



6300 Series
Operator Manual

Serial - Parallel - LAN - Twinax - Coax - IPDS



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WARNING

Only trained qualified personnel may open covers or remove parts that are not explicitly shown and described in the Operator's Manual as being accessible to the operator.

Please Note:

Printer drivers for various operating systems are available on the Internet at our Web Page <http://www.tallygenicom.com> or <http://www.tallygenicom.com/worldwide> or at your TallyGenicom distributor.

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6300 Series Operator Manual

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Preface

Introduction

The 6300 Series Line Matrix Impact Printers are designed to handle heavy duty, high volume workloads, with a straight paper path that provides unattended, jam-free printing of continuous forms, at high speeds. They have a wide range of printer emulations, network printer management ability, popular graphics languages and web administration utilities.

The 6300 Series offers the following I/O configurations (Modules):

- Standard Serial/Parallel
- FourPlex (Standard plus Twinax/Coax)
- FourPlex IPDS
- LANPlex (Standard plus Ethernet 10/100 BASE-T)
- LANPlex IPDS

In less than five minutes you can add other configurations by inserting a new module. Installation instructions come with the module.




All interface configurations and printer setups are performed through the control panel on the top right of the unit. And since the printer's operational configuration is stored in nonvolatile memory; you'll never have to reconfigure your printer because of a power loss.




About This Manual

Conventions

We use the following conventions throughout this manual:

 *Text that is placed in italics draws your attention to additional helpful information.*

 Sometimes your attention is more particularly drawn by the use of this symbol.

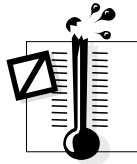
CAREFUL!  **This symbol marks information about actions that may damage the equipment or injure the user.**

Chapter 1

Site Preparation

Choosing a site for your printer is important because the environment affects your print quality. The best site for your printer is one that is protected from dirt and heavy dust, and has a moderate temperature and humidity range. In addition, the power source should be adequate for printer operation and protected from power surges.

Keep the following factors in mind when choosing a printer location:



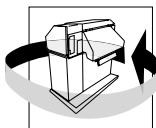
- Keep the operating environment temperature between 50°F and 104°F (10°C and 40°C).
- Do not locate your printer near air conditioners, open windows, heaters, nor in other areas where the temperature changes abruptly.
- The relative humidity should be between 10% and 90% (noncondensing). Be sure to locate the printer away from any sources of moisture, such as water faucets, refrigerators, and humidifiers.
- The heat load contribution to the environment is 188 BTUs per hour at idle and can go as high as 2050 BTUs per hour under continuous full-load printing conditions.



- Keep your printer away from dust, dirt, and open flames.



- Plug your printer into a grounded outlet.



- Minimum floor space recommended for your printer is 36" wide x 36" deep (91.4 cm x 91.4 cm) to allow air movement around the printer. Allow space to open printer doors as well. When the doors are fully opened, the printer takes up 6.5 feet (2.0 m) of floor space.

Unpacking your printer

Instructions for unpacking your printer are located on the outside of the shipping container. After you have removed your printer from its container, store the shipping materials for possible later use.

Repacking

Repacking your printer for storage or shipping is the reverse order of unpacking. If shipping materials are needed, you can reorder them from your dealer.

Removing the Shipping Hardware

The Shipping Hardware consists of 4 screws, identified by red tags, that secure the printer base to the inside mechanism, and tie restraints that secure the Paper Stacking Chains. The shipping screws fasten from underneath, 2 near the front of the print cabinet and 2 near the rear of the cabinet.



DO NOT power up your printer before removing the shipping hardware.

Arrows point to 4 shipping screw locations

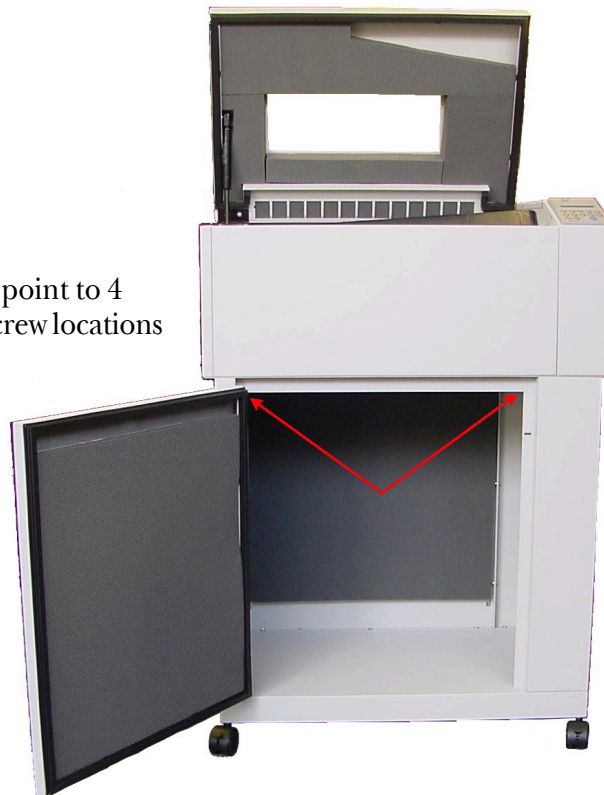


Figure 1 - 1. Shipping Screw Locations

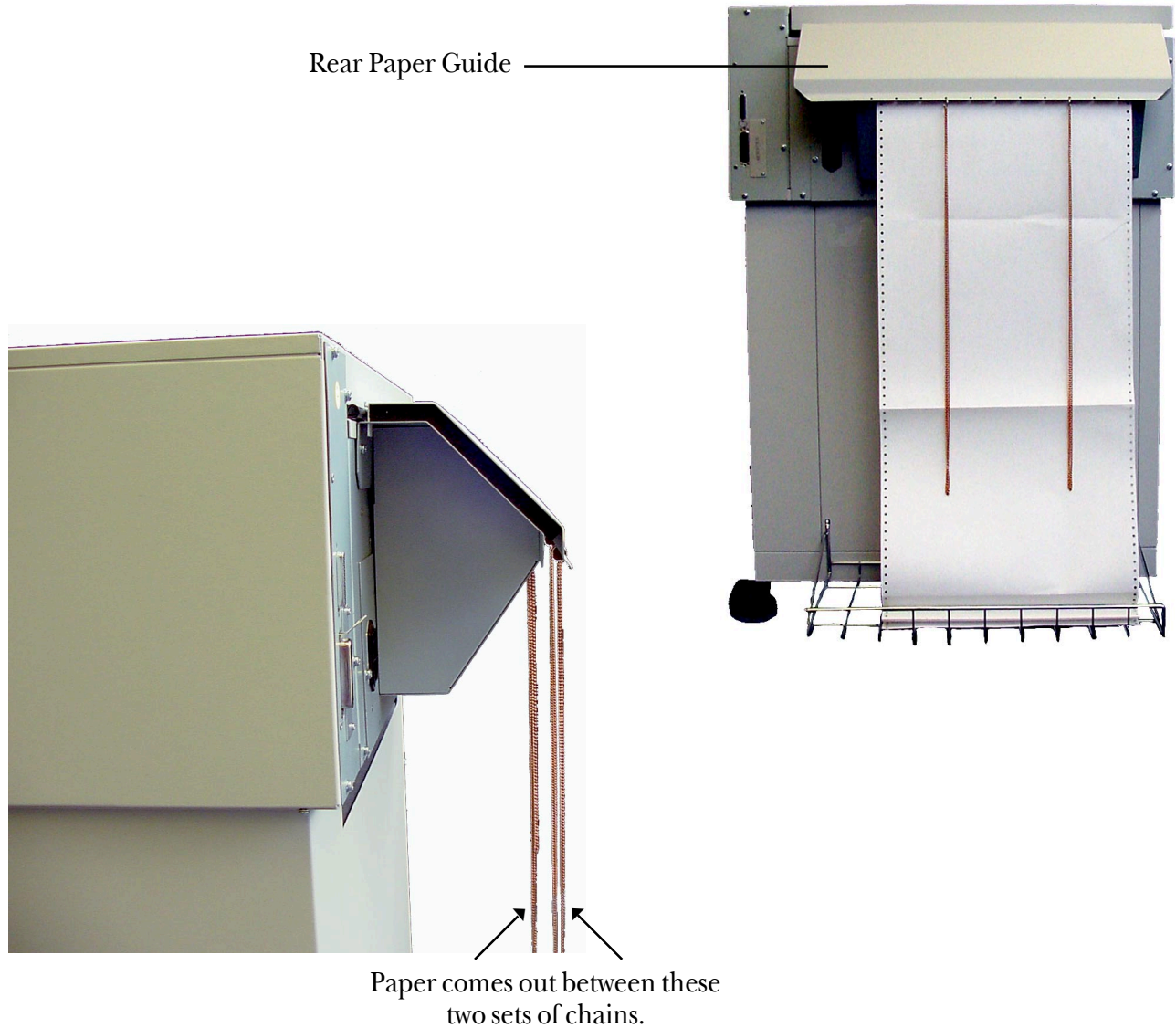


Figure 1 - 2. Paper Stacking Chains

Rear Guide Assembly Instructions

Use the two screws already installed in the back of the printer to secure the Rear Guide Assembly (packed separately). Cut the plastic ties and remove the plastic bag holding the paper chains. Paper exits the printer through these passive paper stacking chains that help fold and stack printed forms uniformly. Make sure the chains are not tangled.

Interface Connections and Powering Up

Interface Connectors

Properly secure the cable to the printer interface using the correct connectors.



Shielded I/O cables must be used on all installations to comply with regulatory requirements.

Connecting the I/O

After connecting each interface to your printer, run a print job from the Host Computer to verify proper function of the printer.

Serial/Parallel Interfaces

To connect the Serial or Parallel I/O cable, plug in the cable to the proper connector on the I/O panel.

The serial interface operates up to 38.4 kBaud and uses a standard DB 25 serial cable connector and standard RS-232-C signals. Serial interface cables should be no longer than 50 feet (15.2 meters).

The Centronics parallel port is IEEE-1284 compliant and uses a 36-pin 1284-B type connector (AMP 555119-1 or equivalent). Parallel interface cables should be no longer than 6 feet (2 meters)

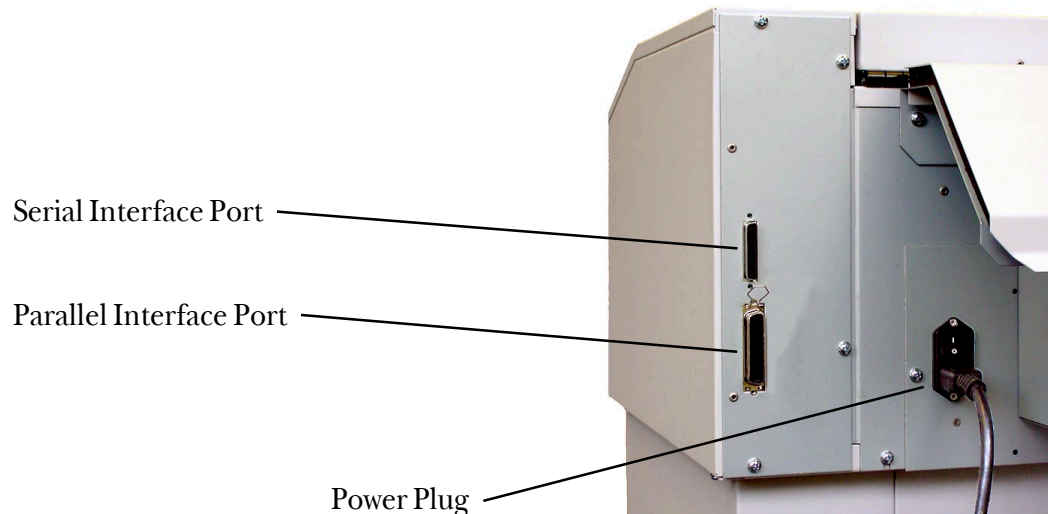


Figure 1 - 3. Rear view, showing Serial, Parallel and Power Plugs

The optional Twinax and Coax interface modules are installed between the Serial/Parallel connectors and the power plug. Appendix B: Optional Interfaces describes these.

Powering Up

The power switch is located on the back of the printer, just above the 3-prong power plug connector.



Figure 1 - 4. Power plug and on/off switch

Step 1.

Make sure the power is off by depressing the "0" side of the rocker power switch. Connect the power cord. Plug the power cord into a proper power outlet.

Step 2.

Turn the power on.

The printer runs a self-test each time it is powered up to check the main processor and buffers for errors. Note that when you turn the printer on this time, the Paper Out error displays. If any error message appears in the display, check Appendix A for a description of the error and what actions are necessary to clear the error.

When connecting the **Twinax interface** at this time, other messages that may appear are Setup Address and Lost Sync (28). These messages appear because the printer/host interface has not been properly set up. If you cannot connect the interface at this time, you can still test certain aspects of printer performance by placing the printer Offline (depress the Online/Offline key), then entering the Menu Mode. While in Menu Mode you may select print and operation parameters or test certain printer systems.

Paper System

Paper System Components

The Tractors, Ribbon Cartridge, Platen and Paper Iron are all parts of the paper system. The first two can be seen when the lid is raised. The Platen and Paper Iron are hidden inside the housing.

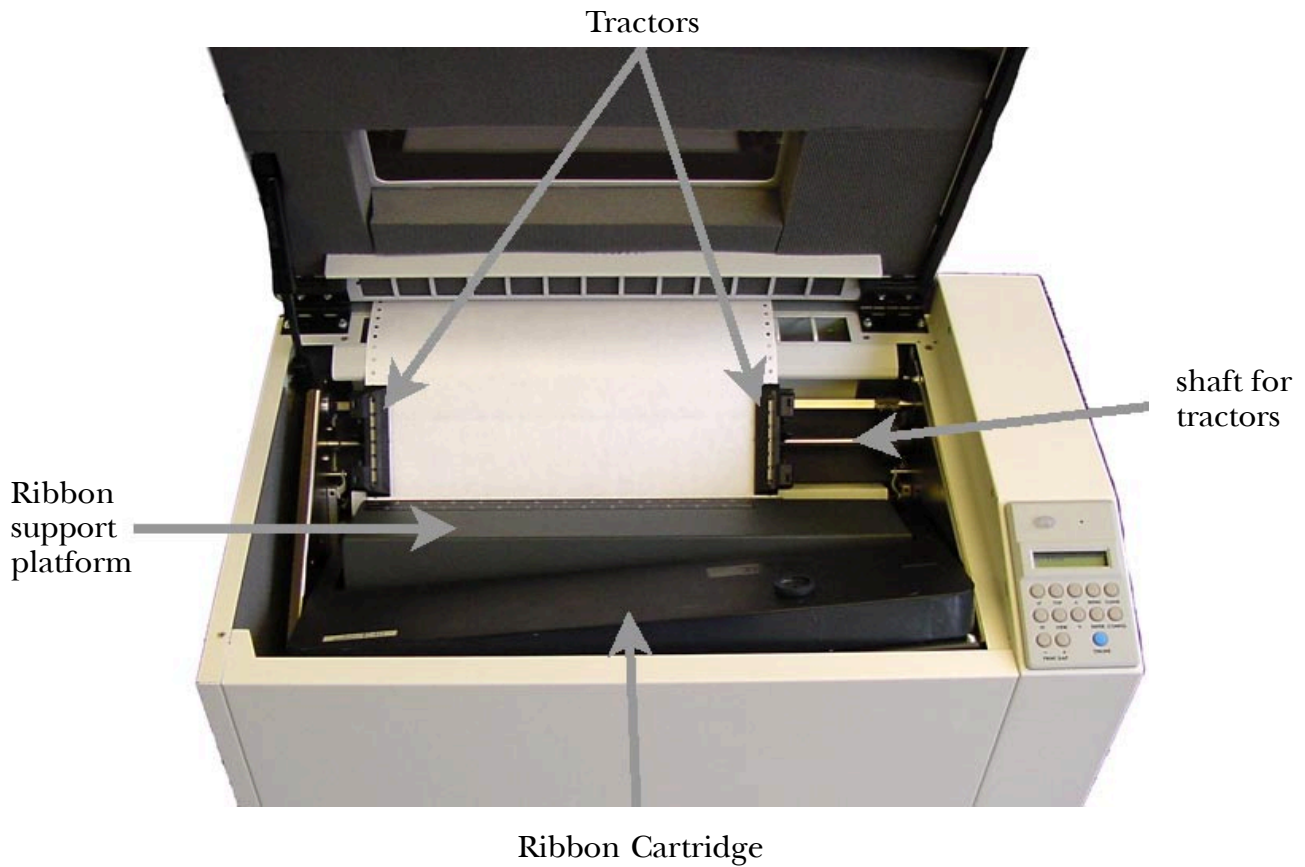


Figure 1 - 5. Inside the Lid

Tractors

The 6300 Series has two tractors to control paper movement, located on the left and right.

A lever on each tractor keeps it locked in place on a horizontal shaft. To reposition a tractor, unlock the tractor and move it to the left or the right along the shaft. Repositioning is generally needed only when inserting a new form or size of paper.

Tractors
Open

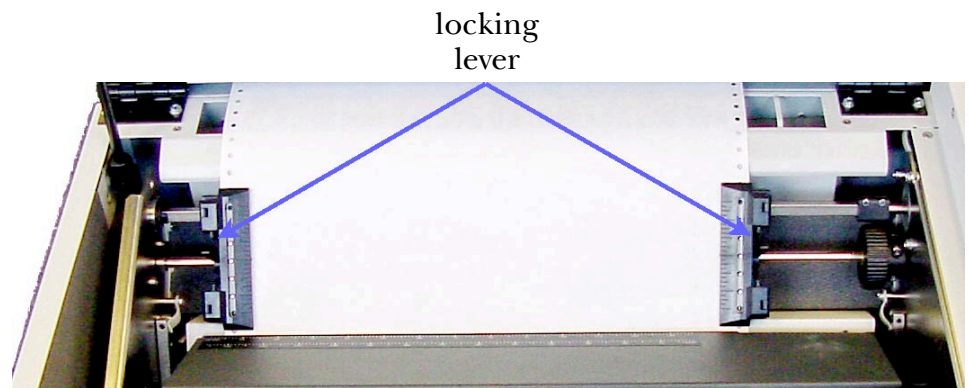
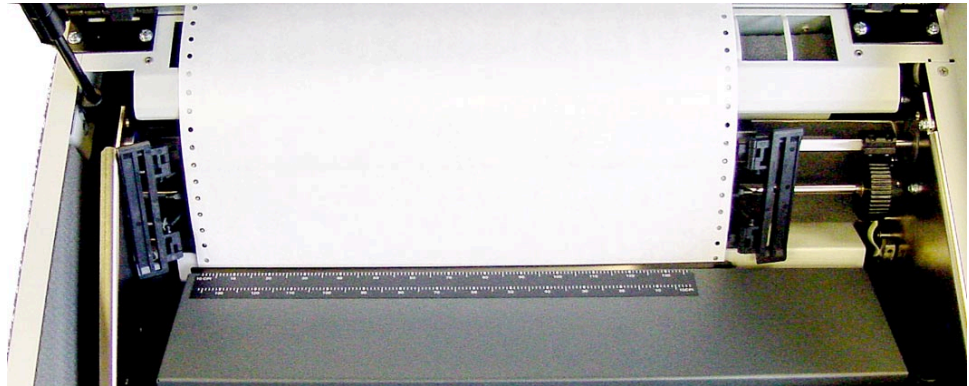


Figure 1 - 6. Left and Right Paper Tractors

Print Gap

The 6300 Series line printers offer Auto-Gap which simplifies operator set-up and printer use by setting the optimum print gap based on the form thickness. The print gap is automatically opened to its widest position when the printer is not printing. To accommodate various thicknesses of paper, the print gap is adjusted either automatically or manually. (See Chapter 2 pages 2-30 to 2-33 and Chapter 3 pages 3-56 to 3-58). If the Print Gap Detect Mode has been set to "Auto," the auto gap sensing operation will take place the first time the power is turned on, immediately after a "paper out" fault, when the TOF key is pressed, and when printing is attempted without setting the Top Of Form. Dedicated control panel keys also allow the print gap to be adjusted based on operator preference.

Paper Tension

Vertical tension on the paper is pre-set. It is not controlled by the user.

Installing the Ribbon Cartridge

Step 1.

Make sure the printer is Offline or power is off. Open the printer lid and remove the old ribbon by lifting it straight up off of the Ribbon Platform.



Figure 1 - 7. Ribbon Cartridge

Step 2.

Remove slack in the new ribbon by turning the knob on the ribbon cartridge as indicated by the arrow printed next to the knob, then slip the ribbon, left side first, over the two ribbon guides and between the front and rear panels of the ribbon shield on the printer.

Step 3.

Press down lightly on the cartridge while turning the ribbon knob as before until it seats on first the left, (as shown), and then the right cartridge drive posts. Make sure that the ribbon does not twist or fold over.

