bottom. This could cause the paper guides to bend.

4. Reload the paper (see page 296).

D

Customer Support

Printronix Customer Support Center

IMPORTANT

Please have the following information available prior to calling the Printronix Customer Support Center:

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

Line Matrix Printer

Press PRT CONFIG on the control panel, then press Enter.

- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas (714) 368-2686

Europe, Middle East, and Africa (31) 24 6489 311

Asia Pacific (65) 6548 4114

China (86) 800-999-6836

<http://www.primtronix.com/support.aspx>

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas (800) 733-1900

Europe, Middle East, and Africa 33 (0) 1 46 25 19 07

Asia Pacific (65) 6548 4116
or (65) 6548 4182

China (86) 400-886-5598

<http://www.primtronix.com/supplies-parts.aspx>

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Visit the Printronix web site at www.primtronix.com

E

Communication Notices

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Note!

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Energy Star



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Printronix participates in this program by introducing printers that reduce power consumption when they are not being used. As an ENERGY STAR® Partner, Printronix has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

NOTE: The ENERGY STAR® emblem does not represent EPA endorsement of any product or service.

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This product may contain a sealed, lead-acid battery; lithium battery; nickel-metal-hydride battery; or nickel-cadmium battery. Batteries of these types must be recycled or disposed of properly. Recycling facilities may not be available in your area.

In the United States, Printronix has established a collection process for reuse, recycling, or proper disposal of used batteries and battery packs from Printronix equipment. For information on proper disposal of the batteries in this product, please contact Printronix.

For information on disposal of batteries outside the United States, contact your local waste disposal facility.

Communication Statements

Federal Communications Commission (FCC) Statement

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

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Printronix is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

European Union (EU) Conformity Statement



Hereby, Printronix declares that this product is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

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This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to European standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication devices.

WARNING

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

Properly shielded and grounded cables and connectors must be used in order to reduce the potential for causing interference to radio and TV communications and to other electrical or electronic equipment. Printronix cannot accept responsibility for any interference caused by using other than recommended cables and connectors.

Industry Canada Compliance Statement

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A conform à la norme NMB-003 du Canada.

Statement of CISPR 22 Edition 2 Compliance

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

Japanese VCCI Class A

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German Conformity Statement

Handbuchtexte: FCC class A entspricht: EMVG Klasse A

Text Für alle in Deutschland vertriebenen EN 55022 Klasse A Geräte:

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 18. September 1998 (bzw. der EMC EG Richtlinie 89/336):

Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen. Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die: Printronix Deutschland GmbH, 70548 Stuttgart. Informationen in Hinsicht EMVG Paragraph 4 Abs. (1) 4:

Das Gerät erfüllt die Schutzanforderungen nach EN 55024 und EN 55022 Klasse A.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden: "Warnung: dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen."

EN 55024 Hinweis:

Wird dieses Gerät in einer industriellen Umgebung betrieben (wie in EN 55024 festgelegt), dann kann es dabei eventuell gestört werden. In solch einem Fall ist der Abstand bzw. die Abschirmung zu der industriellen Störquelle zu öergrvßern.

Anmerkung:

Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Printronix Handbüchern angegeben, zu installieren und zu betreiben.

China

Declaration:

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may need to perform practical actions.

声 明

此为 A 级产品, 在生括环境中,
该产品可能会造成无线电干扰。
在这种情况下, 可能需要用户对其
干扰采取切实可行的措施。

Taiwan

Warning:

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

警告使用者:
這是甲類的資訊產品, 在
居住的環境中使用時, 可
能會造成射頻干擾, 在這
種情況下, 使用者會被要
求採取某些適當的對策。

Korea

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CAUTION:

This product is equipped with a 3-wire power cord and plug for the user's safety. Use this power cord in conjunction with a properly grounded electrical outlet to avoid electrical shock.

Lithium Battery Warning

The controller board contains a lithium battery sealed inside the real-time clock chip. Do not disassemble the chip to replace the battery. Do not dispose of the chip by incineration. Failure to comply may cause the battery to explode. Contact your local waste agency for the correct disposal procedure.

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Index

A

- A TO D OVERUN * message, 256
- Absorb After ^PN, 199
- Absorb After ^PY, 197
- Accented Char, PRINTER CONTROL, 220
- ACCESS NULL PTR * message, 256
- Acknowledge, Centronics Parallel Interface Signals, 237
- Acoustic noise level, 288
- ACTIVATE LOST message, 256
- Active Char Set, 108, 117
 - 3270 Params menu, 123
 - 5250 Params menu, 130
- Active Emulation, 65
- ACTIVE IGP EMUL menu, 102
- Active IGP Emulation, 65
- Adapter Address, 64
- ADAPTER ADDRESS menu, 87
 - DHCP, 88
 - Gateway address, 88
 - IP address, 87
 - MAC address, 88
 - Subnet mask, 87
- ADAPTER PARAMS menu
 - ASCII data port, 89
 - Ethernet speed, 90
 - IPDS Data Port, 89
 - Job Control, 90
 - Keep alive timer, 90
 - Nest Serv Type, 89
 - NetBIOS protocol, 89
 - Novell frame, 89
 - Novell protocol, 89
- ADVANCED USER menu, 221
 - Alarm, 224
 - Auto Elevator, 223
 - Auto Locking, 223
 - Cancel Key, 225
 - Downloaded Fonts, 222
 - File System, 223
 - PMD (Paper Motion Detection) Fault, 223
 - Power Saver Time, 225
 - Power Stacker, 223
 - Pwr Save Control, 225
 - Set Lock Key, 225
 - Set Sharing, 224
 - Shuttle Timeout, 224
 - Slow Paper Slew, 224
- AI 00 Spaces, 183, 198
- Alarm, ADVANCED USER menu, 224
- Alt. Char Set, Proprinter XL Emulation, 160
- Alt. Set 80-9F, 110, 147
 - Epson FX Emulation, 164
 - PTX Transparent, 118
 - Serial Matrix Emulation, 156
- ANSI Emulation menu, 168
 - Auto LF, 172
 - Barcode Darkmode, 174
 - BC Check Digit, 174
 - Character Set, 173
 - CPI/LPI Select, 170
 - Define CR Code, 172
 - Define LF Code, 172
 - ESC c Sequence, 173
 - ETX/ACK, 174
 - Font Attributes, 170
 - Page Format, 171
 - Pos. on BC/OvrSz, 174

- Printer Select, 173
- Private Mode, 173
- PUM Default, 174
- Received CR, 173
- Received DEL, 173
- Reset Cmd CFG Ld, 173
- Truncate PI Slew, 174
- Antenna, WLAN PARAMS menu, 97
- Ant. Diversity, WLAN PARAMS menu, 97
- Append Rotated, 196
- ASCII Character Set, 291
- ASCII data port, Adapter Params menu, 89
- ASCII data port, Ethernet Parameters menu, 92
- Auth Method, WLAN LEAP menu, 101
- Auth Method, WLAN PARAMS menu, 98
- Auto Elevator, ADVANCED USER menu, 223
- Auto FF at ^PN, 200
- Auto LF, 146
 - ANSI Emulation menu, 172
 - Epson FX Emulation, 163
 - Proprinter XL Emulation, 159
 - P-Series XQ Emulation, 152
 - Serial Matrix Emulation, 155
- Auto Locking, ADVANCED USER menu, 223
- Auto Save Configuration, 52
- Auto Save CONFIG. CONTROL menu
 - Auto Save, 71
- Auto Skip At End, 112, 126
- Auto Switching submenu, 73
 - Auto Switching submenu, 73
 - Port Type, 74
 - Report Status, 74
 - Switch Out On, 74
 - Timeout, 74
 - Trickle Time, 74
- Auto Trickle
 - Centronics (Parallel) submenu, 78
 - Dataproducs submenu, 80
 - IEEE 1284 Parallel (Bidirectional) Submenu, 75
- Auto Uppercase, 181
- Autowrap, 180
- Autowrap, LG Emulation, 216

