QMS® 2425/ 2425 TURBO Print System Reference

1800439-001E

EDNord - Istedgade 37A - 9000 Aalborg - telefon 96333500

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Glossary

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1

Introduction

In This Chapter . . .

- "About This Manual" on page 1-2
- "Typographic Conventions" on page 1-4

Introduction

This manual provides detailed instructions and technical information for your QMS 2425/2425 *TURBO* Print System. Use this guide in conjunction with your other printer documentation.

This chapter gives you a brief overview of this manual.

About This Manual

This manual contains printer configuration and reference information. It is divided into the following sections:

1	**Introduction**	Provides an overview of the manual.
2	**Print Media**	Lists print media sizes, margins, and imageable areas and provides media storage information.
3	**Professional Printing**	Discusses typefaces and fonts, typographic terms, displays the printer's typefaces, and provides some page design tips.
4	**Printer Configuration**	Explains the methods of configuring the printer, demonstrates how to use printer control panel, and provides a detailed discussion of the configuration menu.
5	**Additional Technical Information**	Defines ESP and SIO, communication modes, gamma correction and memory. Discusses end job mode, IEEE 1284 bidirectional parallel interface modes, PS Protocol and HP-GL color encoding.

A	**QMS Customer Support**	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	**Technical Specifications**	Provides technical specifications for the printer and lists available supplies and replacement parts.
C	**Document Option Commands**	Lists printer-supported Document Option Commands (DOCs).
D	**Notices**	Lists manual and legal notices.
E	**Configuration Menu**	Provides a view of the printer's configuration menu.
Glossary		Defines commonly used terms.

» **Note:** *Some of the procedures throughout this documentation refer to applications, utilities, and printer drivers being located on disks, but recently QMS has begun placing these on CD-ROM.*

If you need alternate media, please contact your QMS vendor for media availability and purchase information. You can also download some of these files via ftp from our World Wide Web Server at http://www.qms.com, our Bulletin Board at (334) 633-3632, or CompuServe at go qmsprint. See appendix A, "QMS Customer Support," for sales and support locations and telephone numbers.

Typographic Conventions

The following typographic conventions are used in this manual:

`Mixed-Case Courier`	Text you type, and messages and information displayed on the screen
`Mixed-Case Italic Courier`	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
lowercase bold	PostScript operators and DOS commands
lowercase italic	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 Vorgenhensweise, da sonst Verletzungsgefahr bestehen könnte.*

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2

Print Media

In This Chapter . . .

- “Media Sizes and Imageable Areas” on page 2-2
- “Media Types and Weights” on page 2-4
- “Media Storage” on page 2-6

Introduction

This chapter lists the media sizes and imageable areas supported by the QMS 2425/2425 *TURBO* Print System, and then provides information on selecting and storing media.

Media Sizes and Imageable Areas

Your printer supports media in a number of sizes. Each media size has a certain imageable area, the maximum area on which the printer can print. This area is subject to both hardware limits (the physical media size and the margins required by the printer) and software constraints (the amount of memory available for the full-page frame buffer).

» **Note:** *Ensure that the media size matches the cassette size (for example, letter/A4 media must be loaded only when the cassette is set to letter/A4 size). Since the media cassette sends a media size signal to the printer controller, using a wrong size media will cause your image to be positioned incorrectly on the page or clipped. Also, see chapter 3, "Advanced Printing Features," of Operation for information on the amount of memory needed to print each paper size.*

Imageable Area

The imageable area is the area on which the printer is guaranteed to print clearly and without distortion. This area is subject to both hardware limits (the physical media size and the margins required by the printer) and software constraints (the amount of memory available for the full-page frame buffer).

The following table lists the size, imageable area, and feed edge (the edge of the media drawn into the printer first) of all supported media as well as information about their input, output, and finishing options:

Media	Media Size		Imageable Area		Feed	Input/Output
	Inches	Millimeters	Inches	Millimeters	Edge	Source*
11x17	11.00x17.00	279.4x431.8	10.66x16.66	270.93x423.34	Short	D, L, M, P, S
A3	11.69x16.54	297.0x420.0	11.36x16.19	288.54x411.44	Short	D, L, M, P, S
A4	11.69x8.27	297.0x210.0	7.93x11.36	201.46x288.54	Long	D, L, M, P, S, U
A5	5.85x8.27	148.5x210.0	5.5x7.93	139.87x201.46	Short	D, M
B4	10.12x14.33	257.0x364.0	9.78x13.99	248.58x355.52	Short	D, L, M, P, S, U
B5	7.17x10.12	182.0x257.0	6.82x9.78	173.4x248.45	Short	D, M,
C5	6.38x9.02	162x229	6.04x8.67	153.41x220.39	Short	E, M
COM-10	4.125x9.5	104.78x241.3	3.78x9.17	96.01x232.92	Short	E, M
DL	4.33x8.66	110.0x220.0	4.0x8.32	101.6x211.33	Short	E, M
Envelope	6.93x9.76	176x248	6.58x9.42	167.3x239.48	Short	E, M
Executive	7.25x10.50	184.20x266.70	6.92x10.16	175.77x258.23	Short	D, M, S
Legal	8.5x14.0	215.9x355.6	8.16x13.66	207.26x347.13	Short	D, L, M, P, S, U
Letter	11.00x8.5	279.40x215.90	8.16x10.66	207.43x270.93	Long	D, L, M, P, S, U
Monarch Envelope	3.875x7.5	98.425x190.5	3.54x7.17	89.92x182.12	Short	E, M
Statement	5.50x8.50	139.7x215.9	5.16x8.16	131.06x207.26	Short	M
Universal	11.69x17.7	297x449.5	11.36x17.36	288.54x441.12	Short	M

**D=Duplexer, E=Envelope feeder, lower cassette, M=Multipurpose tray, P=High-capacity paper deck, S=Stackler, U=Upper cassette*

Working Within the Imageable Area

The imageable areas for print media on your printer are not centered vertically on their respective pages and may vary 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 PostScript **translate** and **scale** operators to reduce image size and change its placement on the page.

Page Margins

Margins are set through your application. Some applications allow you to set custom page sizes and margins while others have only standard page sizes and margins from which to choose. 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 those sizes given for the imageable area for optimum results.

Media Types and Weights

Your printer supports envelopes, labels, paper, postcards, and transparencies in a number of sizes. The following information provides media types and weights that your printer supports.

Envelopes

Type

Envelopes can be fed automatically via the cassette, optional envelope feeder, or multipurpose tray, or they can be fed one at a time via the multipurpose tray. Use envelopes with emulsion-based glue to avoid sealing the flaps as envelopes pass through the hot fuser assembly. See “Consumable Supplies” in appendix B, “Technical Specifications,” for information on recommended types of envelopes.

Weight

The printer supports 17-34 lb (64-128 g/m^2) envelopes.

Labels

Type

Use only Canon label USA stock. Adhesive label stock has pressure-sensitive (peel-and-stick) adhesive backing. See “Consumable Supplies” in appendix B, “Technical Specifications,” for information on recommended types of labels.

Weight

The printer supports 17-34 lb (64-128 g/m^2) labels.

Paper

Type

Use only paper recommended for laser printers, such as Hammermill Laser Print. Thicker paper, such as Xerox 4024 (28 lb [105 g/m^2]), is also acceptable when using manual feed. See “Consumable Supplies,” in appendix B, “Technical Specifications,” for information on recommended types of envelopes.

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

Weight

The printer supports the following weights of paper:

- **Paper cassettes**—17-24 lb (64-90 g/m^2)
- **Multipurpose tray**—17-34 lb (64-128 g/m^2)
- **Duplexer**—17-28 lb (64-105 g/m^2)
- **Stackler**—16-34 lb (60-128 g/m^2)

Postcards

Weight

The printer supports 17-34 lb (64-128 g/m^2) postcards.

Transparencies

Type

Use only transparencies recommended for laser printers, such as Canon USA brand type D and 3M type PP2500. See “Consumable Supplies,” in appendix B, “Technical Specifications,” for information on recommended types of envelopes.

Weight

The printer supports 17-34 lb (64-128 g/m^2) transparencies.

Media Storage

Improperly stored media increases the chance of paper jams during printing and can drastically affect the print quality of the printed page. Keep media in good condition by storing it

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

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3

Professional Printing

In This Chapter . . .

- “About Typefaces and Fonts” on page 3-2
- “Resident Fonts, Typefaces, and Symbol Sets” on page 3-7
- “Optional Fonts” on page 3-14

Introduction

This chapter defines common terms used in the description of fonts and typefaces, and displays the printer's resident typefaces.

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.

Typeface	Typeface Family
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.	A group of similar typefaces. For example, the Times typeface family consists of four typefaces: Times Roman, **Times Bold**, *Times Italic*, and ***Times Bold Italic***.
Font	**Character Set**
A set of characters of the same typeface (such as Times), style (such as *italic*), stroke weight (such as **bold**), 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.	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.

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

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 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 physically. ITC Zapf Chancery is a script typeface.

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 proportionally spaced 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.

Scalable Font

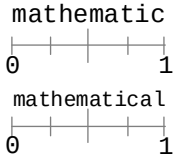
A scalable font is one in which each character's dot pattern (bitmap) is generated from a mathematical representation (or outline) of the character. Scalable fonts eliminate the need to store many different font sizes.

Point Size

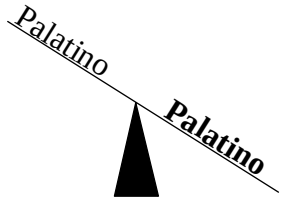
Point size refers to the height of a proportionally spaced typeface. A point is a unit of measure equal to 1/72". Therefore, the larger the point size, the larger the letter. The following example shows characters in 8, 10, 12, 24, and 36 point sizes:

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



Stoke 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

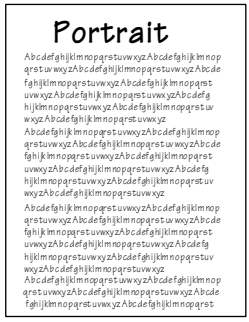
Oblique (or slanted) type forms, however, are not designed and crafted individually but are mechanically slanted versions of the roman form from which they derive.

ITC Avant Garde Roman

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 derive from painting; a portrait is usually a vertical view while a landscape is usually a horizontal view.



Resident Fonts, Typefaces, and Symbol Sets

Resident PostScript Fonts

Your printer has 40 resident PostScript fonts from 12 typeface families. Check with your QMS vendor for availability of additional fonts for your printer. See appendix A, “QMS Customer Support,” for a list of locations and telephone numbers.

Your printer supports type 1 and type 3 downloaded PostScript fonts. PostScript supports TrueType downloaded fonts only in type 42 format.

All of these typeface families are authentic; they licensed, they carry the true name, and they have multilingual character sets.

» **Note:** *The OCR-B font comes resident in your printer, but it is only available when the ImageServer option is installed.*

Serif Fonts

ITC Bookman Light
ITC Bookman Light Italic
ITC Bookman Demi
ITC Bookman Demi 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
ITC Avant Garde Book Oblique
ITC Avant Garde Demi
ITC Avant Garde Demi 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 5e Fonts

The QMS 2425/2425 *TURBO* printer has 51 resident HP PCL 5e fonts (including Intellifonts) in 15 typefaces, allowing it to emulate the HP Laserjet 4SI. All fonts can be automatically rotated to landscape orientation. Some are fixed in pitch and point size while others are scalable.

» **Note:** *300/600 dpi resolution switching is available but 1200 dpi is only supported by HP-GL2.*

This table is a complete list of the fonts available for PCL 5e. They can be automatically rotated to landscape orientation. All fonts are scalable and available in 32 symbol sets unless otherwise noted.

Font	Scalable/ Bitmap	Pi/ Symbol	Sans Serif	Script	Serif
Adobe Symbol Medium (1 symbol set)	S	✓			
Albertus Semi Bold Albertus Extra Bold	S S		✓ ✓		
Antique Olive Medium Antique Olive Italic Medium Antique Olive Bold	S S S		✓ ✓ ✓		
Arial Arial Bold Arial Italic Arial Bold Italic	S S S S		✓ ✓ ✓ ✓		
Clarendon Condensed Bold	S				✓
Coronet Italic Medium	S			✓	

Font	Scalable/ Bitmap	Pi/ Symbol	Sans Serif	Script	Serif
Courier Medium	S				✓
Courier Italic Medium	S				✓
Courier Bold	S				✓
Courier Bold Italic	S				✓
Garamond (Stempel) Medium	S				✓
Garamond (Stempel) Italic Medium	S				✓
Garamond (Stempel) Bold	S				✓
Garamond (Stempel) Italic Bold	S				✓
Letter Gothic Medium	S		✓		
Letter Gothic Italic Medium	S		✓		
Letter Gothic Bold	S		✓		
Line Printer (16.66 pitch, 8.5 points) (25 symbol sets)	B		✓		
Marigold.pcl	S			✓	
Omega Medium	S		✓		
Omega Italic Medium	S		✓		
Omega Bold	S		✓		
Omega Italic Bold	S		✓		
Times Medium	S				✓
Times Italic Medium	S				✓
Times Bold	S				✓
Times Italic Bold	S				✓
Times Roman Medium	S				✓
Times Roman Italic Medium	S				✓
Times Roman Bold	S				✓
Times Roman Italic Bold	S				✓

Font	Scalable/ Bitmap	Pi/ Symbol	Sans Serif	Script	Serif
Univers Medium	S		✓		
Univers Italic Medium	S		✓		
Univers Bold	S		✓		
Univers Italic Bold	S		✓		
Univers Condensed Medium	S		✓		
Univers Condensed Italic Medium	S		✓		
Univers Condensed Bold	S		✓		
Univers Condensed Italic Bold					
Wingdings (1 symbol set)	S	✓			
» **Note:** *S=Scalable, B=Bitmap*					

PCL 5e Symbol Sets

This table lists all of the PCL 5e symbol sets that are supported on the QMS 2425/2425 *TURBO* Print System.

Desktop	PC - 850
ISO - 4 (UK)	PC - 852 (Latin 2)
ISO - 6 (ASCII)	PC - 8tk
ISO - 11 (SWED)	PC8 - US
ISO - 15 (ITAL)	PC8 - DN
ISO - 17 (SPAN)	PI - font
ISO - 21 (GERM)	PS - Math
ISO - 60 (NORW)	PS - Text
ISO - 69 (FREN)	Roman - 8
ISO - Latin - 1	Ventura - Intl
ISO - Latin - 2	Ventura - Math
ISO - Latin - 5	Ventura - US
Legal	Windows 3.0 (LATIN 1)
MC - Text	Windows 3.1 1-1 (Latin 1)
Math - 8	Windows 3.1 1-2 (Latin 2)
Microsoft - Pub	Windows 3.1 1-3 (Latin 3)

Resident HP-GL Fonts

Your printer has 40 following resident scalable HP-GL fonts in both fixed- and variable-spaced versions.

Set 0—Fixed space ANSI ASCII	Set 30—Fixed space ISO Swedish
Set 1—Fixed space 9825 Character Set	Set 31—Fixed space ISO Swedish for names
Set 2—Fixed space French/German	Set 32—Fixed space ISO Norway version 1
Set 3—Fixed space Scandinavian	Set 33—Fixed space ISO German
Set 4—Fixed space Spanish/Latin American	Set 34—Fixed space French
Set 5—Fixed space Special Symbols	Set 35—Fixed space United Kingdom
Set 6—Fixed space JIS ASCII	Set 36—Fixed space Italian
Set 7—Fixed space Roman extensions	Set 37—Fixed space Spanish
Set 8—Fixed space Katakana	Set 38—Fixed space Portuguese
Set 9—Fixed space ISO IRV	Set 39—Fixed space Norway version 2
Set 10—Variable space ANSI ASCII	Set 40—Variable space ISO Swedish
Set 11—Variable space 9825 Character set	Set 41—Variable space ISO Swedish for names
Set 12—Variable space French/German	Set 42—Variable space ISO Norway version 1
Set 13—Variable space Scandinavian	Set 43—Variable space German
Set 14—Variable space Spanish/ Latin American	Set 44—Variable space French
Set 15—Variable space Special symbols	Set 45—Variable space United Kingdom
Set 16—Variable space ASCII	Set 46—Variable space Italian
Set 17—Variable space Roman extensions	Set 47—Variable space Spanish
Set 18—Variable space Katakana	Set 48—Variable space Portuguese
Set 19—Variable space ISO IRV	Set 49—Variable space Norway version 2

Optional Fonts

The following types of optional fonts are available for the QMS 2425/ 2425 *TURBO* Print System:

- A disk containing typefaces (fonts), such as the ProCollection for the HP emulations on your printer or other special fonts.
- A SIMM containing 65 ProCollection fonts for the HP emulation on your printer.
- A Kanji Option Kit that contains either a pre-formatted external hard disk with Kanji fonts and other files or a Kanji SIMM.

Contact your QMS vendor for availability of these fonts as well as logos, signatures, or other form services. See appendix A, “QMS Customer Support,” for locations and telephone numbers.

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4

Printer Configuration

In This Chapter . . .

- "Methods of Configuration" on page 4-2
- "Configuration Menu" on page 4-4
- "Operator Control Menu" on page 4-14
- "Output Finishing" on page 4-45
- "Installation Menu" on page 4-89

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 some of the configuration menu options. The *QMS CrownNet Interface System Administrator's Guide* (shipped with your printer) contains the CrownNet submenu configuration information for the Ethernet interface. In both guides, 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 five ways to configure your printer to meet your printing needs:

- Through an application
- Through printer commands
- Through the printer control panel
- Through a remote console (for network users)

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 appropriate commands to the printer for requested tasks. If your application doesn't have a QMS 2425/2425 *TURBO* Print System driver, you can select a comparable PostScript driver, such as the QMS Level 2 Windows driver or a LaserWriter driver. However, comparable drivers may not allow you to access all of your printer's features, such as 600x600 dpi printing, duplexing, or collating.

Using QMS Document Option Commands

QMS Document Option Commands [DOCs] can enable job-specific features your application or page description language can't access. See your *QMS Crown Document Option Commands* manual (shipped with your printer) for information on the DOC commands. Also, see appendix C, "Document Option Commands," of this manual for a list of DOCs this printer supports.

Using the Control Panel

Your printer is configured at the factory for 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're working in a shared printing environment, your system administrator should be the only person to make changes through the printer's control panel.

Using a Remote Console

Many of the configuration choices that can be made at the control panel can also be made via a Remote Console session from CrownAdmin or CrownAdmin 2. You can run Remote Console via Telnet a UNIX environment.To avoid confusion in a shared printing environment, only the system administrator should make configuration changes. See the QMS CrownAdmin 3 on-line help for information on using Remote Console.

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

Configuration Menu

The printer's configuration menu allows you to change the default printer configuration settings. Any changes made to the configuration will reside as new default settings and affect all subsequent print jobs.

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

- **Operator Control Menu**

  Use this menu to select document processing options such as copy count, choosing input and output paper bins, chaining input bins, and duplexing (if a duplexing unit is installed).

  Document processing options are usually specified within individual jobs since each job has its own requirements. However, if there's no way of specifying these options within an application, use the control panel to change options, send the job, and then change the defaults back.

» **Note:** *Defining document processing options for a particular job through the control panel is not recommended in a shared environment. When many systems are using the same printer, there's no way of making sure that no other jobs are sent to the printer while the defaults are changed. The Operator Control menu may be password protected with an optional security key if the system administrator does not want users changing defaults. See your QMS vendor for availability of this option.*

- **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).

» **Note:** *For information on printer-host communication using the Ethernet interface or any of the Administration/Communications/ Network/CrownNet options, see chapter 2, "Printer Configuration," in the QMS CrownNet System Administrator's Guide. The Administration menu may be password protected with an optional security key if the system administrator does not want users changing defaults. See your QMS vendor for availability of this option.*

- **Installation Menu**

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

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 key to take the printer off line (the Online indicator is not lighted), and finally press the Menu key.

Example

The following table shows how to use control panel 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 message window.

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

Press this key	to...	The message window reads...
Online	Turn off the Online indicator and ready the printer for configuration.	`IDLE`
Menu	Access the configuration menu.	`CONFIGURATION OPERATOR CONTROL`

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

Selecting Configuration Menu Options

Once you access the configuration menu, you use the control panel keys to move through the menu. 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 for the parallel port, press the control panel keys in the order shown in the following table.

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

Press this key	to...	The message window reads...
Online	Turn off the Online indicator and ready the printer for configuration.	`IDLE`
Menu	Access the configuration menu.	`CONFIGURATION` `OPERATOR CONTROL`
Next	Advance to the Operator Control/ Administration menu.	`CONFIGURATION` `ADMINISTRATION`
Select	Access the Administration menu	`ADMINISTRATION` `COMMUNICATIONS`
Select	Access the Communications menu.	`COMMUNICATIONS` `TIMEOUTS`
Next	Advance to the Communications/ Parallel menu.	`COMMUNICATIONS` `PARALLEL`
Select	Access the Parallel menu.	`PARALLEL` `MODE`

Next	Advance to the Parallel/Emulation menu.	PARALLEL EMULATION
Select	Access the Emulation menu.	EMULATION ESP
Previous	Advance to the Emulation/ PostScript menu.	EMULATION POSTSCRIPT
Select	Select PostScript as the default emulation.	POSTSCRIPT IS SELECTED
	After 3 seconds you are returned to the Parallel/Emulation menu.	PARALLEL EMULATION
Online or Menu	Exit from the menu (Online) or return to the previous menu (Menu). You are prompted to save your change(s).	SAVE CHANGES? NO
Next	Advance to the Save Changes?/ Yes option.	SAVE CHANGES? YES
Select	Select YES. The printer finishes printing any print jobs in process, saves your change, and returns to idle.	IDLE

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 character information and confirms it in the message window. If character information is valid, you're returned to the previous menu; if it's invalid, you're 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. An underline indicates the current input character in the message window.

» **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...	The message window reads...
Online	Turn off the Online indicator and readies the printer for configuration.	IDLE
Menu	Access the configuration menu.	CONFIGURATION OPERATOR CONTROL
Next	Advance to the Administration menu.	CONFIGURATION ADMINISTRATION
Select	Access the Administration menu	ADMINISTRATION COMMUNICATIONS
Next	Advance to the Emulation menu.	ADMINISTRATION EMULATIONS
Select	Access the Emulations menu.	EMULATIONS ESP DEFAULT EMUL
Next	Advance to the Emulations/HP-GL menu.	EMULATIONS HP-GL
Select	Access the HP-GL menu.	HP-GL PLOTTER
Next	Advance to the HP-GL/Scaling Percent menu.	HP-GL SCALING PERCENT
Select	Access the Scaling Percent menu.	SCALING PERCENT 100
Previous	Lower the current character to 0.	SCALING PERCENT 000
Select	Select 0 and move the current character to the next 0.	SCALING PERCENT 000
Next (5 times)	Advance the current character to 5.	SCALING PERCENT 050
Select	Select 5 and move the current character to the last 0.	SCALING PERCENT 050

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`
Online or Menu	Exit from the menu (Online) or return to the previous menu (Menu). You are prompted to save your change(s).	`SAVE CHANGES?` `NO`
Next	Advance to the Save Changes?/ Yes option.	`SAVE CHANGES?` `YES`
Select	Select Yes. The printer finishes printing any print jobs in process, saves your change, and returns to idle.	`IDLE`

Saving Configuration Changes

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

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...	The message window reads...

Online or Menu	Exit from the menu (Online) or return to the previous menu (Menu). You are prompted to save your change(s).	`SAVE`
		`CHANGES?`
		`NO`

Next	Advance to the Save Changes?/Yes option.	`SAVE`
		`CHANGES?`
		`YES`

Select	Select Yes. The printer finishes printing any print jobs in process, saves your change, and returns to idle.	IDLE
Online	Turn on the Online indicator and ready the printer to accept and print jobs.	IDLE

» **Note:** *The printer may need to be restarted before certain changes to the Administration menu 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 change(s) take effect immediately, or select NO to wait until you manually restart the printer for changes to take effect.*

Canceling Configuration Changes

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

Example

To cancel 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...	The message window reads...
Online or Menu	Exit from the menu (Online) or return to the previous menu (Menu) and be prompted to save your change.	SAVE CHANGES? NO
Select	Select No. The printer finishes printing any print jobs in process, does not save your changes, and returns to idle.	IDLE
Online	Turn on the Online indicator and ready the printer to accept print 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.

Menu	Administration/Miscellaneous/Keypad Language
Choices	English, French, German, Spanish
Default	English
Notes	The printer must be restarted for changes to the Keypad Language menu to take effect. You can either let the printer restart automatically after you save the change and exit from the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Setting Custom NVR Defaults

Use this option to save all of your custom configuration menu settings. Then, if you upgrade your system software or even if someone else changes the configuration settings without permission, you can restore *your* custom configuration rather than the factory default configuration.

Menu	Administration/Miscellaneous/Save Defaults
Choices	Yes, No
Default	No
Notes	This process takes a few minutes to complete.

The following procedure explains how to use this option:

1 **Configure the printer.**

2 **Use the Administration/Miscellaneous/Save Defaults menu to save your custom configuration.**

3 **If you ever need to restore your custom configuration, use the Administration/Miscellaneous/Restore Defaults/Custom Defaults menu.**

Restoring the Default Configuration

If you need to cancel all of the configuration changes you have made, you can reset all of the configuration settings to their defaults.

Menu	Administration/Miscellaneous/Restore Defaults
Choices	Factory Defaults Tab restores the factory-default configuration settings. Custom Defaults restores your custom configuration settings.
Default	
Notes	Custom defaults works only if you've already used the Administration/Miscellaneous/Save Defaults menu to save your Custom Configuration. This process takes a few minutes to complete.

Rebooting the System

Use this option to restart the system after making a group of configuration menu changes. Before making configuration changes, print an advanced status page. After changing any option that requires a system restart, you are prompted to `REBOOT NOW?` If you want to make other configuration changes choose no. After you make all configuration changes choose yes to restart the system and have all configuration menu changes take effect at once.

Menu	Administration/Miscellaneous/Reboot System
Choices	Yes—Reboots the system. No—Does not reboot the system.
Default	No
Notes	This process takes a few minutes to complete.

» **Note:** *If you save a change and for some reason want to return to the previous state, use the advanced status page as a reference.*

Operator Control Menu

The Operator Control menu contains the following selections:

Selection	See this section...
Accounting	"Accounting Menu" on page 4-15 » **Note:** *This option is available only when you have an optional hard disk installed.*
Chain Inputbins	"Chaining Media Inputbins" on page 4-37
Collation	"Collation" on page 4-32
Copies	"Copies" on page 4-35
Duplex	"Duplexing" on page 4-44 » **Note:** *This option is available only when you have an optional duplexer installed.*
Inputbin	"Media Input" on page 4-35
Multipurpose Sz	"Selecting Media Size" on page 4-43
Envelope Size	"Selecting Envelope Size" on page 4-43
Orientation	"Media Orientation" on page 4-40
Outputbin	"Media Output" on page 4-40
Output Finishing	"Output Finishing" on page 4-45
Note	Only when optional Stackler is installed

Accounting

Crown printer-based accounting, a tool to help you keep track of the use of printer resources, is available on your QMS 2425/2425 *TURBO* Print System with a hard disk installed, with or without a network connection.

Paper use is the most commonly monitored resource. However, Crown accounting also allows you to monitor the following resources.

» **Note:** *The QMS Crown Printer Auditor, a Windows-based utility included on QMS Software Utilities CD-ROM, allows you to download, view, print, and manipulate the printer's accounting data. See the Crown Printer Auditor readme file and online help for more information.*

- Paper use per user
- Time consumed serving each user's jobs
- Connectivity options
- Frequency of jams
- Times of peak use
- Number, complexity, and average size of jobs per user
- Commonly used features, such as duplexing or finishing

» **Note:** *If you are connected to a network via TCP/IP, you have a choice of using Crown accounting or the standard TCP/IP accounting through your UNIX host software. See the TCP/IP Protocol Option User's Guide for more information on TCP/IP accounting.*

As jobs are printed on your QMS printer, the system collects information about different job parameters in relation to the jobs. When each job completes, the printer stores an entry for the job in the Job Accounting file(s).