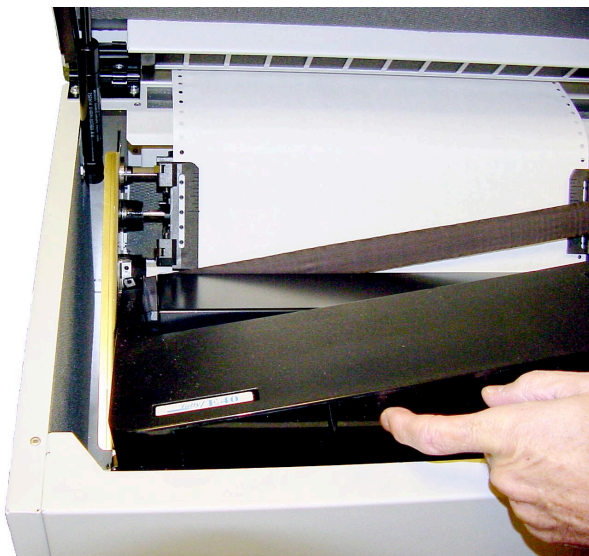


Figure 1 - 8. Installing the Ribbon Cartridge

The front and rear panels of the ribbon shield

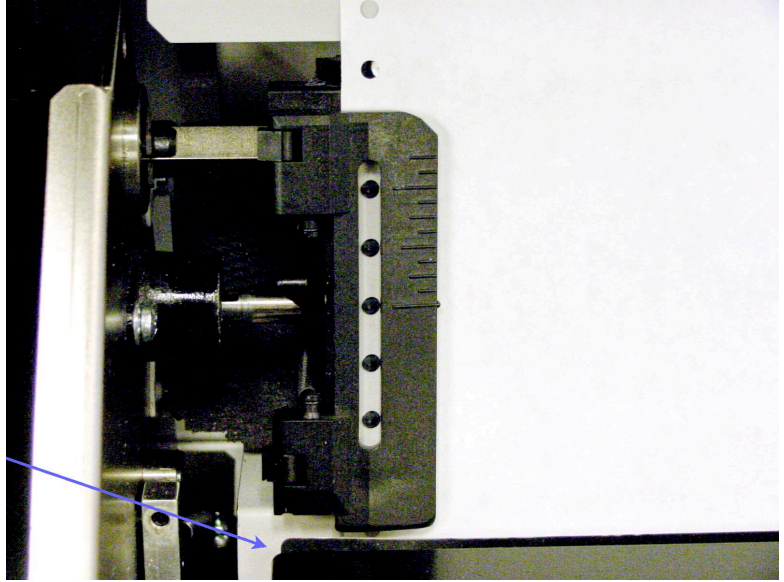
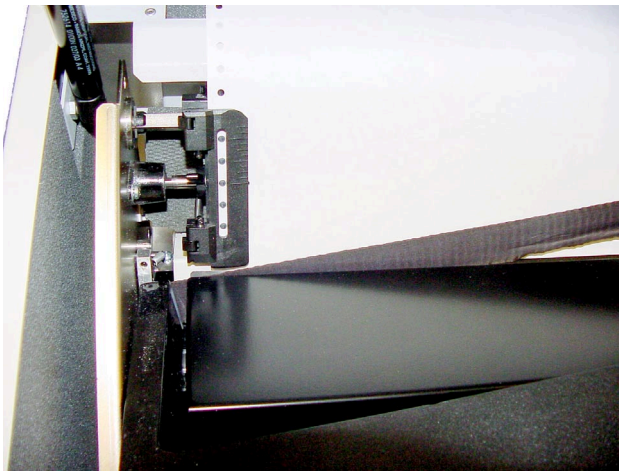


Figure 1 - 9. Ribbon Shield Panels



The ribbon has been carefully positioned between the two panels of the ribbon shield.

Control Panel Components

The Control Panel is located on the right front top of the printer housing. It is used to program and direct most printer functions.

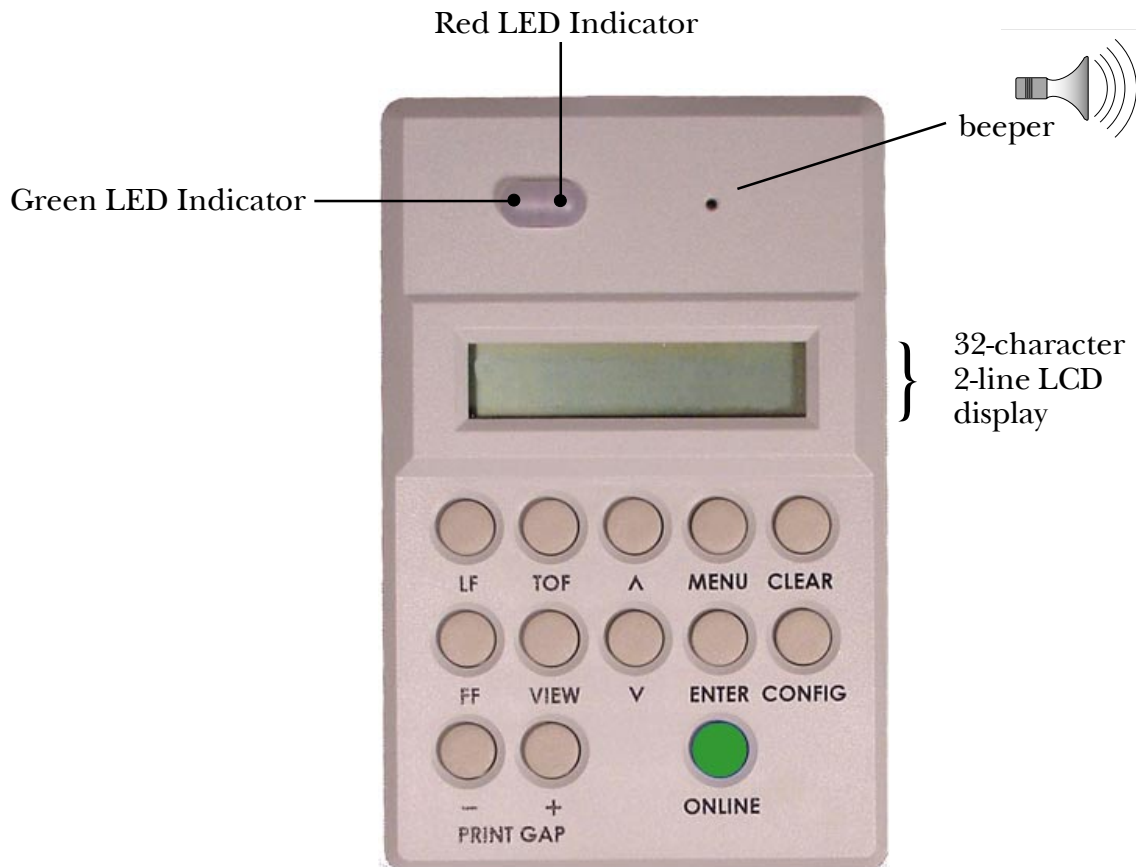


Figure 1 - 10. Control Panel

LED Indicators

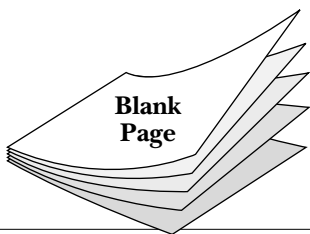
The green ONLINE indicator illuminates whenever there is power to the printer, and the printer is Online.

The red FAULT Indicator illuminates whenever an error or fault is detected. A message also appears on the display to indicate what kind of fault is present (see Appendix A for explanations of all error and fault messages).

LCD (Liquid Crystal Display)

The 32-character, 2-line Liquid Crystal Display shows printer status, menu selections, normal, fault and error messages. It is divided into four main areas. The displayed information will vary with menu selection and the configuration of the printer.

Once the printer has been unpacked, the cables connected, the ribbon cartridge installed, and a box of paper (whether plain paper or pre-printed forms) placed nearby, you are ready to load the paper and set the various parameters via the Control Panel that will ensure that the 6300 Series printer performs exactly as you need. This is covered in the next chapter.



Chapter 2

Introduction

This chapter covers how to load the paper and to set the print gap. It also covers how to create saveable configuration settings for your own pre-printed forms.

Your printer is designed to use a continuous sheet, sprocket-fed paper. It can handle:

- Six-part forms (1 original and 5 copies) with a maximum thickness of .025" (0.6 mm).
- Page widths of 2.5" to 18" (6.4 cm to 45.7 cm).

Specific requirements for pre-printed forms are in Appendix C: Specifications.



Loading Paper for Standard Printing Mode

Step 1.

Turn off the printer using the power switch on the back, or toggle the "Online" button on the Control Panel until the LCD shows "Offline".

Step 2.

Raise the printer lid and open the doors on both tractors.

Figure 2 - 1. Inside Paper Inlet, visible when looking inside the printer cabinet.



Step 3.

Open the new box of paper. Remove the box top so that the paper can be pulled out freely. Open the front of the printer cabinet and place the new box of paper inside.

Step 4.

Feed the paper up through the paper inlet, as shown in figure 2-1, a little ways past the tractors and through the gap between the top back of the printer and the lid (Figure 2-2). It will flow out between the paper chains and fold into the wire rack near the floor (Figure 2-3).

Step 5.

Place the left-side paper holes onto the left tractor pins and close the tractor door.

Feed paper
between the
lid and the
top of the
printer.



Figure 2 - 2. Paper path past the lid.

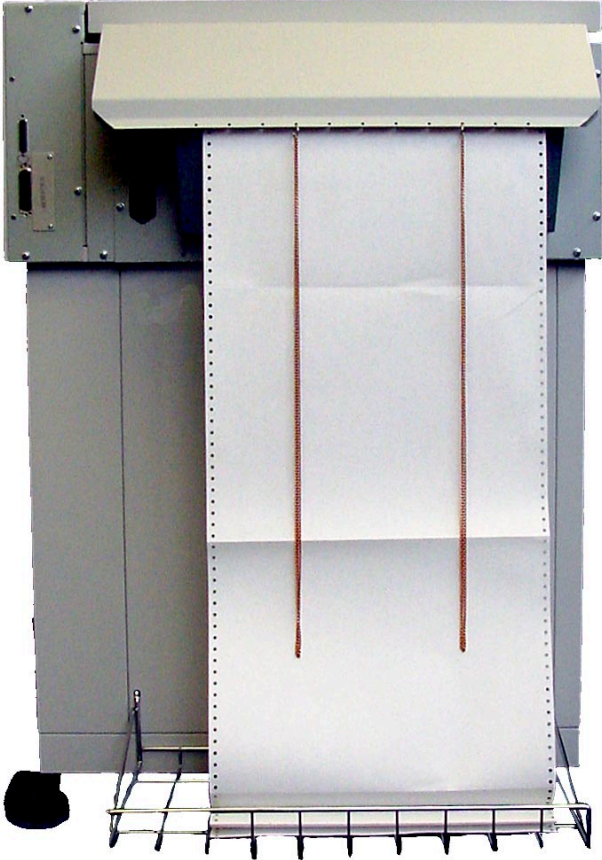


Figure 2 - 3. Paper path into the wire rack.

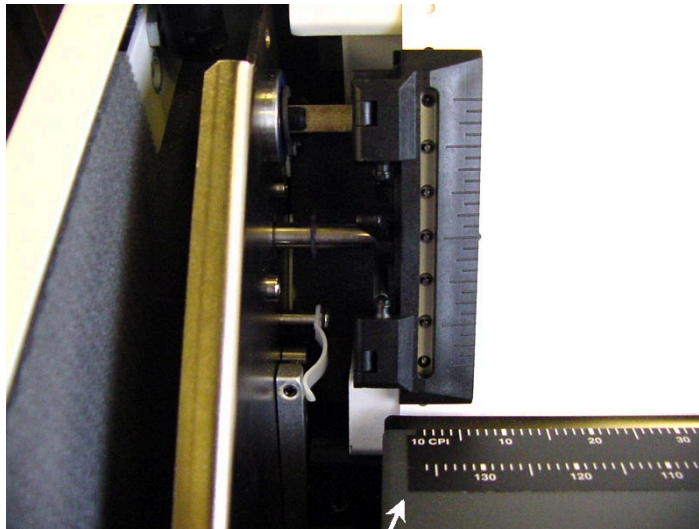


Figure 2 - 4. Column Alignment Scale

Step 6.

The Column Alignment Scale is on the top of the ribbon support platform. It is to be used for general guidance in horizontally aligning the form for each print job. The leftmost mark on the scale indicates the location of the first, or leftmost, printable character. Each successive tick mark indicates the location of additional 10 CPI characters.

Unlock the right tractor and move it so that the paper's holes align directly over the tractor pins, making sure that the paper is straight, then close the tractor door. Gently push the tractor to the right until the paper is smooth. Unlock the left tractor and, keeping the paper reasonably taut, holding onto both tractors, move the paper to the left or the right until it is roughly aligned with the desired mark on the Column Alignment Scale. Lock both tractors.

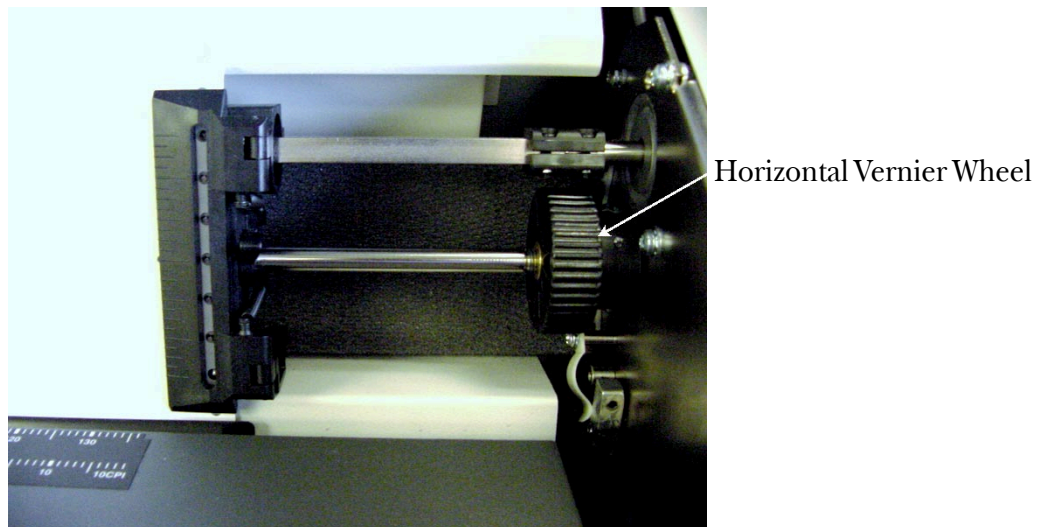


Figure 2 - 5. Horizontal Vernier Wheel

Fine-tuning the Column Alignment can be done in two ways:

(1) Rotate the Horizontal Vernier Wheel, which is located on the right end of the shaft on which the tractors ride. Depending upon the direction the paper needs to move, you will rotate the wheel either upwards or downwards.

(2) Use the Control Panel. Go Offline, choose Menu, then use the arrow keys to get to the Operator Menu. Press Enter. Use the arrow keys to get to Forms. Press Enter. Use the arrow keys to get to Horz Adjust. Press Enter. Use the arrow keys to increase or decrease the number that appears in the lower right of the LCD. This will shift the position of Column 1.

Step 7.

Set the Top of the Form (TOF). This is done from the Control Panel. If the printer is not on, turn it on now. If necessary, press the Online key until “Offline” is displayed. Use the up or down arrow keys to move the perforation line on the paper so that it is aligned with the nubbin on the tractor door. Once the paper is positioned, press the TOF key. The paper will move downward to the “ready to print” position and the correct print gap will be set based on the form thickness.

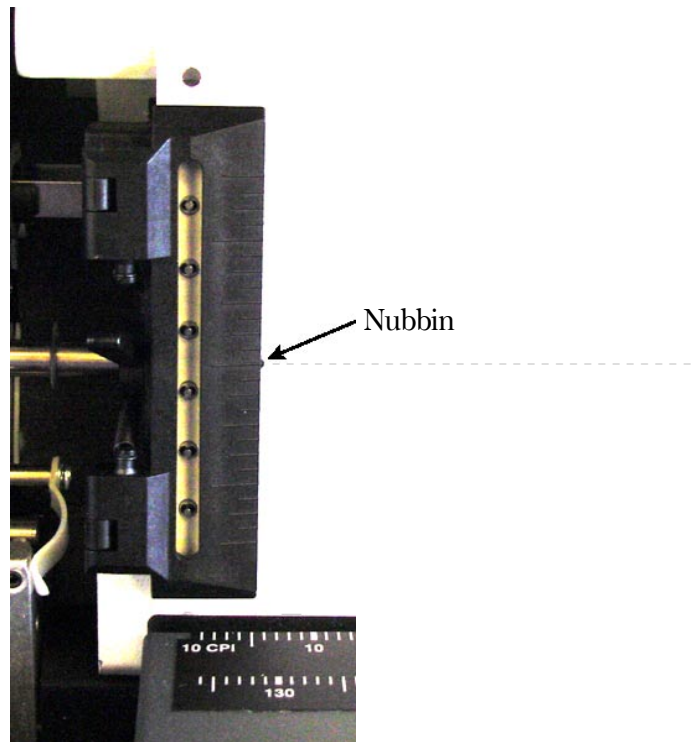


Figure 2 - 6. Top of Form Nubbin

Print Gap Adjustment

The 6300 Series Auto-Gap feature automatically sets the correct print gap based on form thickness. Dedicated control panel keys also allow the print gap to be adjusted for darker or lighter print based on user preference. For ease of paper loading, the print gap is set to its widest position while the printer is not printing. The Auto-Gap feature is automatically initiated under the following conditions:

1. The Print Gap Mode is Auto, the printer has been off but is now turned on, and a TOF is set before any printing has begun.
2. The Print Gap Mode is Auto, the printer has been off but is now turned on, and a print run is started before TOF is set.
3. The Print Gap Mode is Auto, a Paper Out Fault has been cleared, and either the TOF is set or a print run is resumed.
4. The Print Gap Mode is Auto, the printer has been off but is now turned on, and an adjustment is made using the “-” or “+” Print Gap keys on the Control Panel.

Even though the print gap value has been automatically determined, there might be times when it needs to be further fine-tuned using the Control Panel as described below under Manually Adjust Print Gap on Control Panel.

Gap Zone

The Gap Zone feature is used to set up a variable print gap for forms that contain areas of varying thickness. This is done by creating a Gap Zone Profile for the form, saving it in one of the ten saved configurations, then loading that configuration whenever the particular form is used.

Print Gap Profile Mode

As previously described, the Print Gap Mode is set up in the *Print Gap Category* of the *Operator Menu*. There are three Print Gap Modes. In **Manual Mode**, the print gap is set manually using the Print Gap keys on the control panel. In **Auto Mode** (default), the print gap is automatically detected whenever a new form is loaded, and when the printer is powered on. **Profile Mode** is the mode that must be set when using the Gap Zone feature, as described below.

Creating a Gap Zone Profile

A Gap Zone Profile is created automatically in four simple steps:

Step 1 – Load the Form

Load the form for which the profile will be generated. Be sure to set the Top of Form position, and be sure that the *Form Length* is set properly.

Step 2 – Set Profile Mode

The Print Gap Mode is set up in the *Print Gap Category* of the *Operator Menu*. Set the *Mode Parameter* to **Profile**. Press Operator Menu => PrintGap => Mode => Profile => Enter.

Step 3 – Create the Profile

Select the **Detect Parameter** in the *Print Gap Category* of the *Operator Menu*. Press Menu => up arrow until Detect shows => Enter. This will cause the printer to move down the form in 1/6 inch increments, performing a print gap detection operation at each increment. Note that this operation will take approximately five to six minutes for an 11 inch form. Also note that the print gap detection operation will leave small dots imprinted on the form, so the sample form will have to be discarded.

If the printer is placed Online while in Print Gap Profile Mode, and a profile does not exist (i.e. the **Detect** function was not performed), then a **Profile Error** message will be displayed on the control panel.

Step 4 – Save the Profile

Once the Gap Zone Profile is created, you will probably want to save it for future use. By saving the Current Configuration into any of the ten saved printer configurations, the Gap Zone Profile is automatically saved along with the other configuration parameters. If the Current Configuration is not saved, the Gap Zone Profile just created will be lost when the printer is turned off. See page 3-71 for directions in how to save a configuration.

Using a Saved Gap Zone Profile

Whenever a configuration with the *Print Gap Mode* set to **Profile** is loaded, the Gap Zone Profile is automatically used when printing forms.

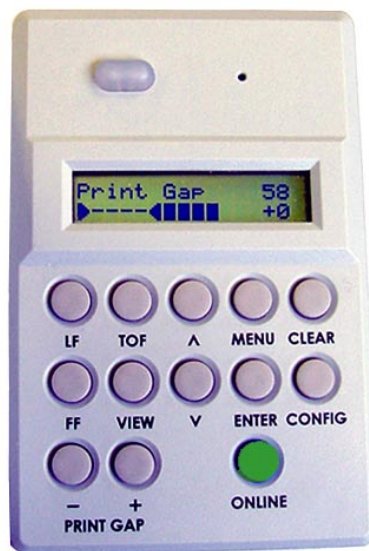
The Gap Zone Profile can be inhibited by changing the *Print Gap Mode* from **Profile** to either **Manual** or **Auto**.

If the Form Length is changed to a value other than the one used to create the Gap Zone Profile, the profile will be automatically disabled. If the printer is then placed Online while still in Print Gap Profile Mode, a Profile Error message will be displayed on the control panel.

Fine-tuning the Automatic Print Gap Setting

Press one of the Print Gap keys on the Control Panel. This activates the Print Gap adjustment display. Look at the Control Panel. The upper right region of the LCD shows a number¹ corresponding to the optimal print gap determined by the detection process. The lower right region displays an adjustment offset number associated with fine-tuning. When the operator presses the “-” or “+” Print Gap key on the control panel, this number will get smaller or larger, respectively. The range of allowed change is restricted by the auto gap firmware. The lower left region of the LCD provides a graphical indication of the adjustment being made. There is a 5 second time-out: if no keys are pressed the control panel display will revert to the prior menu and display. Fine-tuning the print gap in this way may be done while printing is in progress, allowing the operator to modify the gap and immediately observe the effect it has upon print appearance.

See Chapter 3 for the specifics of the Print Gap menu.



1. This number is for general reference. The precise relationship between the displayed number and physical distance is complex and beyond the scope of this manual.

Figure 2 - 7. Typical Display when Print Gap Mode is set to “Auto”

If you prefer to manually set the Print Gap for the forms you will be using:

Set Print Gap Detect Mode to Manual

Use the Arrow and Enter keys to select Menu => Operator Menu => Print Gap => Mode => Manual.