B

- Bar Code Quality, PRINTER CONTROL, 219
- Bar Code Verification, 252
- BARCODE DAMAGED message, 259
- Barcode Darkmode, ANSI Emulation menu, 174
- Barcode Errors, 201
- BARCODE MISSING message, 259
- Barcode Options, 182
 - AI 00 Spaces, 183
 - C39 Compatbl., 184
 - I 2/5 Selection, 183
 - Optimized Ratio, 183
 - Select SO Char, 183
 - UPC Descenders, 182
 - User-Def Ratio, 183
- Barcode Quality, IPDS Emulation, 206
- Barcode Size, IPDS Emulation, 207
- Barcode Speed, IPDS Emulation, 206
- Barcode, clean, 45, 251
- Baud Rate, Serial submenu, 83
- BC Check Digit, ANSI Emulation menu, 174
- BC SENSOR ERR message, 259
- Buffer Clear, Dataproducts Parallel Interface Signals, 235
- BUFFER OVERRUN message, 259
- Buffer Print, 114, 120, 133
 - SPC Twx Params, 136
- Buffer Reprint, 109, 134
- Buffer Size in K
 - Centronics (Parallel) submenu, 78
 - Dataproducs submenu, 80
 - Ethernet submenu, 86
 - IEEE 1284 Parallel (Bidirectional) Submenu, 75
 - Serial submenu, 84
- Busy On Strobe, Centronics (Parallel) submenu, 77
- Busy, Centronics Parallel Interface Signals, 237
- Byte Mode, IEEE 1284 Parallel Interface, 238
- B00 STATUS SDRAM DETECTION 166MHZ message, 256
- B01 STATUS 8245 SDRAM TEST 32MB message, 256
- B10 ERROR NO DRAM DETECTED* message,

256
B11 ERROR RAM TEST FAILED* message, 257
B12 ERROR PROGRAM MISSING* message, 257
B13 ERROR NOT COMPATIBLE* message, 257
B19 ERROR DC RETURNED* message, 257
B20 STATUS 00% DOWNLOAD MODE message, 257
B21 STATUS PRINTER RESET message, 257
B22 ERROR DECOMPRESS SIZE* message, 257
B23 ERROR DECOMPRESS CKSUM* message, 257
B30 STATUS INITIALIZING, 257
B35 WAITING FOR EC STATUS, 258
B40 ERROR PROM CKSUM BAD* message, 258
B41 ERROR DIM MEMORY NOT SDRAM* message, 258
B42 ERROR SDRAM ROWS NOT ALLOWED* message, 258
B43 ERROR SDRAM TOO MANY BANKS* message, 258
B44 ERROR SDRAM NOT 64 BITS WIDE* message, 258
B45 ERROR SDRAM IS WRONG VOLTAGE* message, 258
B46 ERROR SDRAM HAS MIXED SIZES* message, 258
B47 ERROR SDRAM LARGER THAN 256M* message, 258
B49 ERROR SDRAM # LOGICAL BANKS* message, 258
B50 ERROR SDRAM LOGIC COMB BANKS* message, 258
B51 XX% LOADING, 259
B53 ERROR 12C NO ARBITRATION, 259
B54 ERROR SDA LINE STUCK LOW, 259

C

Cable Verify, Dataproducts Parallel Interface Signals, 235
Cancel a print job, 46
Cancel IGP/DCU, 109, 117
CANCEL key, 28
Cancel Key, ADVANCED USER menu, 225

Centronics Parallel Interface, 236
Centronics Parallel Interface Signals, 237
 Acknowledge, 237
 Busy, 237
 Data Lines 1 through 8, 237
 Data Strobe, 237
 Fault, 237
 Online, 237
 Paper Empty (PE), 237
 Paper Instruction (PI), 237
 Prime, 237
Centronics (Parallel) submenu, 76
 Auto Trickle, 78
 Buffer Size in K, 78
 Busy On Strobe, 77
 Data Bit 8, 77
 Data Polarity, 77
 Latch Data On, 77
 PI Ignored, 77
 Prime Signal, 77
 Resp. Polarity, 77
 TOF Action, 78
 Trickle Time, 78
Change Case, 110
Change Case, 3270 Params menu, 124
Changing parameter settings, 47
Changing parameters, example, 49
Changing Ribbons, 43
Channel, WLAN PARAMS menu, 96
Char Set Select, 108, 117
Character Set, 147
 ANSI Emulation menu, 173
 ASCII, 291
 Epson FX Emulation, 164
 Proprinter XL Emulation, 160
 Serial Matrix Emulation, 156
Characteristics, environmental, 287
Cleaning
 exterior, 249
 interior, 250
 ribbon barcode, 45, 251
Cleaning requirements, 249

CLEAR key, 27
 CLEAR PAPER JAM message, 260
 Clear to Send (CTS), RS-232, 245
 CLEARING PROGRAM FROM FLASH message, 260
 Clock Skew, WLAN Kerberos menu, 100
 CLOSE PLATEN message, 260
 Coax Emulation menu, 106

- Active Char Set, 108
- Buffer Print, 114
- Buffer Reprint, 109
- Cancel IGP/DCU, 109
- Change Case, 110
- Char Set Select, 108
- Compatibility Op, 111
- Early Print Cmpl, 109
- Format Control, 113
- Host Override, 113
- Image Buf Size, 111
- Intervention Req, 111
- Max. Print Width, 114
- PA1, 108
- PA2, 109
- Prt Partial Line, 108
- PTX Transparent, 110
- SCS Buffer Cntrl, 109
- Set Text Orientn, 111
- Translate Table, 113
- Translation Tbl, 108

 Coax/Twinax (CTHI) Emulation menu, 104

- Simple Prot Conv, 105
- Standard, 104

 Code Page Subset, IPDS Emulation, 208
 Column 132 Wrap, 133
 Compatbl. Mode, 185
 Compatibility Mode, IEEE 1284 Parallel Interface, 238
 Compatibility Op, 111

- Auto Skip At End, 112, 126
- CR at MPP+1, 111, 125
- CR, EM, and NL (3287 only), 126
- CR, EM, & NL (3287 only), 113
- FF After Job, 113, 126
- FF Validity, 112, 126
- Last Char = FF, 112, 125
- NL At MPP+1, 111, 125
- Null Suppression, 112, 125
- Position Aft FF (4234 only), 112, 125

 Compatibility Op, 3270 Params menu, 125
 Compliance, Energy Star, 288
 Component locations, printer, 23
 Compressed CPI, 184
 Compressed Print, P-Series XQ Emulation, 153
 Config Print, PCL-II Emulation, 213
 Configurations

- custom, 48
- default, 48
- overview, 47
- saving, 52

 Configuration, Auto Save, 52
 CONFIG. CONTROL menu, 69

- Delete Config., 70
- Load Config., 70
- Name Configs, 71
- Power-Up Config., 70
- Print Config., 70
- Protect Configs., 70
- Reset Cfg Names, 71
- Save Config., 70

 Contact information, 16
 Control Code 06, 145

- P-Series XQ Emulation, 152
- Serial Matrix Emulation, 155

 Control Control Code 08, 145
 Control panel, 26
 Control panel keys

- CANCEL, 28
- CLEAR, 27
- ENTER, 28
- JOB SELECT, 28
- ON LINE, 27
- PAPER ADVANCE, 27
- PREV or NEXT, 29
- PREV + NEXT, 29

- PRT CONFIG, 28
- SET TOF, 28
- UP or DOWN, 29
- UP + DOWN, 29
- VIEW/EJECT key, 27
- Conventions, manual, 15
- CPI/LPI Select, 139
 - ANSI Emulation menu, 170
- CR at MPP+1, 111, 125
- CR Edit, 180
- CR, EM, and NL (3287 only), 126
- CR, EM, & NL (3287 only), 113
- CR, LG Emulation, 216
- CTL VOLT FAIL * message, 260
- Custom configurations, 48
- Customer Support Center, 16, 305
- C128 Mode Comp, 200
- C39 Compatbl., 184, 200

D

- Darker print, Integrated Print Management System, 42
- Data Bit 8, 202
 - Centronics (Parallel) submenu, 77
 - Dataproducts submenu, 79
- Data Carrier Detect (DCD), RS-232, 245
- Data Lines 1 through 8
 - Centronics Parallel Interface Signals, 237
 - Dataproducts Parallel Interface Signals, 235
- Data Polarity
 - Centronics (Parallel) submenu, 77
 - Dataproducts submenu, 79
- Data Protocol, Serial submenu, 82
- Data Set Ready (DSR), RS-232, 245
- Data Strobe
 - Centronics Parallel Interface Signals, 237
 - Dataproducts Parallel Interface Signals, 235
- Data Term Ready, Serial submenu, 84
- Data Terminal Ready (DTR), RS-232, 245
- Dataproducts Parallel Interface, 234
- Dataproducts Parallel Interface Signals, 235
 - Buffer Clear, 235
 - Cable Verify, 235