▲ ***Caution****: Do not turn the printer off while the disk is being accessed. Doing so may cause inconsistencies in the information stored.*

Accounting Menu

The Accounting menu includes five submenus, allowing you to enable or disable job accounting, allocate disk space when accounting is enabled, reset accounting, store job accounting information in a single job file or in multiple files, and copy the accounting information to a floppy disk.

Job accounting information may be stored in a single file if it can be retrieved via FTP on your host. Otherwise, the selected job accounting file should be spread into several files so that each of the files (or segments) fits on a floppy disk.

Setting the Accounting Mode

The Accounting Mode option enables or disables job accounting. Choices are Enabled or Disabled with a default of Disabled. In order for the accounting process to run on your system, you must enable accounting via the control panel or via remote console. When accounting is disabled any files containing data remain untouched. However, empty files are removed to save disk space.

Allocating Disk Space

The Operator Control/Accounting/Disk Space option allocates disk space for job accounting files. The range of values is 51200 (50 KB) to 10240000 (10 MB) with a default value of 1024000 (1 MB).

The amount of space required for each job can vary between 200 and 250 bytes, so each 1 MB allocated for the job accounting file will store information on 4,000 to 5,000 jobs.

If the selected value is greater than the current value, the file size is increased to reserve the extra space. If the value is smaller than the current file size, any empty job accounting files are moved. If only one file is used and it is not empty, it cannot be shrunk.

Resetaccounting

The Resetaccounting option erases the Accounting files and recreates them using the current file size. If this operation is selected when accounting is disabled, the files are removed but not recreated, thus saving disk space. The range of values is Yes and No. The default value is No.

This operation is also available as the **resetaccount** command for the admin user at a remote console. See the *Remote Console User's Guide* for more information on the **resetaccount** command.

When job files are more than 80% full but less than 100% full, the following message displays on the control panel and remote console:

xxxxxxxx FILE *xxx%* FULL

(*xxx%* is the percentage full, reported as 80%, 85%, 90%, or 95%.) This is an appropriate time to copy these files to floppies or to transfer

them to your host computer using ftp if it is available to you. Then use the option to reset the accounting files to empty after they are copied to a floppy or to a host.

When the file is 100% full, the

xxx FILE IS FULL

message displays.

» **Note:** *When accounting is enabled and the Job Accounting files are 100% full, no further print jobs are accepted by the printer until Resetaccounting is selected or until Accounting is disabled. If you disable Accounting at this time, no job information is stored. You can retrieve your accounting files while they are full and then do the Resetaccounting operation. However, to avoid delaying jobs being sent to the printer, it is advisable to perform the retrieve/reset operations before the job accounting files fill up.*

Segmenting the Accounting Job File

The Job File Segment menu allows you to decide whether accounting information is stored in the printer in a single file or in multiple files. Choices are Single and Multiple, with Multiple as the default. Although it is convenient to store accounting data in a single file, the multiple file option is useful if you must transfer your files to your host via floppy disk.

If a single file is used, its size equals the Disk Space value described earlier in this section. The file name will be ACC1.JOB.

If multiple files are selected, their combined size equals the File Size value described earlier in this section. Each file will be 1 MB, except the last file, which includes the remaining dedicated space. That is, if you dedicate 10 MB to accounting and select multiple files, the printer creates 10 files of 1 MB each. If you dedicate 5.5 MB to accounting, the printer creates 5 files of 1 MB each and one of 500 KB. The Job file names will be ACC1.JOB, ACC2.JOB, and so on.

Accounting Files

The following accounting files are stored in ASCII format on SYS, the printer's hard disk, in the SYS:/ADMIN directory.

» **Note:** *The QMS Crown Printer Auditor, included on disk or CD-ROM with your printer, allows you to download, view, print, and manipulate the printer's accounting data. See the Crown Printer Auditor readme file and online help for more info.*

- Job Accounting File (ACC*x*.JOB)

  This is the main accounting file. When each job completes, the printer stores an entry for the job in this file. The job accounting file may be a single file or multiple files, with *x* as the file number when multiple files are used. Information in this file is kept intact after the printer is turned off and back on again.

- Paper Accounting File (ACC.PAP)

  This file contains descriptions of the paper types supported on the QMS 2425/2425 *TURBO* Print System.

- Status Accounting File (ACC.STA)

  This file stores configuration information about accounting.

- Dictionary File (ACC.DIC)

  This file contains documentation about accounting and a description of the fields used in the other accounting files.

▲ ***Caution:*** *All the accounting files are stored in ASCII format to make it simpler to use the information in different environments after it is retrieved from the printer's hard disk.*

Accounting File Format Description

Accounting files are recorded in ASCII format in a series of tagged fields.

New fields can be added without losing backward compatibility, because each field is tagged. A version field is included in the ACC.STA file to identify the supported fields as the system evolves.

» **Note:** *Field 45 in the Job Accounting File example on page 4-21 illustrates that new fields can be added to the series but used where logical, in this case between fields 6 and 7. Field 45, which provides information about the interface used, was added in response to a customer request. The date and time fields appear in the accounting records for the QMS 2425/2425 TURBO Print System, but they are unused for this product.*

Conventions

The following conventions are the same for job, paper, and status files:

- Tag Identifiers

  These three-digit numbers are used to identify fields. The three-digit number is used instead of a name to minimize use of disk space. The Dictionary file (ACC.DIC) provides the field names associated with each tag identifier.

- String Information

  String information for record field values is stored inside braces (for example, {this is a string}). This allows spaces within strings and stores only the necessary characters of a string value. String fields for which no value is specified are stored as {}, instead of using blanks or the maximum field size.

- New Records

  New records are separated by a <CR> character to increase readability.

- Separators

  A typical record in any of the accounting files is a sequence of pairs of tag identifiers and field values separated by commas. The tag identifier and field value are separated by a colon.

Example

The following is an example of the format of an accounting file record:

```
 1:  3,  2:{this is a string},  <CR>
```

In this example, the record has fields identified by tags 1 and 2. Since these values don't use 3 digits for the tag identifier, spaces are stored instead, to provide consistency and simplicity while using only a small amount of extra space. In this example, the value for the field tagged 1 is the integer 3 and the value for the field tagged 2 is a string. The <CR> represents the carriage return character.

Accounting Files Description of Fields

This section includes examples of a job accounting file, a paper accounting file, and a status accounting file. Each example is followed by a chart explaining the various fields, using data from the example to help clarify the fields.

» **Note:** *The date and time fields appear in the accounting records for the QMS 2425/2425 TURBO Print System, but they are unused for this product.*

Job Accounting File Record Example

This is a sample record extracted from an actual job accounting file:

0: 6, 1: 1, 2:{8h 5m52}, 3:{2/ 7/97}, 4:3, 5:{lsmith}, 6:{}, 45:{IF 1 Ethernet}, 7:{Microsoft Word - WW6083WO.DOC}, 8:{}, 9: 2794, 10: 15414, 11: 1, 12: 0, 13: 2, 14: 3, 15: 0, 16:0, 17: 1, 18: 0, 19: 1,
20:3, 21: 2

Job Accounting File Record Description

Field ID	Description	Example	Explanation
0:	The Job ID field is the document's number. The number sequence restarts whenever the printer is turned off and on again.	0: 6	This is the 6th job since the printer was restarted
1:	This field is the document's internally assigned priority.	1:1	Priority 1, the highest, has been assigned to this job
2:	This field indicates the time a document arrived in the printer by hour, minute, and second.	2: {8h5m52}	Printer received job at 8:05:52
3:	This field indicates the date a document arrived in the printer.	3: {2/ 7/97}	Printer received job on Feb. 7, 1997
4:	This field is the document's completion code: 0User aborted document 1Printer aborted document 2Emulation aborted document 3Successfully printed document	4: 3	Job printed successfully
5:	The User Name field corresponds to the %%**For** DOC.	5: {lsmith}	L Smith sent job
6:	The Host Name field corresponds to the **%%Host** DOC.	6: {}	No host name assigned

45:	The Connection field indicates the I/O port in which the job arrived.	45:IF 1 Ethernet	This job arrived via Ethernet
7:	The File Name field corresponds to the **%%Title** DOC.	7: {Microsoft Word - WW6083 WO.DOC}	The title Microsoft Word - WW6083WO. DOC is assigned
8:	The Charge Number field corresponds to the **%%Charge Number** DOC. This field identifies the account.	8: {}	No charge number assigned
9:	The Compile Time field is the processor time in milliseconds ($^1/_{1000}$ second) spent translating the page description language. Typically, it also includes minimal other system activity.	9: 2794	Processor spent 2.794 seconds compiling the page
10	The Print Time field represents the total elapsed time in milliseconds($^1/_{1000}$ second) used by the document since its first page started printing until its last page cleared the printer.	10: 15414	Job took 15.414 seconds from the start of the first page to the end of the last page
11:	The Header Count field indicates how many images comprise the document header page(s) subjob. An image equals one page face.	11: 1	There is one header page

12:	The Error Count field indicates how many images comprise the document error page(s) subjob. An image equals one page face.	12: 0	No error pages
13:	The Body Count field represents the number of images in the actual document, excluding multiple copies. An image equals one page face.	13: 2	Two pages in the document
14:	The Simplex Count field is number of the page faces printed, including body and header pages and taking into consideration multiple copies.	14: 3	Three page faces printed
15:	The Duplex Count field represents the sheet count of duplex pages printed, taking into consideration multiple copies.	15: 0	No duplex pages
16:	The Finishing Options field is a number formed by adding the codes for the different options: 0 None 2 Offset Stacking	16: 0	No finishing options

17:	The Chunk Count field represents the number of collated chunks for this job. If the complete document does not fit in memory, chunk collation is activated. A value of 1 for this field indicates no partial collation was necessary.	17: 1	Entire job printing in one collated unit
18:	The Jam field indicates how many times the printer jammed while printing the document.	18: 0	No jams during this document
19:	The Paper Types Count field indicates how many different types of paper were used in the document and represents the number of separate index entries that follow the main record for the document in the Job Accounting file. A <CR> follows this field before the index entries.	19: 1	One type of paper used in this job
20:	The Index Count field represents the number of sheets of paper of a specific type used by the document. The actual description of the paper is in the Paper Accounting file.	20: 3	Job used three sheets of paper

21:	The Index field represents the record number in the Paper Accounting file that contains the description for the preceding paper count. A <CR> follows each occurrence of this field.	21: 2	A description of the paper type is in Paper Accounting file number 2

Paper Accounting File Record Example

The following example shows a Paper Accounting file:

```
22: 8268, 23: 11693, 24: 75, 25:{white}, 26:{          plain},
27:{       },

22: 8500, 23: 11000, 24: 75, 25:{white}, 26:{          plain},
27:{       },

22: 7165, 23: 10118, 24: 75, 25:{white}, 26:{          plain},
27:{       },

22: 14000, 23: 8500, 24: 75, 25:{white}, 26:{          plain},
27:{       },

22: 16535, 23: 11693, 24: 75, 25:{white}, 26:{       plain}, 27:{
},

22: 14331, 23: 10118, 24: 75, 25:{white}, 26:{       plain}, 27:{
},

22: 17000, 23: 11000, 24: 75, 25:{white}, 26:{       plain}, 27:{
},

22: 7500, 23: 10500, 24: 75, 25:{white}, 26:{          plain},
27:{       },

22: 8268, 23: 5827, 24: 75, 25:{white}, 26:{
plain}, 27:{       },
```

Paper Accounting File Record Description

The Paper Accounting file has one record for each of the nine possible paper sizes. Field 21 in the Job Accounting file refers to a specific record in the Paper Accounting file. In the example above, Field 21 indicates that the paper is of the second type. Therefore, the second record from the Paper Accounting file describes the paper used. The second record tells you:

Field ID	Description	Example	Explanation
22:	The Paper Width field contains the paper width in mils ($^1/_{1000}$").	22: 8500	The paper is 8500 mils or 8.5" wide
23:	The Paper Height field contains the paper height in mils ($^1/_{1000}$").	23: 11000	Paper is 11000 mils or 11" high
24:	The Paper Weight represents the weight per surface square units (g/m^2)	24: 75	Paper weighs 75 g/m^2
25:	The Color field indicates the color of the paper.	25: white	Paper is white
26:	The Type field indicates additional properties of the paper.	26: plain	Paper is plain
27:	The Label field represents a name for the paper type.	27: { }	No paper type name

» **Note:** *Fields 24, 25, 26, and 27 are designed primarily for future enhancements to the accounting capabilities.*

Status Accounting File Record Example

The following is an example of the Status Accounting file:

28: 1, 29: 9, 30: 1048576, 31: 1048576, 32: 74993, 33: 74993, 34: 1, 35: 1, 36: 309, 37:2, 38:1, 39:0, 40:0, 41:31, 42:23, 43:31, 44:31

Status Accounting File Record Description

Field ID	Description	Example	Explanation
28:	The Version field indicates the accounting file's version number. The initial version is 1.	28: 1	This is the first version of the file
29:	The Number of Paper Types field indicates how many records are in the Paper Accounting file.	29: 9	The paper accounting file has 9 records
30:	The Job Accounting File Size field indicates how many bytes are dedicated to accounting files. Maximum is 10 MB.	30: 1048576	1048576 bytes, or 1 MB, is dedicated to accounting
31:	The Last Job File Size field indicates the size of the last file. In the multiple-file configuration, each file is 1 MB except the last, which holds any remaining space.	31: 1048576	1048576 bytes, or 1 MB, is in the last file
32:	The Job File Usage field indicates in bytes the total current use in all the job files.	32: 74993	All accounting files total 74993 bytes
33:	The Current Job File Usage field indicates in bytes the current level of use in the current Job Accounting file.	33: 74993	The accounting file which is currently receiving data totals 74993 bytes

34:	The Maximum Number of Job Files field indicates the maximum number of job files. For example, even if your system is configured for multiple files, if only 1 MB is dedicated to accounting, the maximum number of files is 1. If 5.5 MB is dedicated to accounting, the maximum number of files is 6.	34: 1	There can be only 1 job accounting file. Although the printer is configured for multiple files (see field 37) there is only one because only 1 MB is dedicated to accounting
35:	The Current Job File field indicates which file has been used most recently. By comparing this with Field 33, you can determine which file is current and how much space is left in it.	35: 1	The most recently used file is File 1
36:	The Number of Jobs field indicates how many documents are accounted for in the Job Accounting file(s). A value of 0 can mean that no jobs have been printed or that accounting is disabled.	36: 309	Current Job Accounting files hold data on 309 jobs
37:	The Multifile field has a value of 1 if a single file is used and a value of 2 if multiple files are used to store job information.	37: 2	Job Accounting is set for multiple files

38:	The Enabled field indicates whether accounting is currently enabled or disabled. 1—Enabled 0—Disabled	38: 1	Accounting is currently enabled
39:	The Job File Full flag indicates whether the Job Accounting file is full. 1 File is full; Resetaccounting should be performed 0 Job accounting file is not full	39: 0	Accounting files are not full
40:	The Paper Accounting File Full flag indicates whether the Paper Accounting file is full. 1 File is full; Resetaccounting should be performed 0Job accounting file is not full	40: 0	The Paper Accounting file is not full
41:	The User field indicates the maximum character length of the User Name field in the Job Accounting file. User names are assigned with QMS DOC.	41: 31	The User name can be up to 31 characters
42:	The Host field indicates the maximum character length of the Host Name field in the Job Accounting file. Host names are assigned with QMS DOC.	42: 23	The Host name can be up to 23 characters

43:	The File field indicates the maximum character length of the File Name field in the Job Accounting file. File names are assigned with QMS DOC.	43: 31	The File Name can be up to 31 characters
44:	The Charge field indicates the maximum character length of the Charge Number field in the Job Accounting file. Charge numbers are assigned with QMS DOC.	44: 31	The Charge field can be up to 31 characters

Copy Accounting Files to Host

Accounting files should be transferred to your host computer periodically to keep the printer from being overloaded with data and to allow for easy analysis of data.

Using the QMS Crown Printer Auditor

Use the QMS Crown Printer Auditor, included with your printer on disk or CD-ROM, to download, view, print, and manipulate the accounting files. See the Crown Printer Auditor readme file and on-line help for more information.

Using the File Transfer Protocol (FTP)

» **Note:** *FTP works only when the printer is off line and the message window displays* `IDLE`. ***Use the LS command in the SYS:/ADMIN directory to see which accounting files you are going to retrieve.*** *The ls command is issued from a remote console. If multiple Job Accounting files are used, each of the ACCx.JOB files should be copied. (x is the number of each subsequent Job Accounting file.)*

Use File Transfer Protocol (ftp) on the host, if a TCP/IP connection is available to the printer, to copy the files from the printer's hard disk to the host as follows:

1 Type `ftp` *`printer-name`* (where *`printer-name`* is either the IP address of the printer or its corresponding host name).

2 If your printer has a DECnet-TCP/IP interface, follow these steps. Otherwise go to step 3.

a When prompted for a user id, enter `admin` as the user name and give the appropriate password, if required.

b At the ftp> prompt, type `bin`↵ to use binary mode for the download procedure.

c Type

```
get SYS:/admin/acc1.job acc1.job↵
get SYS:/admin/acc.pap acc.pap↵
get SYS:/admin/acc.sta acc.sta↵
```

» **Note:** *If multiple Job Accounting files are used, each of the ACCx.JOB files should be copied. (x is the number of each subsequent Job Accounting file.)*

d Continue at step 4.

3 If your printer has a CrownNet interface, follow these steps:

a When prompted for a user id, enter `root` as the user name and give the default password (`pass`).

b At the ftp> prompt, type `bin`↵ to use binary mode for the download procedure.

c Type

```
get SYS:/admin/acc1.job acc1.job↵
get SYS:/admin/acc.pap acc.pap↵
get SYS:/admin/acc.sta acc.sta↵
```

» **Note:** *If multiple Job Accounting files are used, each of the ACCx.JOB files should be copied. (x is the number of each subsequent Job Accounting file.)*

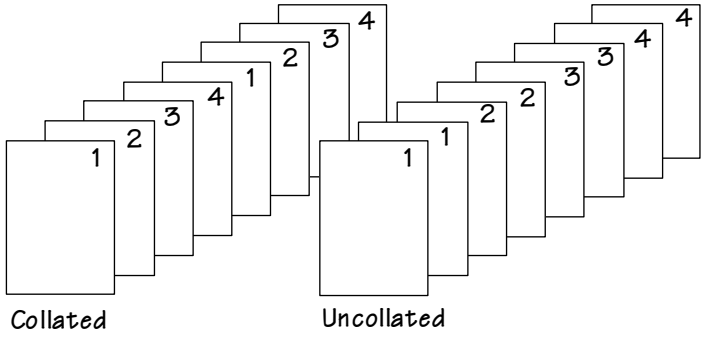
4 Exit ftp.

Type `quit`↵

After the accounting files are stored on your host, you can create your own filters (programs) based on your specific requirements using the file and record descriptions shown earlier in this chapter.

Collation

Collation is one of your printer's features. It is 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.

» **Note:** *When using the collation with other features, such as stapling, ensure that the collation is disabled in your Windows application Print dialogue box but enabled in the QMS printer driver.*

Enabling/Disabling Collation

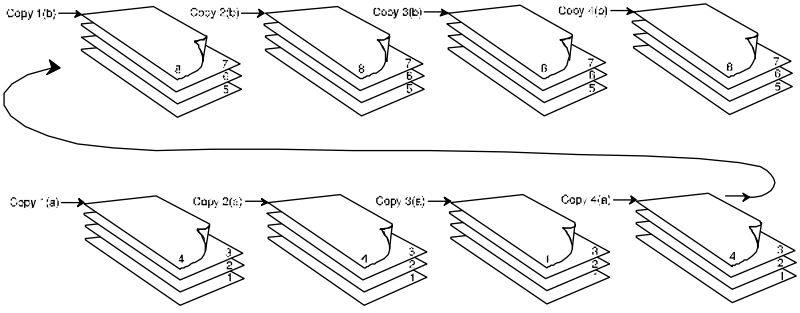
Menu	Operator Control/Collation
Choices	On—Enable collation Off—Disable collation
Default	Off

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 for all pages in the collation range. See the “Memory,” section in Chapter 5, for more information on the Display List compressed blocks. If there is not enough memory, then a chunk collation boundary 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).



» **Note:** *The order of output on the your QMS 2425/2425 TURBO Print System is from first to last page in both the face-up and face down output trays. So on the base model of this printer (with 8 MB memory) complex multiple page document sent via the face-up output tray must be chunk collated to ensure that the order of pages is first to last.*

However, the base model system may have insufficient memory to store the entire document before printing begins, so you could experience unexpected ordering of your output pages. You can purchase the QMS 2425 executive model of this printer with 24 MB of memory, the 2425 *TURBO* EX with 32 MB of memory, or you can add additional memory to the base model system to avoid this type of chunk collation problem. See appendix A, "QMS Customer Support," for sales and support telephone numbers.

To improve collation performance, which allows you to collate longer and more complex print jobs on the QMS 2425/2425 *TURBO* Print System, you can do one of the following:

- Add more printer memory, which automatically increases the Display List client's memory settings. See chapter 1, "Memory," of the *Options* for information on how to install additional memory.
- Take any memory, if available and not being used by other clients, and add it to the Administration/Memory/K Mem Display memory setting.

▲ **Caution:** *This option should be used only 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.*

Copies

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

Menu	Operator Control/Copies
Choices	001-999
Default	001
Notes	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.

Media Input

Your QMS 2425/2425 *TURBO* Print System comes standard with two 500-sheet media cassettes. Using the control panel, you can select a default media input source, chain these input sources, and name them.

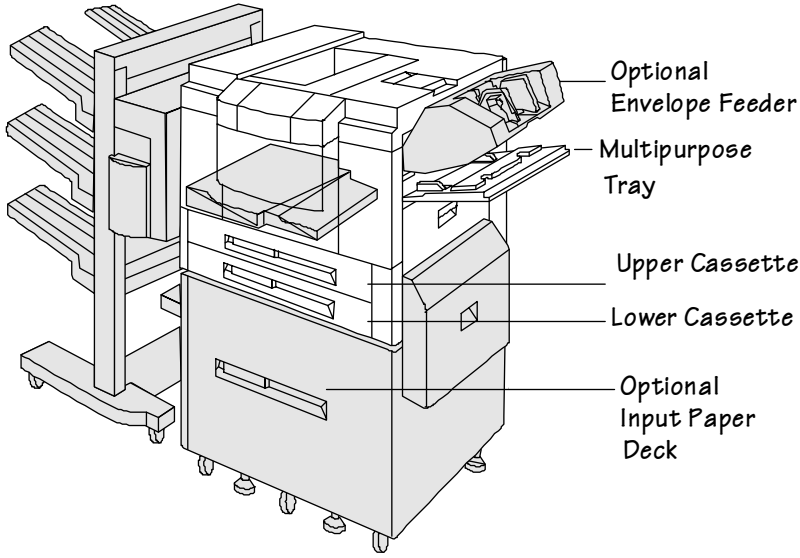
Selecting a Media Inputbin

Your printer has the following inputbins:

Upper Cassette	Holds approximately 500 sheets of letter/A4 to legal/B4 paper.
Lower Cassette	Holds approximately 500 sheets of letter/A4 to A3/11 x 17 paper.
Multipurpose Tray	Holds approximately 100 sheets of a variety of print media in sizes from 3.87" x 7.50" (98.4 x 190.5 mm) to 11.69" x 17.7" (297 x 449.5 mm).

Optional Envelope Feeder	Holds approximately 100 envelopes in the following sizes: Envelope, COM 10, Monarch, DL, and C5.
Optional Input Paper Deck	Holds approximately 2000 sheets of letter/A4 to A3/11 x 17 paper.

The illustration below shows the locations of these bins.



The inputbins support several types and sizes of media. See chapter 2 of this manual, the section on “Media Types and Weights,” for information on the types and weights of media. The optional input paper deck expands the printer’s media capacity to approximately 3100 sheets of paper up to 11" x 17" size (500 sheets for the upper and lower cassettes, 100 sheets for the multipurpose tray, and 2000 sheets for the input paper deck).

» **Note:** *The input paper deck and the envelope feeder are both optional purchases from your QMS vendor. See appendix A, “QMS Customer Support,” for sales and support information.*

The Operator Control/Inputbin menu allows you to select the default tray or cassette (inputbin) from which media is drawn into the printer.

Menu	Operator Control/Inputbin
Choices	Inputbin 1—Multipurpose tray Inputbin 2—Upper cassette Inputbin 3—Lower cassette Inputbin 4—Envelope feeder Inputbin 5—Optional input paper deck
Default	Inputbin 3

Chaining Media Inputbins

An option in the Operator Control menu allows you to “chain” inputbins (tray and cassettes) so that when the first inputbin empties, the printer will automatically draw media from another inputbin with either the same or any size and type of media (dependent on the choice selected).

Menu	Operator Control/Chain Inputbins
Choices	On—Switch to the next inputbin with the same size and type of media when the default inputbin is empty. » **Note:** *Make sure the two trays/cassettes use the same size media* Off—Don’t switch inputbins; use only the default inputbin. On Any—Switch to the next inputbin with any size and type of media when the default inputbin is empty.
Default	On
Notes	Use the Operator Control/Inputbin menu to set the default inputbin. Make sure that the two inputbins use the same size media.

Setting up Chaining Option

An option in the Operator Control menu allows you to configure whether or not an inputbin will be available for chaining to or from another inputbin.

Menu	Operator Control/Chain Options
Choices	Chain Lower Off—Do not allow media to be pulled from the lower cassette. On—Allow media to be pulled from the lower cassette if necessary. Chain Multipurpose Off—Do not allow media to be pulled from the multipurpose tray. On—Allow media to be pulled from them multipurpose tray if necessary. Chain Optional Off—Do not allow media to be pulled from the optional paper deck. On—Allow media to be pulled from the optional paper deck if necessary. Chain Upper Off—Do not allow media to be pulled from the upper cassette. On—Allow media to be pulled from the upper cassette if necessary.
Default	On
Notes	The Operator Control/Chain Inputbins menu must be set to On before the settings in this menu take effect.

Naming Media Inputbins

Options in the Administration/Engine menu allow you to give each inputbin a more descriptive name. These names are displayed in the printer message window, where appropriate. You can also use the descriptive names with DOC commands. (See the *QMS Crown Document Option Commands* manual for complete information on Document Option Commands.)

Inputbin 1

Inputbin 1 is the multipurpose tray.

Menu	Administration/Engine/Inputbin 1 Name
Choices	Up to 16 characters
Default	multipurpose

Inputbin 2

Inputbin 2 is the upper media cassette.

Menu	Administration/Engine/Inputbin 2 Name
Choices	Up to 16 characters
Default	upper

Inputbin 3

Inputbin 3 is the lower media cassette.

Menu	Administration/Engine/Inputbin 3 Name
Choices	Up to 16 characters
Default	lower

Inputbin 4

Inputbin 4 is the envelope feeder.

Menu	Administration/Engine/Inputbin 4 Name
Choices	Up to 16 characters
Default	envelope

Inputbin 5

Inputbin 5 is the optional paperdeck.

Menu	Administration/Engine/Inputbin 5 Name
Choices	Up to 16 characters
Default	optional

Media Orientation

While you can usually specify the orientation of a print job in your application, if you consistently use a certain media orientation, you can set this in the Operator Control/Orientation menu.

Menu	Operator Control/Orientation
Choices	Portrait—Vertical Landscape—Horizontal
Default	Portrait

Media Output

Selecting a Media Outputbin

An option in the Operator Control menu allows you to select the default outputbin (tray). You can choose to have media exit the printer at either the upper bin or the face-up bin with standard unit.

Menu	Operator Control/Outputbin
Choices	Upper Face-up Top-stack (optional) Center-stack (optional) Bottom-stack (optional)
Default	Upper
Note	*The Top-Stack, Center-Stack, and Bottom-Stack options appear only if an optional stackler is installed*

Naming the Media Outputbin

The Administration/Engine/Outputbin menu is used to name output bins 1 -5. You can also use this name with QMS Document Option Commands (DOCs). (See the *QMS Crown Document Option Commands* manual for complete information on DOCs).