Step 1. Manually Adjust Print Gap on Control Panel

Press one of the Print Gap keys on the Control Panel. This activates the Print Gap adjustment display. The lower right region of the LCD shows a number¹ corresponding to the current gap separating the hammer impactors from the platen.



Press the "+" or "-" Print Gap key to roughly match the setting to the kind of paper that is loaded. This number will get larger or smaller respectively. The range of allowed change is unrestricted over the complete gap range.² For the 6306, typical values range from 54 to 110 for single-part through six-part forms; for the 6312, typical values range from 52 to 105 for single-part through six-part forms. The lower left region of the LCD provides a graphical indication of the adjustment being made. There is a 5 second time-out: if no keys are pressed the control panel display will revert to the prior menu and display. The Print Gap keys may be pressed while printing is in progress, allowing the operator to modify the print gap and immediately observe the effect it has upon print appearance.

1. This number is for general reference. The precise relationship between the displayed number and physical distance is complex and beyond the scope of this manual.

2. The control software will prevent selection of a print gap so small that it would pinch the paper so tightly that it will bind within the mechanism.

Figure 2 - 8. Typical display when adjusting Print Gap

Step 2. Run a Print Test

Press Clear. Make sure you're offline. Use the Arrow and Enter keys to select Menu => Test Menu => Pattern => Print => Upper. Press Enter. This last action begins running a print test. After a short while, press Enter to halt the test. Examine what has been printed.

The print should be crisp and dark, with no smearing. The paper should move smoothly through the print mechanism:

- If the print gap is open too far, the print may start fading out, especially on the last sheet of a multi-part form.
- If the print gap is too narrow, the ribbon will start smearing ink on the page, especially when the ribbon is moving and the paper is not. In extreme cases, the shuttle may stop, and the paper may jam.

Repeat Step 1 and Step 2 until the print gap is set just right. This print gap configuration can be saved and may be retrieved every time this particular paper is loaded. What you have just set, though, will not change until someone goes through Steps 1 & 2 again, or until a saved configuration with a different print gap is loaded.

Setting Up Configurations

The 6300 Series printer can save up to ten personalized configurations, so you don't have to recreate configurations you use frequently. Each configuration can be given a label of up to 15 characters. When you first receive your printer, each label is a generic "CONFIG" followed by a number 1 through 10. See page 3-71 for instructions on how to save configurations.

Chapter 3

Introduction

In this chapter you will learn how to use the Control Panel, how to navigate the menus, and how to select and store parameter values as part of a configuration. You will also learn how to obtain printouts that show all available parameters, current configuration settings, and technical information like accumulated running time and operating thresholds.

Let's begin with looking at the control panel display, and at each of the keys.

Control Panel Display

The information presented on the control panel display primarily depends upon whether the printer is in normal operation, or in one of the menus.



The Display During Normal Operation

During normal operation, the top line of the display indicates the current state of the printer, such as **Online**, **Offline**, or a fault message.

The second line of the display will indicate which of 10 saved configurations is currently loaded. Each of the configurations can be assigned a unique name and any of the configurations can be designated as the power up configuration. By default, this line will display **Config 1**.

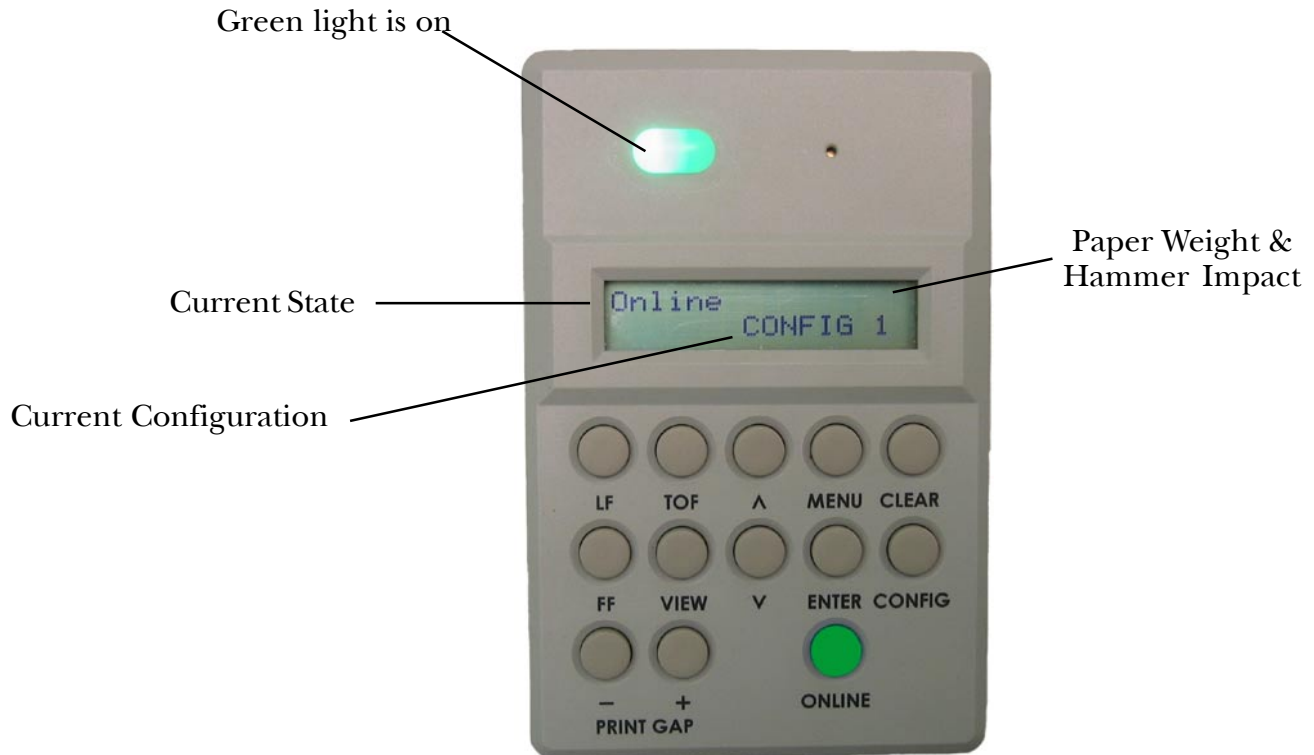


Figure 3 - 1. Control Panel Display for Normal Operation

Current State

The printer is “online” and the green light is on.

Current Configuration

This is the set of parameters, as detailed in the rest of this chapter, that have been saved in Configuration 1. The asterisk indicates that Configuration 1 is selected.

Paper Weight & Hammer Impact

The lack of a symbol here means the hammer impact is set to “Normal” and the paper weight is set to “Light”. See Table 3-1.

Indicator	Paper Weight and Hammer Impact
(blank)	hammer impact setting is "Normal" paper weight setting is "Light"
H	hammer impact setting is "Normal" paper weight setting is "Heavy"
-	hammer impact setting is "High" paper weight setting is "Light"
<u>H</u>	hammer impact setting is "High" paper weight setting is "Heavy"

Table 3 - 1 Paper Weight & Hammer Impact Indicator

The Display When In A Menu

When a menu is selected, the top line of the display shows which menu, category, or parameter one is in.

The second line of the menu will display the next lowest level of the menu hierarchy. If the top line displays a menu, the second line will display a category; and if the top line displays a category, the second line will display a parameter; if the top line displays a parameter, the second line will display a selection for that parameter. An asterisk is displayed in the far right column of the second line when a parameter is selected.

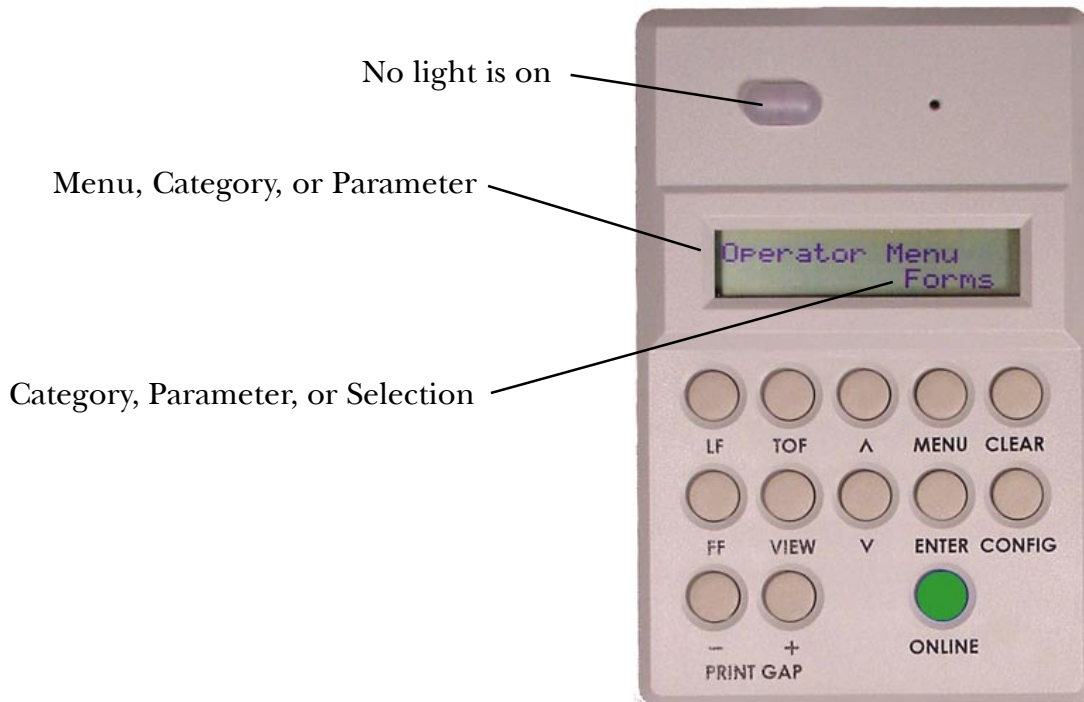
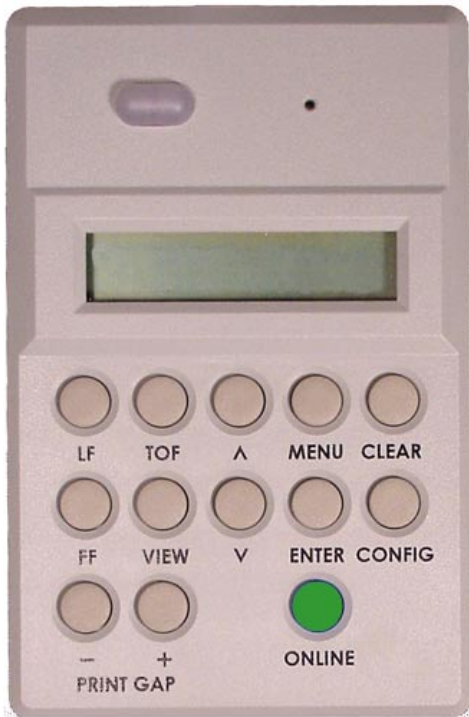


Figure 3 - 2. Control Panel Display for Menus

Control Panel Key Functions



Online Key

This key toggles the printer between Online and Offline states, or exits from the menu directly to an Online state. When the printer is Online, the indicator will light. In the Offline state, you may change parameter selections, load paper, and so on.

LF Key (Line Feed)

This key advances the paper one line. It performs the same function whether the printer is Online or Offline. You may auto-repeat this command by holding down the key.

While Offline With Data Buffered

Any buffered data falling in the next line (as defined by the current LPI setting), prints. This repeats upon subsequent LF keystrokes as long as there is data in the buffers. If pressed while printing is in progress, the printer ignores the key command and maintains the Top of Form position.

While Offline With No Data Buffered

Paper advances one line. While printing is in progress, the printer ignores the command and maintains the Top of Form position.

While In A Fault Condition

Paper advances one line. No data is printed and the Top of Form position moves down one line. This allows the use of the LF Key to advance paper while in a Paper Out condition without printing any buffered data.

FF Key (Form Feed)

This key performs the same function whether the printer is Online or Offline.

While Offline With Data Buffered

Any buffered data falling between the current form position and the top of the next form (as defined by the current Form Length setting), prints. This function repeats upon subsequent FF keystrokes as long as there is data in the buffers. The printer ignores the command while printing is in progress and maintains the Top of Form position.

While Offline With No Data Buffered

Paper advances to the top of the next form. The printer ignores this command while printing is in progress and maintains the Top of Form position.

FF Key (Form Feed) continued

When In a Fault Condition

Pressing the FF Key while in a Fault Condition advances the paper one form. No data prints, and the Top of Form position is maintained. This allows the use of the FF Key to advance paper while in a Paper Out condition, without printing any buffered data.

TOF Key (Top of Form)

When you load paper, you line up the top of your form (usually the perforation) with the indicated position on the tractor (see Figure 2-6). Once the paper is loaded, pressing this key moves the paper so that printing commences at the proper position on the form.

View Key

Holding down this key moves the paper up so that you can see the last line that was printed. If you press it while a job is printing, it will suspend the print job until you release the key.

PRINT GAP + and - Keys

Pressing one or the other of these keys initiates a manual adjustment to the current print gap. Pressing these keys can be used as a “shortcut” to get to the Adjust display otherwise found by using the arrow and enter keys to select Menu => Operator Menu => Print Gap => Adjust.

Up and Down Arrow Keys

When Online

These keys make fine adjustments to the Top of Form position.



When Offline

These keys position the paper in preparation for setting the Top of Form position. (In this mode, these keys will auto-repeat if you hold them down). They are also for scrolling through Menu items (see Menu key, next).



After making adjustments, it's not necessary to reset the Top of Form (unless a different top margin is required for a new form).

In Operator, Config, or Test menus

The Up and Down Arrow keys scan lists of categories, parameters, and selections.

Menu Key

Pressing this key allows you to access menu selections, which you can scroll through using the Up and Down Arrow keys. To go back one level in the hierarchy, press the Menu key, i.e., pressing the Menu key returns you to a previous selection. This key command is only available when the printer is in an Offline mode.

Enter Key



In any of the menus, this key allows you to enter a lower level, to assign a selection to a parameter, or to perform a menu function.

When the printer is in a Paper Out Fault condition, and the PrntEOF parameter is set to Off, pressing the Enter Key allows printing to the end of the current form. When PrntEOF is set to On, the printer automatically prints to the end of the current form.

Clear Key

In Operator, Config, Test, or Help Menus

Pressing this key returns the printer to Offline status.

When Online

Pressing the Clear key clears the panel of any errors that do not cause the printer to go Offline, such as "Parity Error."

When Offline

If the printer is in a clearable fault condition, the fault clears upon pressing the Clear key. If it's not in a clearable fault condition, pressing the Clear key brings up the Clear menu.

The Clear Menu

Clear Buffers (not in Twinax or Coax)

Clears all buffers. It also resets the application task to its initial state.

Clear Ribbon Count

When using the Ribbon Monitor feature, this selection must be used to clear the ribbon count when changing ribbons. See the RibbonMonitor and RibnMon Thresh setting in the Forms category of the Operator menu later in the chapter.

Clear All Configs

Copies the Default Configuration settings into all saved configurations. Any parameters not listed on the Configuration Report, such as special characters downloaded from the host computer, are unaffected.

Clear Current Config

Copies the Default Configuration settings into the current configuration. Any parameters not listed on the Configuration Report, such as special characters downloaded from the host computer, are unaffected.

Clear Reset

The printer controller performs a hardware reset. You may use this in lieu of cycling power to the printer. As with cycling power, the Powerup Configuration is loaded as the Current Configuration (see later in chapter).

Clear Key continued

Clear Cancel (Twinax and Coax only)

Allows you to send a Cancel Job message to the host via the I/O while the printer is Offline. It performs the same functions as the Cancel Job request when the printer is Online. The display reads "Cancel Job" and the printer remains Offline.



For Coax, this function is valid only in NonSCS mode.

Clear Reprint (Coax only)

This allows you to reprint the previous buffer contents. After reprinting the buffer, the printer returns to Enable Print condition and continues printing the rest of the job. This option is convenient in cases of paper jams or any time you do not need to send the complete job.



This function is valid only in Non.SCS Mode. If you select this in SCS Mode, an Invalid Key error message displays for a few seconds.

Config Key

Offline

This is a "shortcut" to the Load Configurations menu item (see later in chapter), allowing you to enter a menu where any of ten saved configurations can be loaded into the Current Configuration.

Use the Up and Down Arrow keys to scroll through the configurations. Pressing the Enter key loads the one you choose.



Control Panel Menu

This section discusses the menus and how to access and select values from them for formatting documents, controlling print operations, or testing the printer. The four main menus are Operator, Config, Test, and Help.

Categories, Parameters and Selections

Within the Operator, Config, and Test menus, there are a number of **categories**. Within some categories there are sub-categories. Within each of these categories or sub-categories is a list of **parameters**. In some cases, a parameter can execute a function upon pressing Enter, or in other cases, it displays a list of **options** for that parameter.

The Help menu has no categories or parameters. You'll use this menu to print out a list of all menus, categories, parameters and options.

Using Menus

Before going through these four main menus, let's learn how to access them. Here are some things to remember:

- You must first be in Offline state to access menus, except for Print Gap.
- The **Online** key takes the printer Online and Offline.
- All scrolling is performed using the **Up and Down Arrow** keys.
- The **Enter** key selects parameter values or initiates a desired procedure.
- Selected options are marked with an asterisk (*).
- To exit **Menu** mode without making changes, depress the **Clear** key or the **Online** key.

When the printer is Online, the green light is on and the Liquid Crystal Display reads "Online":

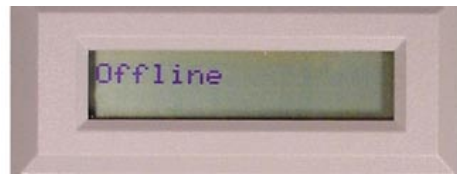


The name of the **configuration** displays on the lower line.

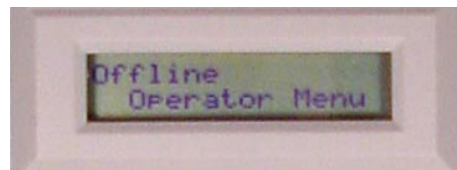
In this state, the only keys that respond are:

- Up and Down Arrows
- LF
- FF
- Clear
- View
- Online
- Print Gap (+ & -)

When the printer is Offline, no light is on and the display reads:



In the Offline state, pressing the Menu key gives you access to the first level of the menu system. Upon doing this, the display reads:



Now, in the Offline state, you may access one of four available menus (Operator, Config, Test, and Help) by pressing the Up and Down Arrow keys, followed by Enter.

As you scroll through using the Up Arrow key (with Operator Menu displaying first) the display reads in order:

Config Menu

TCP/IP *(if LAN is installed)*

Test Menu

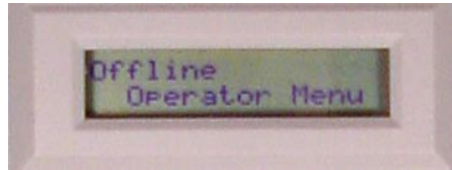
Help Menu

Each of these menus except for Help has multiple levels of categories, selections and parameters. You access them by scrolling through the lists with the Up and Down arrows, and by pressing Enter when you see the category, parameter, or selection you want.

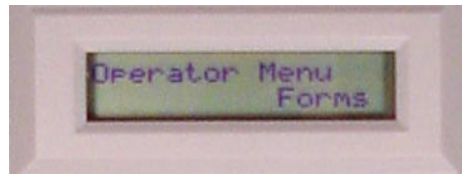
Example: Changing Form Length Using the Menu System

If you wanted to change the Form Length from the default of 66 lines to 65 lines, this is how you do it:

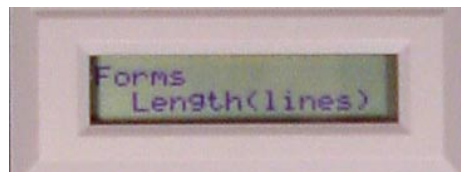
1. Make sure your printer is in an Offline state. If it's not, toggle the Online key.
2. Press the Menu key. The display reads:



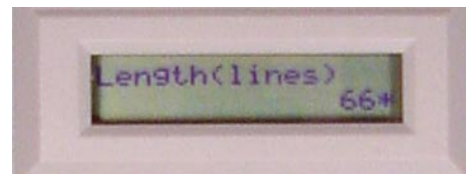
3. Press Enter to select the Operator menu and press the down arrow key until you see Forms. The display reads:



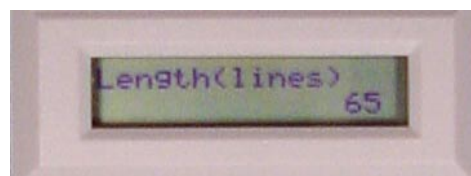
4. Press the Enter key to select Forms. Press the down arrow key until the display reads Length (lines):



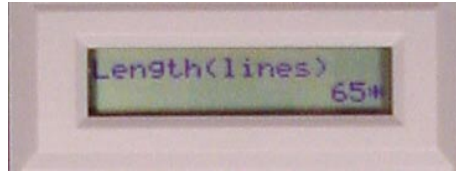
5. Forms Length (lines) is the selection you want, so press the Enter key. The display reads:
(The asterisk means that 66 is the current selection, see page 3-42.)



6. You want to change this to 65. Press the Down arrow once and the display reads:



7. Press the Enter key. The Form Length is set to 65, and an asterisk appears beside the number. Exit the menu mode by pressing the Clear key.



It's helpful to remember that at any time, you may leave a menu in one of two ways.

- Press the Clear key to leave Menu Mode and remain Offline.
- Toggle the Online key to leave Menu Mode and return the printer to Online.

