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# 1

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## Introduction

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### **In This Chapter . . .**

- About this manual
- Typographic conventions

# Introduction

This manual provides information you may need only once in a while. Use it in conjunction with your other QMS 1060 Print System documentation.

Here's a brief overview of what's included in this manual.

## About This Manual

The information in this manual is divided into the following sections:

<b>1</b>	<b>Introduction</b>	Provides an overview of the manual.
<b>2</b>	<b>Print Media</b>	Lists print media sizes, margins, and imageable areas and provides media storage information.
<b>3</b>	<b>Professional Printing</b>	Discusses typographic terms, displays the printer's typefaces, and provides some page design tips.
<b>4</b>	<b>Printer Configuration</b>	Explains the methods of configuring the printer, demonstrates how to use the printer control panel, and provides a complete discussion of the configuration menu options including downloading system software to flash memory.
<b>5</b>	<b>Additional Technical Information</b>	Discusses memory terms and configuration, end job mode, gamma correction, ESP modes, parallel interface modes, PS Protocol, and HP-GL color encoding.

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<b>6 Printer Options</b>	Describes how to install and use additional media input sources and a paper feeder; optional fonts; security cards; memory upgrades (SIMMs); network and LocalTalk interfaces; and SCSI or IDE internal hard disks. It also describes how to download an optional emulation.
<b>A QMS Customer Support</b>	Provides world-wide product sales and support telephone numbers and describes how to communicate with QMS through the QMS Bulletin Board, CompuServe, the Internet, and Q-FAX.
<b>B Technical Specifications</b>	Provides technical specifications for the printer, shows cable pinouts, and lists available supplies and replacement parts.
<b>C Document Option Commands</b>	Lists printer-supported Document Option Commands (DOCs) and updated PCL 5 terminology and DOCs.
<b>D Notices</b>	Lists printer-supported Document Option Commands (DOCs).
<b>E Configuration Menu</b>	Provides a menu chart that shows the structural layout of the configuration menu options.
<b>Glossary</b>	Defines commonly used terms.

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## **Typographic Conventions**

The following typographic conventions are used throughout this manual:

Mixed-Case Courier	Text you type, and messages and information displayed on the screen
<i>Mixed-Case Italic Courier</i>	Variable text you type; replace the italicized word(s) with information specific to your printer or computer
UPPERCASE COURIER	Information displayed in the printer message window
<b>lowercase bold</b>	PostScript operators and DOS commands
<i>lowercase italic</i>	Variable information in text
UPPERCASE	File and utility names
↵	Press the Enter key (PC) or Return key (Macintosh)
^	Press and hold down the Ctrl key (PC)

- » **Note:** *Notes contain tips, extra information, or important information that deserves emphasis or reiteration.*

- 
- ▲ **Caution:** *Cautions present information that you need to know to avoid equipment damage, process failure, or extreme annoyance.*
- 

- 
- ⚠ **WARNING!** *Warnings indicate the possibility of personal injury if a specific procedure is not performed exactly as described in the manual.*

**ACHTUNG!** *Bitte halten Sie sich exakt an die im Handbuch beschriebene Vorgehensweise, da sonst Verletzungsgefahr bestehen könnte.*

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# 2

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## Print Media

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### In This Chapter . . .

- Media sizes, imageable areas, and margins
- Media storage

# **Introduction**

This chapter lists the media sizes and imageable areas supported by the QMS 1060 Print System, and then provides information on selecting and storing media.

## **Media Sizes and Imageable Areas**

Your printer supports paper, envelopes, transparencies, and labels in a number of sizes. Each size has a certain imageable area, the maximum area a printer can access, which is limited by the physical media size, the margins required by the printer, and the amount of memory available for the full-page frame buffer.

- » **Note:** *The media size must match the cassette size. Since the cassette sends a size signal to the printer controller, using the wrong size media will cause your image to be positioned incorrectly on the page or clipped. You may purchase additional cassettes from your QMS vendor.*

## Media Sizes and Imageable Areas

The following table lists the size, imageable area, feed edge (the edge of the media drawn in the printer), and input source (tray or cassette from which media is accepted) for all supported media.

Media	Media Size		Imageable Area		Feed Edge	*Input Source
	Inches	Millimeters	Inches	Millimeters		
A4	8.2x11.7	208x297	7.94x11.34	201.68x288.04	Short	M S O
B5 ISO	6.93x9.85	176x250	6.59x9.5	167.39x241.30	Short	M
Executive	7.25x10.5	184x267	6.94x10.17	176.28x258.32	Short	M
Legal	8.5x14.0	216x356	8.19x13.66	208.03x346.96	Short	M S O
Letter	8.5x11.0	216x279	8.16x10.69	207.26x271.53	Short	M S O
Com 9	3.88x8.88	99x226	3.38x 8.56	85.85x217.42	Short	M S O
Com 10	4.13x9.50	105x241	3.81x9.19	96.77x233.43	Short	M S O
DL	4.33x8.67	110x220	3.17x7.50	80.52x190.50	Short	M S O
Monarch	3.88x7.50	99x191	2.69x6.32	68.33x160.53	Short	M S O
C5	6.38x9.01	162x229	5.19x7.82	131.83x198.63	Short	M S O
Envelope	3.6 to 6.65 5.86 to 9.43	91 to 169 x 149 to 240	2.4 to 5.7 4.66 to 8.64	60.96 to 144.78 118.36 to 219.46	Short	M S O
Postcard	4.13x5.83	105x149	3.83x5.50	97.28x139.70	Short	M

*\*Input Source Key: M = Multipurpose Tray; S = Standard Feeder; O = Optional Feeder*

### Working Within the Imageable Area

The imageable areas for print media on your QMS 1060 Print System are not centered vertically on their respective pages and may vary  $\frac{1}{16}$ " (1.6 mm). You can align the image in several different ways:

- Adjust the margins or page size through your application
- Use the printer's control panel (Administration/Engine/Image Alignment menu)
- Use the PS Executive Series Utilities

## Media Types and Weights

- Use the PostScript **translate** and **scale** operators to reduce image size and change its placement on the page.

### Setting Page Margins

Margins are set through your application. Some applications allow you to set custom page sizes and margins while others allow only standard page sizes and margins. If you choose a standard format, you may lose part of your image due to imageable area constraints. If you can custom-size your page, use exactly those sizes given for the imageable area.

# Media Types and Weights

## Paper Type

The printer supports plain paper, recycled paper, letterhead/memo, thick paper, and postcard. Use only paper recommended for laser printers, such as Hammermill Laser Print.

- » **Note:** *We do not recommend printing on perforated or 3-hole punched paper.*

## Paper Weight

The printer supports plain paper, 16-24 lb (64-90 g/m<sup>2</sup>), in cassettes and thick paper, 24-42 lb (90-157 g/m<sup>2</sup>), in the manual feed tray.

## Envelope Type

The printer supports the following envelopes: Commercial 9, Commercial 10, Monarch, International DL, International C5, and custom envelopes in the multipurpose tray or in an optional envelope cassette.

- 
- ▲ **Caution:** *The heat of the fuser may seal some envelopes. Test an envelope to make sure it can withstand the fusing temperature before starting a big job.*
- 

## **Transparency Type**

The printer supports transparencies meeting normal photocopier standards, such as 3M PP2500.

- » **Note:** *Use only transparencies recommended for laser printers.*

## **Transparency Weight**

The printer supports transparencies up to a weight of 36 lbs (135 g/m<sup>2</sup>).

## **Label Type**

Use only labels recommended for laser printers, such as Avery 5260. Adhesive label stock has pressure-sensitive (peel and stick) adhesive backing.

- » **Note:** *Always use the multipurpose tray to print labels.*

## **Label Weight**

The printer supports 24-42 lb (90-157 g/m<sup>2</sup>) labels.

# Storing Media

How you store paper and other media can make a big difference in print quality and printer operation. Improperly stored media increases the chance of jams during printing and can drastically affect the appearance of your work. Keep media in good condition by storing it

- In its wrapper
- On a flat surface
- In a closed cabinet
- In a cool, dry area



# 3

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## Professional Printing

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### **In This Chapter . . .**

- About typefaces and fonts
- Typography terms
- Typeface classification
- Resident typefaces, fonts, and symbol sets

# Introduction

This chapter displays the printer's resident typefaces, offers suggestions for using them, and includes page design tips. A bibliography for graphic design and desktop publishing can be found at the end of this chapter.

## About Typefaces and Fonts

Many of the terms and phrases used in desktop publishing are derived from the language of professional printers and typesetters. This section explains common words and phrases used when discussing typefaces.

<p style="text-align: center;"><b>Typeface</b></p> <p>A named design of a set of printed characters, such as Times, that has a specified obliqueness (degree of slant) and stroke weight (thickness of stroke). It does not define a particular size.</p>	<p style="text-align: center;"><b>Typeface Family</b></p> <p>A group of similar typefaces. For example, the Times typeface family consists of four typefaces: Times Roman, <b>Times Bold</b>, <i>Times Italic</i>, and <i>Times Bold Italic</i>.</p>
<p style="text-align: center;"><b>Font</b></p> <p>A set of characters of the same typeface (such as Times), style (such as <i>italic</i>), stroke weight (such as <b>bold</b>), and point size (such as 10). Although you hear the term "font" used more generally, as if referring to a typeface, it's really a subset of a typeface.</p>	<p style="text-align: center;"><b>Character Set</b></p> <p>A collection of symbols designed for various printing applications. Many character sets are composed of the letters (uppercase and lowercase A-Z), digits (0-9), and any symbol (such as blank space, dollar sign, and ampersand). Other character sets are composed entirely of symbols.</p>

## **Typeface Classification**

One way of classifying the different typefaces is to group them into the following categories:

### **Serif**

A serif is a decorative line or tail on the ends of the strokes of a letter. Serifs, usually on the lower half of a letter, have also been

**T**imes Roman referred to as feet or curlicues. Courier, ITC Bookman, New Century Schoolbook, Palatino,

and Times are serif typefaces. In the example shown, all the letters except “e” and “o” have serifs.