Outputbin 1

Menu	Administration/Engine/Outputbin 1 Name
Choices	Up to 16 characters
Default	upper

Outputbin 2

Menu	Administration/Engine/Outputbin 2 Name
Choices	Up to 16 characters
Default	face up

Outputbin 3

Menu	Administration/Engine/Outputbin 3 Name
Choices	Up to 16 characters
Default	top-stack
Note	Available only if an optional Stackler is installed.

Outputbin 4

Menu	Administration/Engine/Outputbin 4 Name
Choices	Up to 16 characters
Default	center-stack
Note	Available only if an optional Stackler is installed.

Outputbin 5

Menu	Administration/Engine/Outputbin 5 Name
Choices	Up to 16 characters
Default	bottom-stack
Note	Available only if an optional Stackler is installed.

Chaining Media Outputbins

This Operator Control/Output Finishing menu allows you to “chain” outputbins so that when the selected first outputbin fills up, the printer will automatically place media in the next outputbin.

Menu	Operator Control/Output Finishing/Chain Outputbins
Choices	On—Switch to the next output bin, when the selected outputbin fills (for example, top to center, center to bottom, and so on). The three outputbins are treated as one logical outputbin. When chaining occurs, the output continues to go to the currently active outputbin regardless to what is selected from the printer driver. Once the bottom outputbin fills, it chains back to the top bin. If it is not empty, then an `OUTPUT BIN IS FULL` message displays. Off—Don’t switch outputbins; use only the default outputbin.
Default	Off
Notes	Output bin chaining cannot be selected through the printer driver. For example, if outputbin chaining is on and you select the top outputbin through the printer driver and then send a print job that exceeds the capacity of that outputbin, the next sheet is placed in the center outputbin. If you then send a new print job, and select the top outputbin through the printer driver, the output will still be placed in the center outputbin until the bin fills or until you disable outputbin chaining.

Media Size

Selecting Media Size

The multipurpose tray can be adjusted to accept different media sizes. See the instructions for adjusting media sizes in chapter 2 of the *Operation* manual, the “Loading the Multipurpose Tray” section, for information on how to adjust the multipurpose tray.

Use the Operator Control/Multipurpose Sz menu to identify and select the size media in the multipurpose tray (inputbin 1). Your printer supports the following media sizes via the multipurpose tray:

Menu	Operator Control/Multipurpose Sz		
Choices	11x17	11.00'' x 17.00''	279.40 x 431.80 mm
	A3	11.69'' x 16.54''	297.00 x 420.00 mm
	A4	11.69'' x 8.27''	297.00 x 210.00 mm
	A5	5.85'' x 8.27''	148.50 x 210.00 mm
	B4	10.12'' x 14.33''	257.00 x 364.00 mm
	B5	7.17'' x 10.12''	182.00 x 257.00 mm
	C5	6.38'' x 9.02''	162.00 x 229.00 mm
	Com10	4.125'' x 9.5''	104.78 x 241.30 mm
	DL	4.33'' x 8.66''	110.00 x 220.00 mm
	Envelope	6.93'' x 9.76''	176.00 x 248.00 mm
	Executive	7.25'' x 10.50''	184.20 x 266.70 mm
	Legal	8.50'' x 14.00''	215.90 x 355.60 mm
	Letter	11.00'' x 8.50''	279.40 x 215.90 mm
	Monarch	3.875'' x 7.50''	98.425 x 190.50 mm
	Statement	5.50'' x 8.50''	139.70 x 215.90 mm
	Universal	11.69'' x 17.70''	297.00 x 449.50 mm
Default	Letter		
Note	The sizes (inches and millimeters) show above appear in the documentation only for reference. They do not appear in the message window.		

Selecting Envelope Size

The optional envelope feeder can be adjusted to accept different envelope sizes. See chapter 7 of the *Options* manual for more information on envelope sizes.

Use the Operator Control/Envelope menu to identify and select the size envelope for the envelope feeder (inputbin 4):

Menu	Operator Control/Envelope		
Choices	C5	6.38" x 9.02"	163.00 x 229.00 mm
	Com10	4.125" x 9.5"	104.78 x 241.30 mm
	DL	4.33" x 8.66"	110.00 x 220.00 mm
	Envelope	6.93" x 9.76"	176.00 x 248.00 mm
	Monarch	3.875" x 7.50"	98.425 x 190.50 mm
Default	Envelope		
Note	The sizes (inches and millimeters) shown above appear in the documentation only for reference. They do not appear in the message window.		

Duplexing

The Def. Duplex option allows you to print on both sides of the media.

Menu	Operator Control/Def. Duplex
Choices	Off—Prints simplex pages. On—Duplexes each page of each job. Tumble—Prints jobs so they can be bound at the top edge (flip-chart style).
Default	Off
Notes	If you want to print individual jobs duplex, leave the printer set to Off and choose duplex through your application This menu appears only if an optional duplexer is installed.

Output Finishing

When the Stackler is installed, the Output Finishing menu supports three modes for face-down print delivery: simple stacking, job offset stacking, and stapling; for face-up delivery only simple stacking is supported.

Stapling Media

Staple staples up to 20 sheets of paper.

Menu	Operator Control/Output Finishing/Staple
Choices	Off, Front Corner, Back Corner, Center
Default	Off
Notes	See appendices B “Technical Specifications,” for details on stapling and stack capacity.

Offset Stacking Media

Offset Stacking shifts the first page of the print job to the right. All subsequent pages of the job are not offset.

Menu	Operator Control/Output Finishing/Offset Stacking
Choices	On, Off
Default	Off

Administration Menu

The Administration menu contains the following submenus:

Selection	See this section...
Communications	“Communications” on page 4-46
Emulations	“Emulations” on page 4-54
Special Pages	“Special Pages” on page 4-70
Startup Options	“Printer Start-Up Options” on page 4-73
Memory	“Memory” on page 4-74
Engine	“Engine” on page 4-83
Miscellaneous	Keypad Language, Restore Defaults, Save Defaults, and Reboot System beginning on page 4-12

Communications

This menu contains several options that allow you to configure the printer’s communication parameters to match the host and application parameters.

» **Note:** *This section contains information on the Timeouts, Parallel, and Network2 menus. For information on printer-host communication using the Ethernet interface or any options located under the CrownNet submenu (Administration/Communications/Networkx / CrownNet), see chapter 2, “Printer Configuration,” of the QMS CrownNet System Administrator’s Guide.*

Setting Timeouts

The Timeouts options limit the amount of time the printer waits on transmission from the host for various types of data.

Setting a PostScript Emulation Timeout

The PostScript emulation timeout is the maximum number of seconds the PostScript emulation waits for incoming data.

Menu	Administration/Communications/Timeouts/PS Wait Timeout
Choices	00000-99999
Default	00030 (30 sec.)
Notes	A value of 00000 is the same as infinity (no timeout). A timeout occurs, the print job is closed and the next job in the queue begins when all of the following occur: ■ No additional data is received during the specified timeout value. ■ The interface didn't time out. ■ An EOD (end-of-document commands) was not seen. When a print job is sent from a Macintosh, the PS Wait timeout is automatically changed to 00300 (5 min.). Large print jobs, such as those generated by graphics or computer-aided design applications, require larger timeouts, such as 00300 (5 min.).

Setting an Emulation Timeout

The emulation timeout is the maximum number of seconds emulations other than PostScript (such as HP-GL, HP PCL5, and Line-printer) wait for incoming data.

Menu	Administration/Communications/Timeouts/Emul Timeout
Choices	00000-99999
Default	00005 (5 sec.)
Notes	A value of 00000 is the same as infinity (no timeout).

Setting a Print Job Timeout

The print job timeout is the maximum number of seconds the printer processes a print job before it ends the job.

Menu	Administration/Communications/Timeouts/Job Timeout
Choices	00000-99999
Default	00000 (infinity, 00 timeout)
Notes	A value of 00000 is the same as infinity (no timeout).

Setting an ESP Timeout

The ESP timeout is the maximum number of seconds the printer uses to match an emulation before printing the job in the default emulation.

Menu	Administration/Communications/Timeouts/ESP Timeout
Choices	00000-99999
Default	00003 (3 sec.)
Notes	A value of 00000 is the same as infinity (no timeout).

Setting Parallel Interface Parameters

Use the Administration/Communications/Parallel menu to set the parallel interface values used for printer-host communications.

Mode

The parallel interface supports Centronics parallel communication as well as IEEE 1284 bidirectional parallel communication.

Menu	Administration/Communications/Parallel/Mode
Choices	Interactive—Establish two-way communication between the host and the printer. Noninteractive—Establish one-way communication from the host to the printer. Disabled—Turn off parallel communication with the host. The printer stops accepting print jobs over the parallel interface.
Default	Noninteractive
Notes	The printer must be restarted for changes to the menu to take effect. You can either let the printer restart automatically after you save the change and exit from the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer. See chapter 5, “Additional Technical Information,” for a discussion of the different modes.

Emulation

Sets the parallel interface emulation.

Menu	Administration/Communications/Parallel/Emulation
Choices	ESP, Hexdump, PostScript, PCL5e, HPGL, Lineprinter » **Note:** *Other optional emulations, such as TIFF, CAL, CCITT, and LN03, also appear, if installed.*
Default	ESP

Minimum Number of Kilobytes for Spooling

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

Menu	Administration/Communications/Parallel/Min K Spool
Choices	00000-99999
Default	00015
Notes	This value must be less than K Mem For Spool in the Administration/Memory submenu. A 00000 value does not turn off the spooling buffer for the parallel interface. If the value is set to 00000, the printer calculates the Min K Spool automatically at initialization. The printer must be restarted for changes to the Min K Spool menu to take effect. You can either let the printer restart automatically after you save the change and exit the configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Spooling Timeout

Sets the number of seconds the interface waits for data from the host before terminating a spooled print job.

Menu	Administration/Communications/Parallel/Spool Timeout
Choices	00000-99999
Default	00030

Data Bits

Sets the number of data bits transmitted per character.

Menu	Administration/Communications/Parallel/Data Bits
Choices	7 Bits, 8 Bits
Default	8 Bits

End Job Mode

Enables (and identifies an end-of-job sequence) or disables data stream sensing for the end-of-document (EOD) command.

Menu	Administration/Communications/Parallel/End Job Mode
Choices	None—The printer recognizes only the PostScript ^D command. QMS EOD—The printer recognizes only the QMS %%EndOfDocument command. HP EOD—The printer recognizes only the HP <ESC>%12345X command.
Default	None
Notes	See chapter 5, “Additional Technical Information,” for details on how to implement this feature on your QMS 2425/2425 *TURBO* Print System.

Default Job Priority

Allows you to specify which jobs are printed first, according to the interface through which they are received, when jobs are received simultaneously.

Menu	Administration/Communications/Parallel/Def Job Prio
Choices	001-100 (highest-lowest priority)
Default	001 (highest priority)
Notes	For example, you can give jobs received via the parallel interface priority over jobs received via the Ethernet interface.

PS Protocol

Sets the binary communications protocol (BCP) for communicating over a parallel interface to a PostScript printer.

Menu	Administration/Communications/Parallel/PS Protocol
Choices	Normal—Enables standard, ASCII (7-bit) hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can change this setting through PostScript operators. Normal Fixed—Enables standard, ASCII (7-bit) hex protocol. Print jobs cannot change this setting through PostScript operators. Binary—Enables binary communications protocol (BCP). Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Binary Fixed—Enables binary communications protocol (BCP). Print jobs cannot alter change this setting through PostScript operators. Data in the printable ASCII range also prints.
Default	Normal
Notes	See chapter 5, “Additional Technical Information,” for a full discussion of PS Protocol.

Setting Network 2 Options

CrownNet

For information on options and defaults found in this menu, see chapter 2, “Printer Configuration,” in the *QMS CrownNet System Administrator’s Guide*.

PS Protocol

Sets the binary communications protocol (BCP) for communicating over a CrownNet 2 interface to a PostScript printer.

Menu	Administration/Communications/Network 2/PS Protocol
Choices	Normal—Enables standard, ASCII (7-bit) hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can change this setting through PostScript operators. Normal Fixed—Enables standard, ASCII (7-bit) hex protocol. Print jobs cannot change this setting through PostScript operators. Binary—Enables quoted binary communications protocol (BCP). Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism (see chapter 5, “Additional Technical Information”) for the special characters and ^D (EOF). » **Note:** *Binary provides only raw data, not quoted BCP, over the CrownNet interface.* Binary Fixed—Enables binary communications protocol (BCP). Print jobs cannot change this setting through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism (see the following section) for the special characters and ^D (EOF). » **Note:** *Binary provides only raw data, not quoted BCP, over the CrownNet interface.*

	QBinary (Quoted Binary)—Enables quoted binary communications protocol. Print jobs can change this setting through PostScript operators. Data in the printable ASCII range also prints. QBinary Fixed—Enables quoted binary communications protocol (BCP). Print jobs cannot alter change this setting through PostScript operators. Data in the printable ASCII range also prints.
Default	Normal
Notes	See chapter 5, “Additional Technical Information,” for a full discussion of PS Protocol.

Default Job Priority

Allows you to specify which jobs are printed first, according to the interface through which they are received, when jobs are received simultaneously.

Menu	Administration/Communications/Network 2/Def Job Prio
Choices	001-100 (highest-lowest priority)
Default	001 (highest priority)
Notes	For example, you can give jobs received via the Ethernet interface priority over jobs received via the parallel and serial interfaces.

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.*

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.

Menu	Administration/Emulations/ESP Default
Choices	HPGL, Lineprinter, PCL5e, PostScript
Default	PCL5e
Note	Other optional emulation appear if installed.

Setting PostScript Parameters

The PostScript menu allows you to select a halftone type.

Halftone Type

Sets the halftone type.

Menu	Administration/Emulations/PostScript/Halftone Type
Choices	Basic—See the table below for details on screen frequency (LPI), screen angles, and gray levels. Standard—See the table below for details on screen frequency (LPI), screen angles, and gray levels. Advanced—See the table below for details on screen frequency (LPI), screen angles, and gray levels.
Default	Standard

	300 DPI			600 DPI			1200 DPI		
Halftone Type	**LPI**	**Angle**	**Level**	**LPI**	**Angle**	**Level**	**LPI**	**Angle**	**Level**
Basic	53.03	45.0	33	70.71	45.0	73	84.85	45.0	200
Standard	53.03	45.0	129	106.06	45.0	129	106.06	45.0	256
Advanced	67.08	26.56	81	102.89	59.04	137	126.49	18.43	256

Setting PCL 5e Parameters

The PCL 5E menu maintains PCL 5e emulation attributes such as default font, symbol set, and point size. There are ten configuration settings. See appendix C “Document Option Commands,” for updated information on the PCL 5e emulation DOCs.

Default Font

Sets the printer’s default font.

Menu	Administration/Emulations/PCL 5E/Default Font
Choices	Courier12, Courier12bold, Courier12italic, Courier10, Courier10bold, Courier10italic, Lineprinter, Times*, Times*Italic, Times*Bold, Times*BldItalic, Univ*, Univ*Italic, Univ*Bold, Univ*BldItalic, Univcond*, Univcond*Italic, Univcond*Bold, Univcond*BldItlc, Select By Index
Default	Courier12
Notes	Fonts with an asterisk “*” in their names are scalable. Their default point size is set by the Point Size X100 option. Choosing Select By Index as the default font selects the font by the index number printed on the advanced status page and is set through the Administration/Emulation/PCL 5E/Default Font Idx menu. » **Note:** *You must used the Select By Index value to select an Intellifont.* 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.

Download Location

Controls the default storage location of PCL objects (fonts, macros, and patterns) when it is not otherwise specified through a Document Option Command.

Menu	Administration/Emulations/PCL 5E/Downld Location
Choices	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.
Default	Disk
Notes	*Before downloading any fonts, macros, or patterns ensure that the printer has enough memory to do the download. See chapter 6 of the "QMS 2425/2425 TURBO Print System Operations" manual, the "Problems Downloading Fonts" section, for information on increasing printer memory when downloading fonts.* *DOCs 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.

Menu	Administration/Emulations/PCL 5E/Symbol Set
Choices	Roman-8, PC-850, PC8-US, PC8-DN, Legal, ISO-4, ISO-6, ISO-11, ISO-15, ISO-17, ISO-21, ISO-60, ISO-69, Desktop, PS Math, Math-8, Microsoft-Pub, Pi - font, PS-Text, Ventura-Intl, Ventura-Math, Ventura-US, Windows, ISO-Latin-1, ISO-Latin-2, ISO-Latin-5, PC-852, PC-8tk, Windows 3.1-1, Windows 3.1-2, Windows 3.1-3, MC-Text
Default	Roman-8
Notes	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. 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 cannot be used with the resident bitmap fonts: courier10, courier10bold, courier10italic, courier12, courier12bold, courier12italic, and lineprinter.

Lines Per Inch

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

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

Line Termination

Indicates the default line termination mode. This setting specifies the treatment of line feeds and carriage returns. (See Appendix C, “Document Option Commands,” for more information on line termination).

Menu	Administration/Emulations/PCL 5E/Line Termination
Choices	CR=CR LF=LF CR=CR+LF LF=LF CR=CR LF=CR+LF CR or LF=CR+LF
Default	CR=CR LF=LF

Point Size x 100

Sets the point size for scalable default fonts in units of hundreths 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).

Menu	Administration/Emulations/PCL 5E/Point Size x100
Choices	00025-99975 (0.25-999.75 points)
Default	01200 (12 points)
Notes	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 5e print environment across print jobs.

Menu	Administration/Emulations/PCL 5E/Retain Temporary
Choices	Off—Resets PCL to its default state at the end of each PCL print job, executes an implicit <ESC>E at the start and end of the job, and deletes any temporary fonts, macros, and patterns. 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. On Compatibility—Retains the entire state of PCL as well as the temporary macros, fonts, and patterns from previous PCL jobs.
Default	Off
Notes	A retained state is cleared if you do any of the following: ■ Explicitly clear the PCL state by sending an <ESC>E or Printer Job Language. ■ Turn 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). ■ Change any PCL front panel option. ■ Send any PCL-specific DOC commands (except the DOC emulation command). ■ Send 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).

Default Font Index

Sets the Default Font Index when the Administration/Emulation/PCL 5E/Default Font menu is set to Select By Index.

Menu	Administration/Emulations/PCL E/Default Font Idx
Choices	0 to 32767
Default	00000
Note	The index number can be obtained by the listing printed on the advanced status page. See “Printing a Status Page” on page 4-70 for status page details.

Monochrome GL/2

Allows your printer to emulate a monochrome or color plotter.

Menu	Administration/Emulations/PCL 5E/Monochrome GL/2
Choices	On, Off On—Sets the printer to monochrome (2 pen). Off—Sets the printer to color (8 pen). » **Note:** *Since a monochrome print system has two pen colors only (black and white), grayscale patterns are substituted for other colors.* 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): Y = .3R + .59G + .11B Examples on How to Use the Color Standard Formula White Y = [(1*0.3) + (1*0.59) + (1*0.11)]—100% gray Black Y = [(0*0.3) + (0*0.59) + (0*0.11)]—0% gray Red Y = [(1*0.3) + (0*0.59) + (0*0.11)]—30% gray Green Y = [(0*0.3) + (1*0.59) + (0*0.11)]—59% gray Yellow Y = [(1*0.3) + (1*0.59) + (0*0.11)]—89% gray Blue Y = [(0*0.3) + (0*0.59) + (1*0.11)]—11% gray Magenta Y = [(1*0.3) + (0*0.59) + (1*0.11)]—41% gray Cyan Y = [(0*0.3) + (1*0.59) + (1*0.11)]—70% gray

Default	On Pen Color Defaults: Pen 0 = White Pen 1 = Black Pen 2 = Red Pen 3 = Green Pen 4 = Yellow Pen 5 = Blue Pen 6 = Magenta Pen 7 = Cyan

Setting HP-GL Parameters

This section contains the configuration choices available under Emulations/HP-GL.

Enhanced Mode

Increases the resolution of the grid for downloaded characters. The HP-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.

Menu	Administration/Emulations/HPGL/Enhanced Mode
Choices	On—Standard resolution for fixed- and variable-spaced fonts (4x8 grid). Off—Enhanced resolution for variable-spaced fonts (26x36 grid).
Default	Off

Expand Mode

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

Menu	Administration/Emulations/HPGL/Expand Mode
Choices	On—Turn on expand mode Off—Use default scaling points, plotting range, and plotting area.
Default	Off
Notes	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 15 mm on three sides and 39 mm on the fourth. If Expand Mode is On, then the hard clip limits are set to 5 mm on three sides and 29 mm on the fourth side. This is what allows you to define a larger imageable area. 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.

Paper Type

Identifies the original image's paper size.

Menu	Administration/Emulations/HPGL/Paper Type
Choices	A—(8.5"x 11"—216 x 279 mm), A0—(33.11" x 46.81"—841 x 1189 mm) A1—(23.39" x 3.11"—594 x 1189 mm) A2—(16.54" x 23.29"—420 x 594 mm) A3—(11.69" x 16.54"—297 x 420 mm) A4—(8.27" x 11.69"—210 x 297 mm) B—(11" x 17"—279 x 432 mm) C—(17" x 22"—431.80 x 558.80 mm) D—(22" x 34"—558.80 x 863.60 mm) E—(34" x 44"—863.60 x 1117.60 mm) C ARCH D ARCH E ARCH Scale to Paper
Default	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.*

Menu	Administration/Emulations/HPGL/Pen x/ Pen Width
Choices	0-60 (0.0-6.0 mm)
Default	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)
Note	A choice of 0 defaults to a pixel of "1".

Menu	Administration/Emulations/HPGL/Pen x/Color
Choices	Black, Blue, Brown, Cyan, Gray-25%, Gray-50%, Gray-75%, Green, Magenta, Orange, Red, Violet, Yellow
Default	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.

Menu	Administration/Emulations/HPGL/Plotter
Choices	7475A— 7470A— Colorpro— 7550A— DraftMaster—Supports architectural and engineering paper sizes (for example, A to E and Arch A to Arch E). » **Note:** *These paper sizes describe a mapping to the physical paper. This mapping is a scaling factor (or a size ratio) between the chosen paper size and the physical paper size in the default inputbin. For example if A3 is selected (size 11.69" x 16.54") for paper size and the physical paper size in the default inputbin is A4 (8.27" x 11.69"), then the plot is scaled by a factor of 2.*
Default	7550A

Scaling Percent

Identifies the percentage to reduce or enlarge an image.

Menu	Administration/Emulations/HPGL/Scaling Percent
Choices	001-150 (1-150%)
Default	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.*

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.

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

Character Map

Specifies the type of character map to be used.

Menu	Administration/Emulations/Line Printer/Character Map
Choices	ASCII, EBCDIC, PC ASCII, PC Multilingual
Default	ASCII
Note	If you select the PC ASCII or PC Multilingual character map, special PostScript fonts will be substituted for the lineprinter character map.

CR IS CRLF

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

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

FF is CRFF

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

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

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

LF is CRLF

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

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

Line Numbering

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

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

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

Margins

Defines the left, right, top, and bottom margins in 1/7200" increments.

Menu	Administration/Emulations/Line Printer/Margins	
Choices	Bottom	0-79200 (0"-11.00")
	Left	0-79200 (0"-11.00")
	Right	0-79200 (0"-11.00")
	Top	0-79200 (0"-11.00")

Default	Bottom 0 Left 0 Right 0 Top 0
Note	The margins are in 1/7200 increments (79200 is 11.00" at 7200" increments).

Orientation

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

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

Point Sz 100ths

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

Menu	Administration/Emulations/Line Printer/Point Sz 100ths
Choices	00000-99999
Default	00880 (8.8 points)

Tab Stops

Specifies the number of spaces between tab stops.

Menu	Administration/Emulations/Lineprinter/Tab Stops
Choices	0-256
Default	8

Special Pages

Use the Administration/Special Pages menu to print special pages, such as status pages, header pages, and trailer pages. See the *QMS Crown Document Option Commands* manual for detailed information on the contents of these special pages.

Working with Status Pages

Printing a status page is a two-step procedure: Identify the type of status page you want to print, and then print it.

Identifying a Status Page Type

Two types of status pages are available:

Menu	Administration/Special Pages/Status Page Type
Choices	Standard—Lists printer identification information, paper source, current memory configuration, timeouts, communication settings, input buffer sizes, and all options. Advanced—Contains the same information as the standard status page as well as configuration menu settings, fonts, and downloaded emulations.
Default	Standard

Printing a Status Page

After you have identified the type of status page to print, use the Status Page key on the printer control panel to print it.

» **Note:** *If you choose an advanced status page but only a standard status page prints, the printer has run out of RAM. Either reallocate memory among the memory clients (see chapter 5, "Additional Technical Information") or add more memory to the printer (see chapter 2, "Memory and System Software" in the Options guide).*

Calibration Page

Prints a calibration page.

Menu	Administration/Special Pages/Calibration Page
Choices	Yes—Prints calibration page. No—Calibration page will not be printed.
Default	Yes
Notes	See the Administration/Engine/Image Alignment menu for calibration instructions.

Working with Header Pages

A header page is a separator page that prints before a print job to help users sort their jobs. The information on the header page can be customized. See the *QMS Crown Document Option Commands* manual for more information.

Enabling/Disabling Header Pages

Menu	Administration/Special Pages/Header Page
Choices	On—Print a header page before each job. Off—Don't print a header page before each job.
Default	Off

Identifying a Header Page Input Source

You can select the inputbin (tray or cassette) from which the printer pulls media when printing the header page.

Menu	Administration/Special Pages/Header Inputbin
Choices	Upper—Pull header page media from the upper cassette. Lower—Pull header page media from the lower cassette. Multipurpose—Pull header page media from the multipurpose tray.
Default	Multipurpose

Notes	If you used the Administration/Engine/Inputbin *x* Name options to change the names of the inputbins, these names replace Upper, Lower, and Multipurpose in the message window.

Working with Trailer Pages

A trailer page is a separator page that prints after a print job to help users sort out their jobs and, if requested, identify print job errors.

Enabling/Disabling Trailer Pages

Menu	Administration/Special Pages/Trailer Page
Choices	Off—Don't print a trailer/error page for each print job. On—Print a trailer/error page for each print job. On Error—If any print job errors exist, print a trailer page that lists the errors as well as other trailer page information. Errors Only—If any print job errors exist, print a trailer page that lists the errors but omits other trailer page information.
Default	Off
Notes	See the *QMS Crown Document Option Commands* manual for more information.

Identifying a Trailer Page Input Source

You can select the input bin (tray or cassette) from which the printer pulls media when printing the trailer page.

Menu	Administration/Special Pages/Trailer Inputbin
Choices	Upper—Pull trailer page media from the upper cassette. Lower—Pull trailer page media from the lower cassette. Multipurpose—Pull header page media from the multipurpose tray.

Default	Multipurpose
Notes	If you used the Administration/Engine/Inputbin *x* Name options to change the names of the inputbins, these names replace Upper, Lower, and Multipurpose in the message window.

Printer Start-Up Options

The Administration/Startup Options menu allows you to configure your printer to run certain options automatically when you turn it on.

Enabling/Disabling the Start-Up Page

By default, the printer prints a start-up page when you turn it on. The start-up page lists basic information about the printer, such as its name, the PostScript version, and various printer settings. However, you can turn the start-up page off to conserve paper and toner.

Menu	Administration/Startup Options/Do Start Page
Choices	Yes—Print a start-up page each time the printer is turned on. No—Don't print a start-up page each time the printer is turned on.
Default	Yes

Enabling/Disabling the SYS\START File

If you have a hard disk and Do Sys Start is enabled, when the printer is turned on, the controller checks the hard disk for a PostScript file named SYS\START and executes this file.

Menu	Administration/Startup Options/Do Sys Start

Choices	Yes—Check the hard disk for and execute the SYS\START file when the printer is turned on. No—Don't check the hard disk for a SYS/START file.
Default	Yes
Notes	This file does not print. Information on creating a SYS\START file is available via Q-FAX (see appendix A, "QMS Customer Support," for information on using Q-FAX).

Loading the PostScript Error Handler

Error Handler is a diagnostic tool that identifies PostScript errors encountered during a print job.

Menu	Administration/Startup Options/Do Error Handler
Choices	Yes—Load the Error Handler at power on. No—Don't load the Error Handler.
Default	No
Notes	Refer to the *PostScript Language Reference Manual* (Adobe Systems Incorporated, Reading, PA: Addison-Wesley, 1990, ISBN 0-201-18127-4) for more information on PostScript errors.