How to Print a Control Panel Selected Options Report

The organization of the multilevel menus is shown on the Control Panel Selected Options Printout. All of the current selections are marked with an asterisk.

1. Toggle the Online key once or twice to clear the display and put the printer Offline. Offline should be displayed and the green light should be off.
2. Press the Menu key.
3. Use the Up or Down arrow keys until you see Help Menu on the display.
4. Press Enter.



The Control Panel Selected Options Report begins printing. When it's finished, press the FF key, tear off the sheet and use it to become familiar with all of the menu items.

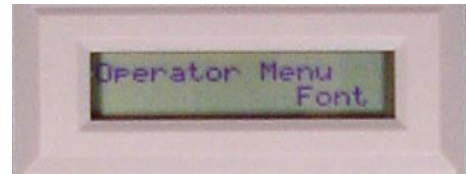
Operator Menu



1. Toggle the Online key once or twice to clear the display and put the printer Offline. Offline should be displayed and the green light should be off.
2. Press the Menu key.
3. Use the Up or Down arrow keys until you see Operator Menu on the display.
4. Press Enter.
5. Use one of the arrow keys until the desired category appears; press the Menu key if you need to back up a level.

Font Category

This category contains parameters that control how print looks on a page and the display language. Use the Arrow and Enter keys to select Menu ⇒ Operator Menu ⇒ Font to get here. They are as follows:



Ser/Par Language

This parameter allows you to select the language used by emulations attached to the Parallel, Serial, and LAN ports (except for LAN-IPDS). The language selection defines the character substitutions in Hex locations 23, 24, 40, 5B, 5C, 5D, 5E, 60, 7B, 7C, 7D, and 7E. The default is US.

The details of the character substitutions can be found in the Line Printer Applications Manual. The possible options are:

US	German	Norwegian/Dan
French	UK	Spanish
Swedish/Finish	Italian	Japanese
Portuguese	Canadian	Hungarian
Chinese	FrenchT6	SwedishT6
ItalianT6	Canadian Alt	Swedish Basic
French Withdrawn	Nor/DanT6	UK LG
Dutch LG	Finnish LG	Swiss LG
JIS Roman LG	Nor/Dan LG	Swedish LG
ISO Nor/Dan LG	Portuguese LG	VT 100
Turkish LG	Cro-ASCII	Nor/Dan Epson
French Epson	UK Epson	Spanish Epson
Italian Epson	Norwegian Epson	Danish Epson
Spanish 2 Epson	Lat Amer Epson	IRV

Tx/Cx Language (only on Twinax/Coax printers)

This parameter defines the language used by emulations attached to Twinax and Coax ports (except IPDS). The default is US.

The details of the character sets can be found in the Line Printer Applications Manual. The possible options are:

US	German	Norwegian/Dan
French	UK	Spanish
Swedish/Finish	Italian	Japanese
Portuguese	Canadian	Belgian
Brazilian	Spanish Speak	Code Page 905
Code Page 1026	Katakana	Multinational

IPDS Language (only if IPDS is installed)

This parameter defines the language used by the IPDS emulation. The default is US. The details of the character sets can be found in the Line Printer Applications Manual. The possible options are:

Internat'l 500	English US 037	Aus/German 273
Nor/Dan 277	French 297	English UK 285
Spanish 284	Fin/Swedish 278	Italian 280
Jap/English 281	Portuguese 037	Canadian 037
Belgian 500	Brazilian 275	Spanish Spk 284
Katakana 290	Portuguese 282	Swiss 500
Icelandic 871	Latin2 870	Cyrillic 880
Turkish 905	Turkish 1026	

Ser/Par Character Set

This parameter allows you to select a character set that occupies locations Hex 80 through FF used by emulations attached to the Parallel, Serial, and LAN ports (except for IPDS over LAN). The default depends on the following:

Emulations

Tally ANSI, P600, P6000, P5000
 IBM Proprinter, MTPL, Genicom4800, Genicom5000
 Epson FX-1180
 DEC LG
 HP 2564C

Default Character Set

Latin 1 8859-1
 Code Page 437
 Italic
 DEC MultiNation
 Roman-8

The details of the character sets can be found in the Line Printer Applications Manual. The possible options are:

Latin 1 8859-1	Latin 2 8859-2	Latin 9 8859-15
Cyrillic 8859-5	Greek 8859-7	Turkish 8859-9
Code Page 437	Code Page 850	Code Page 851
Code Page 852	Code Page 855	Code Page 857
Code Page 863	Code Page 866	Code Page 869
Code Page 928	Code Page 437G	Code Page 866B
Code Page 1250	Code Page 1251	Code Page 1252
Code Page 1253	Code Page 1254	DEC MultiNational
DECTurkish	SiemensTurkish	DEC Technical
DEC Supplemental	Greek Supplemental	Turkish Supplemental
Mazovia	Kamenicky	Roman-8
Katakana ISO 13	Line Draw	Italic

Matrix

There are two font modes available on your printer. One mode is called Enhanced and the other is called CDF (for Constant Density Font). Enhanced fonts include Draft and Data Processing, Near Letter Quality (Gothic and Courier), and Optical Character Recognition Fonts (OCRA and OCR-B). Constant Density fonts include only Draft and Data Processing. In addition, the available CPI options are different for each mode.

When this option is set to Enhanced, characters printed at 12, 13.3, 15, and 17.14 will use a denser character matrix than that of the default CDF matrix. If this option is set to CDF and a CDF font matrix is not available for the current Font Style and CPI, the Enhanced matrix will be selected.



CPI Selection is limited in the CDF Mode. The Specifications Section of this manual has a listing of the CPI options available in Constant Density fonts. If you select a CPI value, either through the Control Panel or via an escape sequence from the host computer, that is not available in Constant Density Mode, the printer will automatically switch to Enhanced Mode for printer output.

OCRA Density

This parameter sets the density for the OCRA font. There are three options: Standard, Enhanced, and High. Standard is the default option and prints at 85 DPI vertical. Choosing the Enhanced option will cause the OCR-A font to be printed at 96 DPI vertical. Choosing the High option will cause the OCR-A font to be printed at 144 DPI vertical. Standard and Enhanced print at the same speed, but the enhanced font is slightly shorter than the Standard. High prints at a slower speed.

Ser/Par Style

This parameter allows you to select the font style used by emulations attached to the Parallel, Serial, and LAN port (except for LAN-IPDS). For emulations that support downloaded fonts, you can use this parameter to select the download font. The default option selection is DP.

Style options

Draft	(High-speed)
DP	(Data Processing, Default selection)
Gothic	(Sans Serif NLQ)
Courier	(Serif NLQ)
OCR-A	(Optical Character Recognition)
OCR-B	(Optical Character Recognition)
Download	(Selects the downloaded font)

Tx/Cx Style (only on Twinax/Coax printers)

This parameter allows you to select the default font style used by emulations attached to the Twinax and Coax ports (except IPDS).

Style options

Draft	(High-speed)
DP	(Data Processing, Default selection)
Gothic	(Sans Serif NLQ)
Courier	(Serif NLQ)
OCR-A	(Optical Character Recognition)
OCR-B	(Optical Character Recognition)

IPDS Style (only if IPDS is installed)

This parameter allows you to select the default font style used by the IPDS emulation.

Style options

Draft	(High-speed)
DP	(Data Processing, Default selection)
Gothic	(Sans Serif NLQ)
Courier	(Serif NLQ)

CPI (Characters Per Inch)

This parameter allows you to select characters per inch (CPI) settings. The possible options are 5, 6, 6.67, 7.5, 8.33, 8.57, 10, 12, 13.33, 15, 16.67, 17.14, and 20. The default is 10 CPI.

Panel Language

This parameter allows you to set up the printer to display messages on the Control Panel in a particular language. Printed reports also display in your chosen language. The possible options are English (default), German, French, Italian, Swedish/Finish, and Spanish.

OCR Standards

This parameter defines the combination of ANSI and DIN standards to be used for the OCR-A and OCR-B character sets. The default value is dependent on the emulation. The possible selections are:

A: ANSI	B:ANSI	This means ANSI OCR-A and ANSI OCR-B
A: DIN	B:ANSI	This means DIN OCR-A and ANSI OCR-B
A: ANSI	B:DIN	This means ANSI OCR-A and DIN OCR-B
A: DIN	B:DIN	This means DIN OCR-A and DIN OCR-B

Zero

As an aid in distinguishing zeros from the uppercase letter O, you can choose to have your zeros slashed (Ø). The default parameter option is **open** (non-slashed) zeros.

Compressed 8

This parameter is either ON or OFF. Choosing **ON** causes all the characters themselves that are printed at 8 LPI and above to be compressed vertically. The result is increased white space between lines of print without changing the current LPI setting. Compressed 8 works for any CPI setting. The default selection parameter is **OFF**.

Forms Category

This category is used for setting up the specifics for your individual forms. Use the Arrow and Enter keys to select Menu ⇒ Operator Menu ⇒ Forms ⇒ to get here.



Length (lines)

If you wish to define the length of your form in lines, you may select a form length from 1 to 255. The default option is 66.

Length (inches)

If you wish to define the length of your form in inches, you may select a form length from 0.1 to 25.5 inches. The default option is 11.0 inches.

LPI (Lines Per Inch)

This parameter allows you to set the lines per inch. The possible selections are 1.5, 2, 3, 4, 5, 6, 8, 9, 10, and 12. The default option is 6 LPI.

Top Margin

The option selected here determines where the first line of print is located on the page. The Top Margin location is measured in the number of lines from the current Top-of-Form location. The range is 0 to 255, with the default option set to 0.



In the IPDS emulation, the value set in this parameter is not used, since the value is set up in the data stream.

Bottom Margin

This parameter allows you to set the bottom margin. The Bottom Margin is measured in the number of lines from the current Top-of-Form location. The range is 0 to 255, with the default option set to 66.



In the IPDS emulation, the value set in this parameter is not used, since the value is set up in the data stream.

The Bottom Margin (and the Top Margin) parameter option is defined in terms of lines and so there is a natural relationship with the LPI option. For example: Suppose the LPI option is set to 6 lines per inch and the Bottom Margin option is set to line 60. The physical location on the paper of the Bottom Margin will be 10 inches from the Top-of-Form location (60 lines divided by 6 lines per inch). If the LPI is then changed to 10 lines per inch, the Bottom Margin automatically changes to line 100 in order to maintain the previous physical location for the Bottom Margin at 10 inches from the Top-of-Form location (100 lines divided by 10 lines per inch). A new Bottom Margin setting can be selected, of course, if that is what is desired.



The Top Margin and Bottom Margin are thus translated into a physical location on the paper. Subsequent changes in LPI affect this location. If the new location does not exactly correspond with a line position, no asterisk is shown as a “current setting” indicator.

Left Margin

You can place the left margin at any column number across the page, using parameter options 1 to 272. The range of options for this parameter depends on the CPI setting. Column 1 is the default option. The left margin must be less than or equal to the right margin.



In the IPDS emulation, the margin settings are absolute in regards to column number, so that changing the CPI also changes the physical location of the margin.

Right Margin

You can place the right margin at any column number across the page. As with Left Margin, the range of this value depends on the CPI. Column 136 is the default option. The right margin must be greater than or equal to the left margin.



In the IPDS emulation, the margin settings are absolute in regards to column number, so that changing the CPI also changes the physical location of the margin.

If a requested margin setting indicates a column number that is greater than the maximum allowable for the current CPI, the printer will default to the last valid setting.



The current value of the right and left margins reflects a physical location on the form, and therefore changes when the CPI setting changes. If the physical location of the right or left margin does not exactly correspond with a column position after changing the CPI (characters per inch) setting, there will be no current setting indicator (asterisk). (See this same discussion under Bottom Margin Parameter).

Horz Adjust

The print position on the form may be adjusted horizontally in increments of 1/30th an inch. The default option is 0.

Vert Adjust

The print position on the form may be adjusted vertically in increments of 1/72nd an inch. The default option is 0.

Print to EOF (End Of Form)

Before changing paper it is best to print to the end of the current form. This parameter allows you to set up the printer to print to the end of the form automatically. The options are **On** and **Off**, with the default at **Off**.



For Print to EOF to function properly the last print line of the form must come before the perforation. If the Form Length option allows printing to go over a perforation, it is possible for the printer to continue printing in a paper out situation without any paper in the printer, which may damage the printer.

Print to EOF (End Of Form) Continued

If Print to EOF is ON:

The printer automatically prints to the end of the form then stops. The display reads **Paper Out**, the alarm sounds, and the FAULT indicator illuminates. At this point you can load the machine with more paper. After you load paper, adjust the top-of-form location and make sure the paper is feeding correctly. When you are ready, depress the **Clear** key to clear the fault condition, then place the printer Online and continue printing.

If Print to EOF is OFF, you have two choices:

Choice 1:

Load a new supply of paper into the printer. After paper has been loaded, set the correct top-of-form location and check for proper paper feed. When you are ready, depress the Clear key to clear the fault condition, then place the printer Online and continue printing.



The printer will start printing where it left off, which may cause improper form and print location alignment.

Choice 2:

Depress the Enter key. The printer prints to the end of the current form, then the display reads **Paper Out** and the FAULT Indicator illuminates. At this point you may load more paper on the printer. After loading paper, set the correct top-of-form location and check for proper paper feeding. When you are ready, depress the Clear key to clear the fault condition, then place the printer Online and continue printing.



The Paper Out Sensor will not work unless the Top-Of-Form location has been set properly.

Quick Access

This feature provides a way for the printer to position printed forms for quick tear-off access. When Quick Access is enabled, the paper is moved to the tear position by pressing the Enter key. If the printer is online and the current print job is finished, pressing the Enter key will move the paper to the tear position and the Quick Access Timeout will start. New print jobs will not start printing until the timeout has expired and the paper has automatically moved to the next available top of form. (This typically results in a blank form separating the next-to-print form from the previously printed form.) Alternatively, the printer may first be placed Offline before pressing the Enter key. Placing the printer back online will align the paper as described above and printing will resume as soon as data is received. The default option for the Quick Access parameter is **Disabled**. The distance that the paper is ejected is set with the Eject Distance parameter (below). The delay interval between print jobs is set with the Eject Delay parameter (below).

Eject Distance

The Eject Distance parameter allows you to select the distance at which the paper ejects during a Quick Access operation. The units are in tenths of an inch, from 0.0 to 25.5; the default is 12.2 inches.

Eject Delay

This parameter specifies the timeout interval in seconds (after which printing will resume) when Quick Access is Enabled while the printer is Online. The default is 30 seconds.

Impact

This parameter has three options: Auto, which is the default, Normal, and High.

Paper Weight

The Paper Weight parameter defines the “paper moves” — how the paper motion and printing work according to the thickness of the paper. If on **Auto** (the default), the selection will be either Light or Heavy depending on the Print Gap setting.

On the Auto setting Paper Weight uses the print gap to sense what is needed. However, in some cases you may want to set it manually. For example, very dense (yet thin) paper may need to be assigned a heavy paper weight to ensure good print quality.

Fast Slew

Slew refers to the high speed paper motion that occurs whenever the printer moves paper more than one line. If your forms are not too thin or fragile such that output stacking is a problem, you can decrease the printer’s slew speed by setting this parameter to Disabled. The default setting is Enabled.

Double Strike

When this parameter is set to **Enabled**, the printer strikes each dot twice. Use this to get better print quality when you are printing on an exceptionally thick form. Default is **Disabled**.

Enabling Double Strike decreases the printer throughput by approximately 50%.

RibbonMonitor

This parameter enables the Ribbon Monitor feature. The options are **Enabled** and **Disabled** (default).

This feature helps the printer operator determine when to replace ribbons for optimum and consistent print quality. It works by counting the estimated number of characters printed as jobs are printed. Since ribbons are rated for an estimated number of characters, when the character count threshold is reached for the current ribbon the operator is notified via the panel that the ribbon needs to be replaced.



Ribbon Monitor can be disabled at any time. However, the “characters printed count” is reset to zero whenever Ribbon Monitor is enabled, so enabling the feature should only be done with a fresh ribbon.

If the Ribbon Monitor Fault occurs, and is cleared without the ribbon life threshold being increased or the ribbon count reset to zero, the “Replace Ribbon” message will reappear approximately every one million characters until one of these operations is performed. This message will also appear upon powerup if the ribbon count is above the threshold at that time.

RibnMon Thresh

This parameter sets the ribbon life threshold of the Ribbon Monitor feature. The default option is 40, assuming that a 40 million character ribbon is being used. This option should be changed to 60 or 250 if a 60 million or 250 million character ribbon is used. The setting can be further refined based on the application being printed.

Ribbon Monitor Operation

When the number of characters printed reaches the ribbon life threshold, the current print job will stop, the Fault indicator will light, and the **Replace Ribbon** message will appear. When this situation occurs:

- Clear the fault with the Clear key. The fault indicator should turn off and the **Replace Ribbon** message should disappear. (As explained under RibbonMonitor, see above, the fault message may recur.)
- Look at the recently printed output of the printer to determine if the ribbon is exhausted. If the quality of the output is still acceptable, you can increase the ribbon life threshold through the RibnMon Thresh option. The printer can then be placed back online and printing will resume.
- If the printed output is too light, then the ribbon is exhausted. Replace the ribbon with a new one, and reset the ribbon count with Clear Menu Ribbon Count. The printer can then be placed back online and printing will resume.



If the printing application is particularly heavy, it may be necessary to decrease the threshold.

The current Ribbon Monitor status can be obtained by printing a Calibrations Report (Menu ⇒ Configuration Menu ⇒ Printer ⇒ Report). This report will indicate whether Ribbon Monitor is enabled, the estimated number of characters printed since Ribbon Monitor was last reset, and the selected threshold.

If the LAN interface is installed, the Ribbon Monitor status can be viewed graphically in WebPanel in which the size of the gas gauge bar decreases as a percentage of remaining expected ribbon life. The color of the bar is green when expected remaining ribbon life is between 51% and 100%, yellow when between 26% and 50%, and red when 25% or less. WebPanel can also be configured to send an Email Notification when the expected remaining ribbon life falls to 25%.

Perf Skip

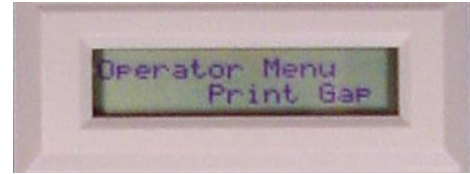
This parameter will enable the automatic perforation skip feature that will cause the print gap to automatically increase significantly between the last line printed on the current form and the first line printed on the next form. This feature is useful when using heavy forms that have a large perforation “tent” that can get hung up in the print station. The options for this parameter are Enabled and Disabled (default).



When the PerfSkip parameter is enabled, the printer throughput will be reduced due to the time required to automatically open and close the print gap.

Print Gap Category

This category has the parameters for setting the different aspects of the print gap mechanism. Use the Arrow and Enter keys to select Menu => Operator Menu => Print Gap to get here.



Detect

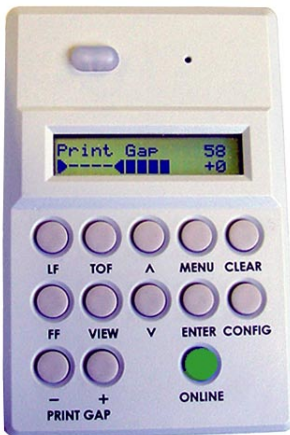
When the enter key is pressed to select this parameter, the platen squeezes against the paper at the current paper position. The resulting optimal print gap setting is stored in the current configuration. The platen opens up fully after this operation.

Adjust

This is where the print gap may be set, if Mode is set to Manual, or fine-tuned if Mode is set to Auto. The final print gap value may be saved in a configuration associated with this paper form.

Fine-Tuning when Mode is set to Auto

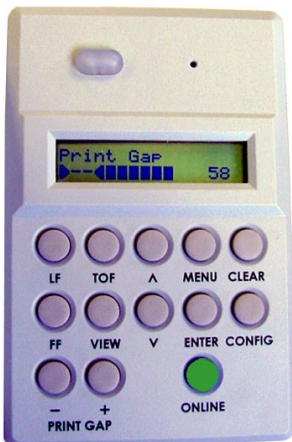
The upper right region of the LCD shows a number¹ corresponding to the optimal print gap determined by the detection process (the gap separating the hammer impactors from the platen). The lower right region displays an adjustment offset number associated with fine-tuning. When the operator presses the “-” or “+” Print Gap key on the control panel, this number will get smaller or larger, respectively. The range of allowed change is restricted by the auto gap firmware. The lower left region of the LCD provides a graphical indication of the adjustment being made.



1. This number is for general reference. The precise relationship between the displayed number and physical distance is complex and beyond the scope of this manual.

Fine-Tuning the Print Gap Manually

The lower right region of the LCD shows a number² corresponding to the current gap separating the hammer impactors from the platen. Press the “+” or “-” Print Gap key to roughly match the setting to the kind of paper that is loaded. This number will get larger or smaller respectively. The range of allowed change is unrestricted over the complete gap range.³ The lower left region of the LCD provides a graphical indication of the adjustment being made.



2. This number is for general reference. The precise relationship between the displayed number and physical distance is complex and beyond the scope of this manual.

3. The control software will prevent selection of a print gap so small that it would pinch the paper so tightly that it will bind within the mechanism.

Reset

This parameter resets the gap setting. If Detect Mode is Auto, the next time the TOF key is pressed or a print run is started, a print gap detection operation will be performed. If Detect Mode is Manual, the Print Gap will be set to 190 (the maximum gap setting).

Mode

This parameter determines whether a print gap detection operation is performed automatically. **Auto** is the default and if set, a gap detection process will be performed when:

- (1) the printer has been off but is now turned on, and a TOF is set;
- (2) the printer has been off but is now turned on, and a print run is started;
- (3) a Paper Out Fault has been cleared, and either the TOF is set or a print run is started;
- (4) the printer has been off but is now turned on, and a print gap adjustment is made using the Print Gap “+” or “-” keys.