- Data Lines 1 through 8, 235
- Data Strobe, 235
- Demand/Data Request, 235
- Online, 235
- Paper Instruction (PI), 235
- Parity Error, 235
- Ready, 235
- Dataproducts submenu, 79
 - Auto Trickle, 80
 - Buffer Size in K, 80
 - Data Bit 8, 79
 - Data Polarity, 79
 - Latch Data On, 80
 - PI Ignored, 79
 - Prime Signal, 80
 - Resp. Polarity, 80
 - TOF Action, 80
 - Trickle Time, 81
- DATE menu, 230
 - Day, 230
 - Hour, 230
 - Minute, 230
 - Month, 230
 - Year, 230
- Day, DATE menu, 230
- Default Code Page, IPDS Emulation, 207
- Default configurations, 48
- Default Font, IPDS Emulation, 208
- Default WEP Key, WLAN PARAMS menu, 98
- Define CR Code, 145, 179
 - ANSI Emulation menu, 172
 - Epson FX Emulation, 163
 - Proprinter XL Emulation, 159
 - P-Series XQ Emulation, 152
 - Serial Matrix Emulation, 155
- Define LF Code, 146, 180
 - ANSI Emulation menu, 172
 - Epson FX Emulation, 163
 - Proprinter XL Emulation, 159
 - P-Series XQ Emulation, 153
 - Serial Matrix Emulation, 155
- Delete Config., 70

Demand/Data Request, Dataproducts Parallel
 Interface Signals, 235
 Device Address, 117, 135
 Device ID, 63, 117
 DHCP
 Adapter Address menu, 88
 Ethernet Address menu, 91
 WLAN Address menu, 94
 DIAGNOSTIC PASSED message, 260
 DIAGNOSTICS menu, 227
 Paper Out Dots, 228
 Print Statistics, 229
 Printer Tests, 227
 System Memory, 228
 Test Width, 228
 Dimensions, printer, 20, 287
 Display Functions, PCL-II Emulation, 212
 Display Language, PRINTER CONTROL, 220
 DO NOT POWER OFF message, 260
 Documentation list, 15
 Downloaded Fonts, ADVANCED USER menu, 222
 DP FIFO Busy* message, 261
 DRVR CIR BAD * message, 261
 D50 STATUS%XX Clearing Flash message, 260
 D50 STATUS%XX Programming, 260
 D55 STATUS Send Program to EC, 260

E

E Net Test Unavailable, 272
 Early Print Cmpl, 109
 3270 Params menu, 123
 Early Print Comp (Complete), IPDS Emulation, 207
 Electrical Characteristics, 289
 Elong/Alt. Font, P-Series XQ Emulation, 153
 EMULATION Menu, 103
 Emulation, IGP/PGL, 175
 Energy Star compliance, 288
 E-Net Adapter submenu, 86
 ENTER key, 28
 Environmental characteristics, 287
 Epson FX Character Set menu, 165
 PCL-II, 166
 Epson FX Emulation, 163

Alt. Set 80-9F, 164
 Auto LF, 163
 Character Set, 164
 Define CR Code, 163
 Define LF Code, 163
 Printer Select, 164
 20 CPI Condensed, 164
 ERROR CPLD NOT PROGRAMMED message, 272
 ERROR DC PROGRAM NOT VALID message, 272
 ERROR DRAM AT ADDRESS XXXXXXXX message, 273
 ERROR EC PROGRAM NOT VALID message, 273
 ERROR EC STOPPED AT STATE XXXX message, 273
 ERROR FLASH DID NOT PROGRAM message, 273
 ERROR FLASH NOT DETECTED message, 273
 Error Handling, 200
 Barcode Errors, 201
 Error Markers, 201
 Error Msgs, 200
 Offpage Errors, 201
 ERROR LOCKED SN=nnnnnnnnnnnnnnnnnnnnnnnnnnnnnn message, 273
 Error Markers, 201
 Error Msgs, 200
 ERROR NO DRAM DETECTED message, 273
 ERROR NVRAM FAILURE message, 273
 ERROR OCCURRED FLUSHING QUEUES* message, 272
 ERROR PROGRAM NEEDS MORE DRAM message, 273
 ERROR PROGRAM NEEDS MORE FLASH message, 273
 ERROR PROGRAM NOT COMPATIBLE message, 273
 ERROR PROGRAM NOT VALID message, 274
 Error Report, 187
 ERROR SECURITY KEY NOT DETECTED message, 274
 ERROR SHORT AT ADDRESS XXXX message,

274

ERROR WRITING TO FLASH message, 274

ERROR WRONG CHECKSUM message, 274

ERROR WRONG OEM message, 274

ERROR WRONG PRINTER TYPE message, 274

ESC c Sequence, ANSI Emulation menu, 173

ESC d command, Serial Matrix Emulation, 156

ETHERNET ADAPTER BEING INITIALIZED message, 274

Ethernet Address, 64

ETHERNET ADDRESS menu, 91

- DHCP, 91
- Gateway address, 91
- IP address, 91
- MAC address, 91
- Subnet mask, 91

ETHERNET DETECTED message, 274

ETHERNET INITIALIZING message, 274

ETHERNET PARAMETERS menu

- ASCII data port, 92
- Ethernet speed, 93
- IPDS Data Port, 92
- Job Control, 93
- Keep alive timer, 92
- NetBIOS protocol, 92