Memory

This submenu allows you to allocate the printer's memory (RAM) among the various memory clients. The flexibility of defining memory available to clients allows experienced users to optimize the printer's performance according to a given set of conditions.

This section briefly describes each of the memory submenus and the memory clients. See chapter 5, "Additional Technical Information," for

more detailed information on the printer's memory and what benefits, if any, may result from adding memory to each client.

To find out how memory is currently allocated, print a status page using the Print Status key on the control panel or check each client individually in the configuration menu.

Quick Configuration Menu

This submenu allows you to "quickly configure" the memory clients to the settings which allow the printer to perform best. The results of Quick Config depend on the amount of memory installed, the resolution used for printing, and paper size.

» **Note:** *This menu will appears only if there is no hard disk installed in the printer or if Enable Disk Swap is turned off. The 1200 dpi selection only appears if the optional 1200x1200 dpi daughterboard is installed.*

Menu	Administration/Memory/Quick Config/300dpi
Choices	Letter/A4, Legal, Ledger, Universal, A5, A3, B5, B4, Statement, Executive

Menu	Administration/Memory/Quick Config/600dpi
Choices	Letter/A4, Legal, Ledger, Universal, A5, A3, B5, B4, Statement, Executive

Menu	Administration/Memory/Quick Config/1200dpi
Choices	Letter/A4, Legal, Ledger, Universal, A5, A3, B5, B4, Statement, Executive
Note	Under the Quick Config option documented on the advanced status page you will see "****". This option isn't user-definable. Quick Config only configures memory depending on the resolution and paper size.

Enable Disk Swap Menu

Enable Disk Swap gives your printer virtual memory capability for all memory clients through the creation of a "swap file" on the printer's

hard disk. The printer uses this file as an extension of its memory. As the physical RAM fills, the printer can swap the contents to the hard disk file to allow more space. This file swapping between disk and RAM occurs at various times throughout the printing process and is completely transparent.

» **Note:** *The printer must have a hard disk to take advantage of this feature. If there is no hard disk installed, this menu does not appear.*

Menu	Administration/Memory/Enable Disk Swap
Choices	Off—Don't enable disk swapping. On—Enable disk swapping.
Default	On
Notes	If disk swapping is enabled and the hard disk is removed or not turned on, the printer will automatically reset to the factory defaults. The printer must be restarted for changes to the Enable Disk Swap and other memory menus to take effect. You can either let the printer restart automatically after you save the change and exit from the Configuration menu, or you can wait for the change to take effect the next time you manually turn on the printer.

Manual Configuration Menu

The manual configuration menu allows you to adjust memory clients based on your printing needs.

» **Note:** *Remember that if you perform any of these functions the memory clients will be set to default values. The default values depend on the amount of physical memory installed in your printer and if you have a hard disk, duplexer, and/or a 1200x1200 dpi daughterboard. The default allocation adjusts the Frame Buffer memory client first. It is set to the minimum values of physical memory needed for your print jobs, that is, paper size, resolution, and duplex printing. The other memory clients are allocated memory from what is left over in physical memory.*

Configuring Spooling

The K Mem for Spool, listed on the status page as Host Input, is the total number of kilobytes of RAM allocated to all spooling buffers. This memory client stores incoming data from the various interfaces until it is processed and printed.

Menu	Administration/Memory/Manual Config/K Mem for Spool
Choices	00128-30720
Notes	This value must be greater than the sum of the Min K Spool for all installed and enabled interfaces.The maximum value listed depends on the amount of memory installed and if a disk drive is present. If you change the K Mem for Spool value, the printer automatically restarts after you save your changes and exit from the configuration menu.

When the sum of the Min K Spool for all interfaces is less than K Mem for Spool, memory is allocated as follows:

1 Interfaces with Min K Spool (in the Administration/Communications menu) value greater than zero receive their specified allocation.

2 The remaining memory in K Mem for Spool is allocated to Shared Spooling Space. This can be seen in the Communications Settings & Input Buffer Sizes area of the status page.

3 The Shared Spooling Space can be allocated to any of the communication interfaces if the input jobs require more spooling space. The limit to this is the amount of Host Input (K Mem for Spool) shown on the status page.

» **Note:** *If you add the Input Buffer Sizes allocated to each interface and the Shared Spooling Space, the result should equal Host Input.*

PostScript Heap

The K Mem for PSHeap, listed on the status page as Heap, is the number of kilobytes of RAM dedicated to the PostScript emulation interpreter. This memory client holds downloaded PostScript emulation fonts, operators, and forms.

Menu	Administration/Memory/Manual Config/K Mem for PSHeap
Choices	01280-99999
Notes	If you change the K Mem for PSHeap value, the printer automatically restarts after you save your changes and exit from the configuration menu. The maximum value listed depends on the amount of memory installed and if a hard disk is present.

PostScript Fonts

The K Mem for PS Fonts, listed on the status page as Font Cache, is the number of kilobytes of RAM dedicated to caching previously scaled bitmap representations of fonts for the PostScript emulation interpreter.

Menu	Administration/Memory/Manual Config/K Mem for PS Fonts
Choices	00088-05120
Notes	This memory setting can reduce the number of times a PostScript font must be converted from outline form to bitmap form, thus reducing processing time. The maximum value listed depends on the amount of memory installed and if a hard disk is present. If you change the K Mem for PS Fonts value, the printer automatically restarts after you save your changes and exit from the Configuration menu.

Emulation

The K Mem Emulation, listed on the status page as Emulation, is the number of kilobytes of RAM to be used by non-PostScript emulations for temporary storage and for loading optional emulations.

Menu	Administration/Memory/Manual Config/K Mem Emulation
Choices	01024-99999
Notes	If you receive an emulation error, you may need to increase the amount of memory for this client.The maximum value listed depends on the amount of memory installed and if a hard disk is present. QMS recommends that you should add at least 1MB of physical RAM to your printer and increase this memory client by 1 MB. If disk swapping option is turned on then you can increase the emulation memory client using this memory. Failure to add memory to this client may prevent the printer from loading and using the emulation. Check the documentation included with the loadable emulation for information on additional resources requirements. If you change the K Mem Emulation value, the printer automatically restarts after you save your changes and exit from the configuration menu.

Emulation (Temporary)

The K Mem Emul Temp, listed on the status page as Emulation Temporary, is the number of kilobytes of RAM to be used by non-PostScript emulations for storing downloaded (soft) fonts, forms, or macros.

Menu	Administration/Memory/Manual Config/K Mem Emul Temp
Choices	00256-30720
Notes	This value must be greater than the sum of the Min K Spool for all installed and enabled interfaces. Data in this client disappears when the printer is turned off. Increasing this client's size increases the number of PCL downloaded fonts which can be accepted.The maximum value listed depends on the amount of memory installed and if a hard disk is present. If you change the K Mem Emul Tmp value, the printer automatically restarts after you save your changes and exit from the Configuration menu.

Display List

The K Mem Display is the number of kilobytes of RAM dedicated to the display lists. The display list holds the intermediate representation of pages to be printed. Increasing the size of the Display List increases the number of pages that can be collated. The maximum number of pages that can be collated is 100 pages.

Menu	Administration/Memory/Manual Config/K Mem Display
Choices	00384-99999
Notes	The maximum value listed depends on the amount of memory installed and if a hard disk is present. If you change the K Mem Display value, the printer automatically restarts after you save your changes and exit from the configuration menu.

Disk Cache

The K Mem Disk Cache is the number of kilobytes of RAM dedicated to the disk cache. This memory client speeds file system throughput on any installed hard disks by storing frequently used data in system memory instead of continually storing it to and retrieving it from a hard disk.

Menu	Administration/Memory/Manual Config/K Mem Disk Cache
Choices	00000-30720
Default	00256
Notes	If no hard disk is used, the disk cache will be set to the minimum (zero). The printer then reallocates the released memory to other clients that need additional memory. If you change the K Mem Disk Cache value, the printer automatically restarts after you save your changes and exit from the configuration menu.

The amount of memory needed for this memory client depends on the size and number of hard disks, the number of subdirectories on each disk, and the amount of memory dedicated to caching.

» **Note:** *If sufficient memory is available to the disk cache, all disks are accessible. If insufficient memory is available to the disk cache, some disks may be accessible while others may not be.*

The recommended amount of memory for the disk cache client is

- 120 KB minimum
- 0.5 KB per MB of disk storage total for all disks

For example, the recommended amount of memory for the disk cache for a single 120 MB hard disk is 180 KB, and for two 120 MB hard disks it is 240 KB. These are recommended values. The printer will still operate with a smaller cache, but decreased performance may result.

Frame Buffer

The Frame Buffer memory client holds rasterized or bitmapped images of page faces which are ready to be sent to the print engine. A frame holds the contents of each single page image. For example, a 600 dpi page printed on letter size paper would consume frame buffer memory space as follows: (600dpi x 600dpi x 8.5" x 11")/8 = 4,207,500 bytes or 4.1 M.

Frame buffer memory should always be the first memory client that is configured in the printer. After this, all other clients can be configured depending on your printing needs. Anytime the frame buffer client is changed, all of the other clients will be resized to their default values. Frame buffer can be configured manually, through the Quick Config Menu, or by resetting the printer defaults. In all cases, be sure to keep a copy of the status page as a record of memory client settings. See chapter 5, “Additional Technical Information,” for more information on memory and the frame buffer client.

Menu	Administration/Memory/Manual Config/K Mem Frame Buffer
Choices	02200-104532

Printer Memory

MB Printer Mem, listed as Total Memory on the status page, is the number of megabytes of RAM available to be split among the various memory clients. The size of this client's memory limits the number of jobs that may be queued simultaneously. When this client's memory is exhausted, the printer slows down, and the hosts are forced to wait.

Menu	Administration/Memory/Manual Config/MB Printer Mem
Choices	000-999
Default	Depends on the amount of memory installed.
Notes	This memory client is not user-configurable. If disk swapping is enabled (Administration/Memory/Enable Disk Swap menu), the amount of memory displayed is larger than the actual amount of memory installed in the printer.

Engine

Through the Administration/Engine menu you can set print engine-related parameters.

Adjusting the Image Alignment

This option allows you to adjust the horizontal and vertical placement of printed images.

To check image alignment, print a standard status page (Print Status key). When the printer is placing images properly, the alignment angle bar in the lower-left corner of the status page is 0.5"/12.7 mm from the left and bottom edges of the page. If the angle bar is off, use the Administration/Engine/Image Alignment option to align the image horizontally and vertically in pixel increments (1/300” or 0.08 mm).

» **Note:** *Engine constraints may limit the accuracy of pixel alignment.*

Horizontal Offset

Menu	Administration/Engine/Image Alignment/Horiz Offset
Choices	000-300 (0.00"/0 mm-1.00”/25.4 mm)
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image to the right. Values below 100 move the image to the left.

Vertical Offset

Menu	Administration/Engine/Image Alignment/Vertical Offset
Choices	000-300 (0.00"-1.00”)
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image down. Values below 100 move the image up.

Duplex H. Offset

Menu	Administration/Engine/Image Alignment/Duplex H. Offset
Choices	000-300 (0.00"/0 mm-1.00”/25.4 mm)
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image to the right. Values below 100 move the image to the left.

Duplex V. Offset

Menu	Administration/Engine/Image Alignment/Duplex V. Offset
Choices	000-300 (0.00"-1.00”)
Default	100 (0.33"/.84 mm)
Notes	Values above 100 move the image down. Values below 100 move the image up.

Setting Default Paper

Default Paper is used when the default media is requested but the default input bin is missing from the engine. There’s no way to sense the media size automatically.

Menu	Administration/Engine/Default Paper
Choices	Letter, A4
Default	Letter

Setting Default Resolution

This option sets the print engine’s default resolution.

Menu	Administration/Engine/Def Resolution
Choices	300 dpi—300x300 dpi resolution 600 dpi—600x600 dpi resolution 1200 dpi—1200x1200 dpi resolution
Default	600 dpi

Notes	If your printer is configured for duplex printing and has less than 16 MB RAM, 600x600 dpi isn't available on all media sizes. Duplexing using 600x600 or 1200x1200 resolution requires additional memory. See the "High-Resolution and Duplexing" section in chapter 3, "Advanced Printing Features," of the *Operation* guide. The 1200 dpi option does not show up in this menu until the optional 1200x1200 dpi daughterboard is installed and the frame buffer has sufficient memory to support 1200 dpi. Restoring defaults or selecting Quick Config should reconfigure the frame buffer memory client

Specifying Page Recovery Action

When a media jam or other similar error occurs, the printer can reprint the job starting from the page on which the jam occurred.

Menu	Administration/Engine/Page Recovery
Choices	On—Reprints a print job from the page on which the jam or error occurred. Off—Don't reprint a print job when a jam or error occurs.
Default	Off

Setting Toner Low Action

You can configure the printer to stop or to continue printing when a `TONER LOW ACT.` error message is displayed in the message window.

Menu	Administration/Engine/Toner Out Act.
Choices	Continue—Continue printing when a `TONER LOW ACT` message displays. Stop—Stop printing when a `TONER LOW ACT` message displays.
Default	Continue

Setting Energy Conservation

The Energy Saver option specifies whether the printer changes to a low-power state (the engine remains on, but the fuser turns off) after the printer is inactive for a user-defined length of time. When a print job is received, the printer returns to normal power within 90 seconds.

Menu	Administration/Engine/Energy Saver
Choices	15 minutes, 30 minutes, 1 hour, 2 hours, 3 hours—Idle time before activation of low-power state. Off—Use normal power all of the time.
Default	1 hour

Setting Toner Density

The Toner Density option adjusts the density of the toner that is laid down on the paper.

Menu	Administration/Engine/Toner Density
Choices	00 - 15 00—Lightest setting 15—Darkest setting
Default	07

Setting Manual Feed Timeout

This option allows you to set the amount of time the printer waits for paper to be inserted into the multipurpose tray before it cancels the job.

Menu	Administration/Engine/Man. Feed Timeout
Choices	000 - 300 seconds
Default	060 seconds
Notes	A value of 000 sets the timeout to infinity

Setting the Rotate Simplex Option

This option rotates the image so that it prints correctly on 3-hole punched paper.

» **Note:** *You must insert the paper with the holes on the leading edge of the paper. If installed the opposite way, you will get an error message.*

Menu	Administration/Engine/Rotate Simplex
Choices	Yes No
Default	No
Note	This feature allows simplex printing only. You cannot print duplex on 3-hole punched paper.

Setting up Media Feed Options

Allows you to specify whether letter and A4 media should be fed into the printer long edge or short edge first.

Menu	Administration/Engine/Feed Options
Choices	Letter Feed Long-Edge Short-Edge A4 Feed Long-Edge Short-Edge
Default	Long-Edge
Notes	You must place media in the input tray or cassette in the same orientation you select here.

Setting the Letterhead Option

This option appears only if the duplexing unit is installed on the printer. The letterhead option allows you to print both simplex and duplex jobs on letterhead paper from the same inputbin (tray or cassette) without having to sort the pages manually.

Menu	Administration/Engine/Letterhead
Choices	On, off
Default	Off
Notes	Letterhead paper must be loaded face down in the inputbin with the bottom edge inserted first into the printer. You may notice a decrease in the printing speed depending on the mix of simplex and duplex pages.

Print Quality

The Print Quality option allows the printer to operate at a lower rate of toner consumption and extend the life of your toner cartridges. This option also allows you to enable smoothing.

Menu	Administration/Engine/Print Quality
Choices	Normal—Normal toner use. Conserve Toner—Toner use is lowered. Smooth(600dpi)—Requires the optional 1200x1200 dpi daughterboard.
Default	Normal

Notes	When Conserve Toner is selected, the Administration/ Engine/Setting Toner Density option can be adjusted for the best acceptable print quality. Toner Density can be set from 1 to 15. Smoothing alters the size and position of dots that lie on the outer edges of an object by reducing the width of the laser pulse to a fraction of the full pulse width. This smooths jagged-edges in text, lines, and graphics and generally improves their print quality. When you are printing halftones, smoothing is not recommended because it may introduce artifacts in the halftone or scanned image. For better results, if smoothing is required in text and line art, use the basic option for halftone types.

Installation Menu

The Installation menu appears only if a security key is installed. The system administrator uses the Installation menu to set passwords for the Operator Control and Administration menus.

Configuring Optional Features

Several of the optional features available affect printer configuration and the Configuration menu. When an optional feature is installed, its configuration information merges into the Configuration menu. See the *Options* guide for more information.

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5

Additional Technical Information

In This Chapter . . .

- “Printer-Host Communication” on page 5-2
- “Memory” on page 5-8
- “Halftones” on page 5-4End job mode
- “Parallel Interface Modes” on page 5-30
- “PS Protocol Option” on page 5-32
- “HP-GL Color Encoding” on page 5-36

Introduction

This chapter provides additional technical information on memory management, end job mode, the PS Protocol option, and HP-GL color-to-grayscale conversion.

Printer-Host Communication

Interface

An interface is the point at which two elements connect so they can work together. A printer-host interface is the way a printer connects to and works with a host (a microcomputer, workstation, minicomputer, mainframe computer, or network), and it involves both hardware and software. The way your printer interfaces with a host depends on many things, including computer type, computer ports available, interface cabling, application software, printer emulations, and printer drivers.

Simultaneous Interface Operation (SIO)

Simultaneous Interface Operation (SIO), a standard feature of QMS Crown architecture, enables your QMS 2425/2425 *TURBO* Print System to communicate simultaneously with hosts through the parallel, optional serial, Ethernet, and optional interface ports. In other words, SIO allows you to have more than one host communicating with the printer at one time.

ESP Technology

Emulation Sensing Processor (ESP) technology is another standard feature of QMS Crown architecture. ESP technology, which works with most popular commercially available applications, uses a form of artificial intelligence to analyze incoming file data and select the appropriate printer emulation (for example, PostScript emulation,

HP-GL emulation, HP-PCL emulation, or another optional emulation) from those installed on the printer.

The print job is processed without your having to change printer switch settings or send software commands to accommodate different printer emulations.

When your printer is in ESP mode, you can easily print files prepared for a PostScript printer, an HP LaserJet, or an HP-GL plotter. The file prints correctly as long as it contains the traditional PostScript or HP-GL commands for such items as page formats and job parameters (number of copies, page margins, fonts).

The QMS 2425/2425 *TURBO* Print System prints almost any file sent in a language ESP technology understands, whether you have one, two, or more hosts, and whether you are communicating through a parallel, Ethernet, optional serial, or other optional interface. Most users never have to change from ESP mode to another mode.

Communication Modes

You can either allow your printer to operate in its default ESP mode or configure its ports to accept jobs in only a particular emulation mode (for example, PostScript emulation only, HP PCL only, or HP-GL emulation only). The default printer communication settings can be changed through the Configuration menu, which you access through the control panel—in the Administration/Communications menu, you can choose a default emulation for the parallel and optional serial interfaces, and in the Administration/Emulations menu, you can configure the printer defaults for each emulation mode. (The optional LocalTalk interface uses only PostScript.)

Advanced users can also use PostScript operators to reconfigure printer ports. Generally, it is best to keep your printer in ESP mode. Since ESP mode is the factory default, all you have to do to use it initially is connect your host and printer and then send a file.

If you do want to reconfigure the interface ports for specific emulations (or if you need to return the printer to ESP mode), use the printer's control panel (the Administration/Communications menu). Configuring the printer through the control panel is described in chapter 4, “Printer Configuration,” of this manual.

Halftones

The ability of the printer to produce halftones allows you to add scanned images or halftone graphics to your documents. This section explains some of the options available on the QMS 2425/2425 *TURBO* for halftone printing.

What are Halftones?

Continuous tone scanned images have to be converted to dot pattern images on a laser printer. Laser printers, like printing presses, only have the ability to print patterns of dots controlled by turning on and off the laser. Because of the limited resolving power of the eye halftones appear as continuous tone images. For example, if you hold a newspaper photograph very close to your eyes, you can see the halftone dots.

Halftone characteristics can be changed by settings available on your QMS 2425/2425 *TURBO* Print System. The following factors can be used to adjust the halftone characteristics of your documents:

- Printer resolution
- Screen frequency and screen angles (halftone types)
- Smoothing

There can be some side effects to changing these factors. Factors such as the number of gray levels, printer performance, and scanned image quality can be affected.

Gray Levels

Gray levels are a progressive series of gray tones between black and white. Gray levels are produced by varying the ratio of black to white halftone dots. The number of gray levels depends on printer resolution and screen frequency.

Screen Frequency

Screen frequency or lines per inch (lpi) is the number of lines of halftone dots that compose each inch of a halftone screen. The screen

frequency determines the number of halftone dots used to represent gray levels in a given area.

The following formula shows the relationship between screen frequency, print resolution and gray levels. As the screen frequency increases, the number of gray levels decrease. If resolution is increased, the number of gray levels will also increase.

- gray levels = $(\text{resolution}/\text{screen frequency})^2 + 1$

You can change screen frequency by selecting the halftone type in the QMS 2425/2425 *TURBO* configuration menu (see the table in "Halftone Types" on page 5-6), through your application, or by using the PostScript **setscreen** operator.

The extra gray levels available through a higher resolution provide a smoother shift from the darkest black to very light grays.

Screen Angle

A screen angle is the angle at which a halftone screen prints. The default screen angle for your QMS 2425/2425 *TURBO* Print System is 45° at 300x300, 600x600,and 1200x1200 dpi. This is the normal angle for black and white printers. The Advanced halftone type option varies the screen angle (see the table in "Halftone Types" on page 5-6). You can also change the screen angle through the PostScript **setscreen** operator.

Halftone Types

Your printer provides three different options for halftones—basic, standard, and advanced. This table lists the halftone type options in the Admin/Emulations/PostScript/Halftone Type menu. Notice that the number of gray levels increases with a by increasing the halftone type and the printer resolution.

	300 DPI			600 DPI			1200 DPI		
Halftone Type	**LPI**	**Angle**	**Level**	**LPI**	**Angle**	**Level**	**LPI**	**Angle**	**Level**
Basic	53.03	45.0	33	70.71	45.0	73	84.85	45.0	200
Standard	53.03	45.0	129	106.06	45.0	129	106.06	45.0	256
Advanced	67.08	26.56	81	102.89	59.04	137	126.49	18.43	256

» **Note:** *The default for this menu is standard. The standard settings listed are optimized for performance, and the advanced settings are optimized for quality.*

Smoothing

Your QMS 2425/2425 *TURBO* Print System offers a Smooth(600dpi) option in the Admin/Engine/Print Quality menu, (see chapter 4, “Printer Configuration”). This QMS edge-smoothing technique alters the size and position of dots on the outer edges of an object by reducing the width of the laser pulse to a fraction of the full pulse width. This smooths jagged edges in text, lines, and graphics and generally improves their print quality.

» **Note:** *Smoothing isn’t recommended when you’re printing halftones, because it may introduce artifacts in the halftone or scanned image. For better results, if smoothing is required in text and line art, use the basic halftone types option.*

A Special Note for QuarkXPress Users

Make sure you have installed the QMS 2425 PDFs in the PDF folder in the QuarkXPress folder. The names of the three PDFs are

- QMS2425.PDF
- QMS2425STD.PDF
- QMS2425ENH.PDF

While QuarkXPress 3.3 allows you to access either a PDF or a PPD, to have access to all of your printer's features, you should use the PDF. To select the PDF, go to the Page Setup dialog box in QuarkXPress, and hold down the Shift key while clicking the Printer Type list box. (The italicized selections are PPDs, and the non-italicized selections are PDFs.)

» **Note:** *The 2425 PDFs allow you to choose between basic, standard, and enhanced (advanced) screening (or halftoning) in QuarkXPress. If these PDFs are not present, you won't be able to used enhanced halftoning even though the printer supports it.*

Enhanced Screening

To use enhanced (advanced) screening (or halftoning), do the following:

In Your QuarkXPress Document (Page Setup Dialog Box)

- In the Printer Type listbox select `QMS 2425 Enhanced Screening.`
- If you have EFIcolor software loaded, select `None`.
- Select `Use PDF Screen Values`.

Standard Screening

To use standard screening (or halftoning), do the following:

In Your QuarkXPress Document (Page Setup Dialog Box)

- In the Printer Type listbox select `QMS 2425 Standard Screening.`
- If you have EFIcolor software loaded, select `None`.
- Select `Use PDF Screen Values`.

Basic Screening

To use basic screening (or halftoning), do the following:

In Your QuarkXPress Document (Page Setup Dialog Box)

- In the Printer Type listbox select `QMS 2425 Basic Screening.`
- If you have EFI color software loaded, select `None`.
- Set the Halftone Screen (lpi) to the lpi of your choice.
- Disable the option Use PDF Screen Values.

Memory

Memory allows your printer to store and retrieve information that's required to perform many of its tasks. The memory requirements of each printer are dictated by the applications to be run. Each printer comes standard with a certain amount of memory, but you may add more memory as necessary.

The memory is divided among users (or "clients"), each of which allocated a specific amount (or "block") of memory. Each memory client is dedicated to a specific printing and application purpose.

Your QMS 2425/2425 *TURBO* Print System allows you to distribute its memory among the various memory clients where it can best serve your specific printing needs. The following sections provide information on memory management so you can get the most from your printer.

Generally, there are two main reasons for wanting to reconfigure your printer's memory:

- To achieve maximum performance
- To enable additional features

The ability to configure your printer's memory doesn't necessarily mean that you must change your current configuration. If you're presently using all the features you need and the printer is performing efficiently, you shouldn't feel compelled to reconfigure your printer's memory. Just remember that if your printing needs change, not only do you have the ability to increase the amount of printer memory, but you also can redistribute it where you feel it would best meet your printing requirements.

QMS Memory Management

Managing the memory on your printer is much the same as managing your personal income. In money management, you have a certain amount of income and many ways of spending that income. You decide where that money goes according to what's important to you. There's no single correct way to manage money, but there is one best way for you according to your financial obligations. Just as long as your method works for you.

The same is true for managing the memory on your printer. There's no single correct way for everyone to allocate available printer memory. There is, however, a best way to configure your printer's memory for maximum efficiency in your specific printing environment. For example, if you use a large number of PostScript fonts of various point sizes, you may want to increase the amount of memory allocated to the area specified for PostScript fonts. Or you may want to increase memory to the area that minimizes slowdowns when collating large print jobs.

Memory configuration affects these things as well as the number of jobs that can be accepted by the printer, the number of options available simultaneously, the number of downloadable fonts and emulations that can be stored, and overall printer performance.

Memory Terms

Before you can configure your printer's memory efficiently, you must first understand the different types of memory and how they work together. Your QMS 2425/2425 *TURBO* Print System documentation uses the following memory terms:

Memory

Memory allows your printer to store and retrieve information. It's the space within your printer where information is stored while being actively worked on.

Memory Client

A memory client is a user of a block of memory dedicated to a specific function. Each memory client controls certain features. When insufficient memory is allocated to a specific client, the features it controls may not be accessible.

Excess Memory

Some printers designate one or two memory clients to receive all the excess, or unassigned memory. On your QMS 2425/2425 *TURBO* Print System excess memory is distributed among all the memory clients.

Storage

Storage is a device in (or on) which information can be kept. There are three main types of storage—ROM, RAM, and hard disk drives. ROM stores read-only data, RAM represents temporary storage, and hard disk drives hold information on a more permanent basis (see the following definitions).

ROM (Read Only Memory)

This type of memory contains data and/or machine-executable instructions that can be read but not modified. This information is not lost when the printer's power is turned off.

RAM (Random Access Memory)

RAM is the memory your printer uses to perform each task. It can be written to and read from. Once a task is complete, the memory is free again to be used for another file. This memory is volatile, so if your printer loses power while a file is being sent, you must resend the file. The number and type of features you can run on your printer simultaneously depend on the amount of RAM you have and how that RAM is distributed. Your printer comes with either 8 MB or 24 MB of RAM, but it is upgradable to 128 MB by adding Single In-line Memory Modules (SIMMs).