If **Manual** is selected, a gap detection process will not be performed under the four conditions listed above. Instead, whenever the print gap set point must be applied, the print gap value stored in the current configuration will be used. The allowable adjustment range is 0 to 190. If the current configuration has an uninitialized gap value, the platen will move to the default value of 190.

Profile is the mode that must be set when using the Gap Zone feature.

Creating a Gap Zone Profile

A Gap Zone Profile is created automatically in four steps:

Step 1 – Load the Form

Load the form for which the profile will be generated; doublecheck the Top of Form position with *Form Length*.

Step 2 – Set Profile Mode

Set the *Mode Parameter* to **Profile**.

Step 3 – Create the Profile

Select the **Detect** parameter. Note that this operation will take approximately five to six minutes for an 11 inch form. Also note that the print gap detection operation will leave small dots imprinted on the form, so the sample form will have to be discarded.

If the printer is placed Online while in Print Gap Profile Mode, and a profile does not exist (i.e. the **Detect** function was not performed), then a **Profile Error** message will be displayed on the control panel.

Step 4 – Save the Profile

Once the Gap Zone Profile is created, you will probably want to save it for future use. By saving the Current Configuration into any of the ten saved printer configurations, the Gap Zone Profile is automatically saved along with the other configuration parameters. If it isn't saved, it will be lost when the printer is powered off.

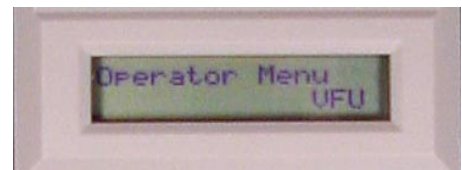
Also see page 2-30 on Creating a Gap Zone Profile, and page 2-31 for Using a Saved Gap Zone Profile.

Detect Distance

This parameter sets the vertical distance from the TOF to the position where the paper is squeezed during a Detect operation. The allowable range is 0 inches to the current form length, with increments in tenths of inches. The default value is 2.0 inches. The print gap is detected at a point away from the perforation in order to avoid false readings that could be caused by uneven areas around the perforation. The default distance of 2.0 inches is usually adequate unless there are forms anomalies (such as an attached card or an envelope window) in that area.

VFU Category (Vertical Format Units)

Use the Arrow and Enter keys to select Menu => Operator Menu => VFU to get here.



VFU Enable

A Vertical Format Unit is a means for loading sets of vertical tabs. These vertical tabs define various parameters of a form and apply only to the emulations which make explicit use of the VFU channels. Setting this to **Enabled** causes the printer to use the last loaded EVFU instead of using the Form Length, Top Margin, and Bottom Margin settings. When an EVFU is loaded, this parameter is automatically set to Enabled. The default is **Disabled**.

VT Channel (Vertical Tab Channel)

You can select which VFU Channel is designated as the **Vertical Tab** Channel. This parameter applies only to the emulations which make explicit use of the VFU channels. Options are 1 - 12 and Unused. The default depends on the emulation as defined in the table on page 3-57 under Ser/Par Emulation.

Skip When

This parameter applies only to the emulations which make explicit use of the VFU channels. It designates where the Skip Length distance will begin - before or after the Bottom of Form channel. The Skip location is determined by using the designated Bottom-of-Form Channel in the downloaded VFU. The Skip When only functions when the VFU Environment is Enabled. The default depends on the emulation as defined in the table on page 3-57 under Ser/Par Emulation.

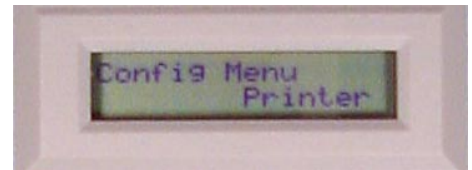
Config Menu

Following are explanations of each category and parameter in the Config Menu. For all available options under each parameter below, consult the Help Menu printout. The categories here are Printer, Codes, Graphics, Configurations, Serial I/O, Parallel I/O, IntelliFilter, and when the options are installed, Twinax/Coax and IPDS.



Printer Category

Use the Arrow and Enter keys to select Menu => Config Menu => Printer to get here.



Powerup

This parameter sets the printer either **Online** or **Offline** when the power switch is turned on. The default is Offline.

Ser/Par Emulation

This parameter allows you to define which set of printer control commands will be emulated for data received on the Serial and Parallel ports (except LAN-IPDS). **Tally ANSI** is the default selection.

When a new emulation setting is entered through the Printer Control Panel, emulation dependent parameters in the Current configuration are changed to match the default settings for the selected emulation. The following table lists those parameters by emulation:

Parameter	Tally ANSI	Genicom ANSI	P5000	P6000	P600
Character Set	Latin1	Code Pg 437	Code Pg 850	Latin1	Latin1
OCRA	ANSI	ANSI	ANSI	ANSI	ANSI
OCRB	ANSI	ANSI	ANSI	ANSI	ANSI
Auto CR	OFF	ON	ON	ON	OFF
LineWrap	OFF	ON	OFF	OFF	OFF
Wrap LF	OFF	ON	OFF	OFF	OFF
Code 7F	FILL	FILL	Space	Space	Space
VT Channel	2	12	N/A	12	12
SkipWhen	Before	Before	N/A	After	After

Parameter	HP 2564C	DEC LG01	Epson FX-1180	IBM Proprinter	MTPL
Character Set	Roman-8	DEC	Italic	Code Pg 437	Code Pg 437
OCR-A	ANSI	ANSI	ANSI	ANSI	ANSI
OCR-B	ANSI	DIN	ANSI	ANSI	ANSI
Auto CR	OFF	OFF	ON	ON	ON
LineWrap	OFF	OFF	ON	ON	ON
Wrap LF	OFF	OFF	ON	ON	ON
Code 7F	Fill	FILL	Delete Char	Ignore	Delete Buffer
VT Channel	12	12	N/A	N/A	N/A
SkipWhen	After	After	N/A	N/A	N/A

LAN Emulation (LAN Interface only)

This parameter is used to select the emulation attached to the Ethernet port when using the LANPlex interface. The options are the same as for the Ser/Par Emulation.

Twinax Emul (Twinax/Coax only)

This parameter is used to select the Twinax emulation when using the FourPlex interface. The options are IBM 4234, IBM 4210, and IBM 5225. The default is **IBM 4234**. The Coax emulation will always be IBM 4234.

Dump Mode

This parameter is used to troubleshoot problems that may arise when processing data. It places the printer into a Hex Dump Mode. You can select three styles of printouts for use as debugging tools. The selections are:

OFF: Dump Mode is disabled. (Default selection)

Style1: Two column output. Text, spaces, and control codes are printed in hexadecimal code format in one column and ASCII equivalents in another column.

Style2: Only control codes are printed in hexadecimal format. ASCII characters are printed as is and escape sequences force a new line.

Style3: Control codes and spaces are printed in hexadecimal format. ASCII characters are printed as is and escape sequences force a new line.

Twinax Interface

There is only one style for Twinax. It is similar to the Serial/Parallel Style 1, except the Hex codes are EBCDIC instead of ACSII.

Coax Interface

There is only one style for Coax. It is a unique dump mode that prints the contents of the PCIA buffer associated with each data buffer.

IPDS Option

If the IPDS option is installed, the dump from the IPDS data stream will be uniquely formatted regardless of the Dump Mode selection.

I/O HoldTime

This parameter allows you to set the amount of time the printer remains locked onto the I/O on which it is receiving data after data transmission stops. You can set this to be 5 - 600 seconds. Default is 30 seconds.

Report

Use this parameter to print or display a report of the following, using the arrow keys to cycle through the list of reports to the one that is needed. Pressing Enter will start the report printing:

Current Config: This produces a printed report of the current printer configuration. The report contains a header which identifies the installed software and interface, any options that are installed, and statistics for time powered on, time printing, and total lines printed.

All Configs: Produces a printed report of all the saved printer configurations. The report contains a header which identifies the installed software and interface, any options that are installed, and statistics for time powered on, time printing, and total lines printed.

Configs 1-10: Produces a printed report of any of the saved printer configurations. The report contains a header which identifies the installed software and interface, any options that are installed, and statistics for time powered on, time printing, and total lines printed.

Calibrations: Produces a printed report of the printer calibration settings. The report contains a header which identifies the installed software and interface, and statistics for time powered on, time printing, and total lines printed. The body of the report shows the values of the current sensor and print timing calibrations. It also contains a report of the Ribbon Monitor status.

Ribbon Count: Displays the number of characters printed since the ribbon count was last reset.

Last Fault: Displays the last fault message on the control panel display.

Fault Log: Displays the fault log on the control panel display.

Version: Displays the version numbers of the installed software on the control panel display.

IntelliFilter: Prints the currently downloaded IntelliFilter.

Beeper Mode

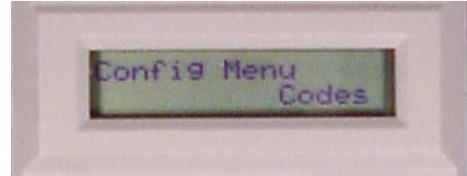
When a fault event occurs, the beeper will sound. There are two options: Single or Persistent. In the Single mode, each fault event will cause the fault alert beeper to produce just one short-duration audio tone and then to remain silent. In the Persistent mode, a fault event will cause the fault alert beeper to periodically produce a short-duration audio tone that cycles approximately once per second and will persist until the operator clears the fault.

Beeper Volume

Here the user selects the loudness of the audio tone produced by the fault alert beeper. The options are Silent, Low, Medium – the default, or High. Pressing the Enter key will produce a short sample tone that corresponds to the option selected.

Codes Category

In this category are choices that allow you to determine the printer's response to certain conditions and to assign values to parameters that are used by other commands or escape sequences. Use the Arrow and Enter keys to select Menu => Config Menu => Codes to get here.



For the IPDS Emulation, these options have no function.

Auto LF (Line Feed)

Auto LF causes the printer to perform a Line Feed each time it receives a Carriage Return Control Code. This option is available for host systems that cannot send a Line Feed Control Code.

Some computers automatically generate a Line Feed of their own at the right margin. If your system does this and if Auto LF is enabled, it will result in a double-space between lines of print. Consult your computer manual to determine whether this function should be turned off or on. Default is OFF.

Auto CR (Carriage Return)

Auto CR allows the printer to perform a Carriage Return (moves print location to the left margin) when it receives either a Line Feed or Vertical Tab Control Code. The default value is dependent on the emulation (see the list on page 3-59 under Ser/Par Emul).

Line Wrap

If the printer gets to the right margin without receiving a paper movement command, the Line Wrap parameter dictates how the rest of the data will be treated. If Line Wrap is OFF the excess characters are lost. If Line Wrap is ON, printer response is determined by the Wrap Line Feed (see below).



If Line Wrap is ON and Wrap LF is OFF, the printer performs a Carriage Return only and overprinting can result.

If Line Wrap is ON and Wrap LF is ON, the printer performs a Carriage Return plus a Line Feed and excess characters are printed on a new line at the left margin.

The default value is dependent on the emulation (see the list on page 3-59 under Ser/Par Emul).

Wrap Line Feed

This parameter works in conjunction with the Line Wrap parameter above. The default value is dependent on the emulation (see the list on page 3-59 under Ser/Par Emul).

Print on CR

This parameter is intended for use by customers whose applications embolden characters by using a CR-only method to selectively reprint all or parts of a line.

- Off: Ignore bolding, print as regular text (Default setting)
- Double Strike: Print line, then backup to reprint (bold by overstriking)
- Bold: Print line once, bold portions printed with enhanced "bold" style

For example, the application may embolden the word "bold" in a sentence by sending (^ marks a space) the following:

```
This is bold<CR>^^^^^^^bold<CR><LF>
```

With "Double Strike" selected, bolding is accomplished by re-striking the characters at the same dot positions. This requires a 1-line backup after printing each <CR> pass; some applications use many passes to print a single bolded line, so printing throughput may be reduced accordingly.

With "Bold" selected, bolding is accomplished by rendering the bolded characters twice, one with a small offset to create a "shadow" effect. The resulting print is thicker and thus appears darker. This is the same technique used with the "bold" character attribute selected via emulation escape sequences.

Form Feed at TOF

This dictates how the printer will respond to a Form Feed Control Code received from the host computer when it is already at a top-of-form location. If set to Disabled, the printer ignores the Form Feed Control Code sent from the host. If set to Enabled (default selection) the printer performs the requested form feed and advances to the next top-of-form.

ESC

This parameter is valid only in the Tally ANSI and LG emulations. When set to Disabled, the ESC control character is ignored. The default is Enabled.

Alt ESC (Alternate Escape)

This parameter is only valid in the Tally ANSI and LG emulations. When set to Enabled, a "^" (carat) character in column 1 (left margin) followed by a CR or a CR LF can be used in place of the ESC control code. The default is Disabled. ESC (see above) must also be Enabled for this to work.

Upper Only

This parameter allows you to set up your printer to print in uppercase characters only from the active Character Set. When this parameter is enabled, the lowercase characters in Hex positions 61 through 7A are overwritten by the uppercase characters in positions 41 through 5A. The default selection is **Disabled**.

Code 7F

This parameter allows you to dictate how the printer will react when it receives a Hexadecimal code 7F. The default value depends on the emulation. (See the Emulation Parameter, presented earlier in this chapter.)

Ignore:	The code is ignored.
Delete Char:	The previous character is deleted.
Delete Buffer:	The previous characters on the current print line are deleted.
Space:	A Space character is substituted.
Fill:	A Fill character is substituted.

Print 80 - 9F Hex

This parameter defines whether locations 80 through 9F Hex are to be treated as control characters or printable characters. The function of the control characters in this area depends on the emulation. The options are ON (printable characters) – the default, or OFF (control characters).

Ignore Char

This parameter allows you to select a character that will be ignored in the incoming data stream. Ignore Char functions in all emulations and non-downloadable print modes. It does not function in plot mode, font download, or VFU download. Options are 0-255, referring to the decimal value of any 8-bit character, or OFF. Default is OFF.

Sub Char From

This parameter allows you to select a character that will be replaced by the character designated by the Sub Char To parameter. It functions in all emulations and non-downloadable print modes. It does not function in plot mode, font download, or VFU download. Default is OFF.

Sub Char To

This parameter allows you to select the character that will replace the character designated by Sub Char From. It functions in all emulations and non-downloadable print modes. It does not function in plot mode, font download, or VFU download. Default is OFF.

PTX SFCC (Only affects the Printronix P5000 emulation)

Defines the Special Function Control Character used by the Printronix P5000 emulation. The decimal value of the ASCII character code is entered. The default value is 1 (SOH).

PTX ALS (Only affects the Printronix P5000 emulation)

Defines the single line Alternate Line Spacing used by the ACK (Hex 06) command in the Printronix P5000 emulation. The options are 8 or 10.3 which define the line density. The default value is 8.

TOF Control (Available when Genicom ANSI emulation is selected)

When a new form is defined, the top-of-form position is left unchanged if this parameter is **Enabled** (the default). When a new form is defined, and this parameter is **Disabled**, the top-of-form position is reset to the top margin of that form.

DC3 Operation (Available when Genicom ANSI emulation is selected)

This parameter allows DC1 - DC3 operation. When **Enabled** (default), the printer can be selected and deselected using DC1 and DC3 control codes. The printer select/deselect operation is not in effect when **Disabled**.

SISO OverszBar (Available when Genicom ANSI emulation is selected)

This parameter allows SI-SO operation for bar codes and oversize characters. When **Disabled** (default), bar code and oversize character modes do not need to be activated with SO and deactivated with SI. When **Enabled**, bar code and oversize character modes will be activated and deactivated using the SO and SI control codes.

BarcodTop Pos (Available when Genicom ANSI emulation is selected)

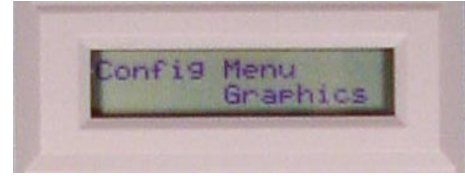
When **Enabled** (default), the paper position is reset to the top of the bar code after printing. When **Disabled**, the paper position is left at the end of the bar code after printing.

OverszTop Pos (Available when Genicom ANSI emulation is selected)

The paper position will be reset to the top of the oversize characters after printing when this parameter is **Enabled** (default). When **Disabled**, the paper position is left at the end of the oversize characters after printing.

Graphics Category

This category allows you to configure certain aspects of the Graphic Processing Options on your printer. Use the Arrow and Enter keys to select Menu => Config Menu => Graphics to get here.



Code V Cmd Char

This parameter allows you to change the CVCC. The Default is the ASCII caret (^, Decimal 94, HEX 5E) character.

Smooth Size

This parameter controls the size at which block characters are “smoothed.” The default is 3, which means that size 3 block characters will be smoothed, but size 2 block characters will not. This parameter is used by Code V and PGL.

PY Then

This parameter defines printer response to characters following the ^PY Command on the same line.

- None: All data, plus the line terminator are ignored (default)
- All: All data is executed
- Term: All but the terminator is ignored
- Free Format: Depends on the state for Free Format Mode

PN Then

This parameter defines printer response to characters following the ^PN Command on the same line.

- None: All data plus the line terminator, are ignored (default)
- All: All data is executed
- Free Format: Depends on the state for Free Format Mode



For PY Then and PN Then: Even though Code V documentation states that all other data on the line is ignored, some Code V installations do not follow this rule.

Dark Bar

This allows you to set the base dot density at which bar codes will print. Low, Medium, or High. Default is Low .

All bar codes will print at the selected density unless the user program requests a higher density. When the user program requests a higher density, the printer will switch to the next higher density than the base density. The following table shows the density selections and how they change when the printer receives a program request for a higher density than is selected:

Table 3 - 2. Bar Code Dot Density

DarkBar Selection	"Normal" Mode	"Dark" Mode
Low (Default)	60 x 72	60 (120) x 144
Medium	60(120) x 144	120 x 144
High	120 x 144	120 x 144

Modplot

This parameter eliminates the need to send an **Align to Line Boundary** Command (Tally ANSI) or an extra **Line Feed (LF)** Control Code (Printronix) when exiting Plot Mode. Whenever you are using Plot Mode in these emulations, set this parameter to **ON** to avoid graphic and text alignment problems. (Modplot ON is the Default selection.) In addition to Code V and PGL graphics, this parameter also applies to Tally ANSI and Printronix style graphics. It does not apply to text following Epson or Proprinter graphics.

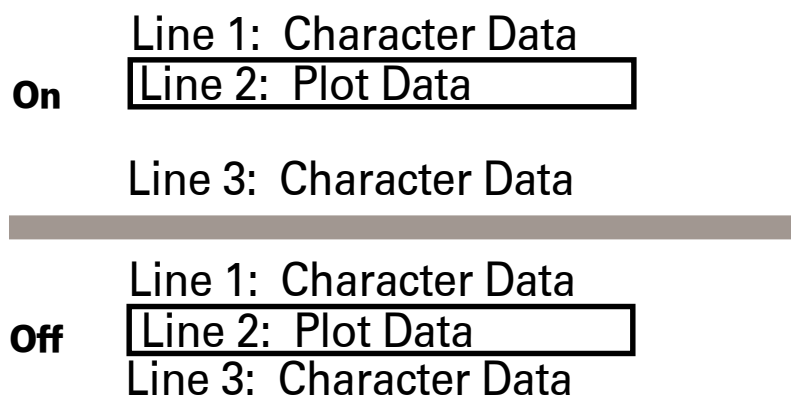


Figure 3 - 4. Modplot Example

Version

This parameter controls the version of Code V the printer emulates. Version 2 is the default.

Descender

This parameter controls insertion of the character descender gap between print lines.

Fixed: The descender gap is always inserted after the line whenever Descender Mode is ON regardless of whether descenders are present or not. (Default)

Auto: The descender gap is only inserted after lines containing characters with descenders.

Vertical Scale

This parameter determines whether vertical block characters will be scaled to the same dimensions as horizontal block characters. Style 1 is the default.

- Style 1: Adds intercharacter gap after the character has been rotated.
- Style 2: Does not add gap
- Off: Vertical block characters will be compressed vertically due to the higher vertical density (72 DPI vs. 60 DPI).

Zero

As an aid in distinguishing zeros from the uppercase letter O you can choose to have your zeros slashed (Ø). Slashed is the default. Zero is used by code V and PGL.

SFCC

This parameter allows you to change the Special Function Command Character. The Default for this parameter is the ASCII tilde (~, Decimal 126, HEX 7E) character. Options are 1–255 (Decimal designators for ASCII characters)

Code V Language

This parameter allows you to select the language character set that will be used for text output in Code V Graphics Mode. The default is US. The available selections are:

US	UK	Swedish/Finish
Norwegian/Dan	Japanese	German
French	Italian	Spanish

PGL Language

This parameter allows you to select the language character set that will be used for text output in Printronix Graphics Mode. The default is ASCII. The available options are:

ASCII	German	Swedish
Danish	Norwegian	Finnish
English	Dutch	French
Spanish	Italian	Turkish

Free Format

This turns on Free Format Mode in Code V graphics whenever a ^PY is encountered. Free Format will remain active until a ^PN or ^O (Free Format Mode Off) command is received. The default is Off.

Automatic PY

If Automatic PY is Enabled, the printer is automatically in Code V graphics mode, and a ^PY command is not needed in the file being sent to the printer to begin Code V graphics. The default is Disabled.

MTPL Bar (only in MTPL emulation)

Setting this parameter will print out barcodes for MTPL. Otherwise, the sequences will be printed as text only. The options are ON and OFF, with the default being OFF. This parameter only affects the MTPL emulation.

Secured (only in MTPL emulation)

In secured mode (ON), normal text characters can be printed to the right or left of barcodes. In unsecured mode (OFF), it is not possible to print more than one line with normal characters in the bar code line. The default is ON. This parameter only affects the MTPL emulation.