### **Sans Serif**

Sans serif (“sans” is French for “without”) indicates a typeface without any of these small tails. A

**H**elvetica

sans serif typeface is decorative by the shape and styling of its letters but has less detail than a serif typeface. Helvetica, Helvetica Condensed, Helvetica Narrow, and ITC Avant Garde Gothic are all sans serif typefaces. In the example shown above, the slight curving at the bottom of the letters “t” and “a” is not a serif. It is part of the line forming the letter rather than a decorative line added on.

### **Script**

Script typefaces simulate handwriting or brush lettering. Each letter is connected visually, if not

*Zapf Chancery* physically. ITC Zapf Chancery is a script typeface.

## About Typefaces and Fonts

### Pi or Symbol

Pi or symbol typefaces are collections of assorted special-purpose characters (for example, decorative, graphic, math, or monetary characters). They are especially useful for highlighting items in lists, providing graphics, and displaying symbols that might otherwise have to be drawn in by hand. Many typefaces today include a complement of the more commonly used pi characters. Symbol and ITC Zapf Dingbats are pi typefaces.



## Typography Terms

### Monospacing

The terms “monospaced” and “fixed-pitch” refer to a typeface whose characters all have uniform and equal spacing. These typefaces are useful for spreadsheets and other documents with columnar data. Monospacing is the opposite of proportional spacing.

### Proportional Spacing

The term “proportionally spaced” refers to a typeface in which the width of each character varies. For example, the letter “i” is thinner than the letter “m” and therefore takes up less space. Proportional spacing saves page space and is easier on the eye. This manual’s text uses the Helvetica font, a proportionally spaced typeface.



Because proportionally spaced typefaces place each character according to its individual size, they increase legibility and readability.

This example shows the difference between a monospaced typeface (Courier) and a typeface (Times).

## **Bitmapped Font**

A bitmapped font is one in which each character is represented by a set of dot patterns. Each font size requires a different set of dot patterns.

**Dots**

## **Scalable Font**

A scalable font is one in which each character's dot pattern (bitmap) is generated from a mathematical representation (or outline) of the character. Scalable fonts eliminate the need to store many different font sizes.



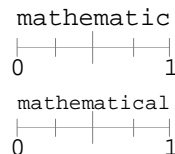
## **Point Size**

Point size refers to the height of a proportionally spaced typeface. A point is a unit of measure equal to  $\frac{1}{72}$ ". Therefore, the larger the point size, the larger the letter. The following example shows characters in 8, 10, 12, 24, and 36 point sizes:

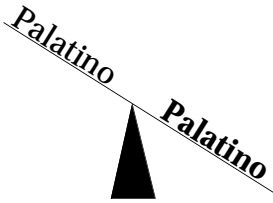
A B C D E

## **Pitch**

Pitch refers to the number of characters per horizontal inch (cpi) in a monospaced typeface. Therefore, the larger the pitch, the smaller the letter. For example, a ten-pitch typeface prints ten characters per inch (or 10 cpi) while a twelve-pitch typeface prints twelve characters per inch (or 12 cpi). The example shows ten-pitch and twelve-pitch Courier.



### **Stroke Weight**



Stroke weight (light/medium/bold) is the width (thickness), of the lines (strokes) that make up a character. The example at left shows the medium and bold weights of Palatino.

### **Italic and Oblique Forms**

Italic was originally developed in the early sixteenth century as a typeface based on cursive handwriting. Today's italics are still individually crafted typefaces designed to blend with a specific roman (upright) typeface.

**Times Roman**  
*Times Italic*

ITC Avant Garde Roman      Oblique (or slanted) type forms, however, are not individually designed and crafted versions of the roman form from which they derive.

*ITC Avant Garde Oblique*

### **Orientation**

Orientation is the direction of the print or image on a page. Portrait orientation reads from left to right, across the narrower dimension of the page. Landscape orientation also reads from left to right but places the print across the wider dimension of the page. Spreadsheet and table applications commonly use landscape printing. Both terms



## **Resident Fonts, Typefaces, and Symbol Sets**

### **Serif Fonts**

ITC Bookman Light  
*ITC Bookman Light Italic*  
**ITC Bookman Demibold**  
***ITC Bookman Demibold Italic***

Palatino Roman  
*Palatino Italic*  
**Palatino Bold**  
***Palatino Bold Italic***

New Century Schoolbook Roman  
*New Century Schoolbook Italic*  
**New Century Schoolbook Bold**  
***New Century Schoolbook Bold Italic***

Times Roman  
*Times Italic*  
**Times Bold**  
***Times Bold Italic***

Courier  
*Courier Oblique*  
**Courier Bold**  
***Courier Bold Oblique***

### **Sans Serif Fonts**

ITC Avant Garde Gothic Book  
*ITC Avant Garde Gothic Book Oblique*  
**ITC Avant Garde Gothic Demibold**  
***ITC Avant Garde Gothic Demibold Oblique***

Helvetica Condensed  
*Helvetica Condensed Oblique*  
**Helvetica Condensed Bold**  
***Helvetica Condensed Bold Oblique***

Helvetica  
*Helvetica Oblique*  
**Helvetica Bold**  
***Helvetica Bold Oblique***

Helvetica Narrow  
*Helvetica Narrow Oblique*  
**Helvetica Narrow Bold**  
***Helvetica Narrow Bold Oblique***

### **Script Font**

*ITC Zapf Chancery Medium Italic*

### **Pi or Symbol Fonts**

Σψμβολ (Symbol)

☪■▣▤▥ (ITC Zapf Dingbats)

## **Resident HP PCL Fonts**

Your printer has the following resident HP PCL fonts. All fonts can be automatically rotated to landscape orientation. Some are fixed in pitch and point size while others are scalable. Unless otherwise noted, samples are show in 10 point size.

### **Serif Fonts**

Courier 12 pitch 10 point

*Courier 12 pitch 10 point  
Italic*

**Courier 12 pitch 10 point  
Bold**

Courier 10 pitch 12  
point

*Courier 10 pitch 12  
point Italic*

**Courier 10 pitch 12  
point Bold**

Times (scalable)

*Times Italic (scalable)*

**Times Bold (scalable)**

*Times Italic Bold (scalable)*

### **Sans Serif Fonts**

Line Printer 16.66 pitch  
8.5 point

Univers (scalable)

*Univers Italic (scalable)*

**Univers Bold (scalable)**

*Univers Italic Bold (scalable)*

Univers Condensed (scalable)

*Univers Condensed Italic (scalable)*

**Univers Condensed Bold (scalable)**

*Univers Condensed Italic Bold (scalable)*

### **Pi or Symbol Font**

⌘ ⌘ ■ ⌘ ⌘ ⬠ ⬠ (ITC Zapf Dingbats)

## Downloadable Fonts

### Resident HP-GL Symbol Sets

Your printer has the following resident HP-GL symbol sets. All come in both fixed- and variable-spaced versions, and all are scalable.

---

9825 Character Set	ISO Portuguese
ANSI ASCII	ISO Spanish
French/German	ISO Swedish
ISO French	ISO Swedish For Names
ISO German	ISO United Kingdom
ISO IRV (International Reference Version)	JIS ASCII
ISO Italian	Katakana
ISO Norway, Version 1	Roman Extensions
ISO Norway, Version 2	Scandinavian
	Spanish/Latin American
	Special Symbols

---

## Downloadable Fonts

The printer supports Type 1 and Type 3 host-resident and card-resident downloadable fonts and any PostScript format TrueType fonts. TrueType fonts in HP PCL format are not supported.

## Optional Fonts

The printer supports Kanji fonts on a hard disk and Intellifont fonts on PROMs.

### Kanji Fonts

The six optional Kanji fonts are available through the Kanji Option Kit and they can be printed at a variety of point sizes and in different

styles and resolutions. (See chapter 6, "Printer Options," later in this manual for more information on these fonts.)

### **Intellifont PROMs**

The optional Intellifont PROMs increases the number of PCL 5 fonts from 20 to 37 for LaserJet 4Si compatibility. (See chapter 6, "Printer Options," later in this manual for more information on these fonts.)





# 4

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# Printer Configuration

---

## **In This Chapter . . .**

- Methods of printer configuration
- Using the printer control panel
- Using the printer configuration menu

# Introduction

This chapter begins by listing and describing the different ways you can configure your printer to meet your special printing needs.

The next section describes how to use the printer control panel to access the configuration menu and how to make configuration changes.

The rest of the chapter provides basic printer configuration information about all configuration menu options. Menu features are grouped according to task. Each feature is introduced, then a table describes the feature's location in the configuration menu, the available choices for that feature, and the factory default (the value set at the factory).

## Methods of Configuration

You have four major ways to configure your printer to meet your printing needs. In order of priority, they are

- Through an application
- Through PS Executive Series Utilities
- Through printer commands
- Through the printer control panel
- Through remote console, for TCP/IP Telnet, NetWare, EtherTalk, and LAN Manager/LAN Server

### Using an Application

Using your application is the best way to control your printer since most printing is done on a per-job basis. This helps prevent confusion in network environments and saves you from making changes at the printer control panel. Your application documentation explains how to control your printer settings: probably by choosing options from a printing menu.

Applications use printer drivers to send the appropriate commands automatically to the printer for the requested tasks. If your application doesn't have a QMS 1060 Print System driver, you can select a comparable PostScript driver, such as another QMS driver or a Laser-Writer driver. However, comparable drivers may not allow you to access all of your printer's features, such as 600x600 dpi printing or collating. For best results, use the driver that accompanied your new printer. See Chapter 3, "Connecting to a Macintosh," or Chapter 4, "Connecting to a PC," of the *Getting Started* guide, for detailed instructions about using a printer driver.

## **Using PS Executive Series Utilities**

You can also use the PS Executive Series Utilities (shipped with your printer) to control the printer from your host. See the README file on the utilities disk for information on installing the utilities, and see the utilities on-line documentation for details on using the software.