RAM Disk

Also called a virtual disk, the RAM disk is an area of RAM that is used to simulate an additional hard disk. Data can be written and read more quickly than on a hard disk, but a RAM disk loses any information stored on it when the printer's power is turned off. The spooling buffer is a RAM disk client if a hard disk is not available.

SCSI (Small Computer System Interface)

The printer's SCSI port allows you to connect up to three optional SCSI hard disks and the optional CrownCopy scanner, providing storage for fonts, emulations, and other files. Hard disks are also used to increase the amount of collation that can be accepted and provide a secondary storage area for spooled data, while providing virtual memory capabilities.

IDE (Integrated Drive Electronics)

This is an optional internal hard disk. "Integrated" refers to the fact that all of the controller electronics are on the drive itself, so no separate adapter card or expansion slot is required.

Volatile Memory

This type of memory is cleared when the printer is turned off. For example, most RAM is volatile.

Non-volatile Memory

This type of memory is not lost when the printer loses power.

NV RAM

This protected form of RAM is used to store information such as your printer's configuration menu. Configuration options you have chosen, such as emulations, memory settings, and input bins, are saved to this non-volatile RAM. This information is not lost when you turn off your printer.

Physical Memory

Physical memory refers to the total amount of RAM installed in the printer.

Virtual Memory

Virtual memory extends the effective size of the printer's memory by using a disk file or swap file to simulate additional memory space. It enables the hard disk to accept data swapped from RAM to free temporarily the RAM for other tasks.

Flash ROM

Quick loading, reprogrammable memory that holds information even when the printer is turned off is known as flash ROM. Your 2425 Print System has flash ROM available to hold system code and future system upgrades. The chief advantage of flash ROM is that system upgrades can be loaded from your computer without the necessity of swapping out expensive EPROMS or having to place a service call.

» **Note:** *The 2425 TURBO EX model does not have flash ROM.*

Spool

Spooling is temporary storage to hold print jobs until the printer is available to process them.

Evaluation of Your Printing Environment

The first step in allocating your printer's memory is to define your printing needs. Each of your printer's features requires a minimum amount of memory. If you use a feature, you must allocate enough memory to the client which controls it. On the other hand, if there are features you don't use, you can take the memory in the clients that control the unused features and assign it to other clients that need additional memory.

Evaluation Questions

To get a better idea of what your printing requirements and your printer's capabilities are, answer the following questions.

» **Note:** *The memory clients or menu options associated with each evaluation question is listed in italics after the question.*

1 How much RAM does your printer have (standard and additional memory)? *Total Memory*

2 Do you have the option of installing additional memory if it's needed? *Total Memory*

3 Does your printer have any internal or external hard disks connected? If so, how many and what size? *Disk Cache*

4 Which resident emulations will you be running? *PS Heap or Emulation*

5 Will you be loading any nonresident emulations? If so, how many and which ones? *Emulation and Emulation Temp*

6 How many printer ports will be connected? *Host Input and Input Buffer*

7 Do you have an optional interface connected? *Input Buffer*

8 How many people will be using this printer simultaneously? *Host Input or K Mem for Spool*

9 How many downloadable fonts will you be using? What sizes? From which emulation? *Font Cache or Emulation Temp*

10 Will you use many different sizes of fonts/typefaces? *Font Cache*

11 How large are the files you typically print? How large is the largest file you'll be printing? *Host Input or K Mem for Spool*

12 Are most of your files text, or are any graphics intensive? *Display List*

13 Will you want to download fonts, forms, or operators to memory? *Font Cache or Emulation Temp*

14 Will you be collating documents? If so, how large and complex will these documents be? *Display List*

15 What media sizes will you be using? *Frame Buffer*

16 At which resolution will you be printing? *Frame Buffer*

17 Will you use CrownCopy? ImageServer? Q-Form? *Frame Buffer or Display List*

After you have answered all of these questions, read the following sections to find out which memory clients control features you plan to use and which memory clients control features you don't need.

Memory Clients

Memory clients are users of printer memory that are dedicated to a specific purpose. Each of the memory clients is located in the Administration/Memory menu. When you allocate memory to a specific client through the control panel, it's allocated in kilobytes (KB). Each time you make changes in the Administration/Memory menu, print out a status page to confirm the memory reallocation.

» **Note:** *The value for each memory client must be divisible by 4 KB. Therefore, if a value is entered that is not evenly divisible by 4 KB, it's automatically converted to the next lower value that's divisible by 4 KB. For example, if you enter 102 KB, the actual value is lowered to 100 KB, assuming there is enough memory available to allocate to this client. See the "Memory" section of chapter 4, "Printer Configuration," for each memory client's minimum and default settings.*

Memory clients in the QMS 2425/2425 *TURBO* are automatically allocated when the printer is initially installed or when you upgrade the printer's memory. The occasions when the printer's memory is automatically reallocated occur:

- When the printer is installed.
- When new system software is installed.
- When adding or removing hard disks, duplexer, or 1200x1200dpi daughterboard.
- When memory is upgraded.
- When Quick Config is selected in the Administration/Memory menu.
- When Disk Swap is enabled or disabled.
- When Frame Buffer is manually adjusted.
- When restoring printer defaults in the Administration/Engine/Restore Defaults/Factory Default menu.

Frame Buffer

The Frame Buffer memory client holds rasterized or bitmapped images of page faces which are ready to be sent to the print engine. A frame holds the contents of each single page image. For example, a 600 dpi page printed on letter size paper would consume frame buffer memory space as follows: (600dpi x 600dpi x 8.5 in x 11 in) /8 = 4,207,500 bytes or 4.1 MB.

Because the frame buffer memory is so critical to the actual printing of a page, its allocation takes precedence over that of other memory

clients. The number of frames needed to print at engine speed is engine specific and depends on the size media and resolution. For example, printing at 600x600 dpi requires four times the amount of memory in the frame buffer than does 300x300 dpi.

If you are uncertain about how to configure your printer's memory, use only the Administration/Memory/QuickConfig menu. This menu appears if your printer does not have a disk drive attached or if the disk swap option is disabled. Use this menu as a starting point before trying manually to configure your printer's memory.

It provides a simple method of defining how much memory should go to each of the clients for the most complicated printing conditions in your environment. Menu options allow you to specify the largest media size at the resolution you plan to use. Memory is then automatically allocated to the clients.

Menu	Administration/Memory/K Mem Frame Buffer
Choices	02200-variable depending on options installed

Minimum Frame Buffer Size

The following table lists the minimum number of KB that must be devoted to the frame buffer for all media size and resolution combinations.

Media	Minimum Frame Buffer Size (in KB)					
	300dpi simplex	300dpi duplex	600dpi simplex	600dpi duplex	1200dpi simplex	1200dpi duplex
Letter/A4	2200*	2200*	3980	7960	15880	31760
Legal	2200*	2504	4968	9936	19732	39464
11"x17"	2200*	3952	7852	15704	31332	62664
Universal	2200	4400	8752	17504	34844	69688
A5	2200*	2200*	2200*	3912	7736	15472
A3	2200*	4104	8164	16328	32504	65008
B5	2200*	2200*	2984	5968	11832	23664
B4	2200*	3056	6072	12144	24148	48296

Media	Minimum Frame Buffer Size (in KB)					
	300dpi simplex	300dpi duplex	600dpi simplex	600dpi duplex	1200dpi simplex	1200dpi duplex
Statement	2200*	2200*	2200*	3752	7468	14936
Executive	2200*	2200*	3124	6248	12440	24880

» **Note:** ** 2200KB is the minimum allowed for the Frame Buffer client.*

Display List

Also known as K Mem Display, this client stores compressed representations, or blocks, of the pages to be printed. It takes approximately one compressed block for a normal 8.5" x 11" (215.9 mm x 279.4 mm) text page, four compressed blocks for an 8.5" x 11" (215.9 mm x 279.4 mm) page that includes some graphics, and as many as 500 compressed blocks for an extremely complex page.

Many pages of compressed blocks belonging to multiple print jobs can be stored at the same time in the display list. If enough memory is allocated to this memory client, a page can always be ready to print as soon as another page has been imaged to the print engine.

The amount of memory required for each compressed block is printer specific. The QMS 2425/2425 *TURBO* Print System takes approximately 64 KB of memory from the display list for each compressed block. However, if a page includes raster image data (for example, TIFF or bitmap data), each compressed block will require much more memory.

Increasing the amount of memory in this client may improve printing throughput and minimize slowdowns due to collating or printing complex pages. If your QMS 2425/2425 *TURBO* Print System has a hard disk and disk swapping is enabled (Administration/Memory/Enable Disk Swap menu), the memory added to this client is taken from virtual memory. If your printer does not have a hard disk, then the memory added to this client is taken from the amount of physical memory in your printer. It may be necessary to reduce memory added to another client before adding memory to the Display List. Check that the Frame Buffer still has the minimum amount of memory needed for your printing needs before reallocating this memory.

PostScript Font Cache

Also known as K Mem PS Fonts and Font Cache, this memory client stores bitmapped representations of previously scaled PostScript fonts. This process reduces the number of times a font must be converted from outline form to bitmap form. Printing pages that have characters already stored in the font cache is immensely faster than printing characters not yet in the font cache.

As the font cache memory fills, the printer makes room for new bitmapped characters by erasing those that have been in the cache longest without being used. By increasing the memory allocated to this client, the printer can store more characters and spend less time erasing and replacing characters in the cache. You should be careful when increasing this client because the printer may spend more time searching the cache than it would scaling the character. This client has a limit to the maximum point size it will store.

Normally, you don't need to change this memory client unless you use a large number of fonts at various point sizes. If you do, you may allocate additional memory to this client to improve printer performance. There's no specific formula to use in figuring the amount of memory required by the font cache, but after a certain point, large font caches cause the printer to take longer to print than smaller font caches because of the search time through the cache. The recommended font cache size is in the following ranges:

- 128-256 KB for 300x300 dpi printing
- 256-512 KB for 600x600 dpi printing
- 384-512 KB for 1200x1200 dpi printing

You should experiment to see what font cache size works best for you.

PS Heap

Also known as K Mem PSHeap, Heap, PostScript VM, and Virtual Memory, this client holds downloaded fonts, PostScript operators, and forms.

Inefficiently coded PostScript jobs can consume an extremely large amount of virtual memory or leave objects in the PostScript Heap after the print jobs are completed, leading to virtual memory errors. If not enough memory is allocated to the PS Heap, the job cannot print.

Increasing the memory allocated to this client allows more complex jobs to print and increases the number of fonts that can be downloaded to virtual memory.

However, this client should be increased only if you receive a virtual memory error when attempting to print a job or download a font, and even then it should be increased only in small increments until the error message goes away. Excess memory in the PS Heap is not used.

Emulation

Also known as K Mem Emulation, this client is used to store any optional or loadable emulations, such as LN03 Plus or QUIC II. Increasing this client's memory allows you to load more than one optional emulation so that it doesn't have to be reloaded every time the print job is sent.

If an emulation is loaded to process a print job and there is not enough memory in the emulation client, another emulation already loaded may be unloaded automatically to obtain enough memory. If you notice a delay in printing between jobs that have different nonresident emulations, it's possible that the emulations are having to reload each time they're run. Adding to the emulation client may eliminate the unloading and reloading of these emulations and, consequently, increase throughput. QMS recommends that you should add at least 1 MB of physical RAM to your printer and increase this memory client by 1 MB for each additional emulation loaded. If your printer has an optional hard disk and the disk swapping option is turned on then you can increase the emulation memory client using this memory.

» **Note:** *You should add at least 1 MB to the emulation memory client for each loadable emulation that your printer uses. Failure to add memory to this client may prevent the printer from loading and using the emulation. You should check the documentation accompanying your loadable emulation for information on additional resource requirements.*

Also increase the emulation client if you're printing complex non-PostScript jobs that may require more memory to process correctly.

Emulation Temporary

Also known as K Mem Emul Tmp and Emulation Temporary, this client sets the amount of system memory to be used by non-PostScript emulations for storing downloaded fonts, forms, or macros. By dedicating a portion of memory to this client, your printer can perform "context switching," which is the ability to retain downloaded fonts and forms even after the printer changes from one emulation to another. Context switching prevents unnecessary repetitive downloading and traffic congestion on networks.

Normally, this memory client doesn't need to be changed unless you plan to download many different non-PostScript fonts, forms, or macros.

Spool Buffers

Also known as Host Input and K Mem for Spool, this memory client stores incoming data from all the interfaces until the emulation can process the print job. When enough memory is allocated to this client, the host becomes free more quickly, and the number of jobs that the printer can accept simultaneously is increased. You should consider the amount of data being sent simultaneously when allocating memory to the spool buffer. If available, a hard disk can supplement this client with additional memory needed for spooling. See the "Hard Disk Management" section later in this chapter.

» **Note:** *While increasing this client is beneficial in reducing network traffic, throughput is not necessarily increased. In addition, making this client too large could actually decrease throughput because of the overhead involved with managing a large spool.*

Disk Cache

This memory client stores frequently used data in system memory instead of continually storing and retrieving it from a hard disk. If a hard disk is used and a lot of disk access is required, adding memory to the disk cache may increase the printer's performance.

For example, if many fonts are stored on disk, faster access to these fonts is achieved by increasing the disk cache size. Conversely, if no hard disk is used, the disk cache will automatically be set to 0 KB until a hard disk is installed and formatted. However, when one or more hard disks are installed and formatted, disk cache is automatically allocated 256 KB.

The disk cache is a high speed temporary buffer for data going to and from the hard disk. It can speed the printer in two ways:

- Information such as frequently referenced fonts and logos may still be in the cache and may not have to be pulled off a hard disk each time they're needed.
- Information being written to a hard disk can be held in the cache temporarily until a more convenient time to be written to disk.

The amount of memory needed for the disk cache client is dependent on the size of the disk, the number of disks, the number of subdirectories on each disk, and the amount of memory dedicated to caching. As long as the disk cache is enabled and there is enough memory in the disk cache, all disks are accessible. If insufficient memory is allocated to the disk cache, some disks may be seen while others are not.

The recommended amount of memory for the disk cache client for all disk drives is as follows:

- 45 KB internal usage
- 0.5 KB per MB of disk storage total for all disks
- 100 KB of memory dedicated to caching

For example, the recommended amount of memory for the disk cache for a single 120 MB hard disk would be 208 KB, and for two 120 MB hard disks it would be 268 KB.

MB Printer Mem

This field on the status page shows the size of the physical RAM installed in the printer. If a hard disk is installed and disk swapping is enabled (Administration/Memory/Enable Disk Swap), this field also gives the size of available virtual memory.

System Memory

Also known as System Use, this non-configurable client is the amount of RAM used to run the printer's operating system. It's never increased or decreased. The system memory subtracted from the total amount of RAM identifies the amount of RAM available for all the other memory clients.

Hard Disk Management

You can add one internal IDE hard disk (standard on the Executive Model) and up to three external SCSI hard disks to your QMS 2425/ 2425 *TURBO* Print System. These hard disks serve as secondary storage places for such items as downloaded fonts, emulations, and spooled data.

» **Note:** *See FAQ 7191 for a list of each approved SIMM, its manufacturers and part numbers, and the QMS products on which it can be used. You can access QMS FAQs through the Internet at http://www.qms.com/support/supportbase/ or through Q-FAX. (See appendix A, "QMS Customer Support," to find out how to access Q-FAX documents). FAQ numbers may be subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.*

Virtual Memory Support

Your printer supports virtual memory capabilities for all of the memory clients except Disk Cache and Frame Buffer when a hard disk is installed and disk swapping is enabled (Administration/Memory/ Enable Disk Swap menu). These capabilities extend the amount of memory available for certain supported features, such as spooling and collation.

» **Note:** *Chunk collation begins automatically after 100 pages regardless of how much memory is available to the Display List client.*

Specific Printing Environment Example

Since configuring memory is not an exact science, it may be helpful to see how others have allocated their printer memory to meet their printing needs best. The following example is to be used only as a example for configuring your own printer's memory.

Example

A QMS 2425/2425 *TURBO* Print System with 8 MB of RAM. As many as 10 people use this printer, sending text and graphics PostScript files to be printed on 8.5" x 11" (215.9 mm x 279.4 mm) media. They have configured their printer to print at 600x600 dpi.

Location	Size
Host Input:	136 KB
Display List:	392 KB
Font Cache:	96 KB
Heap:	1288 KB
Framebuffer:	3980 KB
Emulation:	916 KB
Emulation Temporary:	256 KB
Disk Cache:	0 KB
System Use:	280 KB
Total Memory:	8192 KB
PostScript Emulation VM:	686968
VM allocated:	90116
VM remaining:	96852
Paper Size:	8.5" x 11"
Resolution:	600

This QMS 2425/2425 *TURBO* has the minimum memory configuration (8 MB) without a hard disk. Notice that the Frame Buffer is only allocated enough physical RAM to cover one letter size page. If the printer had at least 16 MB of memory, the frame buffer would be configured for 7960 KB, enough for two letter size pages. If the printer had a duplexer and 16 MB or greater memory, then the Frame Buffer would be configured for 11940 KB, enough to hold 3 letter-size bitmaps.

End Job Mode

When sending print jobs through the serial and parallel protocols, some applications and their printer drivers append an end-of-document command (EOD) to each print job to ensure that each file prints correctly. The reason for this is that some protocols and print queuing systems send print jobs to the printer as one continuous data stream (one print job immediately following another).

But the problem with this system is that some applications are limited by the printer language and are unable to produce a proper EOD command. This becomes even more problematic when you're printing to a QMS 2425/2425 *TURBO* Print System, where print jobs of all supported emulations can be received simultaneously. ESP technology examines the first part of each print job to determine its emulation. Once the emulation is identified, the print job processes without further checking. This minimizes any slowdown resulting from the sensing process. To help ESP technology determine the proper emulation of successive print jobs, the printer must be able to identify where each print job ends.

Therefore, unless a wait timeout (the amount of time the printer is waiting on data from the host) occurs and ends each print job, or unless you add an EOD command between each file being printed through these protocols, some print jobs may be interpreted by the printer as one job and may "run" together. See chapter 4, "Printer Configuration," for more information on emulation timeout.

When printing multiple jobs with little or no time delay and with no EOD command between each job, the serial and parallel protocols may be unable to detect an end of job automatically. So the End Job Mode feature on QMS Crown printers was designed to allow you to set the end of document for print jobs being sent through these protocols.

Common Reasons to Use End Job Mode

If you are printing via the serial and parallel protocols, and one of the following conditions exists, you may need to set the end job mode:

- Multiple print jobs with little or no time delay and with no EOD commands have been sent to the printer and the message window displays only one active job.
- Multiple print jobs of the same printer language have been sent to the printer and they print on the same page. (For example, you send the AUTOEXEC.BAT file with no EOD command followed with little or no time delay by the CONFIG.SYS file, and they both print on the same page.)
- Multiple print jobs of different printer languages “run” together as if they are a single print job. (For example, you send a PCL print job followed by a PostScript print job, and the PCL job prints and is followed by what appears to be program code instead of your PostScript print job.)
- You want to print multiple jobs with header pages.
- You want to print multiple jobs where job separation is important.

When your printer is in ESP mode, printing multiple jobs through the serial and parallel protocols and end job mode is not set, ESP technology interprets the emulation for only the first job. The print jobs that follow are interpreted as being the same emulation as the first job. For example, if there are two print jobs, the first a PCL file with no EOD command, and the second a PostScript file with a Ctrl-D (a PostScript end-of-file character)—ESP technology interprets the emulation of the first job correctly. But since the first print job has no EOD command, it “runs” into the second job, and even though the second job is PostScript, it prints in PCL.

Using the EOD Commands

Since the serial and parallel protocols may not be able to detect an EOD automatically, due to a lack of an EOD command in some printer languages, you can insert an EOD command at the end of your file to tell the printer where your print job ends. QMS Crown printers recognize two end-of-document commands: QMS EOD and HP EOD.

These commands are functionally the same. They enable data stream sensing for the EOD command, allowing your host computer to control print job separation. The QMS EOD and the HP EOD commands perform an end of document for all of the printer emulations supported on your printer (PostScript, HP-GL, HP PCL, and Lineprinter).

See your system administrator or applications development department to have them identify the standard EOD command for your organization, or to have them select a standard EOD command.

Setting the End Job Mode for the Serial and Parallel Protocols

Your printer can be connected through the optional serial or parallel interface to a stand-alone PC, to a PC print server, or to some other type of print queuing system. This section provides a quick guide to the steps needed to set the end job mode for each environment. The following sections provide more detailed information for each step.

Stand-Alone PC

1. **Set the end job mode from the printer's control panel.**
2. **Add the EOD command to your file.**

» **Note:** *If using steps 1 and 2 is not feasible in your stand-alone PC environment, you can alternatively use a program that either causes an emulation timeout or that inserts an EOD command between each print job. See your QMS vendor for more information on this type of program.*

PC Print Server

1 **Set the end job mode from the printer's control panel.**

2 **Create a job separator to append an EOD command and send it between each print job.**

Other Print Queuing Systems

If you use a print queuing system other than a PC print server and you experience what appears to be an EOD command problem, you may need to use another procedure, such as a print utility, an initialization sequence, or a header page to add an EOD command. See your print queuing system documentation, your network administrator, or your QMS vendor for more information.

Setting the End Job Mode via the Control Panel

Use the following procedure to set the end job mode from the printer's control panel for printers connected via the optional serial or parallel interface to a stand-alone PC, a PC print server, or some other type of print queuing system.

» **Note:** *If you print both serial and parallel protocol jobs, then you must set the end job mode for each protocol.*

Wait for the printer to go idle, and then press the control panel keys in the order shown in the following instructions to access the End Job Mode option. The printer responds by displaying a status message in the message window.

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

Key	Purpose	Message Window
Online	Turns off the Online indicator and readies the printer for configuration.	`IDLE`
Menu	Accesses the configuration menu.	`CONFIGURATION` `OPERATOR CONTROL`

Next	Advances to the Operator Control/Administration menu.	`CONFIGURATION ADMINISTRATION`
Select	Accesses the Administration menu	`ADMINISTRATION COMMUNICATIONS`
Next	Advances to the Communications/ Parallel (or Serial) menu.	`COMMUNICATIONS PARALLEL(or SERIAL)`
Select	Accesses the Parallel (or Serial) menu.	`PARALLEL/SERIAL MODE`
Next	Advances to the Parallel (or Serial)/End Job Mode menu.	`PARALLEL/SERIAL END JOB MODE`
Select	Accesses the End Job Mode menu.	`END JOB MODE OPTION`
Next	Advances to the appropriate option (QMS EOD, HP EOD, or None).	`END JOB MODE OPTION`
Select	Selects the option.	`OPTION IS SELECTED`
	Returns to the Parallel (or Serial)/End Job Mode menu.	`PARALLEL/SERIAL END JOB MODE`
Online	Asks you if you want to save your change.	`SAVE CHANGES? NO`
Next	Advances to the Yes option.	`SAVE CHANGES? YES`
Select	Saves your change and idles the printer.	`IDLE`
Online	Puts the printer back on line.	`IDLE`

Adding an EOD Command to Your File

When adding an EOD command to your file, use the syntax for the selected EOD command exactly as written (the command's syntax is case sensitive).

» **Note:** *<ESC> represents the escape character. (The decimal value for the escape character is 027, and the hexadecimal value is 1B.) How you enter the escape character depends on your application. Some applications allow you to press and hold the ALT key and then type 027 to enter the escape character, while others allow you to type certain character sequences to represent the escape character. See your computer or application documentation to find out how to enter the escape character on your system.*

For this EOD command...	Use this syntax...
QMS EOD	%%EndOfDocument <CR><LF>
HP EOD	<ESC>%-12345X

» **Note:** *The <CR><LF> sequence following the %%EndOfDocument line for the QMS EOD is necessary to avoid an INPUT IDLE message remaining in the printer message window after the document finishes printing.*

When the QMS EOD or the HP EOD is set, the printer does not recognize the Ctrl-D EOD command. Add your organization's standard EOD command to the end of your print file, or add it to a separate file as follows.

Adding an EOD Command to the End of Your File

Create an output file (for example, ASCII, PCL, or PostScript file to disk) and add your organization's standard EOD command (QMS EOD or HP EOD) to the end of that file.

Sample output file:

```
Text
Text
Text
Text
%%EndOfDocument
```

Adding an EOD Command to a Separate File

Create an ASCII text file that contains only the EOD command. For example, create a DOS batch file listing each print filename followed by the EOD command filename for each file being printed. Then "run" the batch file to print your list of files.

Sample DOS batch file:

Command	Explanation
`Print mktg.doc`	Job filename
`Print end.txt`	EOD command filename
`Print acct.doc`	Job filename
`Print end.txt`	EOD command filename

Creating a Network Job Separator

If your printer is connected to a network through a PC and the PC is acting as a print server managing the printing of shared network files, then your system administrator must create a job separator and associate it with a print job queue. Different network environments have different procedures for creating the job separator, such as initialization sequences, custom banner pages, print job headers, or print job trailers. The print server does not necessarily send multiple print jobs to the printer in the order that you queued them to the printer. The network job separator is accessed with each print job, so this ensures that network job separation is enforced. See *QMS Crown Network Notes* for more information on how to create a network job separator for several commonly used networks.

Parallel Interface Modes

In addition to Centronics parallel communication, your printer's parallel interface provides IEEE 1284 bidirectional parallel communication, which supports five modes of operation. The printer automatically recognizes and uses the mode dictated by the host.

Byte Mode

Printer-host communication is done in bytes.The byte mode may be used by the host device in a DMA (Direct Memory Access) mode for more efficient operation.

When byte transfer is complete and there is no more data to transmit, the host may do one of the following:

- Terminate and return to the compatibility mode.
- Stay in the Host Busy, Data Not Available phase.
- Set Host Busy Low, putting the interface into the idle phase.

If there is additional data, the host may do one of the following:

- Set Host Busy Low, indicating that the host can accept additional data.
- Stay in the Host Busy, Data Not Available phase.
- Terminate and return to the compatibility mode.

Check your host documentation to see if the host is 1284 compatible.

Compatibility Mode

Printer-host communication is done in a manner that ensures compatibility.

ECP (Enhanced Compatibility Port) Mode

This is an advanced version of byte mode which allows transfer of data in either direction without returning to the compatibility mode. The communication is a half-duplex channel with either device, the host or the printer, making a request for data transfer when there is available data. In the case of simultaneous requests for transfer, the printer always defers to the host.

EPP (Enhanced Parallel Port) Mode

Printer-host communication is done via asynchronous bidirectional eight-bit transfer. A return to compatibility mode is not required.

Nibble Mode

Printer-host communication is done in nibbles (four bits; one-half byte) with the low order nibble sent first. A transfer of two nibbles is required for each byte of information.

PS Protocol Option

Your QMS 2425/2425 *TURBO* Print System supports PS Protocol, a new protocol for communication between the printer and a host computer over the parallel, optional serial, and optional network interfaces. This binary communications protocol (BCP) allows any 8-bit binary value (0-255) to be treated as data, while allowing a few of the values to function as special control characters. When communicating 8-bit binary data in binary or binary fixed mode, the printer uses the quoting mechanism of the binary communications protocol to distinguish between the special control characters and print job binary data.

To differentiate data from the special control characters, any data that is the same as one of the following special control characters must be quoted.

ASCII Keyboard	ASCII Name	ASCII Hex	Control Function
^A	SOH	0x01	Quote data character
^C	ETX	0x03	Abort job and flush to end of file
^D	EOT	0x04	End-of-file marker
^E	ENQ	0x05	(Reserved for future use)
^Q	DC1	0x11	XON in XON/XOFF flow control
^S	DC3	0x13	XOFF in XON/XOFF flow control
T	DC4	0x14	Job status request
^\	FS	0x1C	(Reserved for future use)

A data byte is quoted by replacing it with a two-character sequence. The first character is a ^A (ASCII hex 0x01), and the second character is the character itself XORed with the ASCII value 0x40. For example, to send the value 0x14(^T) as data, send the two-character sequence 0x01 0x54 (^a T) instead. (ASCII “T” is the result of XORing ^T with 0x40).

This method of quoting guarantees that whenever the printer receives any of the eight control characters, the control function is intended regardless of whether the preceding character is a ^A. Any data byte not equal to one of the eight special control characters is transmitted by sending the data byte.