ETHERNET PARAMS menu, 92

Ethernet speed, Adapter Params menu, 90

Ethernet speed, Ethernet Parameters menu, 93

Ethernet submenu, 86

- Buffer Size in K, 86

ETX/ACK, ANSI Emulation menu, 174

EVFU, SPC Type, 136

EXCESS RBN WEAR message, 275

EXHAUST FAN FLT message, 275

Expanded Font, 185, 197

Ext Execute Copy, 182

Exterior cleaning, 249

E00 EXE @ ADDR0 message, 261

E01A TYPE 0x40 message, 261

E01B TYPE 0x60 message, 261

E02 MACHINE CHK message, 262

E03A DSI HASH L message, 262

E03B DSI HASH S message, 262

E03C DSI BAT PL message, 262

E03D DSI BAT message, 263

E03E DSI CXIWX message, 263

E03F DSI CXOWX message, 263

E03G DSI ECXIWX message, 263

E03H DSI ECXOWX message, 264

E04A ISI NO TRA message, 264

E04B ISI DIRECT message, 264

E04C ISI PROTEC message, 264

E06 NOT ALIGNED message, 265

E07 ILLEGAL INS message, 265

E08 FLOATINGPNT message, 265

E12 SYSTEM CALL message, 265

E13 TRACE INT message, 266

E16 ITRANS MISS message, 266

E17 DLOAD MISS message, 266

E18 DSTORE MISS message, 266

E19 BREAKPOINT message, 267

E20 SYS MANAGE message, 267

E30 DEBUGGER message, 267

E31A EVENT 0 BP message, 267

E31B EVENT 1 BP message, 268

E31C EVENT 2 BP message, 268

E31D EVENT 3 BP message, 268

E31E EVENT 4 BP message, 268

E31F EVENT 5 BP message, 269

E31G EVENT 6 BP message, 269

E31H EVENT 7 BP message, 269

E32A CND 0 BP message, 269

E32B CND 1 BP message, 270

E32C CND 2 BP message, 270

E32D CND 3 BP message, 270

E32E CND 4 BP message, 270

E32F CND 5 BP message, 271

E32G CND 6 BP message, 271

E32H CND 7 BP message, 271

E33 WRITE BP message, 271

E34 TRACE CMPLT message, 272

E99 UNKNOWN INT message, 272

F

Face CPI Delay, PCL-II Emulation, 211

Fault messages, 254

A TO D OVERUN *, 256

ACCESS NULL PTR *, 256

ACTIVATE LOST, 256

BARCODE DAMAGED, 259

BARCODE MISSING, 259

BC SENSOR ERR, 259

BUFFER OVERRUN, 259

B00 STATUS SDRAM DETECTION 166MHZ,
256

B01 STATUS 8245 SDRAM TEST 32MB, 256

B10 ERROR NO DRAM DETECTED*, 256

B11 ERROR RAM TEST FAILED*, 257

B12 ERROR PROGRAM MISSING*, 257

B13 ERROR NOT COMPATIBLE*, 257

B19 ERROR DC RETURNED*, 257

B20 STATUS 00% DOWNLOAD MODE, 257

B21 STATUS PRINTER RESET, 257

B22 ERROR DECOMPRESS SIZE*, 257

B23 ERROR DECOMPRESS CKSUM*, 257

B30 STATUS INITIALZING, 257

B35 STATUS WAITING FOR EC STATUS, 258

B40 ERROR SDRAMEE PROM CKSUM
BAD*, 258

B41 ERROR DIM MEMORY NOT SDRAM*,
258

B42 ERROR SDRAM ROWS NOT
ALLOWED*, 258

B43 ERROR SDRAM TOO MANY BANKS*,
258

B44 ERROR SDRAM NOT 64 BITS WIDE*,
258

B45 ERROR SDRAM IS WRONG VOLTAGE*,
258

B46 ERROR SDRAM HAS MIXED SIZES*, 258

B47 ERROR SDRAM LARGER THAN 256M*,
258

B49 ERROR SDRAM # LOGICAL BANKS*,
258

B50 ERROR SDRAM LOGIC COMB BANKS*,
258

B51 XX% LOADING, 259

B53 ERROR 12C NO ARBITRATION, 259

B54 ERROR SDA LINE STUCK LOW, 259

CLEAR PAPER JAM, 260

CLEARING PROGRAM FROM FLASH, 260

CLOSE PLATEN, 260

CTL VOLT FAIL *, 260

DIAGNOSTIC PASSED, 260

DO NOT POWER OFF, 260

DP FIFO Busy*, 261

DRVR CIR BAD *, 261

D50 STATUS%XX Clearing Flash, 260

D51 STATUS%XX Programming, 260

D55 STATUS Send Program to EC, 260

ERROR CPLD NOT PROGRAMMED, 272

ERROR DC PROGRAM NOT VALID, 272

ERROR DRAM AT ADDRESS XXXXXXXX,
273

ERROR EC PROGRAM NOT VALID, 273

ERROR EC STOPPED AT STATE XXXX, 273

ERROR FLASH DID NOT PROGRAM, 273

ERROR FLASH NOT DETECTED, 273

ERROR LOCKED

SN=nnnnnnnnnnnnnnnnnnnnnnnnnnnnnn, 273

ERROR NO DRAM DETECTED, 273

ERROR NVRAM FAILURE, 273

ERROR OCCURRED FLUSHING QUEUES*,
272

ERROR PRINTER TYPE, 274

ERROR PROGRAM NEEDS MORE DRAM,
273

ERROR PROGRAM NEEDS MORE FLASH,
273

ERROR PROGRAM NOT COMPATIBLE, 273

ERROR PROGRAM NOT VALID, 274

ERROR SECURITY KEY NOT DETECTED,
274

ERROR SHORT AT ADDRESS XXXX, 274

ERROR WRITING TO FLASH, 274

ERROR WRONG CHECKSUM, 274

ERROR WRONG OEM, 274

ETHERNET ADAPTER BEING INITIALIZED,
274

| | |
|----------------------------|------------------------------------|
| ETHERNET DETECTED, 274 | E32E CND 4 BP, 270 |
| ETHERNET INITIALIZING, 274 | E32F CND 5 BP, 271 |
| EXCESS RBN WEAR, 275 | E32G CND 6 BP, 271 |
| EXHAUST FAN FLT, 275 | E32H CND 7 BP, 271 |
| E00 EXE @ ADDR0, 261 | E33 WRITE BP, 271 |
| E01A TYPE 0x40, 261 | E34 TRACE CMPLT, 272 |
| E01B TYPE 0x60, 261 | E99 UNKNOWN INT, 272 |
| E02 MACHINE CHK, 262 | FIRMWARE ERROR, 275 |
| E03A DSI HASH L, 262 | FM HEADER ERROR, 275 |
| E03B DSI HASH S, 262 | FRAMING ERROR, 275 |
| E03C DSI BAT PL, 262 | GRF CHECK ERROR PRESS STOP, 275 |
| E03D DSI BAT, 263 | HAMMER COIL BAD, ###, 276 |
| E03E DSI CXIWX, 263 | HAM. COIL OPEN *, 276 |
| E03F DSI CXOWX, 263 | HB NOT INSTALLD *, 276 |
| E03G DSI ECXIWX, 263 | HMR BANK FAN FLT, 277 |
| E03H DSI ECXOWX, 264 | H00: PCI SLOT ?, 275 |
| E04A ISI NO TRA, 264 | H01: PCI J12, 276 |
| E04B ISI DIRECT, 264 | H02: PCI J13, 276 |
| E04C ISI PROTEC, 264 | ILL EXT BUS ACC *, 277 |
| E06 NOT ALIGNED, 265 | ILLGL OPR ACCSS *, 277 |
| E07 ILLEGAL INS, 265 | INCOMPAT E-NET, 277 |
| E08 FLOATINGPNT, 265 | INTAKE FAN FAULT, 277 |
| E12 SYSTEM CALL, 265 | INTERRUPT UNUSED VECTOR 00, 277 |
| E13 TRACE INT, 266 | INVALID ACTIVATE, 277 |
| E16 ITRANS MISS, 266 | INVALID COMMAND, 277 |
| E17 DLOAD MISS, 266 | LO DRV. SHORT *, 278 |
| E18 DSTORE MISS, 266 | LOAD PAPER, 278 |
| E19 BREAKPOINT, 267 | LOADING PROGRAM FROM PORT XX%, 278 |
| E20 SYS MANAGE, 267 | LOADING PROGRAM INTO FLASH, 278 |
| E30 DEBUGGER, 267 | NEW SPX DETECTED, 278 |
| E31A EVENT 0 BP, 267 | NON VOLATILE MEMORY FAILED, 278 |
| E31B EVENT 1 BP, 268 | OLD RIBBON, 278 |
| E31C EVENT 2 BP, 268 | ON LINE, 278 |
| E31D EVENT 3 BP, 268 | ONLINE CU TIMED OUT, 279 |
| E31E EVENT 4 BP, 268 | ONLINE 28 CU NOT ENAB, 278 |
| E31F EVENT 5 BP, 269 | ONLINE 8344 FAILED, 278 |
| E31G EVENT 6 BP, 269 | PAP BAD TABLE *, 279 |
| E31H EVENT 7 BP, 269 | PAP BSY TOO LNG *, 279 |
| E32A CND 0 BP, 269 | PAP FIFO OVERFL *, 279 |
| E32B CND 1 BP, 270 | PAP FIFO UNDRFL *, 279 |
| E32C CND 2 BP, 270 | PAP ILLGL ST *, 279 |
| E32D CND 3 BP, 270 | PAP INCMPL ENER *, 279 |

PAP INVLD CMD *, 279
 PAP INVLD PARM *, 279
 PAP NOT SCHED *, 279
 PAP NT AT SPEED *, 279
 PAP UNEXP INT *, 280
 PARAMETER ERROR, 280
 PARITY ERROR, 280
 PLAT INV CMD *, 280
 PLAT INV PARM *, 280
 PLAT INV STATE *, 280
 PLEASE WAIT...RESET IN PROGRESS, 280
 POWERSUPPLY HOT *, 280
 PRINTER HOT *, 280
 PRINTER UNDER REMOTE CONTROL, 280
 PROTECTED INSTR *, 280
 PWRSUPP VOLT *, 281
 QUEUE OVERRUN*, 281
 RBN AT END POINT, 281
 REMOVE USED SPX, 281
 RESTORING BOOT CODE, 281
 RIB INVLD CMD*, 281
 RIBBON STALL, 281
 RIBBON UNDER 2%, 281
 SCS COMMAND ERROR, 281
 SECURITY KEY NOT DETECTED, 281
 SECURITY VIOLATION, 281
 SENDING PROGRAM TO EC PROCESSOR,
 282
 SF ERROR, 282
 SHUTL INV CMD *, 282
 SHUTL INV PARM *, 282
 SHUTL OVR SPEED*, 282
 SHUTTLE JAM, 282
 SHUTTLE STALL, 282
 SHUTTLE TYPE NOT SUPPORTED*, 282
 SOFTWARE ERROR* CYCLE POWER, 282
 SPX FOUND, ERROR KEY NOT DETECTED,
 283
 SPX NOT NEEDED OPTIONS ENABLED, 283
 SSTACKER JAM, 283
 STACK OVERFLOW*, 283
 STACK UNDERFLOW*, 283
 STACKER FAULT, 283
 STACKER FULL, 283
 TCB CORRUPTED*, 283
 TCP PORT BUSY, 283
 UNDEF INTERRUPT*, 283
 UNDFNED OPCODE*, 283
 UNKNOWN RBN1, 284
 UNKNOWN RBN2, 284
 UP DRV. SHORT*, 284
 WAITING FOR ETHERNET ADAPTER, 284
 06 HOST REQUEST, 254
 08 HOLD PRINT TIMEOUT, 254
 15 COMM CHECK, 255
 15V PWR FAIL *, 255
 22 INVALID ADDR, 255
 23.5V PWR FAIL *, 255
 31 PAPER OUT TIMEOUT, 255
 32 PAPER JAM TIMEOUT, 255
 33 PLATEN OPEN TIMEOUT, 255
 34 RIBBON STALL TIMEOUT, 255
 426 BC READ ERR, 256
 48V CIRCUIT*, 255
 48V PWR FAIL *, 255
 733 DP FIFO Busy*, 256
 8.5V PWR FAIL *, 254
 Fault, Centronics Parallel Interface Signals, 237
 Features, printer, 11
 FF After Job, 113, 126
 FF Valid at TOF, Proprinter XL Emulation, 159
 FF Validity, 112, 126
 FF, LG Emulation, 217
 File System, ADVANCED USER menu, 223
 FIRMWARE ERROR message, 275
 FM HEADER ERROR message, 275
 Font Attributes, 140
 ANSI Emulation menu, 170
 Font Set, 202
 Font Size, IPDS Emulation, 206
 Font, LG Emulation, 215
 Form Length, 66, 67
 Form Width, 66, 67
 Format Control, 113, 120