IGP Terminator

This selects the Terminator for IGP. When set to CR, all IGP commands are required to be terminated with a carriage return. When set to CR/LF, all IGP commands are required to be terminated with a carriage return and line feed.

BlkMaxH

BlkMaxV

BlkMinH

BlkMinV

These four parameters provide the ability to create block characters using FreeType fonts. However, the user may find that very small FreeType characters are not legible, and very large FreeType characters may print too slowly. These four allow the user to select the minimum and maximum horizontal and vertical size of block characters that will be generated using the FreeType characters.

The size may be adjusted incrementally from 0 to 136.

If the size of the characters being generated is smaller than the minimum or larger than the maximum size specified, the old block characters will be used.

Postnet Density

Determines whether POSTNET bar codes are printed in Low Density (72 DPI) or High Density (144 DPI). Low Density is the default. POSTNET bar codes printed in High Density will print at half the speed of Low Density.

PGL Terminator

Determines whether or not a CR-LF terminator for PGL commands will cause a line feed to occur.

CR: Will allow line feeds which follow the carriage return to be executed.

Example: `~EXECUTE;TEST<cr><lf>`
`<cr><lf>`
`~NORMAL<cr><lf>`

The above example would execute three line feeds following the job EXAMPLE.

CR-LF: Will NOT execute line feeds following a carriage return. In the above example, the LFs would not execute. This is the default.

Ignore Term

Determines whether or not a line feed following the CR terminator, an SFOFF, or an IGOFF command will cause a line feed to occur. There are two options: Enabled (usually the default), and Disabled (the default for Genicom ANSI).

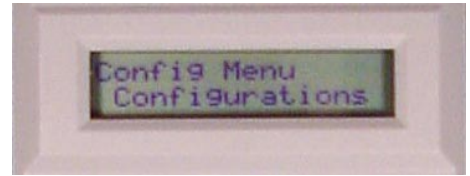
Disabled: A LF following the CR terminator, SFOFF, or IGOFF command will execute.

Example: ~SFOFF<cr><lf>
~IGOFF<cr><lf>

Enable: A LF following the CR terminator in the above example will not execute.

Configurations Category

The 6300 Series printer can save up to ten personalized configurations, so you don't have to recreate configurations you use frequently. In addition, each configuration you save can be tagged with a label of up to 15 characters. When you first receive your printer, each label is a generic "CONFIG" followed by a number 1 through 10. Use the Arrow and Enter keys to select Menu => Config Menu => Configurations to get here.



Save

If you have a configuration you are going to use multiple times, you may want to save it. You use SAVE to do so.

How to Save Configurations:

- Set up all the various printer parameters the way you want them.
- Make sure the printer is Offline by pressing the Online key until the green light goes off and Offline appears in the LCD
- Press the Menu key.
- Use the Up or Down Arrow keys to find the Config menu, and press Enter.
- Use the Up or Down Arrow keys to find Configurations. Scroll through the list of configurations. If you have not labeled them they will be listed as CONFIG 1 - CONFIG 10. Press Enter to save your configuration into any of these slots.

Next time you want to use this configuration, use LOAD.

Load

You will use this parameter to load any of your saved configurations into the Current Configuration. Use the Load parameter to choose the configurations you've previously saved.

Powerup Config

You will use this parameter to designate any of the saved configurations as the configuration that is loaded when the printer powers up. Scroll through the Powerup Config list of configurations to select the configuration you want to use, then press Enter. The default Powerup Config is CONFIG1.

Config n Label - (where n = 1 to 10)

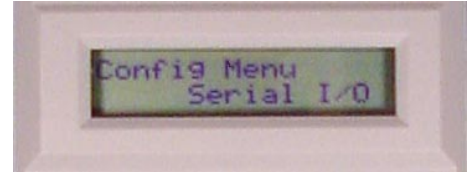
You may want to call your configurations something more intuitive than CONFIGS 1 through 10. This is used to set 15-character labels for each configuration slot.

How to label a configuration slot

- Make sure the printer is Offline.
- Press the Menu key to enter Menu mode.
- Use the Up and Down Arrow keys to get to the Config menu, and then press Enter.
- Use the Up and Down Arrow keys until the display reads Configurations, then press Enter.
- Use the Up and Down Arrow keys until you see Config n label, where n is the number of the configuration you want to label (1-10). Press Enter.
- A cursor appears underneath the first letter (C). Use the Up and Down Arrow keys to scroll to the number or letter you want to use. Repeat for up to 15 characters, pressing Enter after each letter. You must press Enter 15 times even if your label is shorter.
- Press Clear or Menu to save it. Now, when you use SAVE or LOAD, this configuration name appears in the slot you've chosen.

Serial I/O Category

Serial Interface is a style of host computer-to-printer I/O communications. It requires certain parameters to be properly set in order for the printer and host computer to communicate. Use the Arrow and Enter keys to select Menu => Config Menu => Serial I/O to get here.



Baud

The Baud parameter allows the user to set up the printer to receive data at different transmission speeds. *The baud rate must be the same value at both ends of the communication line.* 9600 is the default.

Data Bits

You can choose the number of data bits per byte. 8 bits is the default.

Stop Bits

This parameter sets the number of serial stop bits. 1 is the default.

Parity

Parity is a method the printer uses to verify that each byte of data it receives is exactly what the host computer transmitted. When selected, it keeps track of the number of high bits in each byte (either odd or even). Default is None. *The printer must match the parity of the host computer.*

8th Bit

If 8 bits per byte is selected under Data Bits above, you use this parameter to determine how the 8th bit is to be used. If this bit is to be ignored, the parameter should be set to **Unused**. If the bit is to be used, the parameter should be set to **Data**. Data is the default, used for 8-bit characters.

Protocol

The printer and host computer must establish common signals, understood by both units, for indicating when to send new data and when to stop sending data. For IPDS, this parameter allows the serial protocol to be set to either Ready/Busy or XON/XOFF. For all other printers, there are six additional block mode protocols. The eight protocols are:

Ready/Busy	(Default selection)
Xon/Xoff	
and six Block Mode protocols:	
Enq/Ack	(Enquiry/Acknowledge)
Etx/Ack	(End of Text/Acknowledge)
Etx/Ack/Nak	(End of Text/Acknowledge/Neg. Acknowledge)
Ack/Nak	(Acknowledge/Negative Acknowledge)
Xon/off/Etx/Ack	(XON/XOFF/End of Text/Acknowledge)
Xon/off/Enq/Ack	(XON/XOFF/Enquiry/Acknowledge)

The above protocols are explained in detail in the Applications Manual.

Status Enquiry

When this parameter is enabled, the host may send an enquiry packet to the printer requesting status. The printer will then send back a 1 byte packet denoting the status of the printer. If this option is set to **OFF** (the default), no packet will be sent back. The Status Enquiry feature may be enabled in conjunction with any other protocol. When enabled and the host sends an ENQ character, the printer responds by sending a printer status byte. The status byte is designed to be a printable code and is the only printable code the printer can transmit.

The bit pattern is as follows:

Bit	Meaning/Value
7	Parity if 7 bit data and parity enabled (MSB)
6	Always a 1
5	1 if Data Overrun
4	Always a 0
3	1 if Parity Error
2	1 if Paper System Error or Platen Open
1	1 if Offline
0	1 if Busy (fault or buffer full) (LSB)

The Status Enquiry Feature is slightly different when the current emulation is the HP2564C. Instead of responding to the ENQ character, the printer will respond to the ESC ? DC1 sequence. The bit pattern of the status response is as follows:

Bit	Meaning/Value
7	Parity if 7 bit data and parity enabled (MSB)
6	Always a 0
5	Always a 1
4	Always a 1
3	0 if Parity Error, Data Overrun, or Buffer Overflow
2	1 if Offline
1	1 if Busy (fault or buffer full)
0	1 if Paper System Error or Platen Open (LSB)

DTR Function

This parameter allows the user to change the operation of the Data Terminal Ready (DTR) line on the printer interface. The DTR line is used to indicate printer status to the host computer.

Busy (Default): In this mode the DTR line is used to signal the host to stop sending data because the printer buffer is 85% full. However, some cabling systems require the DTR Line of the printer to be configured differently. This cabling scheme can interfere with printer transmission or host reception of the Xoff signal when using the Xon/Xoff Serial Protocol. This situation can result in Buffer Overflow and Data Overrun situations and loss of data.

DTR Function continued...

Offline: When this option is active, the DTR Line is used to signal only that the printer is Online or Offline. Unlike the Busy option, the Offline option will not interfere with operation of the Xon/Xoff Communication Protocol.

Power: When this option is active, the DTR Line is used to signal the host that the printer is powered up. This DTR Selection will not interfere with host reception of the Xoff/Xon Serial Protocol, because unlike the Busy selection, the DTR Signal is not toggled at the same time as the Xoff Signal. When using this option, the DTR Polarity parameter must be set to Actv Hi.



If your system is configured to use Xon/Xoff Protocol, using the Busy option above will cause interference with printer to host communication. You may however, use the DTR Line to signal the host that the printer is Offline or that the printer is powered up (Offline and Power options, respectively).

DTR Polarity

This parameter is used to set the DTR Signal polarity. Active Low is the default.

Busy Polarity

This parameter allows you to control the polarity of the Busy Signal. Active Low is the default.

RTS Function

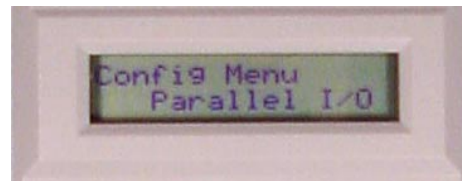
The RTS line of the serial interface has been used to indicate Busy in addition to the DTR line. This option allows the RTS line to either be continuously High or to function as Busy (default).

Robust Xon

This parameter behaves the same as a normal Xon/Xoff protocol, except that with this parameter enabled, the Xon code will be sent every 5 seconds when the printer is ready to accept data. OFF is the default.

Parallel I/O Category

The **Parallel** Category on your printer has three parameters that can be changed according to user needs. Use the Arrow and Enter keys to select Menu ⇒ Config Menu ⇒ Parallel I/O to get here.



POPC (Print On Paper Command)

The POPC parameter can be set up so that each time a paper advance command is received (such as a Line Feed, Form Feed, or Vertical Tab), any data currently held in the buffer will be printed before the command is carried out. The default is On.

8th Bit

The 8th Bit can serve several functions, depending on the software manufacturer. Check your software manual for information concerning the functions of this bit. Data is the default.

Bi-Directional

This parameter controls the bidirectional operation of the Parallel interface. The default selection is On (enabled).

When ON, the Parallel interface operates in IEEE-1284 Bidirectional Nibble Mode. This mode enables features dependent on bidirectional “reverse channel” communication via the parallel port, such as HP PjL Status and Windows Plug-n-Play. Note that the host computer or print server attached to the parallel port must be configured to use IEEE-1284 Nibble Mode, otherwise it may not function correctly with your printer. ECP Mode is not compatible with Nibble Mode.

When OFF, the Parallel interface operates in the Centronics Compatibility Mode (“standard” mode). This mode does not support bidirectional communication. If there are parallel interface compatibility problems between the host computer and the printer, setting Bi-Directional = OFF may resolve the problem.

Intellifilter Category

Use the Arrow and Enter keys to select Menu => Config Menu => Intellifilter to get here.



Intellifilter is a programmable feature, standard on TallyGenicom line printers. Without having to touch an otherwise well-working host system, Intellifilter permits users to free their systems from hard coded dependence on a specific printer that is no longer maintainable, or able to meet the demands of the application.

Serial

Parallel

Twinax/Coax

LAN

These four parameters can be set to either Enable or Disable the IntelliFilter on their respective ports.

File Management

Selecting **Download**, places the printer in the IntelliFilter download mode. **Delete** will delete the currently downloaded IntelliFilter.

Use the Arrow and Enter keys to select Menu => Config Menu => Printer => Report => IntelliFilter to print the currently downloaded IntelliFilter.

Twinax/Coax Category

Use the Arrow and Enter keys to select Menu => Config Menu => Twinax/Coax to get here.



Send PA (Coax Only)

There are two options for this parameter, PA1 and PA2. These options only have meaning when the printer is in the SCS Mode. If they are selected while the printer is in non SCS Mode, the Invalid Key error message will display briefly. These options perform special functions that change from one software application to another. Selecting one of these options while the printer is operating in SCS Mode causes the printer to:

- Display status code PA1 Key (61) or PA2 Key (62)
- Send an attention response to the host computer.
- Send a special operator request to the application program and wait for a response back.

Certain application programs may ask you to select the PA1 or PA2 option in this category. In this situation:

- The printer display will read Enter PA Key (63).
- The audible alarm beeps continuously.
- The host opens a 10 minute "window" for one of the PA options to be selected. If the correct PA option is not selected during this time, the display clears, the audible alarm stops, and the printer sends a No PA Key message to the host computer. The effect of this message is application-dependent. Depressing the Online/Offline key clears this condition.

Address (Twinax Only)

Sets the Twinax device address for the printer. The default is Undefined.

SPD (Coax Only)

When set to Disabled, this parameter causes the host Set Print Density command to be ignored. This is used to prevent the host from overriding control panel CPI settings. Default is Enabled.

SCD (Twinax Only)

When set to Disabled, this parameter causes the host Set Character Density command to be ignored. This is used to prevent the host from overriding control panel CPI settings. Default is Enabled.

IPDS: This option is not available.

SLD

When this parameter is set to Disabled, the host Set Line Density command is ignored. This prevents the host from overriding control panel LPI settings. The default is Enabled.

IPDS: This option is not available.

Host Font Style (Twinax Only)

When you set this parameter to Disabled, the host Page Presentation Media command is ignored. This is used when you want to prevent the host from overriding control panel Font Style settings. The default is Enabled.

IPDS: This option is not available.

Screen Size (Screen) (Coax Only)

The parameter allows you to set the screen size for the Coax screen copy function (in non SCS Mode only). The default is 1920.

Case (Coax Only)

If you set this parameter to Mono, all uppercase characters print. In Dual mode, upper and lower case characters print. This parameter applies in non SCS mode only. The default is Dual.

Compatibility Switches (Coax Only)

The compatibility switch settings define how the printer responds to Form Feed (FF), Carriage Return (CR), and New Line (NL - Carriage Return plus Line Feed) codes. The function of some of these switches depends on the end of buffer or printing past the right margin. This parameter applies to non SCS mode only. All compatibility switches default to OFF.

Comp Switch 1

This switch determines the printer response to a CR Command located at the right margin plus one character position. If OFF, the printer performs only a CR and starts printing over the same line again without advancing the paper. If ON, the printer performs an NL function, then begins printing.

Comp Switch 2

This switch determines the printer response to an NL command located at the maximum print position plus one character position. If OFF, the printer performs an NL function. If ON, the printer performs two NL functions.

Comp Switch 3

This switch determines whether or not a space is inserted at the beginning of the first print line on each form. This switch works in conjunction with Comp Switch 6, which determines how the printer responds to an FF command. If OFF, the printer performs the FF and a Space function. Printing starts one space in from the left margin on the first line of the next form.

Comp Switch 4

The settings of this switch are functional only if Comp Switch 7 is set to OFF. Comp Switch 4 determines printer response to an FF command located at the end of a buffer. If OFF, the printer performs an FF only. The new print location is the first print position on the next form. If ON, the printer performs an FF plus an NL. The print location is the first print position plus one line.

Comp Switch 5

This switch determines the printer response to formatted print lines composed entirely of unprintable characters (such as Control and Format commands). If OFF, and the Ignore bit in the PCIA is ON, the line is not printed and no NL function is performed. If ON, the printer prints a blank line in response to a line of unprintable characters and performs an NL function.

Comp Switch 6

This switch determines the printer response to an FF command according to where it is located in the data stream. If OFF, the printer performs an FF function only if the FF command is at the first print position or at the right margin plus one column. FF commands at any other location are treated as blanks. If ON, the printer recognizes FF commands any time they are part of a data stream.

Comp Switch 7

This switch determines printer response to an FF command and works in conjunction with Comp Switch 4. If OFF, and the FF command is the last byte in a print order, the printer responds according to how Comp Switch 4 is set. If the FF command is not the last byte in the print data and the current print position is not already at Column 1, the printer performs an NL function at the end of the print job. If ON, the printer performs an FF function after each print job if the print position is not at the top of form.

Comp Switch 8

This switch determines the printer response to a FF command in conjunction with Compatability Switch 7. The default is OFF.

- OFF After all the data in a print job has been printed, a NL or a FF command is performed according to the setting of Compatability Switch 7.
- ON The printer performs a FF function after an operator-initiated local copy (e.g., a Print Screen Command from the operator). This switch overrides Compatability Switch 7 when it is turned on.

IR Delay (Coax Only)

This parameter defines the delay from the time a fault is reported on the printer control panel until it is reported to the host. This is used primarily to allow you to change paper before the host cancels the print job. The default is 10 minutes.

Hex Passthrough

When you set this parameter to On, the printer translates certain EBCDIC character streams into ASCII escape sequence commands, and executes the commands. Details can be found in the Twinax / Coax Applications Manual. Default is off.

IPDS: This option is not available.

EPC

The Early Print Complete parameter allows you to set up the printer data buffering scheme to emulate the 4234 data-handling characteristics. When this parameter is set to Off (the default), the printer emulates the buffering scheme of the IBM 4234 printer, which results in standard IBM 4234 error handling. The printer notifies the host after it is finished processing the print buffer and is ready to accept more data. Then the host sends another buffer of up to 4K of data. This processing mode causes short pauses during the printing process due to the wait between notifying the host and the host sending the next buffer.

When this parameter is set to On, the printer notifies the host before it is finished processing the print buffer. This allows faster processing because the text buffer is sent by the host before the current buffer is fully processed and there is no delay between processing one buffer and the next buffer. This processing mode speeds up data handling but may result in slightly different error handling.

GrAVM (Graphics AVM)

The Graphics AVM panel menu setup option only applies to the manner in which the Twinax AVM command is handled within a Code V, PGL, or Hex Pass-Through graphics job.

A Tx/Cx Absolute Vertical Move (AVM) command moves the current print position vertically (forward only) to a line number specified by the command without changing the horizontal print position. When the line number is less than the current line position the line is moved to the appropriate line position on the next page. When the line number is greater than the number of lines in the page (form length) an invalid range parameter errors. TallyGenicom provides two responses to the AVM command.

- Style 1: The print position moves forward, relative to the last text item or paper-move command that preceded the AVM command. The new line position is calculated by subtracting the height (in lines) of any graphic items preceding the AVM, from the line number specified in the AVM command. This style is intended for compatibility with printers that use an external or non-integrated Twinax interface. This is the default setting.
- Style 2: The print position moves forward to the exact line number specified by the AVM command. The presence or absence of graphic items preceding the AVM does not affect the position of text and/or graphics following the AVM.

IPDS Category (IPDS Only)

Use the Arrow and Enter keys to select Menu => Config Menu => IPDS to get here.



Address (Twinax Only)

This parameter sets the Twinax IPDS device address for the printer. This feature allows the IPDS emulation to reside at a different address than the standard Twinax SCS emulation, hence providing two virtual Twinax printers. The default is Undefined.

Density

This parameter defines the dot density of the IPDS output. Low is 60x72, and High is 144x144. Medium (120x144) is the default.

Dark Bar

This parameter has three possible settings: Low, Medium, and High, with the default being Low. This affects the print density (and print speed) of bar codes selected through any emulation of graphics language as follows: Low (60x72), Medium (120 half spaced x 144), and High (120 full spaced x 144). This feature also works in conjunction with the selection of bar code density used by Code V and PGL (Normal vs. Dark). The densities will be set based on the previous Dark Bar selection table.

Smooth Size

This parameter defines the character size at which the block character smoothing algorithm is invoked. The default is 3, which means size 3 block characters will be smoothed, but size 2 block characters will not.

Zero

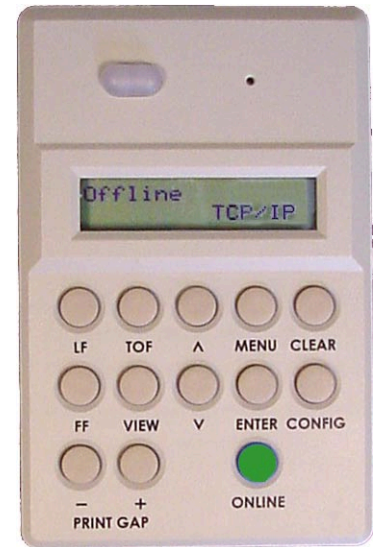
Provides for the printing of open or slashed zero block character. Default is slashed.

Host Override

The Host Override parameter gives you the option of allowing the host to control DPI for Graphics and Bar Codes or to control Graphics and Bar Code Density through the Control Panel. When Host Override is On, the host controls Graphic and Bar Code DPI with the Execute Order Anystate (XOA) command and Print Quality Control (PQC) Subcommand. When Host Override is Off, Graphics and Bar Code DPI is controlled through the Control Panel settings for Density and DarkBar parameters. The default is On.

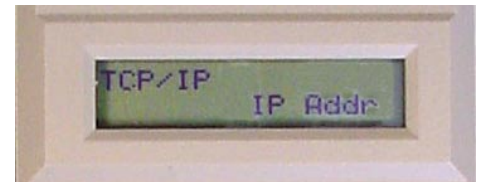
TCP/IP Menu (LAN Interface Only)

The TCP/IP Menu only appears if a TCP/IP LAN network interface card is installed in the printer.



IP Addr Category

This lets you to set up the four OCTETS of the IP Address. Use the Arrow and Enter keys to select Menu => TCP/IP => IP Addr to get here.