For more information on BCP and quoting, see the *PostScript Language Reference Manual* (Adobe Systems, Inc., Reading, MA: Addison-Wesley, 1990, ISBN 0-201-18127-4), the “Adobe Serial and Parallel Communications Protocols Specification” (in *Adobe Developer Support.* Adobe Systems, Inc., February 14, 1992), and the “PostScript Language Reference Manual” (in *Supplement for Version 2011*, Adobe Systems, Inc., January 24, 1992).

Options

» **Note:** *The serial and Token-Ring interfaces are options which must be purchased through your QMS vendor. See appendix A, "QMS Customer Support," for a list of locations and telephone numbers.*

Menu	Administration/Communications/*Interface*/PS Protocol	
Choices	**Name and Description**	**Interfaces**
	Normal—Enables standard, ASCII hex protocol. Data is sent and received in ASCII format. This mode is recommended if you do not print binary data. It was designed for data in the printable ASCII range. Print jobs can alter the PS protocol value through PostScript operators.	Parallel, Serial, Ethernet, Token-Ring, LocalTalk
	Normal Fixed—Enables standard, ASCII hex protocol. Print jobs cannot alter this value through PostScript operators.	Parallel, serial, Ethernet, Token-Ring, LocalTalk
	Binary—Enables binary communications protocol. Print jobs can alter this value through PostScript operators. Data in the printable ASCII range also prints).	Parallel, Serial, LocalTalk, Ethernet, Token-Ring
	Binary Fixed—Enables binary communications protocol. Print jobs can not alter this value through PostScript operators. Data in the printable ASCII range also prints.	Parallel, Serial, LocalTalk, Ethernet, Token-Ring
	QBinary (Quoted Binary)—Enables binary communications protocol. Print jobs can alter this value through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism for the special characters and ^D (EOF).	Ethernet, Token-Ring

	QBinary (Quoted Binary) Fixed—Enables binary communications protocol. Print jobs cannot alter this value through PostScript operators. Data in the printable ASCII range also prints. Use the special quoting mechanism for the special characters and ^D (EOF).	Ethernet, Token-Ring
Default	Normal	
Notes	A data stream sent through the serial or parallel interface using Binary is treated the same as a data stream sent through an optional network interface using QBinary. However, a data stream sent through an optional network interface using QBinary is not treated the same as a data stream sent through the same interface using Binary.	

Advantages

The main advantage of using the Binary and Binary Fixed PS protocol modes when sending binary data is that these modes compress the data stream allowing your documents to be smaller so you can send smaller jobs to the printer. For example, some device drivers can format bit map images as binary data instead of as ASCII hex data.

Implementation

To implement PS protocol for sending binary data on your system you need a device driver available with some applications or operating systems, or you can alternatively use a program to read the data and write out the quoted characters. See your QMS vendor for any available information on device drivers or binary filter programs.

HP-GL Color Encoding

The term “pen” in the HP-GL emulation refers to a logical pen (in other words, the current pen position) rather than to a physical pen on a plotter. A pen and a pen color are selected to draw images. This emulation supports 8 pens and pen colors.

Since your QMS 2425/2425 *TURBO* Print System is a monochrome (black and white) printer, the pen colors are converted to shades of gray. The default color mappings for the 8 pens are as follows:

Pen	Pen Color	Level of Gray
1	Black	100%
2	Black	100%
3	Red	70%
4	Green	41%
5	Blue	89%
6	Violet	59%
7	Orange	25.8%
8	Brown	50%

» **Note:** *The default color for both pen 1 and pen 2 is black. However, the pen width for these two pens is different. Pen 1 is 0.7 mm and pen 2 is 0.3 mm.*

The printer maps each pen to its assigned color, then converts the color to a grayscale using the National Television System Committee (NTSC) standard equation for encoding color. This equation converts a given set of CMYK values to grayscale. For the 8 pen colors assigned to pens 1 - 8, the printer uses the designated grayscale; for any other pen color, the printer uses the following equation:

$$[(C*0.3) + (M*0.59) + (Y*0.11) + K] \div 255$$

» **Note:** *This equation assumes that each grayscale is a byte value that ranges from 0 to 255 (100%). If the sum of the left-side (calculation in brackets) of the NTSC equation is greater than 255, then the sum is set equal to 255.*

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A

QMS Customer Support

In This Appendix . . .

- Sources of customer support on page A-2
- QMS world-wide offices on page A-5

Sources of Support

Several sources of help and information are available, depending on the type of help you need:

Your QMS Vendor

Your local vendor (the one from whom you bought the printer) may be best equipped to help you. Your vendor has specially trained service technicians available to answer questions, and the equipment to analyze your printer problems.

Your Application Vendor

Often, “printing” problems have more to do with the application being used than with the printer. In this case, the application manufacturer is the best source of help.

Q-FAX

Q-FAX, a QMS information retrieval service, provides application notes, technical support notes on common printing problems, and information about printer specifications, options, accessories, consumables, and prices.

In the United States and Canada, call (800) 633-7213 to reach Q-FAX. In all other countries, call (334) 633-3850. Have your fax number handy when you call (or place the call from your fax machine's handset).

You can choose to have either a directory (a list of currently available documents) or a specific document sent to you. The first time you call, request the directory (press 2 on your phone or fax keypad when prompted). Then call back to request specific documents. You can order up to three documents per call.

» **Note:** *FAQ numbers may be subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.*

The QMS Corporate Bulletin Board System

The QMS Corporate Bulletin Board System (BBS) contains technical support notes, application notes, drivers, patches, and utilities, and you may leave technical questions not requiring an immediate response on electronic mail for the Sysop (System Operator).

The bulletin board [(334) 633-3632] operates at 1200, 2400, 9600, and 14400 baud, 8 data bits, no parity, 1 stop bit, with XMODEM, YMODEM, and ZMODEM capabilities. Contact the QMS Customer Response Center (CRC) for more information about the bulletin board.

CompuServe

Through CompuServe, you ask general (non-technical) questions, share information with other users, and access printing information and programs. When you use CompuServe, type `go qmsprint↵` to go directly to the forum where QMS is located. The QMS library section contains application notes, printer drivers, utilities, technical information, and announcement files.

Internet

The QMS server provides access to technical reports, new product announcements, a trade show schedule, and other general information about QMS.

If you have access to the World Wide Web, you can view the QMS home page at http://www.qms.com/. The QMS ftp resource is ftp.qms.com.

QMS Customer Response Center (CRC)

You can contact the QMS Customer Response Center (CRC) in three different ways:

- **Telephone**—You can call the CRC at (334) 633-4500 (US) Monday–Friday, 7:00 am–6:00 pm, Central Time.

» **Note:** *If you call for assistance, have the following information ready so our technicians can help you more quickly:*

  - ☑ Your phone number, fax number, and shipping address
  - ☑ A description of the problem
  - ☑ The printer model
  - ☑ The type of host computer you're using
  - ☑ The type and version of operating system you're using
  - ☑ The interface you're using, and, if serial, the protocol (for example, XON/XOFF)
  - ☑ The application and version you're using
  - ☑ The emulation you're using
  - ☑ Your printer firmware version (listed on the status/start-up pages)

- **Fax**—You can fax questions to the CRC at (334) 633-3716 (US). Provide the same information as listed above, and indicate whether you would like a faxed or a phoned reply.
- **Internet**—If you have access to the World Wide Web, you can access the CRC through the QMS home page at http://www.qms.com/

QMS World-wide Offices

QMS United States and Latin America

General Contact
1 (334) 633-4300
Fax 1 (334) 633-4866
Email info@qms.com
Internet http://www.qms.com

Customer Response Center (CRC)
Technical Assistance
1 (334) 633-4500 7:00 am–6:00 pm Central Time
Fax 1 (334) 633-3716
Internet http://www.qms.com
Bulletin Board Service
1 (334) 633-3632

Latin America Fax
1 (334) 639-3347

National Service
Service Information, Installation, and Maintenance Pricing
1 (800) 762-8894
On-Site Service and Depot Repair Information
1 (800) 858-1597 7:00 am–7:00 pm Central Time
Spare Parts Ordering and Information
1 (334) 633-4300 x2530 8:00 am–5:00 pm Central Time

QMS Canada

General Contact
1 (514) 333-5940
Fax 1 (514) 333-5949
Supplies and Accessories 1 (800) 268-0343 x223

National Service
On-Site Service and Depot Repair Information
1 (800) 268-4969 8:30 am–7:00 pm Eastern Time
Spare Parts Ordering and Information
1 (905) 206-9234 x238 8:30 am–5:00 pm Eastern Time

Bulletin Board Service
1 (905) 206-0084

QMS in Japan

General Contact
(+81)- 3 3779-9600
Fax (+81)-3 3779-9650
Internet http://www.qmsj.co.jp

QMS in Latin America

General Contact
Cra 43 DD#8-42
Officina 201
Medellin, Colombia
(+57) (4) 312 13 70
Fax (+57) (4) 268 92 97

QMS Europe

Australia	Anitech Sydney Business & Tech. Centre 52/2 Railway Parade 2141 Lidcombe NSW Australia (+61) 2–9901 3235 Fax (+61) 2–9901 3273
Benelux **Belgium, Netherlands, and all unlisted countries**	Planetenbaan 60 ‘Corner Plaza’ 3606 AK Maarssen The Netherlands (+31) 346–551333 Fax (+31) 346–550170 Internet http://www.qms.nl
France	Vélizy Plus 1 Bis, Rue du Petit Clamart 78142 Vélizy Cedex France (+33) 1–410 79 393 Fax (+33) 1–408 30 110
GMBH **Germany and Austria**	Willstätterstrasse 10 40549 Düsseldorf Germany (+49) 211–596 1333 Fax (+49) 211–596 1397

Italy	Via della Repubblica 56 43100 Parma Italy (+39) 52–1231 998 Fax (+39) 52–1232 902
Nordic **Sweden, Finland, Norway, and Denmark**	Arenavägen 41, 6th floor 121 77 Johanneshov Sweden (+46) 8–600 01 30 Fax (+46) 8–600 01 33
South Africa	Saskay House Unit 24 Sunninghill Business Park Peltier Road, Sunninghill, Johannesburg Republic of South Africa (+27) 11–807 6957 Fax (+27) 11–807 6960
Spain	Josefa Valcárcel 8 28027 Madrid Spain (+34) 1– 742 5013 Fax (+34) 1–742 3152
UK **United Kingdom and Ireland**	Old Bridge House, The Hythe Staines, Middlesex TW18 3JF United Kingdom (+44) 1784–442255 Fax (+44) 1784–461641

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B

Technical Specifications

In This Appendix . . .

- "Print Engine Specifications" on page B-2
- "Physical Characteristics" on page B-8
- "Controller Specifications" on page B-4
- "Electrical Requirements" on page B-6
- "Print Media" on page B-9
- "PC Cable Pinouts" on page B-12
- "Printer Options" on page B-18

Print Engine Specifications

Engine	Canon P550
Duty Cycle	Average15,000 images per month Maximum100,000 images per month
Print Method	Laser beam scanning and dry electrophotographic printing; fixing by heated rollers
Print Speed	Up to 24 simplex pages per minute using letter or A4 media at 600 dpi loaded long edge Up to 19 duplex images (9.5 sheets) per minute using letter or A4 media at 600 dpi loaded long edge Up to 13 simplex pages per minute using ledger (11"x17") or A3 media loaded short edge Up to 13 duplex images (6.5 sheets) per minute using ledger (11"x17") or A3 media loaded short edge » **Note:** *Actual print speed depends on the host application.*
Resolution	300x300 dpi 600x600 dpi (duplex printing at this resolution requires more than the base 8 MB of RAM) 1200x1200 dpi (optional multi-res daughter board required; requires more than the base 8 MB of RAM)
Toner	Microfine toner designed especially for high-resolution printers (EP-W cartridge); dry, single component in user-replaceable cartridge

Toner Cartridge Life	A minimum of 15,000 simplex pages at normal (4%) page coverage, letter/A4-size media Over 15,000 pages at 4% page coverage, letter/A4-size media, if printer is run entirely in Conserve Toner mode
Warm-Up Time	90 seconds or less, assuming normal temperature and humidity

Controller Specifications

Emulations	PostScript Level 2 (300/600/1200 dpi) HP PCL 5e (HP LaserJet 4Si compatible, with HP-GL/2 and without PJL; 300 and 600 dpi symmetric resolution) HP-GL 7475A/7550A/ColorPro/Draftmaster (300/600/1200 dpi symmetric resolution) Lineprinter (300/600 dpi) Support for optional downloadable emulations
Fonts	40 resident PostScript fonts, including OCR B that can be scaled from 4 points upward and rotated to any angle in 1° increments; all typefaces have multilingual character sets 1 resident bitmap HP PCLe font in 25 symbol sets, 35 resident scalable HP PCLe fonts in up to 32 symbol sets, 1 resident scalable HP PCLe font in 1 symbol set, and 5 resident scalable HP PCLe fonts, all of which can automatically be rotated to landscape orientation 40 resident HP-GL symbol sets Support for Type 1 and Type 3 host-resident downloadable PostScript fonts Support for Type 42 (PostScript format) host-resident downloadable TrueType fonts Support for Truetype fonts in PCL SIMM connector for up to 16 MB optional fonts

Interfaces	Centronics/IEEE 1284 bidirectional parallel and CrownNet Ethernet interfaces Support for an optional interface (LocalTalk, Ethernet, Token-Ring, (DECnet-TCP/IP), or Support for an optional serial interface SCSI interface, supporting up to 3 external hard disks and one optional CrownCopy scanner
Memory	QMS 2425/2425 *TURBO* 8 MB RAM standard QMS 2425 EX 24 MB RAM standard QMS 2425 *TURBO* EX 32 MB RAM standard Upgradable to 128 MB (through 4 SIMM connectors) QMS 2425, 2425 EX, 2425 *TURBO* 8 MB System Flash ROM, including the system software and fonts » **Note:** *The 2425 TURBO EX does not have Flash ROM.*
System Software	Softloadable QMS 2425, 2425 EX, 2425 *TURBO*—Stored in Flash ROM QMS 2425 *TURBO* EX—Stored on hard disk
Type	NEC 4300 processor operating at 133 MHz

Electrical Requirements

Certifications	Energy Star compliant (base model)
Frequency	50/60 Hz (± 2 Hz)
Power Requirements	100/120v 50/60 Hz (about 90-130 VAC) or 220/240v 50 Hz (about 200-260 VAC)
Power Consumption	1050 W maximum operation 48 W standby mode 43 W power save mode

Environmental Requirements

Altitude	Printing 13,000 feet Transportation/Storage 25,000 feet
Horizontal Offset Level	Printing Less than 2° front-to-back or side-to-side
Noise Level	Idle; maximum 37 dB (A) Printing; maximum 49 dB (A)
Ozone Density	The printer emits less than 0.1 ppm maximum with a 100% duty cycle under 8 hours of continuous operation
Relative Humidity	Printing 20-80% RH (non-condensing) Transportation/Storage10-95% RH (non-condensing)
Temperature Range	Printing 50-90° F (10-32.5° C) Transportation/Storage 32-95° F (0-35° C)

Atmospheric Pressure	570-760 mm Hg
Vibration	Transportation/StorageMaximum instantaneous 3G or less

Physical Characteristics

Dimensions (WxDxH) (not including multipurpose tray or face-up output tray)	Printer 22.3" x 21.9" x 21.3" 566 mm x 557 mm x 540 mm Printer with optional input paper deck 24.4" x 21.9" x 40.2" 620 mm x 557 mm x 1020 mm Full system (all trays and cassettes extended, with envelope feeder) 32.3" x 21.9" x 43.6" 819 mm x 557 mm x 1106 mm	
Weight	Main unit	106 lbs (48 kg)
	Cartridge	6.6 lbs (3 kg)
	2000-sheet input paper deck	60 lbs (27 kg)
	Stackler	62 lbs (28 kg)
	Main unit with cartridge, duplexer, envelope feeder, and input paper deck	185 lbs (84 kg)
	Main unit with cartridge, duplexer, envelope feeder, input paper deck, and Stackler	247 lbs (112 kg)
	Envelope feeder	6.62 lbs (3 kg)

Print Media

Delivery	Face-down output tray 500 sheets of 20 lb (75 g/m^2) paper Face-up output tray 100 sheets of 20 lb (75 g/m^2) paper Stackler Face-down or face-up (for special media only)
Feed	2 universal media cassettes About 500 sheets each of 20 lb (75 g/m^2) paper, for a total of 1000 sheets; maximum height 2" (50 mm) Multipurpose tray About 100 sheets of 20 lb (75 g/m^2) paper About 20 sheets of transparencies About 20 sheets of labels About 10 envelopes Envelope feeder About 100 envelopes; maximum height 2.87" (73 mm) High-capacity input paper deck 2000 sheets of 20 lb (80 g/m^2) paper
Loading	Automatic from universal paper tray, multipurpose tray, envelope feeder, or high-capacity input paper deck Manual from the multipurpose tray
Sizes	(See the “Print Media SIzes” table)

Types	Cut-sheet paper, transparencies, and labels. See "Consumable Supplies" on page B-21, for recommended media. » **Note:** *Do not print on perforated paper (including 3-hole-punched paper) via the cassette.*
Weight	Paper (cassette): 17-28 lb (64-105 g/m^2) Paper (multipurpose tray): 17-34 lb (64-128 g/m^2) Paper (duplexer): 17-28 lb (64-105 g/m^2) Paper (Stackler): 16-34 lb (60-128 g/m^2) Transparencies (multipurpose tray): 17-34 lb (64-128 g/m^2) Labels (multipurpose tray): 17-34 lb (64-128 g/m^2)

Print Media SIzes

Media	Media Size		Imageable Area		Feed	Input/Output
	Inches	Millimeters	Inches	Millimeters	Edge	Source*
11x17	11.00x17.00	279.4x431.8	10.66x16.66	270.93x423.34	Short	D, L, M, P, S
A3	11.69x16.54	297.0x420.0	11.36x16.19	288.54x411.44	Short	D, L, M, P, S
A4	11.69x8.27	297.0x210.0	7.93x11.36	201.46x288.54	Long	D, L, M, P, S, U
A5	5.85x8.27	148.5x210.0	5.5x7.93	139.87x201.46	Short	D, M
B4	10.12x14.33	257.0x364.0	9.78x13.99	248.58x355.52	Short	D, L, M, P, S, U
B5	7.17x10.12	182.0x257.0	6.82x9.78	173.4x248.45	Short	D, M,
C5	6.38x9.02	162x229	6.04x8.67	153.41x220.39	Short	E, M
COM-10	4.125x9.5	104.78x241.3	3.78x9.17	96.01x232.92	Short	E, M
DL	4.33x8.66	110.0x220.0	4.0x8.32	101.6x211.33	Short	E, M
Envelope	6.93x9.76	176x248	6.58x9.42	167.3x239.48	Short	E, M
Executive	7.25x10.50	184.20x266.70	6.92x10.16	175.77x258.23	Short	D, M, S
Legal	8.5x14.0	215.9x355.6	8.16x13.66	207.26x347.13	Short	D, L, M, P, S, U
Letter	11.00x8.5	279.40x215.90	8.16x10.66	207.43x270.93	Long	D, L, M, P, S, U
Monarch	3.875x7.5	98.425x190.5	3.54x7.17	89.92x182.12	Short	E, M
Statement	5.50x8.50	139.7x215.9	5.16x8.16	131.06x207.26	Short	M
Universal	11.69x17.7	297x449.5	11.36x17.36	288.54x441.12	Short	M

** *D=Duplexer, E=Envelope feeder, Lower cassette, M=Multipurpose tray, P=High-capacity paper deck, S=Stackler, U=Upper cassette*

PC Cable Pinouts

Centronics/IEEE 1284 Parallel

This table gives the pinouts for the printer end of the Centronics/IEEE 1284 parallel cable used to connect your printer to a computer.

Signal Pin No.	Signal Description	Direction
1	Strobe-	In
2	Data 1	InOut
3	Data 2	InOut
4	Data 3	InOut
5	Data 4	InOut
6	Data 5	InOut
7	Data 6	InOut
8	Data 7	InOut
9	Data 8	InOut
10	Acnlg-	Out
11	Busy+	Out
12	Pe+	Out
13	Select	Out
14	Autofeed	In
15	Reserved	-
16	Ground	-
17	Ground	-
18	Vcc Test	-
19-30	Ground	-
31	Iprime	In
32	Fault-	Out
33	Reserved	-
34	Reserved	-
35	Reserved	-
36	Selectin	In

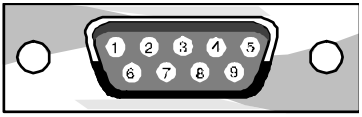
Notes to the Table

- **Direction** refers to the direction of signal flow as viewed from the printer.
- **Return** denotes “twisted-pair return” and is to be connected at signal-ground level. When wiring the interface, be sure to use a twisted-pair cable for each signal and never fail to complete connection on the return side. To prevent noise effectively, these cables should be shielded and connected to the chassis of the system unit and printer, respectively.
- All interface conditions are based on Transistor-Transistor Logic (TTL) level. Both the rise and fall times of each signal must be less than 0.2 microseconds.
- Data transfer must be carried out by recognizing the ACKNLG or BUSY signal.
- The cable must have an overall braided shield, Belden 8345 or equivalent.
- Connectors must have shielded housings. The overall shield must be bonded to the shielded housings at both ends of the cable.

Serial

This table gives the correct pinouts for the 9-pin male RS-232 serial interface.

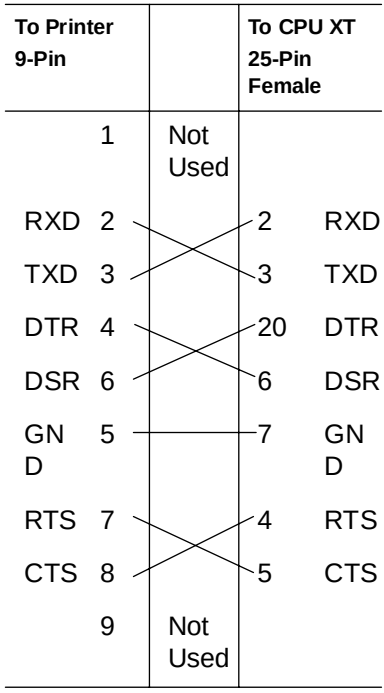
» **Note:** *The serial interface is an option which must be purchased through your QMS vendor. See appendix A, "QMS Customer Support," for a list of locations and telephone numbers.*

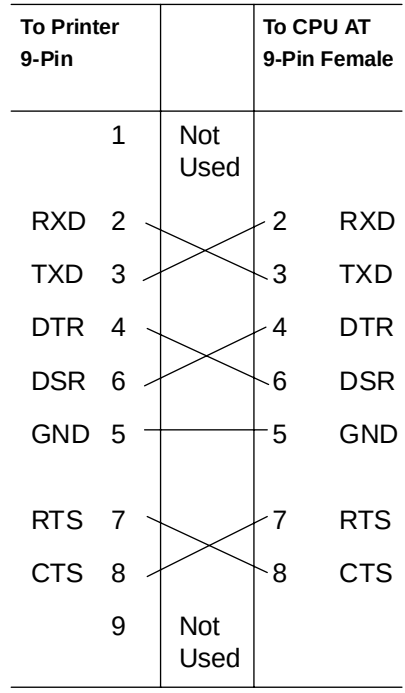
Pin	Name	Pinout View from Printer Interface
1	Not Used	
2	Receive Data (RXD)	
3	Transmit Data (TXD)	
4	Data Terminal Ready (DTR)	
5	Signal Ground (GND)	
6	Data Set Ready (DSR)	
7	Ready To Send (RTS)	
8	Clear To Send (CTS)	
9	Reserved	

IBM PC/XT, PC/AT, and Compatible Computers

The following diagrams show the serial cable pinouts for IBM PC/XT, PC/AT, and compatible computers.

» **Note:** *Not all serial cables are configured as shown and may require an additional null-modem adapter. Check with your cable vendor for compatibility.*

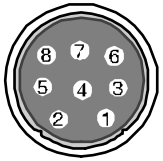




» **Note:** *To download printer system software via the serial port, your hardware must have RTS and CTS support. Make sure that pins 4 and 5 on the 25-pin serial cable and pins 7 and 8 on the 9-pin serial cable are criss-crossed as shown in this diagram.*

LocalTalk (Optional Interface)

The following table provides the pinouts for the printer's optional 8-pin LocalTalk interface:

Pin	Name	Pinout View from Printer Interface
1,2,7	Reserved	
3	Transmit Data - (TXD)	
4	Signal Ground (GND)	
5	Receive Data - (RXD)	
6	Transmit Data + (TXD)	
8	Receive Data + (RXD)	

Macintosh to Serial

The following table provides the pinouts for a cable connecting the Macintosh printer or modem port to the printer's serial port:

» **Note:** *To download printer system software from a Macintosh, you must have this type cable. Make sure pins 4 and 5 are crisscrossed as shown in this diagram.*

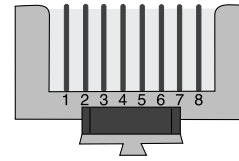
To Macintosh DIN-8 Male			To Printer DB-9 Female	
HandshakeOut	1		7	RTS
HandshakeIn	2		8	CTS
TXD-	3		3	TXD
RXD-	5		2	RXD
GND,RXD+	4,8*		5	GND
	6	Not Used		
	7	Not Used		

* Pins 4 and 8 must be connected together on the DIN-8 cable.

Ethernet

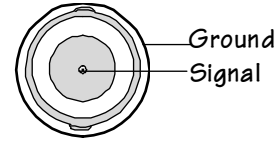
10BaseT RJ45

The following table provides the pinouts for the 10BaseT RJ45 Ethernet interface:

Pin	Name	Pinout View from Printer Interface
1	Transmit Data +	
2	Transmit Data -	
3	Receive Data +	
4	No Contact	
5	No Contact	
6	Receive Data -	
7	No Contact	
8	No Contact	

10Base2 BNC

The following table provides the pinouts for the 10Base2 BNC Ethernet interface:

Pin	Name	Pinout view from Printer Interface
1	Ground	
2	Signal	

Printer Options

QMS Model 3100 Stacker	The QMS Model 3100 Stacker for your QMS 2425/ 2425 *TURBO* Print System gives you the ability to stack up to 3100 letter sheets face down.
Cables	You may purchase cables from your local vendor. See cable specifications, earlier in this chapter.
Controller	Option controller card; required for 2000-sheet optional input paper deck and for Stackler
CrownCopy	Monochrome scanner/copier with automatic document feed (ADF) capability; connects to the external SCSI port via a SCSI 2 to Centronics 50 cable.
Duplexer	The optional duplexer unit is required for automatic duplex printing via the universal cassettes and the optional input paper deck.
Stackler	The optional Stackler offers giant output capacity, distributed through three output bins. The stackler is required for job offsetting and stapling. See “Stack Capacity” on page B-23, for information on output stack capacity.
Emulations	Loadable disk format (requires optional hard disk and additional memory): LN03 Plus (300 dpi only; 15 typefaces) QMS QUIC II (300 dpi only) CGM XES

Fonts	Kanji SIMM with 2 Morisawa fonts Kanji internal hard disk with 5 Kanji fonts MICR fonts Check with your QMS vendor, for a complete list of optional fonts. See appendix A, “QMS Customer Support,” for a list of locations and telephone numbers.
Forms Printing	QMS QFORM, printer-resident forms printing enabler
Hard Disks—Internal IDE, External SCSI	See FAQ 7181 for a list of each approved hard disk, its manufacturers and part numbers, and the QMS products on which it can be used. You can access QMS FAQs through the Internet at http://www.qms.com/support/supportbase/, or through Q-FAX (see appendix A, “QMS Customer Support,” to find out how to access Q-FAX documents). » **Note:** *FAQ numbers may be subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.*
Hardware	Printer stand
Image Printing	QMS ImageServer
Interfaces	CrownNet Ethernet (EtherTalk, LAN Manager/Lan Server, NetWare, TCP/IP) CrownNet Token-Ring (LAN Manager/Lan Server, NetWare, TCP/IP) DECnet-TCP/IP LocalTalk Serial RS232 Check with your QMS vendor, for a complete list of optional interfaces. See appendix A, “QMS Customer Support,” for a list of locations and telephone numbers.