3270 Params menu, 127
5250 Params menu, 132
Forms Handling, 181
FRAMING ERROR message, 275
Framing Errors, Serial submenu, 85

G

Gateway address
 Adapter Address menu, 88
 Ethernet Address menu, 91
 WLAN Address menu, 94
Graphic CharSize, IPDS Emulation, 207
Graphic Chek Cod, 119
Graphic Chek Cod, 5250 Params menu, 131
Graphic Chek Err, 118
Graphic Chek Err, 5250 Params menu, 131
Graphics Density, PCL-II Emulation, 211
Graphics enhancement, 14
Graphics Options, 196
 Absorb After ^PN, 199
 Absorb After ^PY, 197
 AI 00 Spaces, 198
 Append Rotated, 196
 Auto FF at ^PN, 200
 C128 Mode Comp, 200
 C39 Compatbl., 200
 Expanded Font, 197
 Ignore Dots, 196
 Ignore Spaces, 197
 Ignore ^Lxx Cmd., 200
 IGP110 Compatbl., 199
 I25 Selection, 198
 LP+ Font, 198
 Midline PY (includes ^PN), 197
 MSI Check Digit, 198
 PDF Size Comp., 200
 Print Quality, 197
 Rot. Char Size, 197
 Slash 0, 196
 True Vert 1/10, 196
 Truncate Alpha, 196
 UPC Descenders, 197
 Width Limit, 199

Graphics Print, IPDS Emulation, 206
Graphics Quality, IPDS Emulation, 206
Graphics Scaling, IPDS Emulation, 207
GRF CHECK ERROR PRESS STOP message, 275

H

HAMMER COIL BAD, ### Message, 276
HAM. COIL OPEN * message, 276
HB NOT INSTALLED * message, 276
Hex Dump Mode, MAINT/MISC menu, 222
Hex Dump, printing, 253
Hexdump Mode, IPDS Emulation, 208
HMR BANK FAN FLT Message, 277
Horiz Forms, 67
Horiz Forms, LG Emulation, 216
Host Command, 140
Host Form Length, 184
Host Interface, 63
HOST INTERFACE menu, 72
Host Override, 113, 119
 3270 Params menu, 126
 5250 Params menu, 131
Host PI, 202
Hour, DATE menu, 230
HS Print (High Speed Print), P-Series XQ Emulation, 153
H00: PCI SLOT ? message, 275
H01: PCI J12 message, 276
H02: PCI J13 message, 276

I

I 2/5 Selection, 183
Idle Response, Serial submenu, 85
IEEE 1284 Parallel Interface, 238
 Byte Mode, 238
 Compatibility Mode, 238
 Nibble Mode, 238
 Signals, 239
IEEE 1284 Parallel (Bidirectional) Submenu, 75
 Auto Trickle, 75
 Buffer Size in K, 75
 Offline Process, 76

Prime Signal, 75
 TOF Action, 75
 Trickle Time, 76
 Ignore Char, 185
 Ignore Chars, 201
 Ignore CH#1, 201
 Ignore CH#2, 201
 Ignore Dots, 196
 Ignore Spaces, 197
 Ignore ^Lxx Cmd., 200
 Ignore/DB8 Setup, 201
 Data Bit 8, 202
 Ignore Chars, 201
 Ignore CH#1, 201
 Ignore CH#2, 201
 IGP/PGL Emulation, 175
 configuring with the control panel, 176
 IGP/PGL submenu, 177
 Auto Uppercase, 181
 Autowrap, 180
 Barcode Options, 182
 Compatbl. Mode, 185
 Compressed CPI, 184
 CR Edit, 180
 Define CR (Carriage Return) Code, 179
 Define LF (Line Feed) Code, 180
 Error Report, 187
 Expanded Font, 185
 Ext Execute Copy, 182
 Forms Handling, 181
 Host Form Length, 184
 Ignore Char, 185
 LG, 179
 PCL-II, 178
 PGL SFCC, 180
 PI Slew Range, 180
 Power On IGP/PGL, 182
 Power on S-Mode, 186
 Print Quality, 186
 Printer PI Line, 186
 Scalable Size, 185
 Select Font, 180, 187
 Select LPI, 181
 Skip Cmd Prefix, 181
 Slash 0, 181
 True Form Slew, 186
 Trunc Dyn Data, 187
 Var Form Adjust, 184
 Var Form Type, 184
 IGP/PGL, Font Set menu, 188
 IGP/VGL Emulation, 189
 configuring with the control panel, 190
 IGP/VGL Font Set Menu, 204
 IGP/VGL submenu, 190
 Error Handling, 200
 Font Set, 202
 Graphics Options, 196
 Ignore/DB8 Setup, 201
 LG, 194
 LPI, 196
 PCL-II, 192
 PI Control, 202
 Prt to Emulate, 203
 SFCC & Pwrap, 195
 IGP110 Compatbl., 199
 ILL EXT BUS ACC * message, 277
 ILLGL OPR ACCSS * message, 277
 Image Buf Size, 111
 INCOMPAT E-NET message, 277
 INTAKE FAN FAULT message, 277
 Integrated Print Management System, 12, 42
 Darker Print, 42
 Lighter Print, 42
 Interface Type, Serial submenu, 82
 Interfaces
 printer, 233
 specifications, 289
 Interior cleaning, 250
 Internat. Mode, WLAN PARAMS menu, 97
 INTERRUPT UNUSED VECTOR 00 message, 277
 Intervention Req, 111, 133
 Intervention Req, 3270 Params menu, 124
 INVALID ACTIVATE message, 277
 INVALID COMMAND message, 277

IP address

- Adapter Address menu, 87
- Ethernet Address menu, 91
- WLAN Address menu, 94

IPDS Data Port, Adapter Params menu, 89

IPDS Data Port, Ethernet Parameters menu, 92

IPDS Emulation, 205

- Barcode Quality, 206
- Barcode Size, 207
- Barcode Speed, 206
- Code Page Subset, 208
- Default Code Page, 207
- Default Font, 208
- Early Print Comp (Complete), 207
- Font Size, 206
- Graphic CharSize, 207
- Graphics Quality, 206
- Graphics Scaling, 207
- Hexdump Mode, 208
- I2/5 Checksum, 207
- Print IPDS Fonts, 208
- Print Quality, 206
- VPA Check, 208

I2/5 Checksum, IPDS Emulation, 207

I-2/5 Guard Bars, LG Emulation, 217

I25 Selection, 198

J

Job Control, Adapter Params menu, 90

Job Control, Ethernet Parameters menu, 93

JOB SELECT key, 28

K

KDC Port Number, WLAN Kerberos menu, 100

Keep alive timer, Adapter Params menu, 90

Keep alive timer, Ethernet Parameters menu, 92

Kerberos Enable, WLAN Kerberos menu, 99

Kerb. Passwrd, WLAN Kerberos menu, 100

L

Label specifications, 286

LAC Approx., 119

LAC Option, 119

Last Char = FF, 112, 125

Latch Data On

- Centronics (Parallel) submenu, 77
- Dataproducs submenu, 80

Lead-in Chars, 110

PTX Transparent, 118

LEAP Password, WLAN LEAP menu, 101

LEAP Username, WLAN LEAP menu, 101

LG Emulation

- Autowrap, 216
- CR, 216
- FF, 217
- Font, 215
- Horiz Forms, 216
- I-2/5 Guard Bars, 217
- LP, 216
- Plot Mode Opt, 217
- Print Mode Opt, 217
- Unsolicited Rpt, 217
- Vert Forms, 215

Lighter print, Integrated Print Management System, 42

Line Terminator, PCL-II Emulation, 212

LinePrinter Plus Emulation submenu, 137

- Barcode x-Offset, 143
- CPI/LPI Select, 139
- Font Attributes, 140
- Host Command, 140
- Page Format, 142
- PCL-II, 139
- Print Char. Set, 143
- Printer Protocol, 139
- Reset Cmd CFG Ld, 143
- Set Substitution, 143