## **Using Printer Commands**

Printer commands (such as QMS Document Option Commands [DOCs], PostScript operators, and HP-GL and HP PCL commands) can enable job-specific features your application or page description language can't access. See appendix C, "Document Option Commands," of this manual for a list of the DOCs this printer supports. See the *QMS Crown Document Option Commands* manual (available for purchase from your QMS vendor) for more detailed information on these commands. See appendix E, "Manual Updates," of this manual for updated PCL 5 DOC information.

## Using the Control Panel

Your printer is configured at the factory for the most typical printing environments, so most users don't have to use the control panel often. However, if you do need to change a printer setting for all print jobs (not just on a per-job basis), you can do so through the control panel. If you are working in a shared printing environment, your system administrator should be the only person to make changes through the printer's control panel.

## Using Remote Console

Many of the configuration choices that can be made at the control panel can be made through a remote console in a TCP/IP Telnet, NetWare, EtherTalk, or LAN Manager/LAN Server environment. To avoid confusion in a shared printing environment, only the system administrator should make configuration changes.

- » **Note:** *If a remote console has the printer off line, pressing the Online/Offline key will not take effect until the console puts the printer back on line.*

The rest of this chapter explains the configuration menu.

# Configuration Menu

The printer's configuration menu allows you to change the default printer configuration settings. In other words, any changes you make affect all subsequent print jobs.

The options in the configuration menu are organized under three main menus:

### ■ Administration Menu

Use this menu to maintain printer-host communication information, and for selecting and configuring printer emulations, configuring special pages, printing engine calibration, and configuring hard disks (if installed).

### ■ Installation Menu

Use this menu to establish passwords for the Operator Control and Administration menus. This menu displays only when an optional security card is installed.

### ■ Operator Control Menu

Use this menu to maintain document processing options (number of copies, media type, and paper orientation). These capabilities are usually handled most efficiently within specific print jobs since each job has its own requirements. However, if there is no way of specifying these options within a job, you may do so from the control panel.

## Accessing the Configuration Menu

To access the configuration menu, make sure the printer is idle (`IDLE` displays in the message window), then press the Online/Offline key to take the printer off line (the Ready indicator is not lighted), and finally press the Menu key.

### Example

The following table shows how to use the control panel menu keys to access the printer configuration menu. Press the control panel keys in the order shown. The printer responds by displaying a status message or configuration menu in the control panel message window.

## Configuration Menu

- » **Note:** You may need to press the Next key more than one time to advance through the list of options.

Press this key...	to...	For 1.5 seconds, the message window reads...	and then it reads...
Online/Offline	Turn off the Ready indicator and enable printer configuration.	IDLE	IDLE
Menu	Access the configuration menu.	CONFIGURATION	OPERATOR CONTROL

The printer must be off line and idle before you can access the configuration menu to change printer configuration.

## Selecting Configuration Menu Options

Once you access the configuration menu, you use the control panel keys to move through the menu to access the appropriate option. Use the following keys:

Press this key...	to...
Next	Advance to the next option or submenu within a menu.
Previous	Return to the previous option or submenu within a menu.
Select	Select an option or enter a submenu.

### Example

To change the default printer emulation from ESP to PostScript, press the control panel keys in the order shown in the following table.

## Configuration Menu

- » **Note:** You may need to press the Next key more than one time to advance through the list of selections or options.

Press this key...	to...	For 1.5 seconds, the message window reads ...	and then it reads ...
Online/Offline	Turn off the Ready indicator and enable printer configuration.	IDLE	IDLE
Menu	Access the configuration menu.	CONFIGURATION	OPERATOR CONTROL
Next	Advance to the Operator Control/ Administration menu.	OPERATOR CONTROL	ADMINISTRATION
Select	Access the Administration menu.	ADMINISTRATION	COMMUNICATIONS
Select	Access the Communications menu.	COMMUNICATIONS	TIMEOUTS
Next (more than once)	Advance to the Communications/ Parallel menu.	TIMEOUTS	PARALLEL
Select	Access the Parallel menu.	PARALLEL	MODE
Next	Advance to the Parallel/Emulation menu.	MODE	EMULATION

## Configuration Menu

Select	Access the Emulation menu.	EMULATION	*ESP
Next (more than once)	Advance to the Emulation/ PostScript menu.		POSTSCRIPT
Select	Select PostScript as the default emulation		POSTSCRIPT IS SELECTED
	After 3 seconds you are returned to the Parallel/Emulation menu.	PARALLEL	EMULATION

» **Note:** *Shaded table cells indicate that the message scrolls.*

## Changing Character Information

Sometimes, rather than selecting an option, you need to enter character information. A character is any letter, digit, or symbol. A field is a group of characters that have meaning. Use the printer control panel to enter character information in the message window during printer configuration. The maximum length of the message window is 16 characters.

Entering character information through the control panel is similar to setting the time and date on a digital watch. You enter one character at a time. The current input character flashes. Use the following keys to change the current input character:

Press this key...	to...
Next	Advance to the next choice for the current input character.
Previous	Return to the previous choice for the current input character.

Once you have changed the current input character, use the following keys to move the cursor to another input character:

Press this key...	to...
Select	Advance the cursor to the next character.
Menu	Return the cursor to the previous character.

To exit from the character selection process, move the cursor to the last character of the input field (the character farthest to the right) and press the Select key, or move to the first character of the input field (the character farthest to the left) and press the Menu key.

When you exit, the printer verifies the character information and confirms it in the message window. If the character information is valid, you are returned to the previous menu; if it is invalid, you are returned to the input field. Press the Menu key to cancel any changes to the character information.

If the current character information is longer than the value that you need to enter, replace each extra character with a space. The printer interprets a space at the end of character information as a blank.

### Example

To change the HP-GL emulation scaling percent, press the control panel keys in the order shown in the following table. The printer responds by displaying a status message or configuration menu in the message window. A flashing cursor indicates the current input character in the message window.

## Configuration Menu

- » **Note:** You may need to press the Next key more than one time to advance through the list of selections or options.

Press this key...	to...	For 1.5 seconds, the message window reads ...	and then it reads ...
Online/ Offline	Turn off the Ready indicator and enable printer configuration.	IDLE	IDLE
Menu	Access the configuration menu.	CONFIGURATION	OPERATOR CONTROL
Next	Advance to the Administration menu.	OPERATOR CONTROL	ADMINISTRATION
Select	Access the Administration menu	ADMINISTRATION	COMMUNICATIONS
Next	Advance to the Communications /Emulation menu.	COMMUNICATIONS	EMULATIONS
Select	Access the Emulation menu.	EMULATIONS	*ESP
Next (one or more times)	Advance to the Emulations/HP-GL menu.		HP-GL
Select	Access the HP-GL menu.	HP-GL	PLOTTER

## Configuration Menu

Next	Advance to the HP-GL/Scaling Percent menu.	PLOTTER	SCALING PERCENT
Select	Access the Scaling Percent menu.		<u>1</u> 00
Previous	Lower the current character to 0.		0 <u>0</u> 0
Select	Select 0 and move the current character to the next 0.		0 <u>0</u> 0
Next (4 times)	Advance the current character to 5.		0 <u>5</u> 0
Select	Select 5 and move the current character to last 0.		05 <u>0</u>
Select	Select 50 as the default scaling percent.		50 IS SELECTED
	After 3 seconds you are returned to the HP-GL/Scaling Percent menu.	HP-GL	SCALING PERCENT

## Saving Configuration Changes

Before the printer can accept print jobs with configuration changes, the changes must be saved.

## Configuration Menu

### Example

To save your configuration changes, press the control panel keys in the order shown in the following table. The printer responds by displaying a status message in the message window.

Press this key...	to...	For 1.5 seconds, the message window reads...	then it reads ...
Online/ Offline or Menu	Exit from the menu and be prompted to save your change (Online/Offline) or return to the previous menu (Menu).	SAVE CHANGES?	*NO
Next	Advance to the Save Changes?/ Yes option.		YES
Select	Select Yes. The printer saves your changes, and returns to idle.		IDLE
Online/ Offline	Turn on the Ready indicator and enable the printer to accept and print new jobs.		IDLE

- » **Note:** *Some Administration menu changes require that the printer be restarted before they take effect. Some changes restart the printer automatically while others display the message REBOOT NOW? in the control panel message window. If this message appears, select YES to restart the printer and have the changes take effect immediately, or select NO to wait until you manually restart the printer before the changes take effect.*

## Canceling Configuration Changes

If you change a configuration option and then decide to cancel that change, you can do so when exiting from the configuration menu.

### Example

To cancel your configuration changes before they have actually taken effect, press the control panel keys in the order shown in the following table. The printer responds by displaying a status message in the message window.

<b>Press this key...</b>	<b>to...</b>	<b>For 1.5 seconds, the message window reads...</b>	<b>then it reads ...</b>
Online/ Offline or Menu	Exit from the menu and be prompted to save your change (Online/Offline) or return to the previous menu level (Menu).	SAVE CHANGES?	*NO
Select	Select No. The printer does not save your changes, and returns to idle.		IDLE
Online/ Offline	Turn on the Ready indicator and enable the printer to accept new jobs.		IDLE

## Setting the Message Window Language

Status messages and configuration menus can be displayed in the message window in English, French, German, or Spanish. If you need to change the message window language, use the Keypad Language option in the Administration/Miscellaneous menu.

<b>Menu</b>	Administration/Miscellaneous/Keypad Language
<b>Choices</b>	English, French, German, Spanish
<b>Default</b>	English
<b>Notes</b>	This printer must be restarted for changes to the Keypad Language menu to take effect.

## Restoring the Factory Default Configuration

If you need to cancel all of the configuration changes you have made to the printer's configuration menu, you can reset all of the configuration values to their factory defaults.

<b>Menu</b>	Administration/Miscellaneous/Restore Defaults
<b>Choices</b>	Yes, No
<b>Default</b>	No
<b>Notes</b>	This process takes several minutes to complete.