Media Input	2000-sheet input paper deck/bin Envelope feeder
Media Output	3-bin output finisher/stacker with offset and stapler Model 3100 Stacker
Resolution	MultiRes daughterboard—provides edge smoothing at 600 dpi resolution or provides 1200 dpi resolution (requires additional memory)
Security	Security key
SIMMs (Memory)	See FAQ 7191 for a list of each approved SIMM, its manufacturers and part numbers, and the QMS products on which it can be used. You can access QMS FAQs through the QMS SupportBase at http://www.qms.com/support/supportbase/, or through Q-FAX. (See appendix A, "QMS Customer Support," to find out how to access Q-FAX documents) **»Note:** *FAQ numbers may be subject to change, so you may want to obtain a directory of Q-FAX documents before requesting a specific document.*
Storage	Internal IDE hard disk External SCSI hard disks (up to 3)
Warning Device	QMS BuzzBox Lite light/buzzer printer warning device

Consumable Supplies

Cassettes	500-sheet universal paper cassette	
Media —Sizes	See “Print Media SIzes” on page B-11, for media size information.	
Media— Recommended Brands	Paper	**Plain**—Xerox 4024
		Laser—Hammermill Laser Print
	Envelopes	Common office envelopes with diagonal joints and ordinary gummed flaps. They must not contain any fasteners, clasps, or peel-off strips for sealing. The material must not melt, vaporize, offset, discolor, or emit dangerous fumes at high temperatures (190° C/ 374° F).
	Labels	Avery 5160 Canon USA Adhesive label stock should have pressure-sensitive (peel-and-stick) adhesive backing and should be 17-34 lb (64 -128 g/m^2). The label backing must be able to withstand heat generated by the fixing assembly (190° C/ 374° F). Use only label sizes letter or A4.
	Trans-parencies	Canon USA type D 3M PP2500 Use only transparency sizes letter or A4. Transparencies must be able to withstand the heat generated by the fixing assembly (190° C/374° F), without transformation.
Toner	Toner cartridge model EP-W	

Stackler Specifications

Media Sizes	A3	Short edge
	A4	Long edge
	B4	Short edge
	11"x17"	Short edge
	Legal	Short edge
	Letter	Long edge
	Executive	Short edge
Media Weight	16-34 lb (60-128 g/m^2)	
Media Type	Plain paper Special media	
Media Delivery	Face-down Face-up (only for special media)	
Number of Bins	3 output bins	
Stack Capacity	See “Stack Capacity” on page B-23.	
Features	Simple Stacking Job Offset Stapling	

Stack Capacity

Stack Capacity	Output Tray			Paper Size	Simple Stack Mode			Mixed Stack Mode		
	U	C	L		Stack	Job Offset	Staple	Stack	Job Offset	Staple
300 sheets	✓			Large	✓	✓				
300 sheets or 30 sets	✓	✓	✓	Large/Small			✓			
350 sheets		✓	✓	Large	✓	✓				
600 sheets	✓			Small	✓	✓				
700 sheets		✓	✓		✓	✓				
59 mm	✓			Large/Small				✓	✓	
59 mm or 30 sets	✓	✓	✓							✓
67 mm		✓	✓	Large/Small				✓	✓	

Table Legend

U=Upper Tray, C=Center Tray, L=Lower Tray
Paper Size Large=A3, B4, Legal, 11"x17''
Paper Size Small=A4, Letter, Executive

» **Note:** *The maximum number of sheets per stapled set is 20.*

Regulatory

CE Marking	International (EU) EN 55022:1987 (Class AITE) EN 60950:1992 IEC 801-2 IEC 801-3 IEC 801-4	 Emissions Safety ESD Radiated susceptibility Fast transcients
Electromagnetic Compatibility (EMC)	International (EU) IEC 801-2 IEC 801-3 IEC 801-4	 ESD Radiated susceptibility Fast transcients
Electromagnetic Emissions (EMI)	DOC (Canada) Canadian CRC c1374 EU (International) EN 55022:1987 FCC (USA) Title 47 CFR Ch. 1, Part 15 VCCI (Japan) VCCI V-3Class 1 ITE	 Class A digital device Class A ITE Class A digital device Class 1 ITE
Energy Star (USA)	Energy Star compliant (base model only)	
Product Safety	cUL (Canada) EU (International) UL (USA)	CAN/CSA C22.2 No. 950-M90 EN 60950:1992 UL 1950, second edition
Product Laser Safety	CDRH (USA)EU (International)	Title 21 CFR Ch. I, Subchapter J IEC 825

Warranty Considerations

Various factors can affect a printer's warranty. Two important ones are consumables and electrostatic discharge. Read your printer warranty carefully, and then store it in a safe place.

▲ **Caution**: *QMS cannot be held responsible for damage to your printer during shipment that results from the improper packaging of your printer. You must use the instructions given in this section before repacking the printer in its original shipping box with the original packing materials.*

If you need replacement packaging, in the US call QMS National Service at 1 (334) 633-4300 x 2530. If you need to return the printer for service, in the US call QMS Customer Service at 1 (334) 633-1072 for an RMA (Return Merchandise Authorization) number before shipping the printer. In other countries, refer to appendix A, "QMS Customer Support.

Consumables and Your Warranty

The use of non-QMS consumables and/or accessories alone does not affect either your warranty or any maintenance contract you may have purchased. However, if QMS printer failure or damage is found to be directly attributable to the use of non-QMS consumables and/or accessories, QMS will not repair the printer free of charge. In this case, standard time and material charges will be applied to service your printer for that particular failure or damage. QMS recommends that you use only QMS consumables and accessories to support your printer. To order QMS consumables and accessories in the US, call (800) 777-7782. In all other countries, check appendix A, "QMS Customer Support," for the QMS office closest to you.

Electrostatic Discharge and Your Warranty

It's very important to protect the printer controller board and other printer circuit boards from electrostatic damage.

If an anti-static wrist strap is provided in your printer option kit, attach one end of it to your wrist and the other end to any convenient electrical ground. The bare metal chassis of equipment, such as on the back of a computer, is suitable if it is plugged in but **turned off**. **Never attach the wrist strap to any piece of equipment with an electrical current present.** Turn off all power switches first. Plastic, rubber, wood, painted metal surfaces, and telephones are not acceptable grounding points. The printer isn't an acceptable grounding point either because it must be unplugged before you perform this task.

If you don't have an anti-static wrist strap, discharge your body's static electric charge by touching a grounded surface before you handle any printer boards or components and before removing the controller board cover. If you must walk around before completing your task, discharge your body's static electric charge again before touching the printer controller board.

Incidental and consequential damages caused by not discharging electrostatic buildup can affect your printer warranty.

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C

Document Option Commands

In This Chapter . . .

- "Supported QMS DOCs" on page C-2

Introduction

This appendix lists the supported Document Option Commands (DOCs) for your QMS 2425/2425 *TURBO* Print System. The commands are grouped by feature type.

Each command is preceded by either a DOC statement (%%) or an IncludeFeature statement (%%IncludeFeature). See the *QMS Crown Document Option Commands* manual for information on how to use each command.

Supported QMS DOCs

Header/Trailer Page Commands

Print copyright statement	%%CopyRight:
Print document creator	%%Creator:
Print creation date and time	%%CreationDate:
Print current date	%%Date:
Print document owner	%%For:
Print document host	%%Host:
Print routing information	%%Routing:
Print document title	%%Title:
Print version and revision	%%Version:
Print header page	%%IncludeFeature: header
Print trailer page	%%IncludeFeature: trailer

HP-GL Emulation Commands

Select enhanced resolution	%%IncludeFeature: enhanced
Expand plot	%%IncludeFeature: expand
Select original paper size	%%IncludeFeature: size
Select pen width and color	%%IncludeFeature: pen
Select plotter	%%IncludeFeature: plotter
Scale the image	%%IncludeFeature: scaling
Set the origin	%%IncludeFeature:origin

HP PCL 5e Emulation Commands

Install object	%%IncludeFeature: install
Remove object	%%IncludeFeature: remove
Remove resource	%%IncludeFeature: removeresource
Select default font	%%IncludeFeature: font
Select default font ID	%%IncludeFeature: fontid
Select symbol set	%%IncludeFeature: symbolset
Set carriage return to CR+LF	%%IncludeFeature: criscrlf
Set linefeed to CR+LF	%%IncludeFeature: lfiscrlf
Set number of lines per inch	%%IncludeFeature: linesperinch
Set point size	%%IncludeFeature: pointsize
Resource	%%IncludeFeature: resource

Lineprinter Emulation Commands

Select font for current job	%%IncludeFeature: font
Set point size for current job	%%IncludeFeature: pointsize
Specify character map type	%%IncludeFeature: map
Number lines	%%IncludeFeature: number
Set tabs	%%IncludeFeature: tabs
Set linefeed to CR+LF	%%IncludeFeature: lfiscrlf
Set carriage return to CR+LF	%%IncludeFeature: criscrlf
Set formfeed to CR+FF	%%IncludeFeature: ffiscrff
Wrap lines	%%IncludeFeature: autowrap
Set number of lines per page	%%IncludeFeature: linesperpage
Set margins	%%IncludeFeature: lpmargins
Set orientation	%%IncludeFeature: lporientation

CCITT Groups 3 and 4 Commands

Start decompression	%%ImageData
Set encoded byte flag	%%EBAMode
Set end of block	%%BlockEnd
Set line end	%%LineEnd
Eject page	%%PageEnd
Set image position	%%ImagePosition
Invert image	%%InvertImage
Set dpi for image expansion	%%DPI

Set data compression	%%Compression
Reverse bits	%%BitReverse
End print job	%%JobEnd
Set image size	%%ImageSize
Set image rotation	%%Rotation

Document Formatting

Logical page orientation	%%IncludeFeature: pageorientation
Duplex print jobs	%%IncludeFeature: duplex
Number up printing	%%IncludeFeature: pagegrid
Offset logical page	%%IncludeFeature: pageoffsets
Print borders	%%IncludeFeature: border
Scale logical page	%%IncludeFeature: pagescaling
Booklet printing	%%IncludeFeature: booklet
Select print mode	%%IncludeFeature: quality
Print background images	%%IncludeFeature: background
Set printer resolution	%%IncludeFeature: resolution
Print page range	%%IncludeFeature: pagerange
Collate print job	%%IncludeFeature: collate
Logical page size	%%IncludeFeature: pagesize
Select number of copies	%%IncludeFeature: numcopies
Select paper	%%IncludeFeature: input
Select output bins	%%IncludeFeature: output
Select orientation	%%IncludeFeature: orientation
Set staple mode	%%IncludeFeature: staple
Select emulation	%%IncludeFeature: emulation
Logical margins	%%IncludeFeature: margins

Job and Subjob Boundary Commands

Sessions (only via network interface)	%%Sessions
New layout command	%%IncludeFeature: newlayout
End of document	%%EndOfDocument <ESC>%-12345x

LN03 Commands

Identify product	%%IncludeFeature: product
Control line wrap	%%IncludeFeature: autowrap
Specify default paper size	%%IncludeFeature: paper_size
Control transformation point	%%IncludeFeature: paper_size_override
Adjust image horizontally	%%IncludeFeature: xorigin
Adjust image vertically	%%IncludeFeature: yorigin
Set power-up configuration	%%IncludeFeature: reset_override

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D

Notices

In This Appendix . . .

- “Manual Notice” on page D-2
- “FCC Compliance Statement” on page D-2
- “Canadian Users Notice” on page D-3
- “Laser Safety” on page D-3
- “Power Cord” on page D-4
- “International Notices” on page D-4
- “Colophon” on page D-4

Manual Notice

QMS, Inc. reserves the right to make changes to this manual and to the equipment described herein without notice. Considerable effort has been made to ensure that this manual is free of inaccuracies and omissions. **However, QMS, Inc. makes no warranty of any kind including, but not limited to, any implied warranties of merchantability and fitness for a particular purpose with regard to this manual**. QMS, Inc. assumes no responsibility for, or liability for, errors contained in this manual or for incidental, special, or consequential damages arising out of the furnishing of this manual, or the use of this manual in operating the equipment, or in connection with the performance of the equipment when so operated.

FCC Compliance Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

» **Note:** *A shielded cable is required to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules.*

▲ **Caution:** *Any modifications or changes to this product not expressly approved in writing by the manufacturer responsible for compliance to Federal Regulations could void the user's authority to operate this product within the Laws and Regulations of the Federal Communications Commission.*

WARNING! *To prevent electrical shock, do not remove any covers from your printer unless you are experienced in working with circuit boards and are following instructions for procedures described in QMS documentation.*

ACHTUNG! *Um elektrische Kurtzschlüsse zu vermeiden, entfernen Sie keine Gehaüseteile von Ihrem Drucker, wenn Sie keine Erfahrungen im Umgang mit elektrischen Bauteilen haben. Befolgen Sie die in der QMS Dokumentation beschriebenen Hinweise.*

Canadian Users Notice

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques (de la classe A) prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Laser Safety

This printer is certified as a Class 1 laser product under the U.S. Department of Health and Human Services (DHHS) Radiation Performance Standard according to the Radiation Control for Health and Safety Act of 1968. This means that the printer does not produce hazardous laser radiation.

Since radiation emitted inside the printer is completely confined within protective housings and external covers, the laser beam cannot escape from the machine during any phase of normal user operation.

International Notices

Power Cord

The following power cord requirements are in effect for the 220v QMS 2425/2425 *TURBO* Product (base and executive models)

Minimum	0.75 mm^2
Minimum	H05 VV - F

» **Note:** *The male plug is certified in the country in which the equipment is to be installed, and the female plug is an IEC 320 connector.*

Colophon

This manual was written and formatted in FrameMaker. Some illustrations were created in Adobe Illustrator and translated to WMF format in Transverter Pro; other illustrations were created directly in FrameMaker. Typefaces chosen are Benguiat, Courier, Helvetica, MarkerFelt, and Tekton.

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E

Configuration Menu

In This Appendix . . .

- "Menu Chart Conventions" on page E-2
- "Installation Menu" on page E-3
- "Operator Control Menu" on page E-4
- "Administration Menu" on page E-5
- "CrownNet Menu's" on pages E-6 thru E-10

Introduction

You may use this section as a quick reference for understanding and navigating the menu structure of the QMS 2425/2425 *TURBO* Print System.The following menu charts are provided in this section:

- Installation Menu

  Shows the configurations available when the security key is used to access the Installation Menu.

- Operator Control Menu

  Shows the operator printer configurations.

- Administration Menu

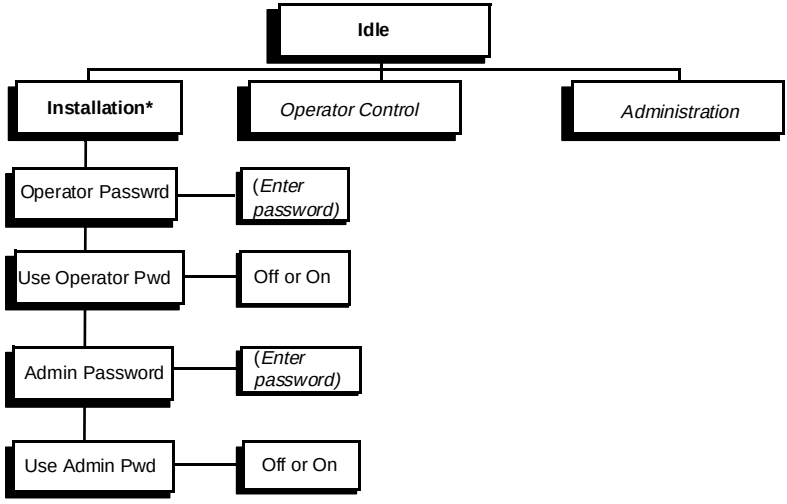
  Shows the printer administration configurations.

Menu Chart Conventions

The following conventions are used in the menu charts:

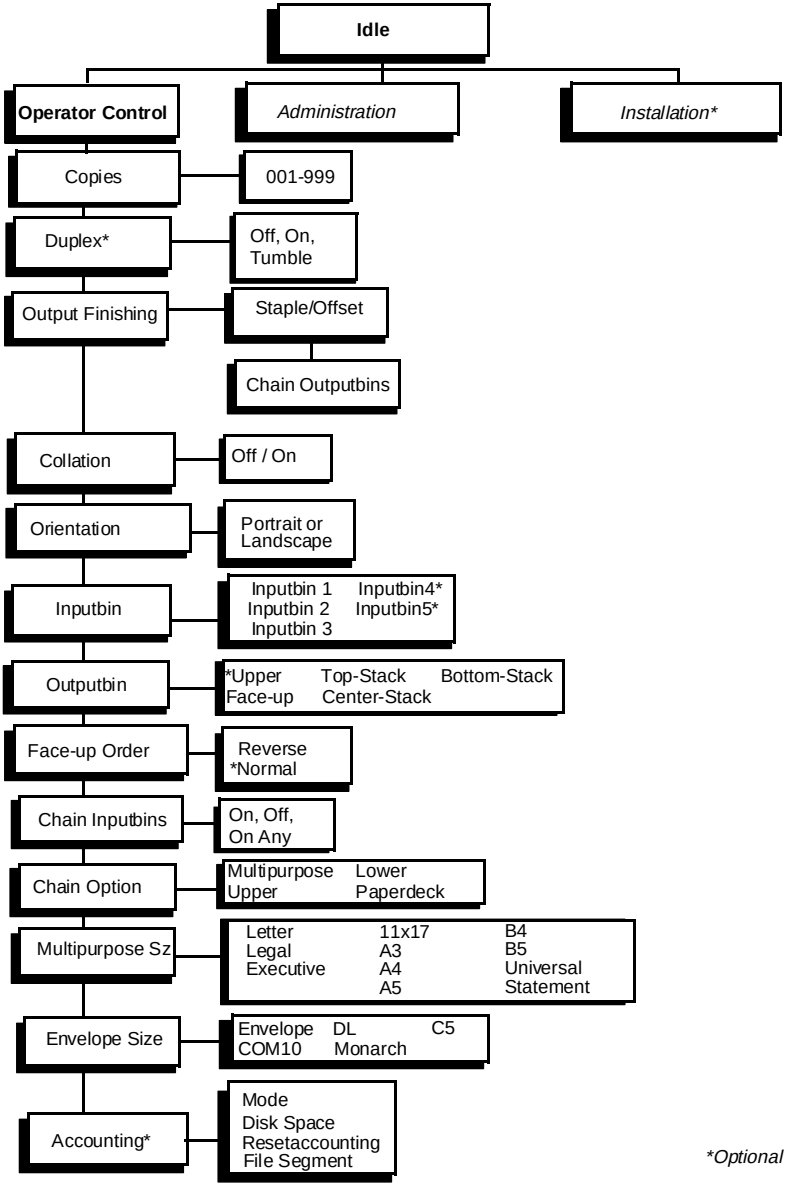
- Some menu selections are marked with an asterisk (*). These selections will only appear on your print system if the specified option is installed.
- These menu charts show only the top-level menus. See chapter 4, “Printer Configuration,” of the *Reference* guide for detailed information on a menu selections’s options.

Installation Menu



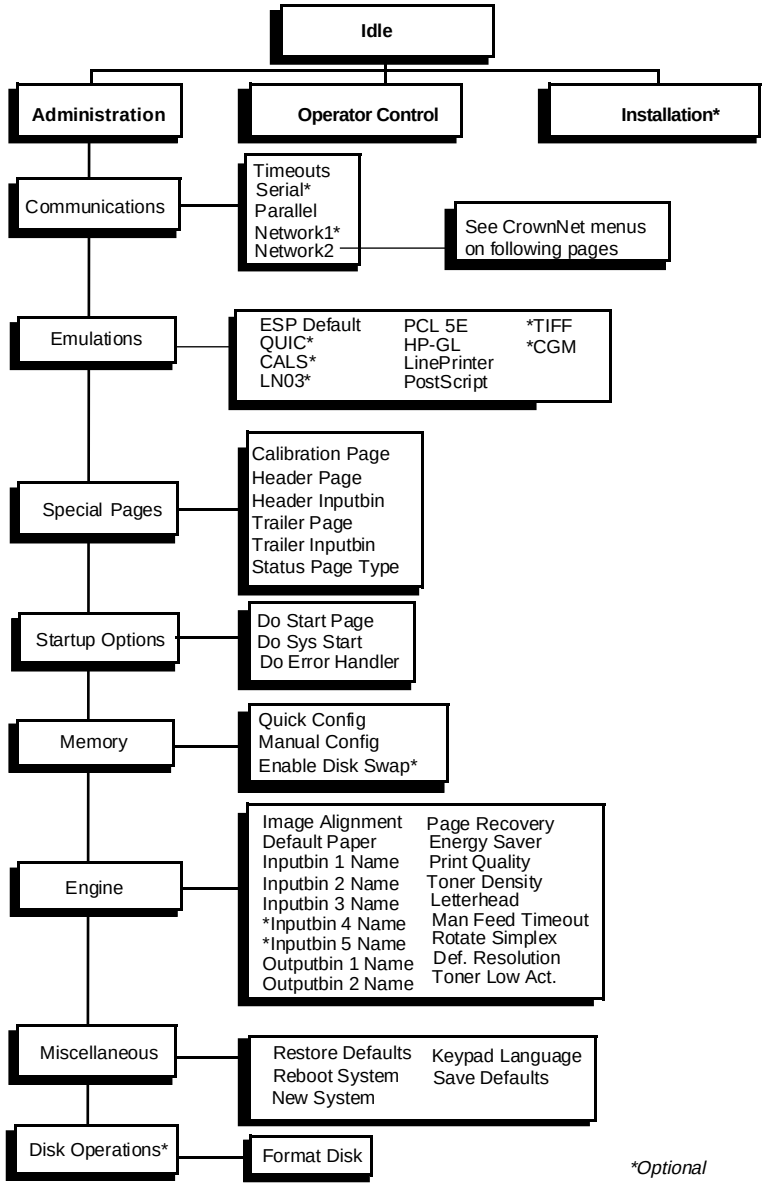
**Optional*

Operator Control Menu



**Optional*

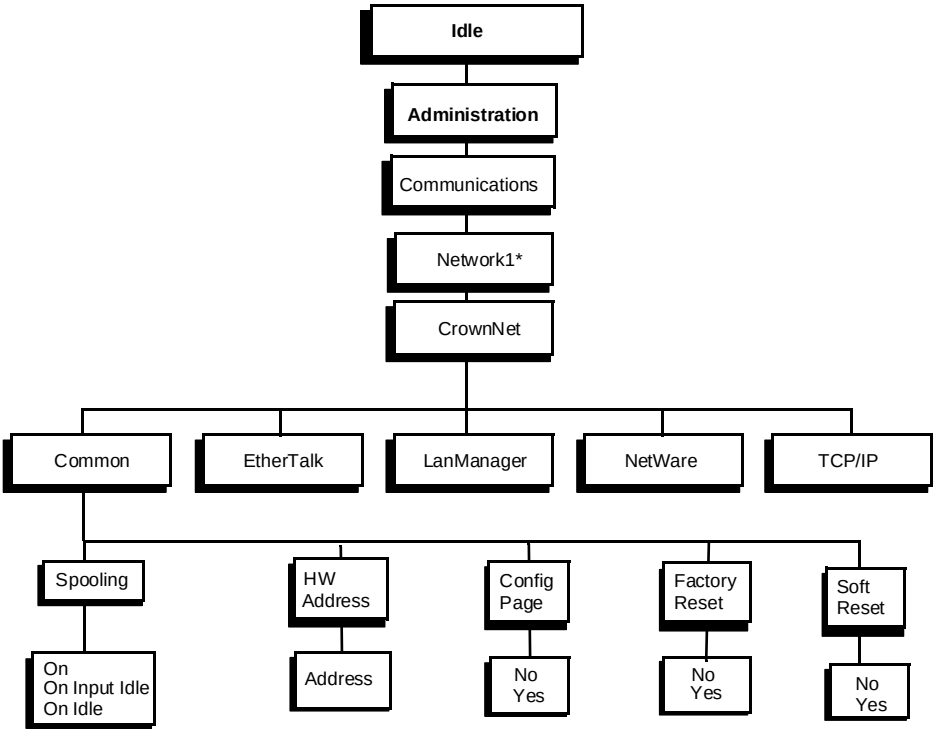
Administration Menu



CrownNet Menu

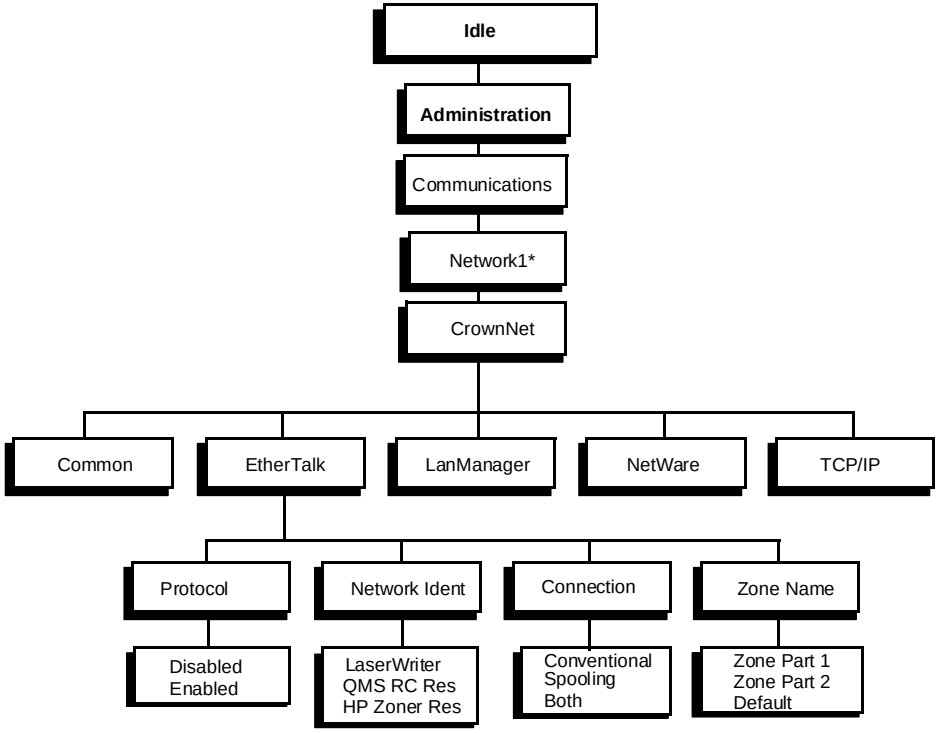
Common Menu

This menu gives you choices common to all of the CrownNet communications interfaces.