LO DRV. SHORT * message, 278

Load Config., 70

LOAD PAPER message, 278

LOADING PROGRAM FROM PORT XX% message, 278

LOADING PROGRAM INTO FLASH message, 278

Loading Used Ribbon, 13

Logical Buf Size, 133

LPI, 196
LPI Adjust, PCL-II Emulation, 212
LP, LG Emulation, 216
LP+ Font, 198

M

MAC address

- Adapter Address menu, 88
- Ethernet Address menu, 91
- WLAN Address menu, 94

Main menu, 59

Maintenance, 14

MAINT/MISC menu

- Hex Dump Mode, 222
- Power-Up State, 222
- PTX Setup Option, 222

Manual

- conventions, 15
- related documents, 15
- special information, 15
- warnings, 15

Margins, 66

Max Line Width, 67

Max Line Width, PCL-II Emulation, 211

Max PI 16, 202

Max. Print Width, 114, 120

- 3270 Params menu, 127
- 5250 Params menu, 132

Menu

- ACTIVE IGP EMUL, 102
- ADVANCED USER, 221
- CONFIG. CONTROL, 69
- DATE, 230
- DIAGNOSTICS, 227
- EMULATION, 103
- HOST INTERFACE, 72
- IGP/PGL Font Set, 188
- Main, 59
- navigating, 48
- NETWORK SETUP, 87
- PRINTER CONTROL, 218
- Printer MGMT, 231
- ZTP SETTINGS, 68

Mgmt Port Number, Printer MGMT, 231

Mgmt Protocol, Printer MGMT, 231

Midline PY (includes ^PN), 197

Min Xfer Rate, WLAN PARAMS menu, 96

Minute, DATE menu, 230

Month, DATE menu, 230

MSI Check Digit, 198

N

Name Configs, 71

Navigating the menus, 48

Nest Serv Type, Adapter Params menu, 89

NetBIOS protocol, Adapter Params menu, 89

NetBIOS protocol, Ethernet Parameters menu, 92

NETWORK SETUP menu, 87

- ADAPTER ADDRESS, 87

- ETHERNET ADDRESS, 91

- ETHERNET PARAMS, 92

- WLAN ADDRESS, 94

- WLAN PARAMS, 95

NEW SPX DETECTED message, 278

Nibble Mode, IEEE 1284 Parallel Interface, 238

NL At MPP+1, 111, 125, 134

noise level, acoustic, 288

NON VOLATILE MEMORY FAILED message, 278

Novell frame, Adapter Params menu, 89

Novell Protocols, 88

Novell protocol, Adapter Params menu, 89

Null Suppression, 112, 125

O

Offline Process

- IEEE 1284 Parallel (Bidirectional) Submenu, 76

Offpage Errors, 201

OLD RIBBON message, 278

ON LINE key, 27

ON LINE message, 278

One Char Enquiry, Serial submenu, 85

Online

- Centronics Parallel Interface Signals, 237

- Dataproducts Parallel Interface Signals, 235

ONLINE CU TIMED OUT message, 279

ONLINE 28 CU NOT ENAB message, 278

ONLINE 8344 FAILED message, 278
Open Platen @ BOF (Bottom of Form)
 PRINTER CONTROL, 219
Operating modes, 25
Operation Mode, WLAN PARAMS menu, 96
Operational procedures
 cancel a print job, 46
 reload paper, 30
 unload paper, 39
Optimized Ratio, 183
Optimizing print quality, 57
Optimizing print speed, 58
Output Darkness, 13
Overstrike, 146
 Serial Matrix Emulation, 155
Overview, printer models, 11

P

Page Format, 142
 ANSI Emulation menu, 171
Page Length Rep, 67
Page Length Rep, PCL-II Emulation, 211
Page L./Inches, PCL-II Emulation, 212
Page L./Lines, PCL-II Emulation, 212
PAP BAD TABLE * message, 279
PAP BSY TOO LNG * message, 279
PAP FIFO OVERFL * message, 279
PAP FIFO UNDRFL * message, 279
PAP ILLGL ST * message, 279
PAP INCMPL ENER * message, 279
PAP INVLD CMD * message, 279
PAP INVLD PARM * message, 279
PAP NOT SCHED * message, 279
PAP NT AT SPEED * message, 279
PAP UNEXP INT * message, 280
Paper
 reload, 30
 unload, 39
PAPER ADVANCE key, 27
Paper Empty (PE)
 Centronics Parallel Interface Signals, 237
Paper Instruction (PI)
 Centronics Parallel Interface Signals, 237

 Dataproducts Parallel Interface Signals, 235
Paper Out Dots, DIAGNOSTICS, 228
Paper specifications, 286
Parallel Interface
 Centronics, 236
 Dataproducts, 234
PARAMETER ERROR message, 280
Parameter settings
 changing, 47
 saving, 47
Parameters, changing, example, 49
Parity Error
 Dataproducts Parallel Interface Signals, 235
PARITY ERROR message, 280
Parity, Serial submenu, 84
PA1, 108, 133
PA2, 109, 134
PCL-II Emulation, 209
 Config Print, 213
 Display Functions, 212
 Face CPI Delay, 211
 Graphics Density, 211
 Line Terminator, 212
 LPI Adjust, 212
 Max Line Width, 211
 Page Length Rep, 211
 Page L./Inches, 212
 Page L./Lines, 212
 Perforation Skip, 211
 Primary Char. Set, 211
 PTX Linefeed, 212
 Reset Cmd CFG Ld, 213
 Second Char. Set, 211
 Symbol Set Print, 213
PDF Size Comp., 200
Perforation Skip, PCL-II Emulation, 211
PGL SFCC, 65, 180
PI Control, 202
 Host PI, 202
 Max PI 16, 202
 Printer PI, 202
PI Ignored

Centronics (Parallel) submenu, 77
 Dataproducts submenu, 79
 PI Slew Range, 180
 PLAT INV CMD * message, 280
 PLAT INV PARM * message, 280
 PLAT INV STATE * message, 280
 PLEASE WAIT...RESET IN PROGRESS message, 280
 Plot Mode Opt, LG Emulation, 217
 PMD (Paper Motion Detection) Fault, ADVANCED USER, 223
 PNE Port Number, Printer MGMT, 231
 PNE Port Timeout, Printer MGMT, 231
 PNE Port, Printer MGMT, 231
 Poll Character, Serial submenu, 85
 Poll Response, Serial submenu, 85
 Port Type, Auto Switching submenu, 74
 Position Aft FF (4234 only), 112, 125
 Pos. on BC/OvrSz, ANSI Emulation menu, 174
 Power Consumption, 289
 Power Mgmt, WLAN PARAMS menu, 97
 Power On IGP/PGL, 182
 Power requirements, 19
 Power Saver Time, ADVANCED USER, 225
 Power Stacker, ADVANCED USER menu, 223
 POWER SUPPLY HOT * message, 280
 Power Up ^ F, 195
 Power Up ^ X, 195
 Power Up ^PY, 196
 Powering on the printer, 25
 Power-on S-Mode, 186
 Power-Up Config, 68
 Power-Up Config., 70
 Power-Up State, MAINT/MISC menu, 222
 Preamble, WLAN PARAMS menu, 97
 PREV or NEXT key, 29
 PREV + NEXT key, 29
 Primary Char. Set, PCL-II Emulation, 211
 Prime Signal
 Centronics (Parallel) submenu, 77
 Dataproducts submenu, 80
 IEEE 1284 Parallel (Bidirectional) Submenu, 75
 Prime, Centronics Parallel Interface Signals, 237
 Print Char. Set, 143
 Print Config., 70
 Print IPDS Fonts, IPDS Emulation, 208
 Print job, cancel, 46
 Print Mode Opt, LG Emulation, 217
 Print Quality, 186, 197
 optimizing, 57
 Print speed, optimizing, 58
 Print Statistics, DIAGNOSTICS, 229
 Printer
 component locations, 23
 control panel, 26
 dimensions, 20, 287
 exterior cleaning, 249
 features, 11
 interior cleaning, 250
 maintenance, 14
 models, 11
 operating modes, 25
 powering on, 25
 site requirements, 19
 weight, 287
 PRINTER CONTROL menu, 218
 Accented Char, 220
 Bar Code Quality, 219
 Display Language, 220
 Open Platen @ BOF (Bottom of Form), 219
 RBN End Action, 226
 RBN Low Action, 226
 RBN Low Warn @, 226
 Ribbon End Point, 218
 Tear Bar Dist. (Distance), 219
 Unidirectional, 219
 View Function, 219
 PRINTER HOT * message, 280
 Printer interfaces, 233
 Printer MGMT menu, 231
 Mgmt Port Number, 231
 Mgmt Protocol, 231
 PNE Port, 231
 PNE Port Number, 231