- » **Note:** *If you save a change and for some reason wish to return to the previous state, use the Advanced Status Page as a reference.*

## Rebooting the System

Use this option to restart the system after making a group of configuration menu changes. After changing any option that requires a system restart, you are prompted to REBOOT NOW?, if you use this option, you can choose No because you want to make other configuration changes, then you should use this option to restart the system and have all configuration menu changes take effect.

<b>Menu</b>	Administration/Miscellaneous/Reboot System
-------------	--

<b>Choices</b>	Yes, No Yes—Reboots the system. No—Does not reboot the system.
<b>Default</b>	No
<b>Notes</b>	This process takes several minutes to complete.

- » **Note:** *If you save a change and for some reason wish to return to the previous state, use the Advanced Status Page as a reference.*

## Configuration Menu Options

The rest of this chapter describes the options in the printer configuration menu. Information is organized in the following order:

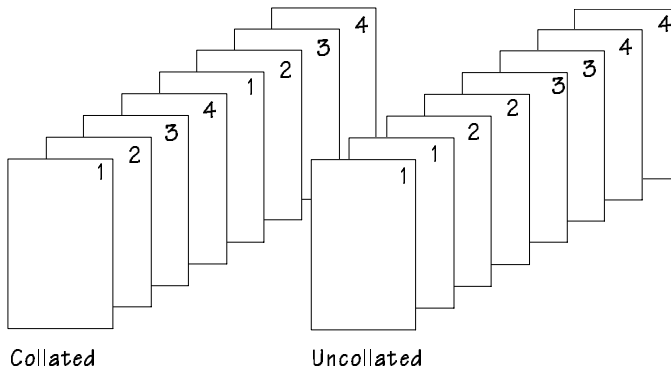
- Collation
- Copies
- Emulations
- Flash Memory
- Hard disks
- Interfaces
- Media input
- Media orientation
- Media output
- Media size
- Memory
- Optional features
- Passwords
- Printer engine

## Collation

- Printer start-up options
- Special pages
- Timeouts

# Collation

One of the features of your printer is collation: the printing of sets of multiple copies of a document in numeric order. Your printer is capable of delivering multiple copies of your files in collated order to the output tray. The following figure shows the collated and uncollated stacking for two copies of a four-page file.



The main advantage of collation is convenience and the time savings derived from not having to separate and sort individual copies of a document. Each copy of the document exists as a whole unless chunk collation has occurred.

## Enabling/Disabling Collation

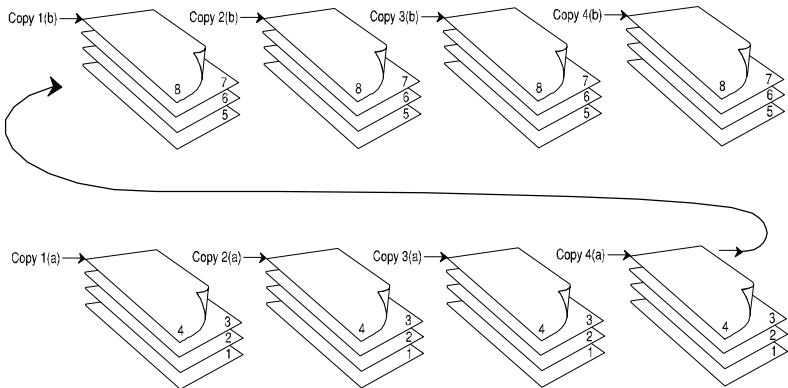
<b>Menu</b>	Operator Control/Collation
<b>Choices</b>	On—Enable collation. Off—Disable collation.
<b>Default</b>	On

## **Working with Chunk Collation**

For a multiple copy document with collation On, there must be enough display list memory to hold the display list blocks (R1) for all pages in the collation range. See the “Memory” section of the *Reference*, for more information on the Display List compressed blocks. If there is not enough memory, then a chunk collation range is forced after the last compiled page of the collation range.

## **Chunk Collation**

This mechanism of introducing a forced boundary is known as chunk collation. Chunk collation breaks a document into several smaller, more manageable sets. For example, in the following illustration, copies “a” and “b” of each set must be manually combined to create one collated document. The order of printing is copy 1(a), copy 2(a), copy 3(a), copy 4(a), copy 1(b), copy 2(b), copy 3(b), and copy 4(b).



To greatly improve collation performance which allows you to print longer and more complex print jobs on the QMS 1060 Print system, you can do one of the following:

## Collation

- Add more printer memory which automatically increases the Display List client's memory values. See chapter 6, "Printer Options," of this manual for information on how to install additional memory.
- Take memory not being used by other clients and add it to the Display List client.

---

▲ **Caution:** *This option should only be used by individuals who are familiar with adjusting memory clients values. Incorrect use of this option could cause your system to operate incorrectly.*

---

- If your printer has an optional hard disk and if Administration/Memory/Enable Disk Swap is set to On, then any extra memory is distributed to all clients.
  - Collate through your application.
- » **Note:** *Collating through your application is more time consuming than collating through the printer. The application sends the complete job the requested number of times rather than sending it once and holding data in printer memory.*

## Collating PCL 5 Files

PCL 5 allows you to set the number of copies you want to print per page rather than per file. When collation is turned off, the printer prints the requested number of copies for each page. However, when collation is turned on, the printer looks at the number of copies for the first page and prints that many copies of each page.

**Example**—You have a 3-page PCL 5 file and specify 3 copies of page 1, 1 copy of page 2, and 2 copies of page 3.

- With collation turned off, the pages print in the following order:  
1, 1, 1, 2, 3, 3.
- With collation turned on, the pages print in the following order:  
1, 2, 3, 1, 2, 3, 1, 2, 3.

# Copies

While it is usually preferable to use your application to select the number of copies of your document you want to print, you can change the default number of copies for all print jobs through the printer control panel.

<b>Menu</b>	Operator Control/Copies
<b>Choices</b>	001-1000
<b>Default</b>	001
<b>Notes</b>	Sets the default number of copies for all subsequent print jobs. When power is turned off and then back on again, the number of copies is restored to the default setting of 001.

# Flash Memory

The system software in your QMS 1060 Print System is stored on 4 MB of flash memory that can be erased and rewritten to “in a flash.” This allows you to update the system software without opening up the printer and installing new PROMs. Updated system software allows you to take advantage of future enhancements to the printer.

## Enabling/Disabling New Flash Image

Use the Administration/Miscellaneous/New Flash Image menu to update the system software (image in flash ROM).

<b>Menu</b>	Administration/Miscellaneous/New Flash Image
<b>Choices</b>	Yes—Download new system code No—Don't download new system code
<b>Default</b>	No

# Updating System Software

Updating the system software is a three-step procedure:

- 1 Choose the appropriate compressed system software files.**
- 2 Install the system software on your computer.**
- 3 Download the system software to the printer.**

The following sections explain these steps in detail.

- 
- ▲ **Caution:** *Some fonts downloaded on your printer's hard disk are copy-protected. Therefore, when you upgrade the system upgrade (release 2.0 or later firmware) on your QMS 1060 Print System, these fonts must be re-downloaded in order for the printer to recognize them. See your font documentation for downloading instructions.*
- 

## Choosing the Appropriate System Software Files for Downloading

System software is contained on 8 disks—4 PC and 4 Macintosh. The disks you use depend on the type of computer you are using, whether your printer is functioning or not, the current firmware release, and how you plan to download the system software to the printer.

Computer	Disk Set to Use	Hard Disk Space Needed (approx.)	Printer		Firmware Release*	Interfaces for Downloading
			Functional	Non-Functional		
Macintosh	SYSTEMLOADER	1.75 MB	√	√	1.x	Serial
	SYSTEMDL.PS	3.25 MB	√		2.x	All
PC	SYSTEM.DL	1.75 MB	√	√	1.x	Parallel, Serial
	SYSTEMDL.PS	3.25 MB	√		2.x	All

\* The printer's firmware release number is listed on both the start-up and status pages.

## **Installing the System Software**

Once you have identified the appropriate print system software disk set (using the table in the previous section), you must install the software on your computer's hard disk before you can download it to the printer.

- 1 Ensure that your computer has enough free hard disk space for the system software.**
- 2 Create a new folder (Macintosh) or directory (PC) on your computer.**
- 3 Insert Disk 1 of the appropriate print system software disk set in your computer's disk drive.**
- 4 Install the files on your computer's hard disk.**

■ **Macintosh**

- a Open the Installer application.
  - **If you're using the SYSTEMDL.PS file** (see the table in the previous section), double-click the PRINTSYSTEM.INSTALLER file icon.
  - **If you're using the SYSTEM.DL file** (see the table in the previous section), double-click the SYSTEM-LOADER.1 icon.
- b In the dialog box that appears, change the Install Location to the folder you created in step 2. Use the drop-down list box to select Select Folder, in the Select the Installation Folder dialog box select the appropriate disk and folder, and then click Select.
- c Click Install to begin the installation.
- d When prompted, insert disk 2 of the system software.

The installation takes approximately 1.5 minutes. The Installer places the appropriate system software file (either SYSTEMDL.PS or SYSTEMLOADER) in the folder you selected in step b.

- e When the installation is finished, you're prompted to click Quit to exit the Installer program.

■ **PC**

- a At the DOS C:\*DIRECTORY* prompt, type `x:pkunzip x:system` where *DIRECTORY* is the name of the new directory you created in step 2, and x is the name of the disk drive in which you inserted Disk 1.
- b Follow the prompts. They instruct you to insert the system software disks in the following order:
  - Last disk (system software disk 2)
  - Disk 1 (system software disk 1)
  - Disk 2 (system software disk 2)

■ **UNIX**

- a Follow the instructions given above for either the Macintosh or the PC.
- b After the system software file has been decompressed on hard disk of the Macintosh or the PC, upload the decompressed file to the UNIX system.

**5 Download the system software to the printer.**

The procedure for downloading system software depends on whether the print system software is functional (the printer starts up normally, and `IDLE` displays in the message window) or non-functional (the printer can't start up; the message window remains blank), and which system software file you decompressed in the previous step.