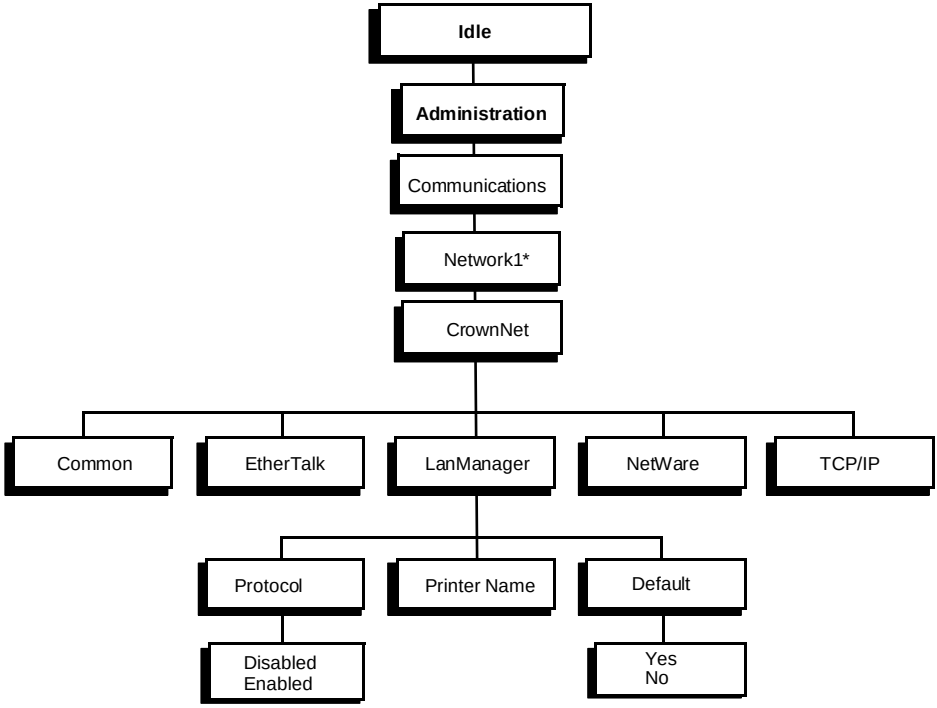
**Some printers may have a Network 1 and a Network 2 interface menu.*

EtherTalk Menu



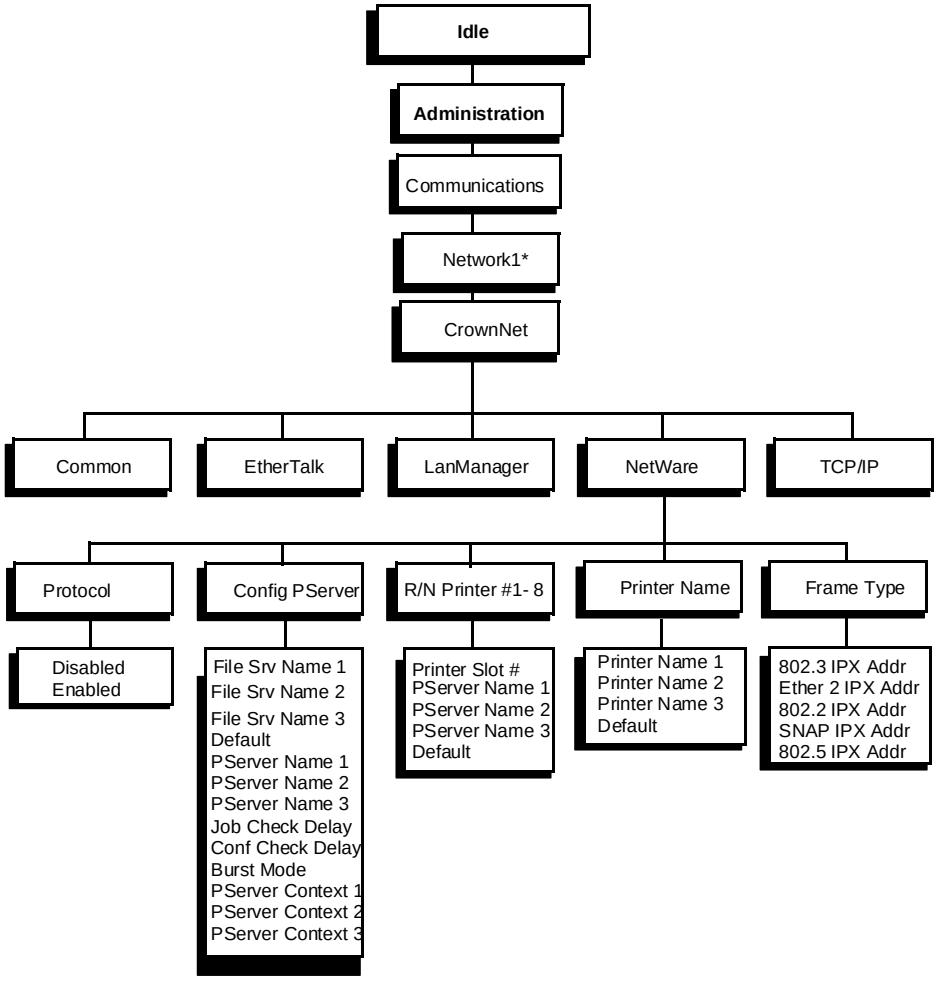
**Some printers may have a Network 1 and a Network 2 interface menu.*

Lan Manager Menu



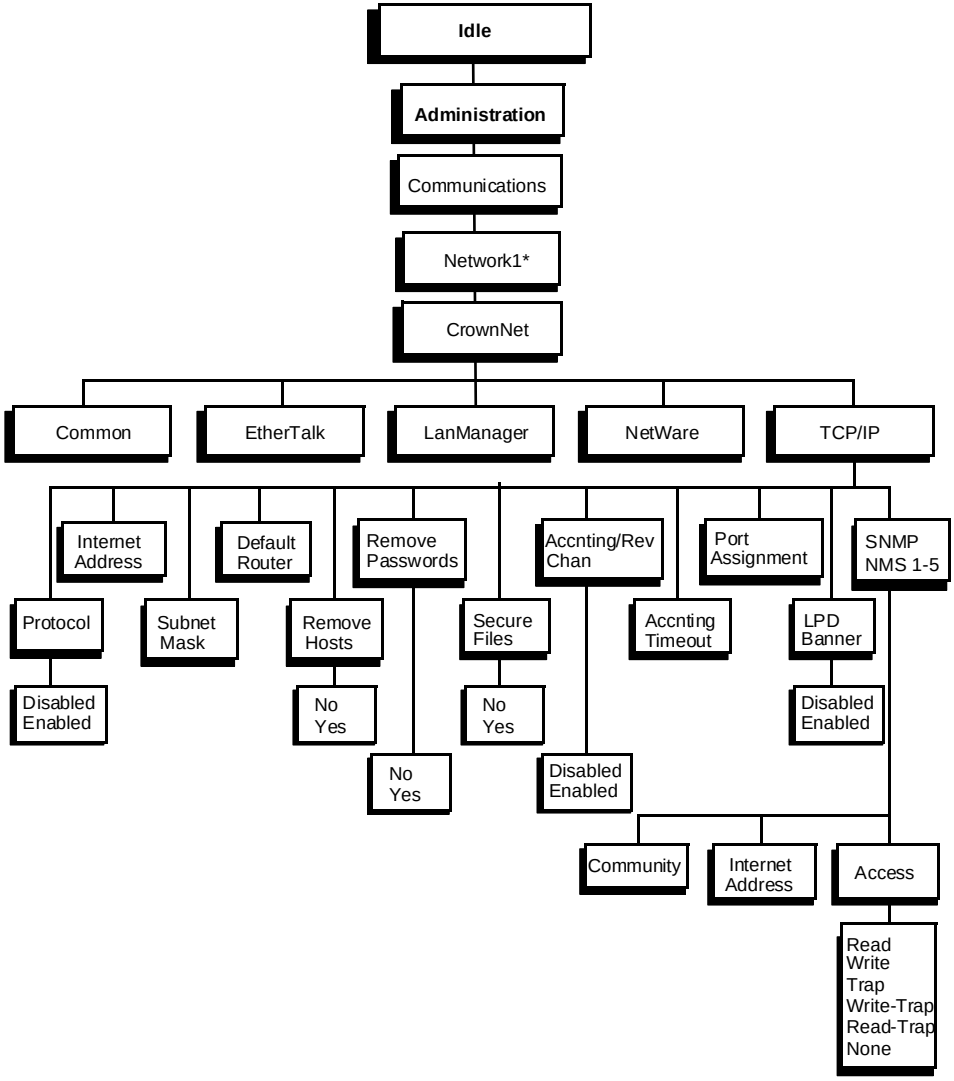
**Some printers may have a Network 1 and a Network 2 interface menu.*

NetWare Menu



**Some printers may have a Network 1 and a Network 2 interface menu.*

TCP/IP Menu



**Some printers may have a Network 1 and a Network 2 interface menu.*

Glossary

AppleTalk

A local area network communication protocol developed by Apple Computer. AppleTalk operates on LocalTalk, Ethernet, or Token-Ring cabling and can be used by Macintosh systems, PCs, and printers. See also *LocalTalk*.

Application

Any computer program designed to help people perform a certain type of work (for example, word processing, page layout, programming, graphics, and spreadsheets). Adobe Illustrator, Excel, and Word are applications.

ASCII

An acronym for American Standard Code for Information Interchange. This coding scheme, developed by the American National Standards Institute (ANSI), specifies a digital code for each of the 96 displayable characters on a standard computer keyboard as well as for control characters. The full ASCII character set is 250+.

Asymmetric Resolution

A resolution that is not the same in both scan directions. For example, your PC monitor may be 640x480 dots per inch. This is asymmetric because 640 is not equal to 480.

Baud Rate or Baud

The data transfer rate between two devices, such as your computer and your printer. Both devices must be configured for the same baud rate. Your printer's baud rate ranges from 300 to 38,400 bits per second.

Bit

An acronym for binary digit. The bit is the most fundamental unit of information that a computer can accept. It has two states called 1 (one) and 0 (zero), or on and off, and can be used to represent a yes/no statement. Groups of bits are used to represent more complex statements, such as characters. The most common grouping of bits is called a byte, which consists of 8 bits. See also *ASCII*, *byte*.

Bitmap

A grid composed of small dots used to define an image, line drawing, or character. See also *raster graphics.*

Bitmapped Font

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

Buffer

Storage space used to compensate for a difference in rate or sequence of data flow when transmitting data from one device to another.

BuzzBox Lite

BuzzBox Lite is a printer accessory that warns you with a buzzer and/or a blinking light any time the printer goes off line. This means you're alerted to print job interruptions such as empty paper trays.

Byte

A unit of information consisting of 8 bits, the equivalent of one character. See also *bit*.

Cancel Key

The control panel key that cancels a print job or sends an end-of-job indicator to a print job waiting for incoming data. It is not necessary to take the printer off line before using the Cancel key.

Card

See *font card*, and *security card*.

Connector

A coupler used to join a cable to a device or to another cable. Connectors are identified as male or female. A male connector has one or more exposed pins or prongs. A female connector has one or more receptacles designed to accept the pins or prongs on the male connector.

Connector Box

A piece of equipment consisting of a small box with a built-in cable that links the printer to the LocalTalk cable system.

Consumables

Supplies, such as paper, transparencies, and toner.

Control Panel

The area on the front of the printer consisting of eight keys that allow you to configure the printer and perform frequently used operations, four LEDs (light-emitting diodes) that identify various printer status information, and an LCD (liquid crystal display) message window that provides status information ad configuration menus.

Controller

The software that controls the engine of a printer. The controller is the intelligence of the printer.

Crown

A proprietary multitasking operating system architecture developed by QMS and used in the QMS 2425/2425 *TURBO* Print System.

Default

A printer control panel setting used in the absence of a application selection. See also *factory default.*

Download

Transfer information from one device to another. Downloaded fonts and emulations are not built into the printer. They are transferred from the computer and temporarily stored in the printer's memory (until the printer is turned off) or on a hard disk.

dpi

An acronym for dots per inch, a measurement unit used to indicate printer resolution. Your QMS 2425/2425 *TURBO* Print System has 300x300 (standard), 600x600 (standard), and 1200x1200 (optional) dpi resolution.

Driver

See *printer driver*.

DTR/DSR

An acronym for Data Terminal Ready and Data Signal Received, a hardware-controlled protocol. It controls the flow of data via signals on the DTR/DSR line, as opposed to XON/XOFF protocol, which is software controlled.

Electrophotographic Drum

A drum in the toner cartridge that is sensitive to both light and electricity. It is used in the creation and transfer of images to the printed page. See also *toner*, *toner cartridge.*

Emulation

Software that allows the printer to respond to commands intended for a different type of printer. For example, when the printer is set for HP PCL emulation, it responds to the same commands (HP PCL) that a Hewlett-Packard LaserJet printer does.

Emulation Card

See *font card*, and *security card*.

Emulation Sensing Processor (ESP) Technology

Using a form of artificial intelligence, ESP technology analyzes incoming file data from any of your printer's interfaces, selects the appropriate printer language from those installed on the printer, and processes the print job. ESP technology works with most popular commercially available applications.

Energy Star

The US Environmental Protection Agency (EPA) Energy Star Computers program promotes the use of energy-efficient personal computers, monitors, and printers and the reduction of air pollution caused by power generation. Equipment designated as being Energy Star compliant have qualified under the Energy Star regulations.

Ethernet Network

Developed by Xerox, Ethernet is a local area network that uses coaxial cable (thick or thin), or twisted pair wire to connect nodes transmitting variable-length frames of data up to 10 Mbps (10-million bits per second).

EtherTalk

Refers to the communication protocol used by Macintosh computers when transmitting and receiving data through an Ethernet interface.

Excess Memory Client

The memory remaining after providing all the other memory clients with their specified amounts of memory is automatically added to the excess memory client. All excess memory in your QMS 2425/2425 *TURBO* Print System goes into a pool shared by the frame buffer and the display list clients.

Expansion, RAM

See *memory upgrade*.

Factory Default

The printer settings that are programmed into the printer at the factory. These settings are used unless they are changed at the printer control panel or overridden by settings in an application. See also *default*.

Flash ROM

Quick loading, reprogrammable memory that holds information (such as system code and downloadable emulations) even when the printer is turned off. The chief advantage of flash ROM is that system upgrades can be loaded from a floppy disk without the necessity of swapping out expensive EPROMS or having to place a service call.

Font

A complete character set in one typeface or style. Two types of fonts are available for your printer—downloaded and resident. See also *download*, *resident fonts*, *typeface*, and *typeface family*.

Font Card

A module the size of a credit card that contains fonts that can supplement the printer's internal, resident fonts to increase the variety of available typefaces.

Fuser Assembly

An assembly that contains two heated rollers between which the paper passes after toner has been applied; the heated rollers bond the toner to the paper.

Gamma Correction

Gamma corrections allow you to sharpen the midrange contrast when scanning black and white images.

Gray Scale

Progressive shades from black to white which provide detail and contrast to printed images.

Handshake, Handshaking

A procedure, usually part of a communications protocol, to establish a data communications path. Devices must be able to communicate with each other. Your printer uses either XON/XOFF or DTR/DSR protocol to communicate with a computer.

Hard Disk

A secondary storage place for such items as downloaded fonts and emulations and for spooled data, thus providing virtual memory capabilities. You can add one internal hard disk and up to three external hard disks to your QMS 2425/2425 *TURBO* Print System.

Header Page

A separator page, printed before a print job, that identifies the print job and helps users sort out the print jobs in the printer's output tray. See the *QMS Crown Document Option Commands* manual information on customizing the header page information.

Heap

A portion of memory reserved for a program to use for temporary storage.

Host

The computer or network to which a printer is connected.

HP PCL

An acronym for Hewlett-Packard Printer Control Language, the printer control language native to the HP Laser Jet series printers. Your QMS 2425/2425 *TURBO* Print System has a resident HP PCL 5e emulation.

HP-GL

An acronym for Hewlett-Packard Graphics Language, the programming language on which HP plotters are based. Your QMS 2425/2425 *TURBO* Print System has a resident HP-GL emulation.

IDE

An acronym for Integrated Drive Electronics. “Integrated” refers to the fact that all of the controller electronics are on the drive itself, so no separate adapter card or expansion slot is required. See also *SCSI*.

Imageable Area

The maximum area of a sheet of media capable of being printed on. It is subject to both hardware limits (the physical page size and the margins required by the print engine) and software constraints (the amount of memory available for the full-page frame buffer).

Intellifont

A SIMM containing 17 HP PCL 5 fonts that is standard with PCL 5e that can be installed inside of the QMS 2425/2425 *TURBO* Print System. Adding this option increases the number of available PCL 5 fonts for your printer from the 20 standard fonts to 37 (equivalent to the number of fonts available on a Hewlett-Packard LaserJet 4Si).

Interface

The place where two devices are physically connected, allowing them to communicate. For example, printer-computer interface is the way a printer connects to and works with a computer (a microcomputer, workstation, minicomputer, mainframe computer, or a network), and it involves both hardware and software.

Interface Cable

A special cable used to connect the printer to the computer so they can communicate.

Interface Port

Your printer comes with three standard interface ports—serial, parallel, and LocalTalk—located on the back panel. Up to two network interface ports are available through the installation of optional network interface cards. See also *network interface card*.

Jam Recovery

The printer's ability to reprint the jammed page and then continue with the print job once you remove the jammed media. With most printers, if a jam occurs, you must reprint the entire job after removing the jammed media.

Kanji

A Japanese character set. There are external and SIMM-based QMS Kanji Option kits containing Kanji fonts licensed to QMS by Morisawa and Company, Ltd. and/or TypeBank. These option kits enable the QMS 2425/2425 *TURBO* to print Kanji fonts in a variety of point sizes and in different styles and resolutions.

LAN Manager

A technology that allows DOS, UNIX, and OS/2 operating systems to share network resources and files. (Developed by Microsoft)

LAN Server

A version of LAN Manager distributed by IBM. See *LAN Manager*.

Landscape Orientation

See *orientation*.

LCD

An acronym for Liquid Crystal Display. The printer's LCD message window on the control panel provides status information and configuration menus.

LED

An acronym for Light-Emitting Diode. Four LEDs on the printer's control panel indicate printer status.

LocalTalk

One type of cable system used to link computers and peripheral devices in an AppleTalk network. See also *AppleTalk*.

Manual Feed

The process by which media is manually fed into the printer by hand (as opposed to the printer automatically pulling media from a cassette or tray).

Media

Any material (such as paper, labels, and transparencies) used in the printer for printed output.

Memory

The space within your printer where information is stored while being actively worked on. The term applies to internal storage space as opposed to external storage, such as disks or tapes. See also *RAM* and *ROM.*

Memory Client

A user of a block of memory. Each memory client controls certain features. When insufficient memory is allocated to a specific client, the features it controls may not be accessible.

Memory Upgrade

An available option that is easily attached to the printer's controller board to expand its standard RAM (8 for the base model and 24 for the executive model) to a maximum of 128 MB of memory. See also *SIMM (Single In-Line Memory Module*).

Menu Key

The control panel key that accesses the printer configuration menu when the printer is off line. Use this key to advance through the menus or to return to a previous position in the menu. When changing printer setup, press this key to cancel a change (before pressing the Select key) or to return to previous menus one level at a time.

Motherboard

The main circuit board containing the primary components of a computer system.

NetWare

Distributed by Novell, *NetWare* is an operating system that allows network users to share system resources (such as hard disks, printers, and files).

Network Interface Card (NIC)

A printed circuit board, in the shape of a card, used to connect a printer physically to a network cable. See your QMS vendor for a complete list of available network interface cards.

Next Key

The control panel key that advances through a list of selections or options for a menu. When changing character information, use this key to advance to the next choice for the current input (underlined) character.

Non-volatile Memory

This type of memory is not lost when the printer loses power.

Null Modem

A cable configuration used for serial communication. This cable arranges the communication between two devices.

NV RAM

This protected form of RAM is used to store information such as your printer's configuration menu. Configuration options you have chosen, such as emulations, memory settings, and input bins, are saved to this non-volatile RAM. This information is not lost when you turn off your printer.

Off Line

Not accepting data from the computer. The printer is taken off line by pressing the Online key. When the Online indicator is off, the printer is off line. The printer must be off line to enter the Configuration menu.

On Line

Accepting data from the computer. The printer is on line when the Online/Offline key is pressed and the Online indicator is on.

Online/Offline Key

The control panel key used to take the printer off line and put it back on line.

Orientation

The direction of print on the page. Printing across the narrow width of a page is called portrait orientation printing. The word “portrait” comes from portraits of people, which are usually vertical in format. Printing across the length of a page is called landscape orientation printing. The term “landscape” is derived from pictures of the landscape, which are usually horizontal in format.

Page Description Language (PDL)

A programming language, such as PostScript, that is used to describe output to a printer or a computer monitor.

Page Memory

A special buffer large enough to hold an entire page of data.

Paper Path

The path the paper follows in its journey through the printer; it begins at the paper cassette or tray pickup point and ends at the output tray.

Parallel Interface

A data transmission technique that sends each bit simultaneously over separate lines. (For this reason it is generally faster than a serial interface.) It is normally used to send 1 byte (8 bits) at a time between computers and printers. You printer has a Centronics IEEE 488/1284 parallel interface port. See also *serial interface*.

Parity, Parity Check

The addition of overhead bits to ensure that the total number of 1s in a grouping of bits is either always even (for even parity) or always odd (for odd parity). This permits detection of single errors. It may be applied to characters, transmission blocks, or any convenient bit grouping.

PCL

See *HP PCL.*

PCMCIA

An acronym for Personal Computer Memory Card International Association, which sets industry guidelines for a standard 16-bit expansion socket that accepts credit-card size memory cards (such as fonts). Type I card

slots accept 3.3 mm (.13") thick cards while Type II card slots accept 5 mm (.20") cards.

Peripheral Device

A hardware device connected to a computer (such as a printer) or to a printer (such as an external hard disk).

Permanent Soft Fonts

Permanent soft fonts are soft fonts downloaded into the printer's memory that remain resident there, even if the printer is reset, until the printer is turned off or the fonts are deleted by an application. See also *download*.

Physical Memory

The amount of RAM installed in the printer.

Point Size

The height of a character or symbol in a font. There are 72 points per inch. This text is printed using a 10 point font.

Portrait Orientation

See *orientation.*

PostScript

A page description language trademarked by Adobe Systems Incorporated. PostScript Level 2 capabilities, among others, are implemented in your printer through a QMS-developed PostScript emulation. PostScript Level 2 emulation is the native language of your printer's controller. It describes text, graphics, and page images to the printer.

Previous Key

The control panel key that returns through the list of previous selections or options for the current menu. When changing the character information, use this key to return to the previous choice for the current input (underlined) character.

Print Density

Print density refers to the relative darkness of print on the page. Very dense print appears totally black. Less dense print looks lighter, with solid-filled areas not totally covered. Print density can be adjusted by a lever inside the printer.

Print Engine

The non-intelligent portion of the printer, including the laser, print drum, and paper-feeding mechanism.

Print Quality

A general measure of the appearance and readability of a printed page. Criteria of print quality include the darkness, clarity, and sharpness of the printed page.

Printed Circuit Board

A flat board made of plastic, fiberglass, or another nonconducting material on which chips and other electronic components are mounted.

Printer Driver

A printer driver is a program that translates the file you are printing into a language that the printer understands. Usually, the printer driver is installed within an application.

Protocol

A set of rules or standards designed to enable computers and other devices to connect to one another and to exchange information.

Queue

A storage area for documents waiting to be printed.

RAM

An acronym for Random Access Memory, the memory your printer uses to perform tasks. It can be written to and read from. Once a task is complete, the memory is free again to be used for another file. This memory is volatile, so if your printer loses power while a file is being sent, you must resend the file. The number and type of features you can run simultaneously on your printer depend on the amount of RAM available and how that RAM is distributed. RAM can be increased by adding SIMMs. See also *SIMM*.

RAM Disk

Also called a virtual disk. The RAM disk is an area of RAM that is used to simulate an additional hard disk. Data can be written to and read from a RAM disk more quickly than a hard disk, but a RAM disk loses any information stored on it when the printer's power is turned off. The frame buffer and spooling buffer are RAM disk clients. See also *RAM*.

Raster Graphics

The system of forming graphics using a bitmap, or grid of small dots, is called raster graphics. The term “raster” denotes the Cartesian grid system in which the dots are arranged. Bitmaps can define images, shapes, or characters created with a specific number of dots per inch. See also *bitmap*.

Rasterization

The conversion of vector graphics (images described mathematically as points connected by straight lines) to equivalent images composed of pixel patterns that can be stored and manipulated as sets of bits.

Remote Console

A feature in QMS Crown printers allowing users to configure the printer and monitor printer conditions over the Ethernet network interface.

Resident

Data or information Permanently stored in the printer’s memory or disk.

Resident Fonts

Fonts permanently stored in the printer's memory or disk; also called internal fonts.

Resolution

A measurement of the dots per inch (dpi) in output material, either printed or visual, as in a high-resolution monitor. Your printer features 300x300, 600x600, and 1200x1200 dpi resolutions. See also *asymmetric resolution* and *symmetric resolution*.

RISC

An acronym for Reduced Instruction Set Computing, a microprocessor design that focuses on rapid and efficient processing of a relatively small set of instructions.

ROM

An acronym for Read Only Memory. This type of memory contains data and/or printer-executable instructions that can be read but not modified. On QMS Crown printers, the operating system code, resident fonts, and resident emulations are all stored in ROM. This information is not lost when the printer’s power is turned off.

RTS

An acronym for Request To Send. RTS is a signal sent from the host to the printer indicating it is ready to send data.

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.

Screen

The pattern in which dots or lines are placed on a page to create colors or levels of gray. See also *screen angle*.

Screen Angle

The angle at which a screen is printed. See also *screen*.

Screen Font

A font designed for display on a computer monitor. Screen fonts usually have corresponding printer fonts.

SCSI

An acronym for Small Computer System Interface, which allows up to three external hard disks to be connected to your printer. See also *IDE*.

Security Key

A module the size of a credit card that allows you to set passwords for the Operator Control and Administration menus. When a security card is inserted into the printer card slot, the Installation menu appears in the configuration menu.

Select Key

The control panel key used to access a menu or to choose a displayed selection or option.

Serial Interface

A data transmission technique that sends each bit sequentially over a single line. It is normally used to send one bit at a time for data communications. See also *parallel interface*.

SIMM (Single In-line Memory Module)

A small circuit board designed to accommodate surface-mount memory chips. SIMMs use less board space and are more compact than more conventional memory-mounting hardware. See also *memory upgrade*.

SIO (Simultaneous Interface Operation)

The capability of printing to all three of the printer's concurrently active ports (at one time) rather than being restricted to one.

Soft Fonts

Fonts created or stored on disks. They can be transferred to the printer's memory and remain available to be used until the printer is turned off. See also *download*.

Spool

An acronym for simultaneous print operations on line. Spooling is the process of temporary storage to hold print jobs until the printer is available to process them.

Start-up Page

A page generated when you turn on the printer (unless you have disabled it). It gives limited information on the printer, including name, pages printed, current interface settings, and amount of RAM available.

Status Page Key

The control panel key that prints a list of printer settings, including the current interface type, resident fonts, RAM available, and printer name.

Storage

A device in or on which information can be kept. There are three main types of storage, ROM, RAM, and hard disks. ROM stores read-only data, RAM represents temporary storage, and hard disks hold information on a more permanent basis. See also *hard disk*, *RAM*, *ROM*, *spool*.

Symmetric Resolution

A symmetric resolution is the same in both scan directions. Your QMS 2425/2425 *TURBO* Print System supports the HP PCL 5e emulation at 300x300 and 600x600 dpi symmetric resolution, and the HP-GL emulation at 300x300, 600x600, and 1200x1200 dpi symmetric resolution

System Administrator

The person in charge of managing a network; also called a network administrator.

Timeout

The expiration of a predefined interval, that triggers some action such as a disconnection that occurs following 30 seconds without any data activity (in a 30-second, no-activity timeout). Timeout also refers to the length or existence of such an interval.

Toner

A dry, powdered substance capable of being attracted to electrically charged areas on a photosensitive revolving drum. The printer's EP (electrophotographic) toner cartridge holds the toner. The toner is first attracted to this charged area, then attracted to the negatively charged paper. The toner is melted (or fused) in place by the fuser assembly.

Toner Cartridge

A disposable cartridge containing dry toner and a print drum. The QMS 2425/2425 *TURBO* Print System uses a Canon EP-W toner cartridge.

Trailer Page

A separator page, printed after a print job, that identifies the print job and helps users sort out the print jobs in the printer's output tray. See the *QMS Crown Document Option Commands* manual information on customizing the trailer page.

Transformer Box

Also known as a connector box. This piece of equipment consists of a small box with a built-in cable that links the printer to a LocalTalk cable.

Transparency

A type of media, also known as OHP (overhead projection) film, commonly used for presentations.

Typeface

The basic printed design of characters in a font. For instance, Courier and Times typefaces each print characters of different designs.

Typeface Family

A group of related typefaces. For example, the Times typeface family consists of four typefaces: Times Roman, **Times Bold**, *Times Italic*, and ***Times Bold Italic***. See also *font* and *typeface*.

Utility

A program that performs a specific function of computer system management, such as maintaining disks and files or controlling a peripheral device.

Virtual Memory

An extension to the effective size of the printer's memory by using a disk file or swap file to simulate additional memory space. It enables the hard disk to accept data swapped from RAM to free temporarily the RAM for other tasks.

Volatile Memory

Memory that is cleared when the printer is turned off. Most RAM is volatile.

XON/XOFF

Control characters used for flow control in data transmission.

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