PNE Port Timeout, 231
 Status Port Numb, 231
 Printer PI, 202
 Printer PI Line, 186
 Printer Protocol, 66, 139
 Printer Select
 ANSI Emulation menu, 173
 Epson FX Emulation, 164
 Serial Matrix Emulation, 156
 Printer Tests, DIAGNOSTICS, 227
 Printer Type, SPC Type, 136
 PRINTER UNDER REMOTE CONTROL message, 280
 Printing rates, 290
 Printing, Hex Dump, 253
 PrintNet Enterprise, consumable monitoring, 14
 Private Mode, ANSI Emulation menu, 173
 Proprinter XL Character Set menu, 161
 LG, 162
 PCL-II, 162
 Proprinter XL Emulation, 159
 Alt. Char Set, 160
 Auto LF, 159
 Character Set, 160
 Define CR Code, 159
 Define LF Code, 159
 FF Valid at TOF, 159
 20 CPI Condensed, 160
 Protect Configs., 70
 PROTECTED INSTR * message, 280
 PRT CONFIG key, 28
 Prt Partial Line, 108, 117
 3270 Params menu, 123
 5250 Params menu, 130
 Prt to Emulate, 203
 P-Series Character Set menu, 148
 LG, 151
 PCL-II, 150
 PSeries Dbl High, 147
 P-Series Emulation, 144, 145
 Alt. Set 80-9F, 147
 Auto LF, 146
 Character Set, 147
 Control Code 06, 145
 Control Code 08, 145
 Define CR Code, 145
 Define LF Code, 146
 FF Valid at TOF, 147
 LG, 145
 Overstrike, 146
 PCL-II, 144
 PSeries Dbl High, 147
 P-Series SFCC, 146
 SFCC d Command, 147
 VFU Select, 147
 P-Series SFCC, 66, 146
 P-Series XQ Emulation, 152
 Auto LF, 152
 Compressed Print, 153
 Control Code 06, 152
 Define CR Code, 152
 Define LF Code, 153
 Elong/Alt. Font, 153
 HS Print (High Speed Print), 153
 Slew Relative, 154
 Upr. Case Select, 154
 VFU Select, 153
 PTX Linefeed, PCL-II Emulation, 212
 PTX Setup Option, MAINT/MISC menu, 222
 PTX Transparent, 110, 118
 Alt. Set 80-9F, 110, 118
 Lead-in Chars, 110, 118
 Usr Defined HTRN, 110, 118
 3270 Params menu, 123
 5250 Params menu, 130
 PUM Default, ANSI Emulation menu, 174
 Pwr Save Control, ADVANCED USER, 225
 PWRSUPP VOLT * message, 281

Q

QUEUE OVERRUN* message, 281
 QUICK SETUP menu
 Active Emulation, 65
 Active IGP Emulation, 65
 Adapter Address, 64

Device ID, 63
Ethernet Address, 64
Form Length, 66, 67
Form Width, 66, 67
Horiz Forms, 67
Host Interface, 63
Margins, 66
Max Line Width, 67
Page Length Rep, 67
PGL SFCC, 65
Power-Up Config, 68
Printer Protocol, 66
P-Series SFCC, 66
Ribbon End Point, 68
Save Config, 68
Select CPI, 66
Select LPI, 66
Vert Forms, 67
WLAN Address, 64
ZTP Data Time, 65
ZTP TearDistance, 65
ZTP Wait Time, 65

R

RBN AT END POINT message, 281
RBN End Action, PRINTER CONTROL, 226
RBN Low Action, PRINTER CONTROL, 226
RBN Low Warn @, PRINTER CONTROL, 226
Ready, Dataproducts Parallel Interface Signals, 235
Receive Data (RD), RS-232, 245
Received CR, ANSI Emulation menu, 173
Received DEL, ANSI Emulation menu, 173
Reload paper, 30
REMOVE USED SPX message, 281
Renew Lifetime, WLAN Kerberos menu, 100
Report Status, Auto Switching submenu, 74
Request to Send
 RS-232, 245
 Serial submenu, 84
Requirements
 power, 19
 printer site, 19

Reset Cfg Names, 71
Reset Cmd CFG Ld, 143
 ANSI Emulation menu, 173
Reset Cmd CFG Ld, PCL-II Emulation, 213
Reset Kerb. Pwd, WLAN Kerberos menu, 100
Reset LEAP Password, WLAN LEAP menu, 101
Reset LEAP User, WLAN LEAP menu, 101
Reset SSID Name, WLAN PARAMS menu, 96
Reset WEP Keys, WLAN PARAMS menu, 98
Reset WPA P-Phs, WLAN PARAMS menu, 99
Resistor configurations, terminating, 241
Resistors
 installation, 243
 removal, 243
Resistors, terminating
 location of, 243
Resp. Polarity
 Centronics (Parallel) submenu, 77
 Dataproducts, 80
RESTORING BOOT CODE message, 281
RIB INVLD CMD* message, 281
Ribbon Barcode
 clean, 45, 251
Ribbon End Point, 68
Ribbon End Point, PRINTER CONTROL, 218
Ribbon Flipping, 13
Ribbon Log, 13
RIBBON STALL message, 281
RIBBON UNDER 2% message, 281
Ribbons, changing, 43
Rot. Char Size, 197
RS-232, 244
 Clear to Send (CTS), 245
 Data Carrier Detect (DCD), 245
 Data Set Ready (DSR), 245
 Data Terminal Ready (DTR), 245
 Receive Data (RD), 245
 Request to Send (RTS), 245
 Transmit Data (TD), 245
RS-232 Serial Interfaces, 244
RS-422, 245
RS-422 Serial Interfaces, 244

S

- Save Config, 68, 70
- Save, Auto, 52
- Saving new configurations, 52
- Saving parameter settings, 47
- Scalable Size, 185
- SCS Buffer Cntrl, 109
- SCS COMMAND ERROR message, 281
- Second Char. Set, PCL-II Emulation, 211
- SECURITY KEY NOT DETECTED message, 281
- SECURITY VIOLATION message, 281
- Select CPI, 66
- Select Font, 180, 187
- Select LPI, 66, 181
- Select SO Char, 183
- SENDING PROGRAM TO EC PROCESSOR message, 282
- Serial Interfaces
 - RS-232, 244
 - RS-422, 244
- Serial Matrix Character Set menu, 157
- Serial Matrix Emulation, 154
 - Alt. Set 80-9F, 156
 - Auto LF, 155
 - Character Set, 156
 - Control Code 06, 155
 - Define CR Code, 155
 - Define LF Code, 155
 - ESC d command, 156
 - Overstrike, 155
 - Printer Select, 156
- Serial submenu, 81
 - Baud Rate, 83
 - Buffer Size in K, 84
 - Data Protocol, 82
 - Data Term Ready, 84
 - Framing Errors, 85
 - Idle Response, 85
 - Interface Type, 82
 - One Char Enquiry, 85
 - Parity, 84
 - Poll Character, 85
 - Poll Response, 85
 - Request to Send, 84
 - Stop Bits 1, 84
 - Word Length, 84
- Set Lock Key, ADVANCED USER menu, 225
- Set Sharing, ADVANCED USER menu, 224
- Set Text Orientn, 111, 119
 - 3270 Params menu, 124
 - 5250 Params menu, 131
- SET TOF key, 28
- SF ERROR message, 282
- SFCC Char, SPC Type, 136
- SFCC d Command, 147
- SFCC & Pwrap, 195
 - Power Up ^ F, 195
 - Power Up ^ PY, 196
 - Power Up ^ X, 195
 - VGL SFCC, 195
- SHUTL INV CMD * message, 282
- SHUTL INV PARM * message, 282
- SHUTL OVR SPEED* message, 282
- SHUTTLE JAM message, 282
- SHUTTLE STALL message, 282
- Shuttle Timeout, ADVANCED USER menu, 224
- SHUTTLE TYPE NOT SUPPORTED* message, 282
- Signal Strength, WLAN PARAMS menu, 96
- Signals
 - Centronics Parallel Interface, 237
 - Dataproducs Parallel Interface, 235
 - IEEE 1284 Parallel Interface, 239
- Simple Prot Conv, 105
- Site requirements, 19
- Skip Cmd Prefix, 181
- Slash 0, 181, 196
- Slew Relative, P-Series XQ Emulation, 154
- Slow Paper Slew, ADVANCED USER menu, 224
- SOFTWARE ERROR* CYCLE POWER message, 282
- SPC Char Set, SPC Type, 136
- SPC Coax Params, 132
 - Buffer Print, 133