See one of the following sections for instructions:

- "Downloading System Software to a Functional Printer—`SYSTEMDL.PS`"
- "Downloading System Software to a Functional Printer—`SYSTEM.DL`"
- "Downloading System Software to a Non-Functional Printer"

## **Downloading System Software to a Functional Printer—SYSTEMDL.PS**

If the print system software is non-functional (the printer can't start up), go to a following section, "Downloading System Software to a Non-Functional Printer."

If the print system software is functional (the printer starts up normally, and `IDLE` displays in the message window), and if you decompressed the file `SYSTEMDL.PS` in the previous section, use these instructions.

### **Before You Begin Downloading the Software**

- Ensure that the system software is installed, as described in the previous section.
- Turn on the printer, wait for `IDLE` to appear in the message window, and then print an advanced status page.

This procedure may change the current configuration settings. The advanced status page provides a record of all current configuration settings, so you can verify them, and reconfigure them, if necessary, after the system software has been updated.

- Ensure that the Administration/Communications/*Interface*/Emulation menu (where *Interface* is the interface you plan to use to download the system software), is set to ESP or PostScript.
- Ensure that the printer is on line and idle.

### **Macintosh**

- 1 In the Chooser, choose the printer to be upgraded.**
- 2 Open PS Executive by double-clicking on the PS Exec icon.**
- 3 From the File menu, choose Print PS File.**
- 4 Click the Option button, make sure all options are disabled, and then click OK.**
- 5 Select the SYSTEMDL.PS file, and choose Send.**

## Updating System Software

The downloading process takes about 5 minutes, depending on the size of the file and the speed of your computer. The printer's Ready indicator blinks as the new system image is copied to flash memory.

After the updated system software has been written to flash memory, the printer reboots with the new system image, prints a start-up page, and returns to `IDLE`.

- » **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*
- 6 Print another advanced status page, and verify that the configuration settings match the previous configuration settings (on the advanced status page printed in the “Before you Begin Downloading the Software” section).**
- 7 If there are differences in the configuration settings, reconfigure them through the printer configuration menu.**
- 8 On your computer's hard disk, delete the folder containing the `SYSTEM.SEA` and `SYSTEM.SEA.2` files.**

### PC and UNIX

- 1 Download the new system software PostScript file `SYS-TEMDL.PS` to the printer, over any available interface, the way you would normally send a PostScript file.**

For example, you might use PS Executive, **copy**, or **fstprn** from a PC, or **qpr** or **put** from a UNIX system.

The downloading process takes about 5 minutes, depending on the size of the file and the speed of your computer. The printer's Ready indicator blinks as the new system image is copied to flash memory.

After the updated system software has been written to flash memory, the printer reboots with the new system image, prints a start-up page, and returns to `IDLE`.

- » **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*

- 2 **Print another advanced status page, and verify that the configuration settings match the previous configuration settings (on the advanced status page printed in the “Before you Begin Downloading the Software” section).**
- 3 **If there are differences in the configuration settings, reconfigure them through the printer configuration menu.**

## **Downloading System Software to a Functional Printer—SYSTEM.DL**

If the print system software is non-functional (the printer can't start up), go to the following section, “Downloading System Software to a Non-Functional Printer.”

If the print system software is functional (the printer starts up normally, and IDLE displays in the message window), and if you decompressed the file SYSTEMLOADER (Macintosh) or SYSTEM.DL (PC) in the previous section, use these instructions.

### **Macintosh**

- » **Note:** *This downloading procedure requires a connection from the Macintosh's serial port (either the modem or the printer port) to the printer's serial port. The cable must have a DIN-8 female connector on the Macintosh end. It must also must be wired as a null modem or it must have a null modem adapter. The type of connector for the printer's serial port end of the cable depends on the type of null modem assembly. Your Macintosh vendor can provide you with this equipment, or you can use the “Cable Pinouts” section of appendix B, “Technical Specifications,” if you want to make your own cable.*

#### **1 Connect the Macintosh to the printer's serial port.**

You can use either the printer or modem port on the Macintosh. However, the modem port provides the fastest download.

- » **Note:** *To use the printer port you must first disable AppleTalk in the Chooser.*

#### **2 Turn on the printer, wait for IDLE to appear in the message window, and then print an advanced status page.**

This procedure should not change the current configuration settings. However, the advanced status page provides a record of all current configuration settings, so you can verify that they are the same after the system software has been updated.

- 3 Take the printer off line.**
- 4 Access the Administration/Miscellaneous/New Flash Image menu.**
- 5 Select Yes in the New Flash Image menu.**

The printer waits for the new system software (image) to be sent from your Macintosh. (YES remains in the message window until the new image is sent.)

- 6 Send the new system software image to the printer.**
  - a At the Macintosh, double-click the SystemLoader icon.
  - b In the dialog box that appears, make sure the correct download port is selected, and then choose the Send button to start the download.

The downloading process takes about 10 minutes, depending on the size of the file and the speed of your Macintosh. The Ready indicator blinks as the new system image is written to flash ROM. After the updated system software has been written to flash ROM, the message `Download Complete!` appears on the Macintosh screen, the printer reboots with the new system image, prints a start-up page, and returns to `IDLE`.

» **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*

- 7 Print another advanced status page, and verify that the configuration settings match the previous configuration settings (on the advanced status page printed in step 2).**
- 8 If there are differences, correct them through the printer configuration menu.**
- 9 On your Macintosh hard disk, delete the folder containing the SYSTEMLOADER application.**

## **PC—Parallel Port**

This is the recommended method for downloading from an IBM or compatible PC because it is the fastest method and because no additional cables or changes of port settings are necessary.

After you have installed the system software, as described in the previous section, use the following procedure to update the system software in flash memory.

» **Note:** *If you're using a serial port, skip to the following section, "PC—Serial Port."*

**1 Turn on the printer, wait for IDLE to appear in the message window, and then print an advanced status page.**

This procedure should not change the current configuration settings. However, the advanced status page provides a record of all current configuration settings, so you can verify that they are the same after the system software has been updated.

**2 Take the printer off line.**

**3 Access the Administration/Miscellaneous/New Flash Image menu.**

**4 Select Yes in the New Flash Image menu.**

The printer waits for the new system software (image) to be sent via your PC's parallel port. (YES remains in the message window until the new image is sent.)

**5 Send the new image to the printer.**

Type

```
copy /b system.dl lpt#␣
```

where # is 1 to 3. (/b refers to binary files.) If you're not sure of the number of the parallel port, check your PC's documentation.

## Updating System Software

The downloading process takes about 5 minutes, depending on the size of the file and the speed of your PC. The Ready indicator blinks as the new system image is copied to flash ROM. After the updated system software has been written to flash ROM, the printer reboots with the new system image, prints a start-up page, and returns to `IDLE`.

- » **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*
- 6 Print another advanced status page, and verify that the current configuration settings match the previous configuration settings (on the advanced status page printed in step 1).**
- 7 If there are differences in the configuration settings, correct them through the printer configuration menu.**

### PC—Serial Port

This method for downloading the system software from an IBM or compatible PC should be used only when a parallel port is not available because it's slower and because it requires a null modem cable (see the "Cable Pinouts" section of appendix B, "Technical Specifications," for more information) and special software to set the PC's serial port to 38400 baud (see step 2, below).

After you have installed the system software, as described in an earlier section, use the following procedure to update the system software in flash memory.

- » **Note:** *If you're using a parallel port, refer to the previous section, "PC—Parallel Port."*
- 1 Connect the PC to the printer's serial port, using a null modem cable.**
- 2 Download the DOS ModeX program from the QMS Bulletin Board.**

Using your modem, dial in to the QMS Bulletin Board, as described in appendix A, "QMS Customer Support." After you

access the QMS Main Library through the L (Library of Files) selection, do the following:

- a Choose D (Download a File).
- b Type `hibaud.exe`↵
- c Exit from the Bulletin Board.
- d Terminate the connection.

**3 Type `hibaud`↵ to extract the ModeX files.**

**4 Set the PC's baud rate to 38400 by typing**

```
modex.exe↵  
modex # 38400 n 8 1↵
```

where # is 1-4. See the MODEX.DOC file for more information on this program.

**5 Turn on the printer, wait for IDLE to appear in the message window, and then print an advanced status page.**

This procedure should not change the current configuration settings. However, the advanced status page provides a record of all current configuration settings, so you can verify that they are the same after the system software has been updated.

**6 Take the printer off line.**

**7 Turn on the RTS and CTS hardware flow control settings.**

- a Access the Administration/Communications/Serial/Hdwe Flow Ctl menu.
- b Set RTS to On.
- c Set CTS to On.
- d Press the Online/Offline key to be prompted to save your changes.
- e Select Yes to Save Changes.

**8 Access the Administration/Miscellaneous/New Flash Image menu.**

**9 Select Yes in the New Flash Image menu.**

The printer waits for the new system software (image) to be sent via your PC's serial port. (YES remains in the message window until the new image is sent.)

**10 Send the new image to the printer.**

Type

```
copy /b system.dl com#<number>
```

where # is 1 to 4. (/b refers to binary files.) If you're not sure of the number of the serial port, check your PC's documentation.

The downloading process takes about 5 minutes, depending on the size of the file and the speed of your PC. The Ready indicator blinks as the new system image is copied to flash ROM. After the updated system software has been written to flash ROM, the printer reboots with the new system image, prints a start-up page, and returns to IDLE.

» **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*

**11 Print another advanced status page, and verify that the current configuration settings match the previous configuration settings (on the advanced status page printed in step 5).**

**12 If there are differences in the configuration settings, correct them through the printer configuration menu.**

## **Downloading System Software to a Non-Functional Printer**

If the print system software is functional (the printer starts up normally, and IDLE displays in the message window), go to one of the previous sections, "Downloading System Software to a Functional Printer—SYSTEMDL.PS" or "Downloading System Software to a Functional Printer—SYSTEM.DL."