<u>Parameter</u>	<u>Option</u>
IP OCTET 1	0-255
IP OCTET 2	0-255
IP OCTET 3	0-255
IP OCTET 4	0-255

Gateway Category

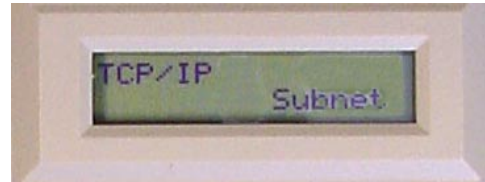
This lets you to set the four OCTETS of the Gateway. Use the Arrow and Enter keys to select Menu => TCP/IP => Gateway to get here.



<u>Parameter</u>	<u>Option</u>
IP OCTET 1	0-255
IP OCTET 2	0-255
IP OCTET 3	0-255
IP OCTET 4	0-255

Subnet Category

This option allows you to set up the four OCTETS of the Subnet mask. Use the Arrow and Enter keys to select Menu => TCP/IP => Subnet to get here.



<u>Parameter</u>	<u>Option</u>
IP OCTET 1	0-255
IP OCTET 2	0-255
IP OCTET 3	0-255
IP OCTET 4	0-255

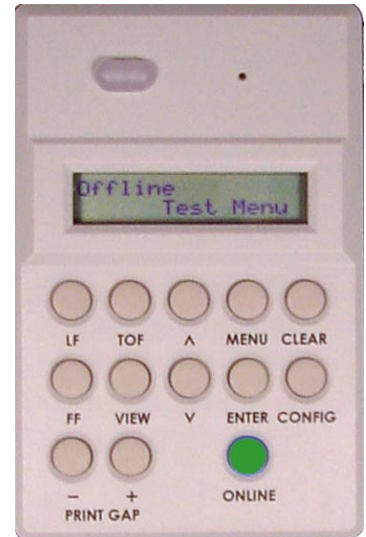


Make sure that the LAN cable is attached when the printer is powered on. If it is not, attach the cable and cycle power on the printer.

Test Menu

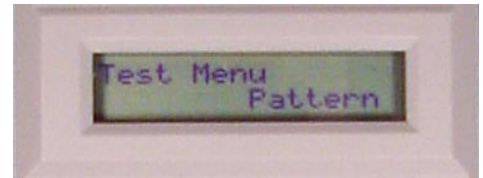
In **TEST** Menu you will find diagnostic test print patterns used to check printer functions and a parameter that allows you to control paper motion sensing.

Use the Up and Down Arrow keys to scroll to the desired selection.



Pattern Category

The Pattern Category has a series of printer self-tests which have predefined patterns used to test the basic printer functions. Selection of the patterns is done by scrolling with the Up or Down Arrow keys to the desired option, and pressing the Enter key. The test begins based on the current margins and font information selected. All of the panel keys are disabled while the test is running except for the View key and the Enter and Clear keys, which terminate the test. Once the test is terminated, all of the keys are activated. Use the Arrow and Enter keys to select Menu ⇒ Test Menu ⇒ Pattern to get here.

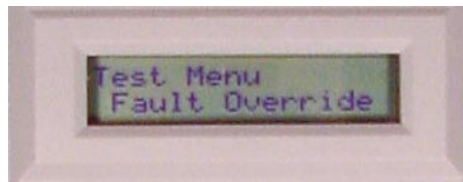


Print

<u>Option</u>	<u>Prints</u>
Upper	Rolling ASCII characters between 0x20 and 0x5E
All Characters	All characters from the available character sets
63/69	63 uppercase characters followed by 69 spaces.
ECMA	A pattern specified by the European Computer Manufacturers Association. Used for acoustic testing.
Columns	Number of columns on the line, based on margin distances.
Test Page	Pressing Enter when this option is displayed will print a test page.

Fault Override Category

This category deals with the configuration of fault information from the Engine Manager and the Control Processor. If the option is set to On, then the fault is overridden and won't be reported on the panel. If the option is set to Off, then the override is disabled and the fault is reported if it occurs. Use the Arrow and Enter keys to select Menu ⇒ Test Menu ⇒ Fault Override to get here.



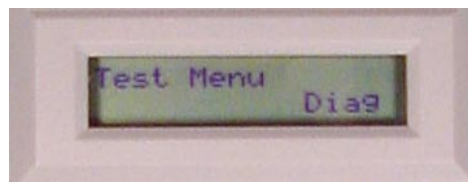
Paper Motion

This parameter controls paper motion fault reporting status. This setting is saved in NVRAM so that it does not need to be set up on powerup each time.

Automatic Paper Motion Fault Retry is a feature that has been implemented to eliminate intermittent false paper motion faults. When a paper motion fault is detected while printing is in progress, the paper is reversed approximately 3 inches, then moved forward again. If the paper motion fault persists, the printer is placed offline and the fault is reported. This feature can eliminate false paper motion faults caused by random electrical noise or paper chads/dust that can be removed by the paper reversal.

Diag Category

This is a diagnostics and calibration category. Use the Arrow and Enter keys to select Menu ⇒ Test Menu ⇒ Diag to get here.



Cal-Paper (Calibrate Paper Out)

This parameter allows users to calibrate the paper-out detection sensor if the factory default settings fail to detect when the paper really is out, or when false paper-out faults occur. Pressing Enter will initiate a series of messages instructing the operator to calibrate the detection sensor:

- Remove the paper from the printer, close the tractor door, and press Enter. A numeric value will be displayed briefly. A new message appears instructing the user to load the printer with paper.
- Press Enter. A new numeric value is displayed briefly, ending the calibration sequence.

Help Menu

There are no categories in this menu. Its purpose is to allow the user to print out a list of all of the selected options in a single report. See page 3-45 for how to do this.



This graphic summarizes navigation through the menus, categories, and options of the control panel.

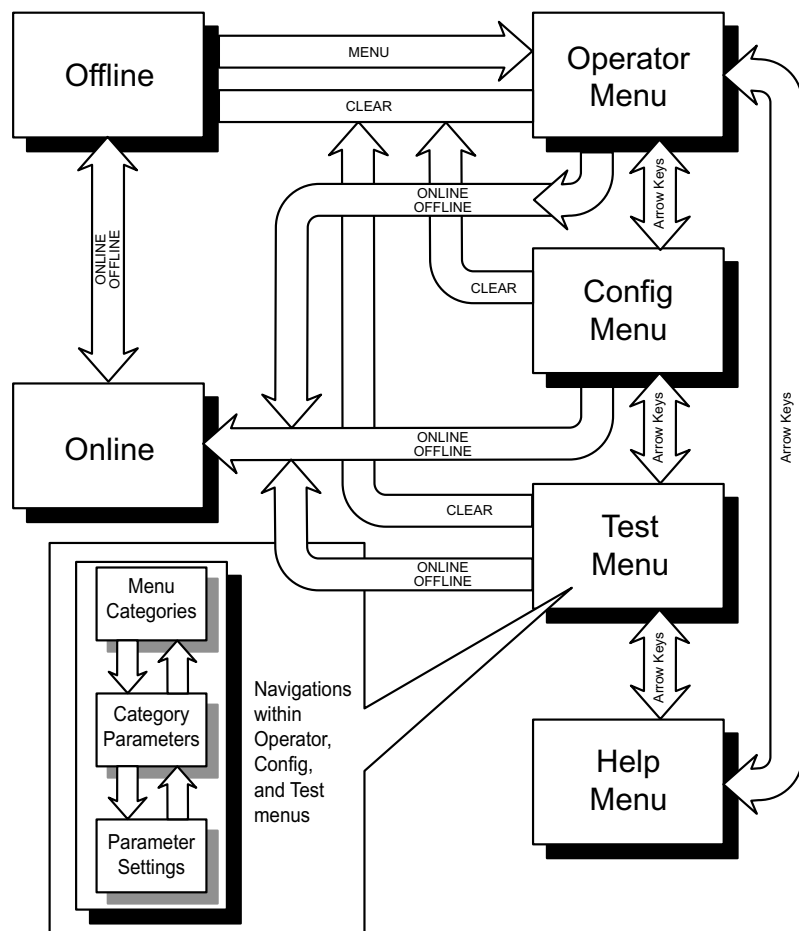
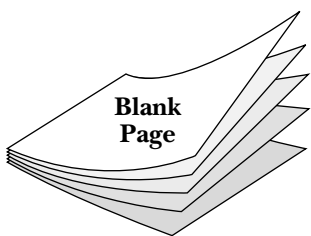


Figure 3 - 5. Control Panel Navigation



Appendix A: Troubleshooting

Introduction

This chapter deals with troubleshooting problems on a 6300 Series printer. Messages that indicate printer faults and errors are explained and corrective action given. The few paper handling and print quality problems that may occur are also explained.

Messages

Messages on the Control Panel Display report both normal operation and fault situations. In **Table A-1** is presented a listing of the Display Messages that need explanation or action on the part of the operator or repair person. Each message listing includes causes and corrective actions where necessary.

Faults

When a fault occurs, it will cause the printer to cease operation and go Offline. The printer alarm will sound, the Fault Indicator will illuminate, and the display will report a fault message.

In some cases it is possible to clear an error message and continue using the printer by depressing the Clear key. However, the quality of the print may be questionable and collateral damage to other parts may result. If the fault message returns, perform the required corrective action.

If a nondestructive fault occurs in the middle of printing a document, one line of text may be lost after the error condition is corrected and the printer put back Online.



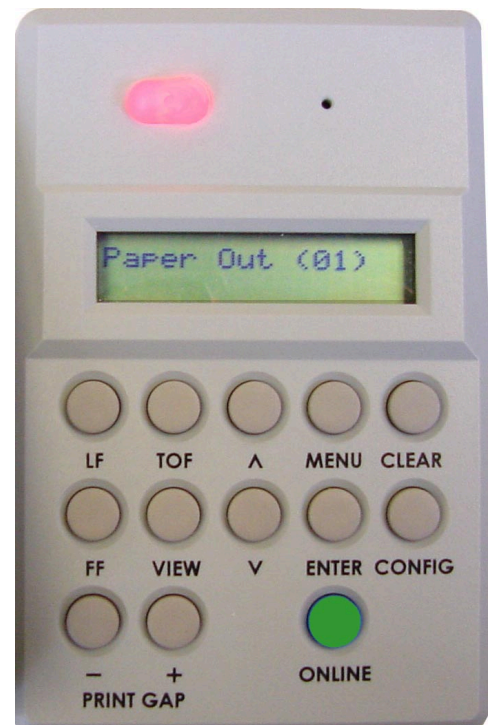
If the fault is in the control panel or interprocessor link, the fault message may not be displayed, and the beeper and Fault LED may not operate.

Fault Correction Procedure

Step 1. First check the fault message on the Control Panel Display and look it up in the Fault Message tables provided here.

Step 2. Perform the required corrective action. Some Fault and Error messages will automatically clear as soon as the problem is corrected (for example, the **Paper Out** message will clear when a new stack of paper is loaded).

Step 3. If a faulty piece of hardware is indicated, call your Customer Service Representative for repair.



Step 4. If any other faults appear on the display after you have corrected the original problem, go back to Step 1 and perform required corrective actions for the new problem. Otherwise place the printer back Online and test it during normal print operations.

Table A - 1. Display Messages

MESSAGE	Explanation and Corrective Action	
ATTENTION	<i>Explanation:</i>	The host has sent the Bell Command.
	<i>Corrective Action:</i>	Corrective action depends on the reason the Bell Command was sent. Contact your system operator.
Bad Packet	<i>Explanation:</i>	This message indicates that a fault has occurred in the communications between the I/O processor and the main processor.
	<i>Corrective Action:</i>	Cycle power and try again. If the problem returns, remove and replace the Engine Controller Board. If the problem returns, download new printer firmware.
BadTWICO Int.	<i>Explanation:</i>	The Twinax PSIO is damaged or corrupted.
	<i>Corrective Action:</i>	Cycle power and try again. If this does not clear the problem, remove and replace the Twinax PSIO Assembly.
Bad VFU Channel	<i>Explanation:</i>	AVFU channel command has been received from the host requesting an illegal channel.
	<i>Corrective Action:</i>	1. Correct data from host and retransmit. 2. Ensure the integrity of the printer ground connection.
Bad VFU Count	<i>Explanation:</i>	An incorrect number of bytes has been detected in a VFU download.
	<i>Corrective Action:</i>	Correct data from host and retransmit.
Buffer Overflow	<i>Explanation:</i>	A buffer overflow has been detected on the currently active host interface. This is most likely caused by a host failure to respond to a busy signal.
	<i>Corrective Action:</i>	1. Ensure correct protocol has been selected. 2. Check wiring of I/O cable between host and printer. (See the <i>Applications Manual</i> for a detailed explanation.)
Chnl Not Found	<i>Explanation:</i>	VFU Channel requested by the host computer cannot be found.
	<i>Corrective Action:</i>	1. Correct data from host, then retransmit it to the printer. 2. Ensure the integrity of the printer ground connection.
Ctrl Fault	<i>Explanation:</i>	This message indicates that a fatal fault has occurred in the control processor.
	<i>Corrective Action:</i>	Call your Customer Service Representative for repair.
Ctrl Link Flt	<i>Explanation:</i>	The Control Processor has detected a fault in the Main Processor to Control Processor link.
	<i>Corrective Action:</i>	Call your Customer Service Representative for repair.
Data Overrun	<i>Explanation:</i>	A data overrun has been detected on the currently active host interface. This is most likely caused by an incorrectly configured serial baud rate, data bits, or parity.
	<i>Corrective Action:</i>	Check setting on Serial Baud Rate, Data Bits, and Parity parameters through the printer control panel.
Font Dnld Error	<i>Explanation:</i>	An error has been detected during a font download.
	<i>Corrective Action:</i>	Correct data and retransmit from host.

Graphic Check	<i>Explanation:</i>	This message indicates that the printer has received an unprintable graphic. This message only appears if the Set Graphic Error Action Command has been set properly.
	<i>Corrective Action:</i>	Clear the message (Clear key), then place the printer back Online. Confirm with host why Graphic check message was sent.
HammerTime	<i>Explanation:</i>	The software controlling the print hammer timing has detected an internal inconsistency.
	<i>Corrective Action:</i>	Press the Clear key. If it faults repeatedly, call your Customer Service Representative and skip to the next print job.
HammerVoltage1	<i>Explanation:</i>	One of the hammer drive circuits was turned on when it shouldn't have been, so all printing has been disabled. The usual cause is a failed drive transistor.
	<i>Corrective Action:</i>	Call your Customer Service Representative for repair.
HammerVoltage2	<i>Explanation:</i>	A high resistance coil fault has likely occurred in one or more of the hammer coils. Note: this fault message will have been preceded by printing slow-down attempts associated with On-The-Fly thermal monitoring of hammer bank temperature.
	<i>Corrective Action:</i>	Check the hammer bank for defective coils. Confirm that the hammer driver board is functioning properly. Replace the hammer driver board. Call your Customer Service Representative for repair.
Heap Overflow	<i>Explanation:</i>	Graphics memory space is full and the printer cannot accept or process data. Printer will reset and data will be lost.
	<i>Corrective Action:</i>	Insert line terminators in data stream so the printer will process the data, then retransmit the data.
Key Disabled	<i>Explanation:</i>	Key has no function for this printer model or mode of operation.
	<i>Corrective Action:</i>	No corrective action.
Lost Adrs (27)	<i>Explanation:</i>	Certain communication signals have been lost between the printer and the host computer.
	<i>Corrective Action:</i>	Check cable connection, setup of host, and printer address setting.
Lost Sync (28)	<i>Explanation:</i>	The host is not communicating with the printer.
	<i>Corrective Action:</i>	Verify address of computer and host setup. Check I/O cables. <i>When this message is displayed during printer installation, you may continue to test the printer by placing the printer Offline and entering Menu mode to select print tests or calibration routines.</i>
No VFU Loaded	<i>Explanation:</i>	A VFU command was received from the host before a VFU was downloaded.
	<i>Corrective Action:</i>	Download the required VFU information, then retransmit the data.
NVRAM Fault	<i>Explanation:</i>	The nonvolatile data checksum has failed because of one of the following conditions: <ul style="list-style-type: none">(1) A new RAM has been installed.(2) New software with different nonvolatile variables has been installed.(3) The variable values have been altered in a destructive manner.
	<i>Corrective Action:</i>	Depress the Clear key. If the message does not clear, cycle printer power. If the message still does not clear, call your Customer Service Representative for repair.



Error Messages

Offline Data In	<i>Explanation:</i>	The printer is in Offline condition and nonprinted data is in the buffer.
	<i>Corrective Action:</i>	There is no corrective action required. Under normal conditions, the printer continues to print when it is placed back Online. If you do not want the buffered data to print, enter the Clear menu by depressing the Clear key before going back Online and select the Clear Buffers entry to clear the buffered data.
Offline Dump On	<i>Explanation:</i>	The printer is in Offline condition and Dump Mode is enabled.
	<i>Corrective Action:</i>	No corrective action is necessary. Place the printer back Online when you are ready to print.
Online Download	<i>Explanation:</i>	The printer is receiving downloaded fonts or VFU information.
	<i>Corrective Action:</i>	This message will clear when the download is complete.
Online Dump On	<i>Explanation:</i>	The printer is ready to accept and print data from the host through Dump Mode. All data received from the host will be printed in hexadecimal format.
	<i>Corrective Action:</i>	No corrective action is required.
Overflow VFU	<i>Explanation:</i>	An excessive number of bytes has been sent by the host in a VFU download.
	<i>Corrective Action:</i>	Correct data and retransmit from host.
Paper Motion Fit	<i>Explanation:</i>	The control processor has detected that the paper has failed to move the required distance after sending a command to the Paper Drive Motor.
	<i>Corrective Action:</i>	Check for paper feed problems. If there are any paper feed problems, correct them, then press the Clear key to clear the fault. If there are no paper feed problems and the condition does not clear, call your Customer Service Representative.
Paper Out	<i>Explanation:</i>	Paper is not being detected by the Paper Out sensor.
	<i>Corrective Action:</i>	If this message is correct, refer to the Paper Loading sections in Chapter 2, then load paper. If the fault does not clear, call your Customer Service Representative for repair.
Parity Error	<i>Explanation:</i>	Parity is enabled and a mismatch on Bit 8, between the computer and the printer, has been detected on the currently active host interface.
	<i>Corrective Action:</i>	If there is a mismatch between the setting of the printer and the setting of the host, you can change printer parity. See the Config Menu section in Chapter 3. If there is no mismatch between the printer and host settings, then the data sent from the host has been corrupted. Retransmit the data from the host. If the condition repeats, set up the printer for Dump Mode (see the Config Menu section in Chapter 3), and retransmit the data again. If you find no errors in the Dump Mode data, call your Customer Service Representative for repair.
Print Fault	<i>Explanation:</i>	Faulty communication between the main and control processor has occurred causing a dot row to misprint. The printer automatically recovers from this condition.
	<i>Corrective Action:</i>	Under normal circumstances there is no corrective action other than to depress the Clear key to remove the fault message from the display. If, however, this problem persists, call your Customer Service Representative for repair.
Replace Rbn	<i>Explanation:</i>	Caused when Rbn Monitor has reached its set level.
	<i>Corrective Action:</i>	Check/Replace the ribbon then reset the Rbn Monitor.

Ribbon Fault	<p><i>Explanation:</i></p> <p><i>Corrective Action:</i></p>	<p>The Ribbon Fault Detector is not reading any movement in the printer ink-ribbon.</p> <p>Depress the Clear key and try to print again. If the fault returns, try to turn the Ribbon Knob. If the Ribbon Knob will not turn, check to see if the ribbon is caught on the hammer bank or one of the other mechanisms through which the ribbon moves. If the Ribbon Knob does not turn and the ribbon is not caught somewhere, install a new ribbon cartridge. Another possible cause of this error is a print gap that is too tight. Increase the print gap by using the "+" Print Gap key or rerun a print gap operation using the Detect parameter (Operator Menu => Print Gap => Detect). If the Ribbon Knob turns and the print gap is fine and the fault does not clear, call your Customer Service Representative for repair.</p>
Setup Address	<p><i>Explanation:</i></p> <p><i>Corrective Action:</i></p>	<p>The printer address has not been set up or a configuration with address set to UNDEFIN has been loaded.</p> <p>Set up the printer address using the multilevel menus on the printer. See the Config Menu in Chapter 3.</p>
Shuttle Fault	<p><i>Explanation:</i></p> <p><i>Corrective Action:</i></p>	<p>If the control processor detects the shuttle operating either above or below the proper frequency, it shuts down the shuttle and attempts to restart it. If the shuttle still operates incorrectly after three consecutive attempts, the Control Processor goes Offline, and the Shuttle Fault message is displayed.</p> <p>Depress the Clear key, then put the printer back Online. If this doesn't work, turn the power switch off, then back on again. Another possible cause of this error is a print gap that is too tight. Increase the print gap by using the "+" Print Gap key or rerun a print gap operation using the Detect parameter (Operator Menu => Print Gap => Detect). If the error condition persists after performing the above actions, call your Customer Service Representative for repair.</p>
Testing Hardware	<p><i>Explanation:</i></p> <p><i>Corrective Action:</i></p>	<p>The printer is performing internal diagnostic tests when the printer is powered up.</p> <p>If this message does not clear after a few seconds, then the Main CPU is dead. Under normal circumstances there is no corrective action. If the message does not clear automatically, call your Customer Service Representative for repair.</p>

Twinax Trouble Checklist

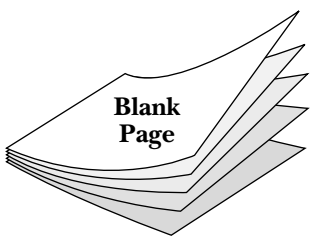
If the Printer Verification Test fails, check the following:

- Does the printer have the correct address setting?
- Does the address in the system configuration match the setting on the printer?
- Is the device type in the system configuration correct for the type of printer being emulated?
- Is the cable to the device immediately up cable on the Twinax line correctly connected?
- Are the devices down cable functioning properly?
- Is the last device on the line properly terminated?
- Is the printer properly configured?