- Buffer Reprint, 134
- Column 132 Wrap, 133
- Intervention Req, 133
- Logical Buf Size, 133
- NL At MPP+1, 134
- PA1, 133
- PA2, 134
- SPC Null Supp, 134
- SPC Space Supp, 134
- Translation Tbl, 133
- Usr Defined HTRN, 133
- SPC Null Supp, 134
- SPC Space Supp, 134
- SPC Twx Params, 135
 - Buffer Print, 136
 - SPC Type, 136
 - Translation Tbl, 136
- SPC Type, 136
 - EVFU, 136
 - Printer Type, 136
 - SFCC Char, 136
 - SPC Char Set, 136
 - Usr Defined HTRN, 136
- Special information, 15
- Specifications
 - interfaces, 289
 - label, 286
 - paper, 286
- Speed print, 290
- SPX FOUND, ERROR KEY NOT DETECTED message, 283
- SPX NOT NEEDED OPTIONS ENABLED message, 283
- SSID Name, WLAN PARAMS menu, 96
- STACK FAULT message, 283
- STACK OVERFLOW* message, 283
- STACK UNDERFLOW* message, 283
- STACKER FULL message, 283
- STACKER JAM message, 283
- Standard, CTHI, 104
- Status Port Numb, Printer MGMT, 231
- Stop Bits 1, Serial submenu, 84

- Submenu
 - IGP/PGL, 177
 - IGP/PGL with LG, 179
 - IGP/PGL with PCL-II, 178
 - IGP/VGL, 190
 - IGP/VGL with LG, 194
 - IGP/VGL with PCL-II, 192
- Subnet mask
 - Adapter Address menu, 87
 - Ethernet Address menu, 91
 - WLAN Address menu, 94
- Supplies Department, 16, 305
- Switch Out On, Auto Switching submenu, 74
- Symbol Set Print, PCL-II Emulation, 213
- System Memory, DIAGNOSTICS, 228

T

- TCB CORRUPTED* message, 283
- TCP PORT BUSY message, 283
- Tear Bar Dist. (Distance), PRINTER CONTROL, 219
- Terminating resistor configurations, 241
- Terminating resistors
 - location of, 243
- Test Width, DIAGNOSTICS, 228
- Ticket Lifetime, WLAN Kerberos menu, 100
- Timeout, Auto Switching submenu, 74
- TOF Action
 - Centronics (Parallel) submenu, 78
 - Dataproducs submenu, 80
 - IEEE 1284 Parallel (Bidirectional) Submenu, 75
- Translate Table, 113
- Translation Tbl, 108, 133
 - SPC Twx Params, 136
 - 3270 Params menu, 123
 - 5250 Params menu, 130
- Transmit Data (TD), RS-232, 245
- Transmit Power, WLAN PARAMS menu, 97
- Trickle Time
 - Centronics (Parallel) submenu, 78
 - Dataproducs submenu, 81
 - IEEE 1284 Parallel (Bidirectional) Submenu, 76
- Trickle Time, Auto Switching submenu, 74

True Form Slew, 186
True Vert 1/10, 196
Trunc Dyn Data, 187
Truncate Alpha, 196
Truncate PI Slew, ANSI Emulation menu, 174
Twinax Params menu, 115
 Active Char Set, 117
 Buffer Print, 120
 Cancel IGP/DCU, 117
 Char Set Select, 117
 Device Address, 117
 Device ID, 117
 Format Control, 120
 Graphic Chek Cod, 119
 Graphic Chek Err, 118
 Host Override, 119
 LAC Approx., 119
 LAC Option, 119
 Max. Print Width, 120
 Prt Partial Line, 117
 PTX Transparent, 118
 Set Text Orientn, 119
 5225 World Trade, 117

U

UNDEF INTERRUPT* message, 283
UNDFNED OPCODE* message, 283
Unidirectional, PRINTER CONTROL, 219
UNKNOWN RBN1 message, 284
UNKNOWN RBN2 message, 284
Unload paper, 39
Unsolicited Rpt, LG Emulation, 217
UP DRV. SHORT* message, 284
UP or DOWN key, 29
UP + DOWN key, 29
UPC Descenders, 182, 197
Upr. Case Select, P-Series XQ Emulation, 154
User-Def Ratio, 183
Usr Defined HTRN, 110, 133
Usr Defined HTRN, PTX Transparent, 118
Usr Defined HTRN, SPC Type, 136
UTF-8, 188

V

Var Form Adjust, 184
Var Form Type, 184
Vert Forms, 67
Vert Forms, LG Emulation, 215
VFU Select, 147
VFU Select, P-Series XQ Emulation, 153
VGL SFCC, 195
View Function, PRINTER CONTROL, 219
VIEW/EJECT key, 27
Voltage, 289
VPA Check, IPDS Emulation, 208

W

WAITING FOR ETHERNET ADAPTER message, 284
Warnings, 15
Weight, printer, 287
WEP Key 1, WLAN PARAMS menu, 98
WEP Key 2, WLAN PARAMS menu, 98
WEP Key 3, WLAN PARAMS menu, 98
WEP Key 4, WLAN PARAMS menu, 98
Width Limit, 199
WLAN Address, 64
WLAN ADDRESS menu, 94
 DHCP, 94
 Gateway address, 94
 IP address, 94
 MAC address, 94
 Subnet mask, 94
WLAN Kerberos menu
 Clock Skew, 100
 KDC Port Number, 100
 Kerberos Enable, 99
 Kerb. Passwrd, 100
 Renew Lifetime, 100
 Reset Kerb. Pwd, 100
 Ticket Lifetime, 100
WLAN LEAP menu
 Auth Method, 101
 LEAP Password, 101
 LEAP Username, 101

Reset LEAP Password, 101
 Reset LEAP User, 101
 WLAN PARAMS menu, 95
 Antenna, 97
 Ant. Diversity, 97
 Auth Method, 98
 Channel, 96
 Default WEP Key, 98
 Internat. Mode, 97
 Min Xfer Rate, 96
 Operation Mode, 96
 Power Mgmt, 97
 Preamble, 97
 Reset SSID Name, 96
 Reset WEP Keys, 98
 Reset WPA P-Phs, 99
 Signal Strength, 96
 SSID Name, 96
 Transmit Power, 97
 WEP Key 1, 98
 WEP Key 2, 98
 WEP Key 3, 98
 WEP Key 4, 98
 WPA Cipher, 99
 WPA Mode, 98
 WPA P-Phs, 99
 Word Length, Serial submenu, 84
 WPA Cipher, WLAN PARAMS menu, 99
 WPA Mode, WLAN PARAMS menu, 98
 WPA P-Phs, WLAN PARAMS menu, 99

Y

Year, DATE menu, 230

Z

Zero Tear Pedestal (ZTP)
 adjust paper guides, 294
 clear paper jams, 303
 control panel menus, 301
 forms type, 302
 load paper, 296
 overview, 293
 paper jams, 303

position paper, 294
 position paper out sensor, 298
 set tear bar distance, 299
 set top of form, 300
 ZTP DateTime, 301
 ZTP Function, 301
 ZTP Platen Open, 301
 ZTP TearDist, 301
 ZTP WaitTime, 301
 ZTP Data Time, 65, 69
 ZTP DateTime, 301
 ZTP Function, 68, 301
 ZTP Platen Open, 69, 301
 ZTP SETTINGS menu, 68
 ZTP Data Time, 69
 ZTP Function, 68
 ZTP Platen Open, 69
 ZTP TearDistance, 68
 ZTP Wait Time, 69
 ZTP TearDist, 301
 ZTP TearDistance, 65, 68
 ZTP Wait Time, 65, 69
 ZTP WaitTime, 301
 06 HOST REQUEST message, 254
 08 HOLD PRINT TIMEOUT message, 254
 15 COMM CHECK message, 255
 15V PWR FAIL * message, 255
 20 CPI Condensed
 Epson FX Emulation, 164
 Proprinter XL Emulation, 160
 22 INVALID ADDR message, 255
 23.5V PWR FAIL * message, 255
 31 PAPER OUT TIMEOUT message, 255
 32 PAPER JAM TIMEOUT message, 255
 3270 Params, 121
 3270 Params menu
 Active Char Set, 123
 Change Case, 124
 Compatibility Op, 125
 Early Print Cmpl, 123
 Format Control, 127
 Host Override, 126

Intervention Req, 124
Max. Print Width, 127
Prt Partial Line, 123
PTX Transparent, 123
Set Text Orientn, 124
Translation Tbl, 123
33 PLATEN OPEN TIMEOUT message, 255
34 RIBBON STALL TIMEOUT message, 255
426 BC READ ERR message, 256
48V CIRCUIT* message, 255
48V PWR FAIL * message, 255
5225 World Trade, 117
5250 Params, 128
5250 Params menu
 Active Char Set, 130
 Format Control, 132
 Graphic Chek Cod, 131
 Graphic Chek Err, 131
 Host Override, 131
 Max. Print Width, 132
 Prt Partial Line, 130
 PTX Transparent, 130
 Set Text Orientn, 131
 Translation Tbl, 130
733 DP FIFO Busy* message, 256
8.5V PWR FAIL * message, 254



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