If the print system software is non-functional (the printer can't start up), use these instructions to download the system software.

## **Macintosh**

If the current print system software is not functioning, you must connect your Macintosh to the printer's serial port to reinstall the system software. The downloading procedure will not work over the LocalTalk or CrownNet interface in this case.

- » **Note:** *This downloading procedure requires a connection from the Macintosh's serial port (either the modem or the printer port) to the printer's serial port. The cable must have a DIN-8 female connector on the Macintosh end. It must also must be wired as a null modem or it must have a null modem adapter. The type of connector for the printer's serial port end of the cable depends on the type of null modem assembly. Your Macintosh vendor can provide you with this equipment, or you can use the "Cable Pinouts" section of appendix B, "Technical Specifications," if you want to make your own cable.*

### **1 Connect the Macintosh to the printer's serial port.**

You can use either the printer or modem port on the Macintosh. However, the modem port provides the fastest download.

- » **Note:** *To use the printer port you must first disable AppleTalk in the Chooser.*

### **2 Turn on the printer.**

### **3 When the control panel indicators stop flashing (the message window will remain blank since the printer is non-functional), send the new system software file SYSTEM.DL to the printer.**

- a At the Macintosh, double-click the SystemLoader icon.
- b In the dialog box that appears, make sure the correct download port is selected, and then choose the Send button to start the download.

## Updating System Software

The downloading process takes about 10 minutes, depending on the size of the file and the speed of your Macintosh. The Ready indicator blinks as the new system image is written to flash ROM. After the updated system software has been written to flash ROM, the message `Download Complete!` appears on the Macintosh screen, the printer reboots with the new system image, prints a start-up page, and returns to `IDLE`.

- » **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*

### PC—Parallel Port

If the current print system software is not functioning, you must connect your PC to either the printer's parallel or serial port to reinstall the system software. The downloading procedure will not work over the CrownNet interface in this case.

Using the parallel port is the recommended method for downloading from a PC because the parallel port is faster than the serial port and because no additional cables or changes of port settings are necessary.

- » **Note:** *If you're using a serial port, skip to the following section, "PC—Serial Port."*

- 1 If necessary, connect the PC to the printer's parallel port.**
- 2 Turn on the printer.**
- 3 When the control panel indicators stop flashing (the message window will remain blank since the printer is non-functional), send the new system software file `SYSTEM.DL` to the printer.**

Type

```
copy /b system.dl lpt#<
```

where # is 1 to 3. (/b refers to binary files.) If you're not sure of the number of the parallel port, check your PC's documentation.

The downloading process takes about 5 minutes, depending on the size of the file and the speed of your PC. The Ready indicator blinks as the new system image is copied to flash ROM. After the updated system software has been written to flash ROM, the printer reboots with the new system image, prints a start-up page, and returns to IDLE.

- » **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*

## **PC—Serial Port**

If the current print system software is not functioning, you must connect your PC to either the printer's parallel or serial port to reinstall the system software. The downloading procedure will not work over the CrownNet interface in this case.

This method for downloading the system software from a PC should be used only when a parallel port is not available because it's slower and because it requires a null modem cable (see the "Cable Pinouts" section of appendix B, "Technical Specifications," for more information) and special software to set the PC's serial port to 38400 baud (see step 2, below).

- » **Note:** *If you're using a parallel port, refer to the previous section, "PC—Parallel Port."*

- 1 If necessary, connect the PC to the printer's serial port, using a null modem cable.**
- 2 Download the DOS ModeX program from the QMS Bulletin Board.**

Using your modem, dial in to the QMS Bulletin Board, as described in appendix A, "QMS Customer Support." After you access the QMS Main Library through the L (Library of Files) selection, do the following:

- a Choose D (Download a File).
- b Type `hibaud.exe`↵
- c Exit from the Bulletin Board.

## Updating System Software

d Terminate the connection.

### 3 Type `hibaud` to extract the ModeX files.

### 4 Set the PC's baud rate to 38400 by typing

```
modem.exe↵  
modem # 38400 n 8 1↵
```

where # is 1-4. See the MODEX.DOC file for more information on this program.

### 5 Turn on the printer.

### 6 When the control panel indicators stop flashing (the message window will remain blank since the printer is non-functional), send the new system software file SYSTEM.DL to the printer.

Type

```
copy /b system.dl com#↵
```

where # is 1 to 4. (/b refers to binary files.) If you're not sure of the number of the serial port, check your PC's documentation.

The downloading process takes about 5 minutes, depending on the size of the file and the speed of your PC. The Ready indicator blinks as the new system image is copied to flash ROM. After the updated system software has been written to flash ROM, the printer reboots with the new system image, prints a start-up page, and returns to IDLE.

- » **Note:** *The new flash image does not erase the old image until the printer verifies that the new image is valid.*

# Emulations

Use the Administration/Emulations menu to set the parameters for the available printer emulations. Optional printing emulations appear only if installed.

- » **Note:** *To choose an emulation or ESP for a particular interface, use the appropriate interface menu in the Administration/Communications menu. See “Interfaces,” later in this chapter, for more information.*

## Setting ESP Default Parameters

The ESP Default Emul sets the ESP default emulation used when ESP is unable to identify the language of a print job. This allows the system administrator to select alternate default emulations.

<b>Menu</b>	Administration/Emulations/ESP Default
<b>Choices</b>	HPGL, Lineprinter, PCL5, PostScript
<b>Default</b>	PCL5

## Setting HP-GL Parameters

Fifteen configuration choices are available under Emulations/HP-GL.

### Enhanced Mode

Increases the resolution of the grid for downloaded characters. The GL UC (User-defined Character) command allows you to download and draw characters using an encoding scheme consisting of sequences of pen control movements and coordinate sequences. The characters are drawn on a grid that is superimposed on the character plot cell.

<b>Menu</b>	Administration/Emulations/HPGL/Enhanced Mode
-------------	--

## Emulations

<b>Choices</b>	On—Standard resolution for fixed- and variable-spaced fonts (4x8 grid). Off—Enhanced resolution for variable-spaced fonts (26x36 grid).
<b>Default</b>	Off

### Expand Mode

Defines a larger imageable area which affects the default placement of the scaling points P1 and P2.

<b>Menu</b>	Administration/Emulations/HPGL/Expand Mode
<b>Choices</b>	On—Turn on expand mode Off—Use default scaling points, plotting range, and plotting area.
<b>Default</b>	Off
<b>Notes</b>	<p>The available range of plotter units for a particular media size is only partially determined by setting the Expand Mode to On. When the printer/plotter senses the media size it automatically sets the hard clip limit to 15mm on three sides and 39 mm on the fourth. If Expand Mode is On, then the hard clip limits are set to 5mm on three sides and 29 mm on the fourth side. This is what allows you to define a larger imageable area.</p> <p>The HP-GL emulation senses the media type if the paper type is set to Scale to Paper. It is also possible to have the HP-GL emulation use a particular media size by setting Original Paper Type through the control panel or by using a Document Option Command.</p>

### Origin

Sets the image offset from the plotter's origin in 0.01" increments.

<b>Menu</b>	Administration/Emulations/HPGL/Origin/X Direction
<b>Choices</b>	0000-8500 (0"-8.5")
<b>Default</b>	0000

<b>Menu</b>	Administration/Emulations/HPGL/Origin/Y Direction
<b>Choices</b>	00000-11000 (0"-11.0")
<b>Default</b>	00000

**Paper Type**

Identifies the original image's paper size.

<b>Menu</b>	Administration/Emulations/HPGL/Paper Type
<b>Choices</b>	A, A3, A4, B, Scale to Paper
<b>Default</b>	Scale to Paper

**Pen 1 - Pen 8**

Sets the width and color for the eight plotter pens. Each pen has a width and a color option available.

- » **Note:** See chapter 5, "Additional Technical Information," for more information on the HP-GL emulation color encoding equation.

<b>Menu</b>	Administration/Emulations/HPGL/Pen x/Width
<b>Choices</b>	0-60 (0.0-6.0 mm)
<b>Default</b>	Pen 1—7 (0.7 mm) Pen 2—3 (0.3 mm) Pen 3—3 (0.3 mm) Pen 4—3 (0.3 mm) Pen 5—3 (0.3 mm) Pen 6—3 (0.3 mm) Pen 7—3 (0.3 mm) Pen 8—3 (0.3 mm)
<b>Note</b>	A choice of 0 defaults to a pixel of "1".
<b>Menu</b>	Administration/Emulations/HPGL/Pen x/Color

## Emulations

<b>Choices</b>	Black, Blue, Brown, Cyan, Gray-25%, Gray-50%, Gray-75%, Green, Magenta, Orange, Red, Violet, Yellow
<b>Default</b>	Pen 1—Black (100% black) Pen 2—Black (100% black) Pen 3—Red (70% black) Pen 4—Green (41% black) Pen 5—Blue (89% black) Pen 6—Violet (59% black) Pen 7—Orange (25.8% black) Pen 8—Brown (50% black)

## Plotter

Identifies the HP-GL plotter type.

<b>Menu</b>	Administration/Emulations/HPGL/Plotter
<b>Choices</b>	7475A, 7550A, 7470A, ColorPro
<b>Default</b>	7550A

## Reverse Image

Determines whether an image is printed in reverse.

<b>Menu</b>	Administration/Emulations/HPGL/Reverse Image
<b>Choices</b>	On—Print a white image on a black background. Off—Print a black image on a white background.
<b>Default</b>	Off

## Scaling Percent

Identifies the percentage to reduce or enlarge an image.

<b>Menu</b>	Administration/Emulations/HPGL/Scaling Percent
<b>Choices</b>	001-150 (1-150%)
<b>Default</b>	100 (100%)

- » **Note:** *To scale plots, select the paper size originally used for the plot in the Paper Type menu and then enter the reduction or enlargement needed to fit the plot on the new page in the Scaling Percent menu. If necessary, enter new x,y coordinates in the Origin menu to reposition the plot on the page.*

## **Setting HP PCL5 Parameters**

The PCL 5 menu maintains PCL 5 emulation attributes such as default font, symbol set, and point size. There are ten configuration settings. See appendix E, “Manual Updates,” for updated information on the PCL 5 emulation DOC commands.