If all of the above check out and you still have problems, call your Customer Service Representative.

Table A - 2. Paper/Printing Corrective Action

Problem	Cause	Corrective Action
The paper holes are wider than normal after passing through the tractors.	Horizontal paper tension is too tight.	Unlock and readjust the tractors so that the paper holes line up evenly with the tractor pins.
Printed characters on heavy-weight or multi-part paper are smeared.	The Print Gap is too tight.	Increase the Print Gap by using the “+” Print Gap key or rerun a print gap operation using the Detect parameter (Operator Menu => Print Gap => Detect).
The printed characters are too light.	The Print Gap is too loose or the ribbon is worn out.	Decrease the Print Gap by using the “-” Print Gap key or rerun a print gap operation using the Detect parameter (Operator Menu => Print Gap => Detect). If this does not correct the problem, replace the ribbon cartridge with a new one.
The printed characters are shaky.	The Print Gap is not set correctly.	Adjust the Print Gap by using the “+” or “-” Print Gap keys or rerun a print gap operation using the Detect parameter (Operator Menu => Print Gap => Detect).
The paper comes out of the tractors or the paper tears at the right or left holes along the edges.	(1) The horizontal paper tension is incorrect. (2) The Print Gap is too tight.	(1) Unlock and readjust the right tractor so the paper holes line up evenly with the tractor pins. (2) Increase the Print Gap by using the “+” Print Gap key or rerun a print gap operation using the Detect parameter (Operator Menu => Print Gap => Detect).



Appendix B: Optional Interfaces

Optional Interface Connections and Powering Up

Interface Connectors

Properly secure the cable to the printer interface using the correct connectors.



Shielded I/O cables must be used on all installations to comply with regulatory requirements.

Connecting the I/O

After connecting each interface to your printer, run a print job from the Host Computer to verify proper function of the printer.

Twinax Interface

This interface is optional and requires the installation of an additional interface module. To connect your printer to a Twinax host system, use the Smart T connector. Plug the DB-15 connector into the Host Interface plug on the printer I/O panel. The Twinax interface allows a maximum of 5,000 feet (1.5 km) between the host computer and the last device.

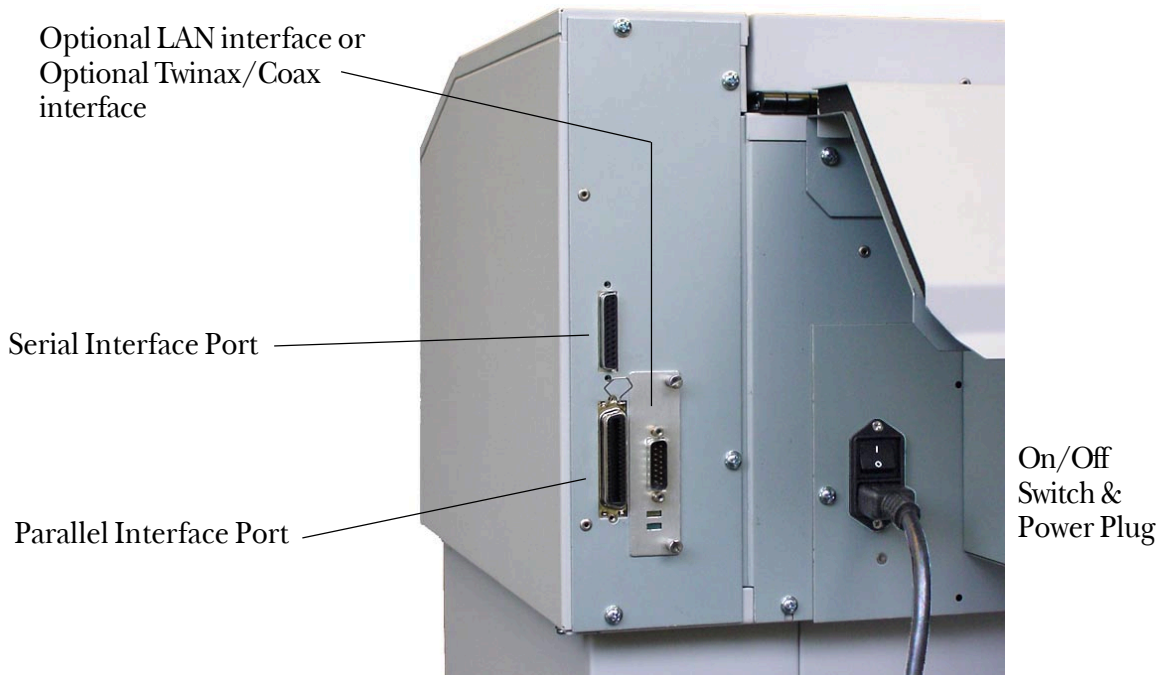


Figure B - 1. Rear view, showing Serial, Parallel, Optional LAN or Twinax/Coax Ports, and Power Plug

Optional Interfaces

If you are installing a printer on an active system, go through the following list before connecting the Twinax cable(s).

- Verify that the printer address matches the one given it on the host and that no addresses are duplicated anywhere on the line. You can check the address of the printer by accessing the HELP Menu on your printer control panel and printing out a Control Panel Selections Printout (see Chapter 3).
- Make sure the printer is turned OFF.
- Terminate the device immediately up cable (between the printer and the host) from the printer.
- Any jobs going to devices down cable (between the printer and the end of the network) must be put on HOLD.
- Place any devices that are down cable from the printer OFFLINE.

Now connect the cable from the out connector of the up cable device to either side of the Host Connector Smart T and if there are devices down cable, connect the cable going to them to the other side of the Smart T. The Smart T automatically takes care of terminating the Twinax line or allowing throughput of data to devices located down cable from the printer.



Figure B - 2. Twinax Smart "T" Adaptor

Your Twinax hookup is now complete and it is time to test your printer to verify its operation. Load your printer with paper and an ink ribbon. Run the IBM printer verification test. If the test is successful, your installation is complete.

Coax Interface

This interface is optional and requires the installation of an additional interface module. Make sure that the printer is turned off. To connect to a Coax system, use the BNC adapter (a DB-15 to Coax). Connect the adapter to the Host Interface plug on the printer I/O. The Coax interface allows a maximum of 5,000 feet (1.5 km) from the host computers to the printer.



Figure B - 3. BNC Coax adapter

Appendix C: Specifications

Industry and Agency Standards

The 6300 Series is designed to meet the requirements of several industry and government agency standards.

Electro-Magnetic Emissions

EMI: FCC part 15, subpart J, Class A and EN55022 Class B
Harmonics: EN 61000-3-2
Flicker: EN 61000-3-3

Electro-Magnetic Immunity

ESD: EN 61000-4-2
RF EMF: EN 61000-4-3
EFT/B: EN 61000-4-4
Surge: EN 61000-4-5
RF CM: EN 61000-4-6
PF MF: EN 61000-4-8
VDips/Int: EN 61000-4-11

Energy Conservation

ENERGY STAR® compliant

Safety

IEC 60950:1991 plus Amendment 1, 2, 3, and 4, and National Deviations AT, AU, BE, CA, CH, CZ, DE, DK, ES, FI, FR, GB, GR, HU, IE, IT, JP, KR, NL, NO, SE, SG, SL, US and Group Differences per CB Bulletin 94AI (Mar 99).

ANSI UL 1990-95, CAN/CSA-C22.2 No. 950-95, and EN6950:1992, including Amd 1, 2, 3, and 4 safety requirements.

Acoustic

ISO 7779:1988(E)
ISO 9296:1988(E)

Marking

The printer complies with the CE mark requirements, per European norms.

Physical Configurations

Your printer is available in table top and enclosed pedestal configurations.

Weight

Table Top 6306 with paper exit guide assembly:	115.4 lbs.
Table Top 6312 with paper exit guide assembly:	124.1 lbs.
Pedestal Mounted 6306 with paper exit guide and paper tray:	159.9 lbs.
Pedestal Mounted 6312 with paper exit guide and paper tray:	168.6 lbs.

Dimensions

Table Top 6306 and 6312

Width:	28.3 inches
Height:	13.0 inches
Depth:	14.4 inches
Depth with paper exit guide assembly:	23.4 inches

Pedestal Mounted 6306 and 6312

Width:	28.3 inches
Height:	39.7 inches
Depth:	23.4 inches
Depth with paper exit guide assembly:	29.4 inches
Depth with paper tray:	29.5 inches

Preventive Maintenance

This printer is designed to eliminate the requirement of scheduled maintenance procedures, such as alignment, adjustment, or lubrication. Preventive maintenance is limited to periodic cleaning. Dust and paper fibers should be removed periodically with a soft cloth and brush or a vacuum cleaner. Clean the printer case with a damp cloth and soapy water. **DO NOT** use any abrasive cleaners or solvents, as they will damage the case.

Environment

Operating

Temperature (Dry Bulb):	50°F to 104°F (10°C to 40°C)
Humidity:	10 to 90% noncondensing with a maximum wet bulb temperature of 82°F (28°C) and a minimum dew point of 36°F (2°C)
Altitude:	To 8,000 ft. (2438 meters)

Nonoperating

Temperature:	
Boxed:	-40°F to 151°F (-40°C to 66°C)
Unboxed:	14°F to 122°F (-10°C to 50°C)
Humidity:	10 to 95% noncondensing
Altitude:	To 10,000 ft. (3048 meters)
Thermal Shock:	61°F (20°C) per hour
Vibration:	Units meet NSTA (National Safe Transit Association) requirements.

Safety

Personnel hazard areas have restricted access with appropriate warning labels. Catastrophic equipment failures are inhibited with protective functions in major areas of overload potential.

Cooling System

Cooling system malfunctions are detected and a failure will result in shuttle motion, paper motion, and printing functions being inhibited. The malfunction Hammer Voltage1 will be reported on the control panel display.

Acoustics

The Sound Power Level is a 9 position average, per ISO 7779. The Sound Pressure Level is a 4 position average, per ISO 9296.

<u>Configuration</u>	<u>Sound Pressure Level</u>	<u>Sound Power Level</u>
6306 Table Top	55 dB(A)	7.0 Bel
6306 Enclosed Pedestal	55 dB(A)	7.0 Bel
6312 Table Top	60 dB(A)	7.5 Bel
6312 Enclosed Pedestal	55 dB(A)	7.0 Bel

Power Supply

The printer requires single phase, 47 to 63 Hz. 90 to 264 VAC input power. The printer's universal power supply automatically adjusts to the correct values. A fuse is provided to interrupt power to the power supply. The following table gives typical current values.

6306 Current/Wattage Requirements @ Nominal Voltage

ACVolts (RMS)	Freq. (Hz)	Average Operating	Peak Operating	Average Idle (<5 min.)	Average Idle (>5 min.)
110	50	1.0 A/055 W	2.3 A/250 W	0.3 A/35 W	0.2 A/19 W
110	60	1.0 A/105W	2.3 A/250W	0.3 A/35W	0.2 A/19 W
220	50	0.5 A/105W	1.2 A/250W	0.2 A/35W	0.1 A/19W

6312 Current/Wattage Requirements @ Nominal Voltage

ACVolts (RMS)	Freq. (Hz)	Average Operating	Peak Operating	Average Idle (<5 min.)	Average Idle (>5 min.)
110	50	2.2 A/250 W	4.6 A/510 W	0.4 A/36 W	0.2 A/18 W
110	60	2.2 A/250W	4.6 A/510W	0.4 A/36W	0.2 A/18 W
220	50	1.1 A/250W	2.3 A/510W	0.2 A/36W	0.1 A/18W

Heat Load Contribution

The average heat load contribution to the environment is approximately 735 BTUs per hour (215 Watts). The minimum heat load contribution is approximately 100 BTUs per hour (30 watts). The maximum is 2050 BTUs per hour (600 Watts), under continuous full-load printing conditions.

<u>Printing Conditions (110 VAC/60 Hz)</u>	<u>Wattage</u>	<u>BTU/Hr</u>
Power On, not printing	55 W	188
100% Uppercase Rolling ASCII	400W	1370
Black Page Plot	600 W	2050

Emulations

Emulations available on the 6300 Series:

Tally ANSI, Genicom ANSI, Printronix P5000, Printronix P6000, Printronix P600, HP 2564C, DEC LG01, Epson FX-1180, IBM Proprinter III XL, MTPL.

Emulations available on the 6300 LJ Series for HP environments:

HP LineJet, Printronix P5000, Printronix P6000, Printronix P600, Epson FX-1180, IBM Proprinter III XL.

Emulations available on the LG Series for DEC environments:

DEC LG+, Tally ANSI, Genicom ANSI, Printronix P5000, Printronix P6000, Printronix P600, HP 2564C, Epson FX-1180, IBM Proprinter III XL, MTPL.

Additional emulations provided with the Twinax/Coax interface:

IBM 4234 (Twinax and Coax), IBM 4210 and IBM 5225 (Twinax only).

Optional emulation for Twinax, Coax, and LAN interfaces:

IBM 6400 / 4234 IPDS.

Characters Per Inch

Seven basic Characters Per Inch (CPI) settings are available through the Control Panel. They include 10, 12, 13.33, 15, 16.67, 17.14, and 20. These character matrices can be doubled to produce 5, 6, 6.67, 7.5, 8.33, and 8.57 CPI. In some emulations the availability of certain CPIs is restricted. Some emulations provide proportional spacing and justification features.

Lines Per Inch

Ten Lines Per Inch (LPI) settings are available through the Control Panel. They include 1.5, 2, 3, 4, 5, 6, 8, 9, 10, and 12 LPI. In some emulations the availability of certain LPIs is restricted. Some emulations provide variable line spacing.

Type Styles

There are six resident type styles available on your printer. They include Draft, Data Processing (DP), Gothic, Courier, OCR-A, and OCR-B. All type styles and the two output modes (for Draft and DP) are selectable through the printer control panel.

Draft and Data Processing

Draft and Data Processing type styles print in two modes: Constant Density Fonts (CDF) and Enhanced.

Constant Density Fonts print at the same dot density regardless of the CPI. This produces consistent print speed even when changing from one CPI to another.

Enhanced Mode provides higher resolution and a greater range of CPIs than CDF Mode. Because Enhanced Mode uses a variety of dot densities you should expect a change in print speed of text when switching from one CPI to another.

Gothic and Courier

These two type styles provide Near Letter Quality (NLQ) printing. They print at higher dot densities and use denser character matrixes for greater readability.

OCR-A and OCR-B

These print at 10 CPI only, mostly for Optical Character Recognition applications. There are three possible OCR-A densities: Standard, Enhanced, and High Density. OCR-B always prints at High Density.

Large Character Printing

In certain emulations, large character printing is available. These characters are printed using the TallyGenicom MonoBlock Bold TrueType font. This is a monospaced san-serif font.

Standard Languages and Character Sets

There are two ways to select a language or character set.

One method is by substituting certain characters in the lower half of the character set, such as # \$ @ [\] ^ ` { | } and ~. This can be done by using the control panel Language selection, or through the emulation. The language substitutions available through the emulation differ by emulation.

The other method is by selecting an entire set of the characters (also called code pages) for the upper half of the character set. This can be done by using the control panel Character Set selection, or through the emulation. The character sets available through the emulation differ by emulation.

Language substitutions and character set selections are valid for all font styles except OCR-A and OCR-B. In the case of OCR-A and OCR-B, the only available options are DIN and ANSI, selected through the OCR Style selection on the control panel.

Language Substitutions

There are 42 available language substitutions, including Canadian, Canadian Alternate, Chinese, Danish MT660, Danish 2 Epson, Dutch LG, Finnish LG, French (ISO 69), French Epson, French MT660, French Withdrawn, German (ISO 21), Hebrew LG, Hungarian, International Reference Version (ISO 2), Italian (ISO 15), Italian Epson, Italian MT660, Japanese (ISO 14), JIS Roman LG, Latin American Epson, Norwegian Epson, Norwegian / Danish (ISO 60), Norwegian / Danish Epson, Norwegian / Danish ISO LG, Norwegian / Danish LG, Norwegian / Danish MT660, Portuguese (ISO 16), Portuguese LG, Spanish (ISO 17), Spanish Epson, Swedish LG, Swedish / Finnish (ISO 11), Swedish / Finnish Basic (ISO 10), Swedish / Finnish MT660, Swiss LG, Turkish LG, UK (ISO 4), UK Epson, UK LG, US (ISO 6), and VT100.

Character Sets

There are 40 available character sets / code pages, including Bulgarian (Code Page 866B), Cyrillic (Code Page 866), Cyrillic (Code Page 1251), Cyrillic (ISO 8859-5), DEC Greek Supplemental, DEC Hebrew Supplemental, DEC Multinational, DEC Supplemental, DEC Technical, DEC Turkish Supplemental, French Canadian (Code Page 863), Greek (Code Page 437G), Greek (Code Page 851), Greek (Code Page 869), Greek (Code Page 928), Greek (Code Page 1253), Greek (ISO 8859-7), Hebrew (Code Page 862), Hebrew (Code Page (1255), Hebrew (ISO 8859-8), IBM Proprinter (Code Page 437), Katakana (ISO 13), Latin 1 (Code Page 850), Latin 1 (Code Page 1252), Latin 1 (ISO 8859-1), Latin 2 (Code Page 852), Latin 2 (Code Page 1250), Latin 2 (ISO 8859-2), Latin 9 (ISO 8859-15), Line Draw (MT660), Roman-8 (HP), Russian Cyrillic (Code Page 855), SAP 8859-1, SAP 8859-2, SAP 8859-5, Turkish (Code Page 857), Turkish (Code Page 1254), Turkish (DEC), Turkish (ISO 8859-9), and Turkish (Siemens).

Twinax / Coax / IPDS Character Sets

The following characters sets are supported by the Twinax (IBM 4234, IBM 4210, IBM 5225), Coax (IBM 4234), and IPDS (IBM 6400, IBM 4234) emulations:

Twinax and Coax

Austrian / German, Belgian, Brazilian, Canadian Bilingual, Danish / Norwegian, Danish / Norwegian Alternate, English UK, Finnish / Swedish, Finnish / Swedish Alternate, French, German Alternate, Italian, Japanese / English, Katakana, Multinational, OCR-A, OCR-B, Portuguese, Portuguese Alternate, Spanish, Spanish Speaking, Spanish Alternate, Swiss, Turkish 905, Turkish 1026, and US.

IPDS

Austrian / German (Code Page 273), Belgian (Code Page 500), Brazilian (Code Page 275), Canadian (Code Page 037), Cyrillic (Code Page 880), English UK (Code Page 285), English / US (Code Page 037), Finnish / Swedish (Code Page 278), French (Code Page 297), Icelandic (Code Page 871), International (Code Pages 256 and 500), Italian (Code Page 280), Japanese / English (Code Page 281), Japanese / Katakana (Code Page 290), Latin 2 (Code Page 870), Norwegian / Danish (Code Page 277), OCR-A (Code Page 892), OCR-B (Code Page 893), PC ASCII (Code Page 437), PC Multilingual (Code Page 850), PC French Canadian (Code Page 863), Portuguese (Code Pages 037 and 282), Spanish and Spanish Speaking (Code Page 284), Swiss (Code Page 500), and Turkish (Code Pages 905 and 1026).

Nonvolatile Memory

Your printer stores up to 10 printer configurations in nonvolatile memory.

Paper Description

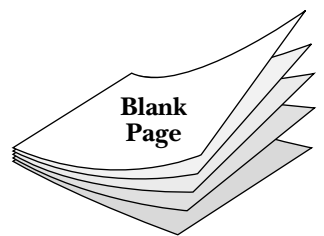
The printer uses continuous, sprocket-fed type paper, 2.5 inches (64 mm) to 18 inches (457 mm) outside width and 3.0 inches (76 mm) to 12.0 inches (305 mm) in length. One- to six-part paper may be used with a maximum thickness of .025 inches (0.64 mm). (Reference specifications: ISO 2784, DIN 9771 and DIN 6721.)

Paper Movement Speed

The default paper slew speed is 25 IPS. If the Fast Slew control panel option is enabled, the slew speed is 36 IPS unless heavy forms are detected based on the print gap setting, in which case the slew speed is automatically reduced to 31 IPS.

Throughput

Text Throughput - Lines per Minute	6306	6312	
Upper Case / Lower Case			
Draft	10, 12, 13.33, 15, 17.14 CPI	600/514	1200/1028
	16.67, 20 CPI	327/277	654/554
Data Processing	10, 12, 13.33, 15, 17.14 CPI	450/360	900/720
	16.67, 20 CPI	240/189	480/378
Courier and Gothic	All CPIs	189/144	378/288
OCR-A Standard	(10 CPI only)	360/276	720/553
OCR-A Enhanced	(10 CPI only)	360/276	720/553
OCR-A High Density	(10 CPI only)	116/87	232/175
OCR-B	(10 CPI only)	133/92	266/194
Graphics Throughput - Inches per Minute			
60 X 48		75	150
60 X 72		50	100
120 X 72 DPI		25	50
Application Benchmarks			
AIAG 2-up Normal/PGL - Label/Hr		1461	2923
AIAG 2-up Read/Right/PGL - Labels/Hr		982	1965
POSTNET - 6 LPI Draft - Labels/Hr		25,200	50,160
ECMA 132 - Pages Per Hour			
#2 Letter Performance 10 CPI Draft		825	1455
#3 Letter Performance 10 CPI NLQ		252	491
#4 Letter Endurance 10 CPI NLQ		252	491
#5 Spreadsheet Perf. 17 CPI Draft		983	1818
#6a Spreadsheet Perf. 17 CPI Draft		983	1821
#6b Spreadsheet Perf. 17 CPI NLQ		342	664
#7 Graphics Performance		573	806





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