### **Default Font**

Sets the printer’s default font.

<b>Menu</b>	Administration/Emulations/PCL 5/Default Font
<b>Choices</b>	Courier12, Courier12bold, Courier12italic, Courier10, Courier10bold, Courier10italic, Lineprinter, Times*, Times*italic, Times*bold, Times*blditalic, Univ*, Univ*italic, Univ*bold, Univ*blditalic, Unicond*, Unicond*italic, Unicond*bold, Unicond*blditlc, Select by index,
<b>Default</b>	Courier12
<b>Notes</b>	<p>Fonts with an asterisk “*” in their names are scalable. Their default point size is set by the Point Size X100 option. Choosing Selectbyindex as the default font selects the font by the index that is set through the Default Font Index option.</p> <p>All courier fonts (courier10 and courier12) and lineprinter are bitmap fonts, so they have a fixed point size. Selecting a bound, bitmap font overrides the default settings for symbol set and point size. An unbound font uses the specified default symbol set if possible, and a scalable font uses the default font size.</p>

### Download Location

Controls the default storage location of PCL objects (fonts, macros, and patterns) when it is not otherwise specified through DOC commands.

<b>Menu</b>	Administration/Emulations/HP PCL 5/Downld Location
<b>Choices</b>	Disk—All downloaded PCL objects are stored in the default disk resource, if present. Memory—All downloaded PCL objects are stored in temporary storage in RAM.
<b>Default</b>	Disk
<b>Notes</b>	» <b>Note:</b> <i>Before downloading any fonts, macros, or patterns ensure that the printer has enough memory to do the download. See chapter 6, the “Problems Downloading Fonts” section, for information on increasing printer memory when downloading fonts.</i>  DOC commands specifying resources override this option on a per-job basis.  If this option is set to Disk and no hard disk is installed, memory is used as the default storage location.  If the printer has both a hard disk and a large amount of memory, setting this option to Memory enhances printer performance.

### Symbol Set

Selects the default symbol set for the emulation. Not all symbol sets are available with certain resident fonts. In particular, the Desktop, PS Math, Math 8, Microsoft Pub, Pi Font, PS Text, Ventura Intl, Ventura Math, Ventura US, and Windows symbol sets can not be used with the resident bitmap fonts: courier10, courier10bold, courier10italic, courier12, courier12bold, courier12italic, and lineprinter.

The five Dingbat symbol sets (PS-Zapf-Dingbats, Ventura-Dingbats, Zapf-Dingbats-100, Zapf-Dingbats200, Zapf-Dingbats300) can be used with all fonts.

<b>Menu</b>	Administration/Emulations/HP PCL 5/Symbol Set
<b>Choices</b>	Roman-8, PC-850, PC8-US, PC8-DN, ECMA-94, Legal, HPGerman, HPSpanish, ISO-2, ISO-4, ISO-6, ISO-10, ISO-11, ISO-14, ISO-15, ISO-16, ISO-17, ISO-21, ISO-25, ISO-57, ISO-60, ISO-61, ISO-69, ISO-84, ISO-85, Desktop, PS Math, Math 8, Microsoft-Pub, Pi-Font, PS-Text, Ventura-Intl, Ventura-Math, Ventura-US, Windows, PS-Zapf-Dingbats, Ventura-Dingbats, Zapf-Dingbats100, Zapf-Dingbats200, Zapf-Dingbats300
<b>Default</b>	Roman-8
<b>Notes</b>	If a mismatch between symbol set and fonts occurs, the standard PCL font selection mechanism is used to locate a font that matches the selected symbol set. With the standard set of fonts distributed for your printer, this matches the Times* font, but other user-installed fonts could change this result.

### **Lines Per Inch**

Sets the default lines printed per inch in PCL jobs, regardless of page size.

<b>Menu</b>	Administration/Emulations/PCL 5/Lines/Inch X100
<b>Choices</b>	100 to 4800
<b>Default</b>	600
<b>Notes</b>	You must enter the number of lines per inch times 100. For example, 6 lines per inch is entered as 600; 6.6 liner per inch is entered as 660.

## Emulations

### Line Termination

Indicates the default line termination mode. This setting specifies the treatment of line feeds and carriage returns. (See Appendix E, "Manual Updates" for more information on line termination).

<b>Menu</b>	Administration/Emulations/PCL 5/Line Termination
<b>Choices</b>	CR=CR LF=LF CR=CR+LF LF=LF CR=CR LF=CR+LF CR or LF=CR+LF
<b>Default</b>	CR=CR LF=LF

### Point Size x100

Sets the point size for scalable default fonts in units of hundredths of a point. For example, a 24 point default point size is selected by entering 2400. The smallest increment allowed in point size is .25 point (for example, 8.5 point and 8.75 point fonts are allowed, but 8.6 point is not).

<b>Menu</b>	Administration/Emulations/PCL 5/Point Size x100
<b>Choices</b>	00025-99975 (0.25-999.75 points)
<b>Default</b>	01200 (12 points)
<b>Notes</b>	If the font is not scalable or if a bitmap font is specified, the setting is ignored.

**Retain Temporary**

Allows you to control the PCL print environment across print jobs.

<b>Menu</b>	Administration/Emulations/PCL 5/Retain Temporary
<b>Choices</b>	<p>Off, On, On Compatibility</p> <p>Off—Resets PCL to its default state at the end of each PCL print job, executes an implicit &lt;ESC&gt;E at the start and end of the job, and deletes any temporary fonts, macros, and patterns.</p> <p>On—Resets PCL to its default state at the end of each PCL print job. Temporary fonts, macros, and patterns from previous PCL jobs are retained in memory after the print job has completed. You can recall these downloaded fonts, macros, or patterns from within your PCL file without having to download them again.</p> <p>On Compatibility—Retains the entire state of PCL as well as the temporary macros, fonts, and patterns from previous PCL jobs.</p>
<b>Default</b>	Off
<b>Notes</b>	<p>A retained state is cleared if the user does the following:</p> <ul style="list-style-type: none"> <li>■ Explicitly clears the PCL state by sending an &lt;ESC&gt;E or Printer Job Language.</li> <li>■ Turns off the printer. (Note that if Retain Temporary is set to On or On Compatibility and power is turned off and back on again, all temporary objects on the disk's standard resource will become permanent. RAM-based temporary objects are lost).</li> <li>■ Changes any PCL front panel option.</li> <li>■ Sends any PCL-specific DOC commands (except the DOC emulation command).</li> <li>■ Sends a PCL job from a different communications port. For example, the state set up by a PCL job using the parallel port is cleared if a subsequent PCL job arrives at the serial port).</li> </ul>

## Emulations

### Scalable Fonts

Specifies whether to enable or disable the printing of PCL 5 scalable fonts by an application. This feature may be useful when printing PCL 4 documents which may inadvertently select unwanted scalable fonts.

<b>Menu</b>	Administration/Emulations/HP PCL 5/Scalable Fonts
<b>Choices</b>	Enable, Disable Enable—Allows selection of scalable fonts. When you print PCL 4 documents, PCL 5 may substitute scalable fonts that could cause your PCL 4 documents to print incorrectly. Disable—Prints using bitmap fonts only.
<b>Default</b>	Enable

### Default Font Index

Sets the Default Font Index when the Default Font is set to selectby-index.

<b>Menu</b>	Administration/Emulations/HP PCL 5/Default Font Idx
<b>Choices</b>	0 to 32767
<b>Default</b>	Selectbyindex value

**Monochrome GL/2**

Allows your printer to emulate a monochrome or color plotter.

<b>Menu</b>	Administration/Emulations/HP PCL 5/Monochrome GL/2
<b>Choices</b>	<p>On, Off</p> <p>On—Sets the printer to monochrome (2 pen).          Off—Sets the printer to color (8 pen). Since a monochrome print system has two pen colors only (black and white), grayscale patterns are substituted for other colors.</p> <p>The printer maps each pen to its assigned color, then converts the color to a grayscale using the National Television System Committee (NTSC) color standard for luminosity coefficients (Additive System):  <math>Y = .3R + .59G + .11B</math></p> <p>Examples on How to Use the Color Standard Formula</p> <p>White <math>Y = [(1*0.3) + (1*0.59) + (1*0.11)]</math>—100% gray          Black <math>Y = [(0*0.3) + (0*0.59) + (0*0.11)]</math>—0% gray          Red <math>Y = [(1*0.3) + (0*0.59) + (0*0.11)]</math>—30% gray          Green <math>Y = [(0*0.3) + (1*0.59) + (0*0.11)]</math>—59% gray          Yellow <math>Y = [(1*0.3) + (1*0.59) + (0*0.11)]</math>—89% gray          Blue <math>Y = [(0*0.3) + (0*0.59) + (1*0.11)]</math>—11% gray          Magenta <math>Y = [(1*0.3) + (0*0.59) + (1*0.11)]</math>—41% gray          Cyan <math>Y = [(0*0.3) + (1*0.59) + (1*0.11)]</math>—70% gray</p>
<b>Default</b>	<p>On</p> <p>Pen Color Defaults:</p> <p>Pen 0 = White          Pen 1 = Black          Pen 2 = Red          Pen 3 = Green          Pen 4 = Yellow          Pen 5 = Blue          Pen 6 = Magenta          Pen 7 = Cyan</p>

## **Setting Line Printer Parameters**

The following twelve configuration options are available.

### **Autowrap**

Indicates whether long lines are to be wrapped to the next line instead of being truncated.

<b>Menu</b>	Administration/Emulations/Line Printer/Autowrap
<b>Choices</b>	On—Wrap long lines. Off—Truncate long lines.
<b>Default</b>	On

### **Character Map**

Specifies the type of character map to be used.

<b>Menu</b>	Administration/Emulations/Line Printer/Character Map
<b>Choices</b>	ASCII, EBCDIC
<b>Default</b>	ASCII

### **CR IS CRLF**

Stipulates whether each carriage return (CR) in the print job is translated to a carriage return/line feed (CRLF) combination.

<b>Menu</b>	Administration/Emulations/Line Printer/CR IS CRLF
<b>Choices</b>	On—Translate all carriage returns to line feeds. Off—Use carriage returns only as carriage returns.
<b>Default</b>	Off

**FF IS CRFF**

Stipulates whether each form feed (FF) in the print job is translated to a carriage return/form feed (CRFF) combination.

<b>Menu</b>	Administration/Emulations/Line Printer/FF IS CRLF
<b>Choices</b>	On—Translate all form feeds to carriage return/form feed combinations. Off—Use form feeds only as form feeds.
<b>Default</b>	On

**Font**

Sets the printer fonts for the current print job. Any PostScript fonts available on the printer can be used. To see a list of available PostScript fonts, print an advanced status page through the printer configuration menu or through the PS Executive Series Utilities.

<b>Menu</b>	Administration/Emulations/Line Printer/Font
<b>Choices</b>	All printer-resident PostScript fonts.
<b>Default</b>	Courier

**LF IS CRLF**

Stipulates whether each line feed (LF) in the print job is translated to a carriage return/line feed (CRLF) combination.

<b>Menu</b>	Administration/Emulations/Line Printer/LF IS CRLF
<b>Choices</b>	On—Translate all line feeds to carriage return/line feed combinations. Off—Use line feeds only as line feeds.
<b>Default</b>	On

## Emulations

### Line Numbering

Specifies that a five-digit number is to be prefixed to the beginning of each line.

<b>Menu</b>	Administration/Emulations/Line Printer/Line Numbering
<b>Choices</b>	On—Number all lines. Off—Don't number lines.
<b>Default</b>	Off

### Lines Per Page

Specifies the number of lines printed on a page before an automatic page eject. Interline spacing is set to the selected point size. Logical pages consisting of more lines than specified are split into multiple pages.

<b>Menu</b>	Administration/Emulations/Line Printer/Lines per Page
<b>Choices</b>	1-128
<b>Default</b>	87

### Margins

Defines the left, right, top, and bottom margins in 1/100" increments.

<b>Menu</b>	Administration/Emulations/Line Printer/Margins
<b>Choices</b>	Bottom 0-1400 (0"-14.00") Left 0-1400 (0"-14.00") Right 0-1400 (0"-14.00") Top 0-1400 (0"-14.00")
<b>Default</b>	Bottom 0 Left 0 Right 0 Top 0

**Orientation**

Specifies whether text and graphics are placed on the page in a portrait or landscape orientation.

<b>Menu</b>	Administration/Emulations/Line Printer/Orientation
<b>Choices</b>	Landscape, Portrait
<b>Default</b>	Portrait

**Point Sz 100ths**

Sets the five-digit value used to specify the point size of the font for the current print job.

<b>Menu</b>	Administration/Emulations/Line Printer/Point Sz 100ths
<b>Choices</b>	00400-25600 (4-256 points)
<b>Default</b>	00880 (8.8 points)

**Tab Stops**

Specifies the number of spaces between tab stops.

<b>Menu</b>	Administration/Emulations/Line Printer/Tab Stops
<b>Choices</b>	0-256
<b>Default</b>	8

**Setting PostScript Parameters**

The PostScript menu allows you to select a PostScript emulation level, and halftone type, and it enables gamma correction.

## Emulations

### Emulation Level

Sets the default PostScript emulation level. This is useful if you have files prepared in an application which is not fully compatible with Adobe's PostScript Level 2 page description language.

<b>Menu</b>	Administration/Emulations/PostScript/Emulation Level
<b>Choices</b>	Level 2—For PostScript Level 2 files and most Level 1 files.  Level 1 B/W—For files that contain only black-and-white PostScript Level 1 operators. This mode does not support the PostScript color operators, and use of color operators could even cause the print job to fail.  Level 1 Color—For files that contain color PostScript Level 1 operators. This mode accepts color PostScript Level 1 operators and translates these commands to the appropriate grayscale. This is the recommended setting for Level 1 compatibility since it contains all of the commands in Level 1 B/W and the color commands.
<b>Default</b>	Level 2

### Halftone Type

Sets the halftone type.

<b>Menu</b>	Administration/Emulations/PostScript/Halftone Type
<b>Choices</b>	Basic—Regular dot placement at 53 lpi for 300x300 resolution or 71 dpi for 600x600 resolution.  Advanced—Variable dot placement according to the grayscales within the image. Generally, this option provides smoother transitions between grayscales within the image.
<b>Default</b>	Advanced

**Gamma Correction**

Sets the print engine's gamma correction. For more information on gamma correction, see chapter 5, "Print Quality," in the *Operation* guide...

<b>Menu</b>	Administration/Emulations/PostScript/Gamma Correction
<b>Choices</b>	No—Disables gamma correction. Yes—Enables gamma correction.
<b>Default</b>	No
<b>Notes</b>	Gamma correction is automatically adjusted when you change your printer's resolution, if this option is set to Yes. Gamma correction applies only to PostScript images. If turning on gamma correction doesn't yield a suitable gray-scale image for your needs, set a specific gamma correction value through your drawing application or through the PostScript <b>settransfer</b> operator. (See your drawing application documentation or the <i>PostScript Language Reference Manual</i> for more information.)

# Hard Disks

Use the Administration/Disk Operations menu to perform disk operation processes that appear only when one or more optional hard disks are installed.

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- ▲ **Caution:** *If you connect to this printer an external hard disk you previously used with an earlier QMS Crown printer (QMS 860, QMS 860 Plus, QMS-PS 1700, QMS 1725, QMS 1725 SLS, QMS-PS 2000, QMS 2025, QMS-PS 3200, QMS 3225, QMS 4525, QMS ColorScript 210/230, QMS Laser 1000, or QMS magicolor Laser Printer), this QMS 1060 Print System software release will automatically reorganize the files on the hard disk when the printer is turned back on again. (The printer release number is listed on both the start-up and the status page.) Once this reorganization is done, the files on the hard disk can no longer be accessed if the hard disk is re-attached to an earlier QMS Crown printer again.*

*This reorganization process takes time. If, when you first turn the printer on after attaching a previously used hard disk, it does not come on line immediately, be patient. Interrupting the reorganization process could cause all files on the hard disk to be lost.*

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## Formatting a Hard Disk

Use this selection to format a hard disk. See chapter 6, "Printer Options," for information on how to format a disk.

Hard disk specifications are included in Q-FAX document 6502, "QMS-tested SIMMs and Hard Disks." See appendix A, "QMS Customer Support," of this manual for information on accessing Q-FAX documents.

- » **Note:** *If a `FORMAT FAILED` message displays in the message window during the Format Disk operation, the disk cannot be used. Press the Menu key to remove the message and contact your QMS vendor.*

## Installing an Optional Font

Use this selection to add options, such as fonts to the hard disk via a font card. This selection copies data from the card to the hard disk. See chapter 6, "Printer Options," for more information on how to install an option.

- » **Note:** *If an error message displays in the message window during this operation, press the Menu key to remove the message and restart the operation from the beginning.*

## Removing an Optional Font

Use this selection to remove a previously installed option and all of its files. See chapter 6, "Printer Options," for more information on how to remove an option.

- » **Note:** *If an error message displays in the message window during this operation, press the Menu key to remove the message and restart the operation from the beginning.*

# Interfaces

You can customize all of the printer's interfaces through the Administration/Communications menu.

## Setting LocalTalk Interface Parameters

Use the Administration/Communications/LocalTalk menu to set the LocalTalk interface values used for printer-host communication.

### Mode

Enables or disables the communication interface.

<b>Menu</b>	Administration/Communications/LocalTalk/Mode
<b>Choices</b>	Enabled—Establishes one-way LocalTalk communication from the host to the printer)  Disabled—Turns off the LocalTalk interface, and the printer stops accepting LocalTalk interface print jobs)
<b>Default</b>	Enabled
<b>Notes</b>	The printer must be restarted for changes to the Mode menu to take effect. Changing the Mode setting will cause the REBOOT NOW? prompt to appear. You can either choose to restart the printer now and this change takes effect immediately or you can manually restart the printer and have this change take effect later.

### Min K Spool

Sets the minimum number of kilobytes of system memory allocated to the AppleTalk interface.

<b>Menu</b>	Administration/Communications/AppleTalk/Min K Spool
<b>Choices</b>	00000-99999
<b>Default</b>	00015
<b>Notes</b>	This value must be less than K Mem For Spool (Administration/Memory menu).  A 00000 value does not turn off the spooling buffer for the LocalTalk interface. If the value is set to 00000, the printer calculates the Min K Spool automatically at initialization.  The printer is immediately restarted when a change is made to this option. (For example, change the value to 35, press the Select key, and the menu changes to LocalTalk. Press the Online/Offline key and the printer automatically reboots.

**Connection**

Allows you to enable or disable print spooling.

<b>Menu</b>	Administration/Communications/LocalTalk/Connection
<b>Choices</b>	<p>Conventional—Allows one LocalTalk connection and accepts only one print job at a time. If two users send print jobs to the printer, the workstation belonging to the first user is unavailable until the first job has been printed, and the workstation belonging to the second user is unavailable until both jobs have been printed.</p> <p>Spool—Allows multiple LocalTalk connections and accepts (spools) more than one print job at a time. Workstations are available while jobs are printing.</p> <p>Both—Allows both single and multiple LocalTalk connections.</p>
<b>Default</b>	Conventional

**PS Protocol**

Sets the binary communications protocol (BCP) for communicating over a LocalTalk interface to a PostScript printer. See chapter 5, "Additional Technical Information," for a full discussion of PS Protocol.

<b>Menu</b>	Administration/Communications/LocalTalk/PS Protocol
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