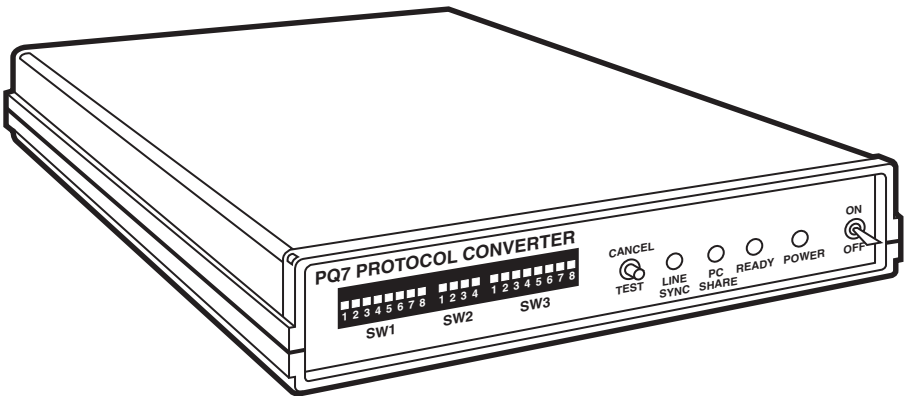




PQ7 Protocol Converter



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APPENDIX A: HP LASERJET PRINTER IBM TYPESTYLE
REFERENCE CHART.....34

APPENDIX B: IBM 4019/4029 LASER TYPESTYLE
REFERENCE CHART.....45

1. Specifications

Input Protocol —	IBM 5250 twinax protocol and Centronics parallel protocol
Output Protocol —	Centronics compatible parallel protocol
Receive Data Rate —	Maximum burst: 2 million bps Effective rate: 1 million bps
Data Buffering —	Dual 256-byte buffers for received twinax data
Language Support —	15 major language selections
Connectors —	DB9 for twinax V-cable connection, mini-Centronics parallel connector for alternate host sharing, 25-pin IBM PC parallel output connector to the printer, and center post power connector for 12 VAC
Indicators —	(3) green LEDs: Power, Ready, and Line Sync; (1) yellow LED: PC Share
Switches —	(1) pushbutton for self-test and cancel; (1) toggle switch for power on/off; (20) DIP switches for configuration
Power —	12 VAC, supplied by wallmount transformer (PS136).
Size —	1.5"H x 6.3"W x 9.8"D (3.8 x 16 x 24.9 cm)
Weight —	2.5 lb. (1.1 kg)

2. Introduction

The PQ7 Protocol Converter is a twinax printer interface with a PC auto-sharing parallel port which allows you to directly attach most ASCII parallel printers to IBM® AS/400® and System/3X hosts.

When attached to the PQ7 Protocol Converter, HP® PCL and IBM PPDS laser printers can emulate the IBM 3812-1 (non IPDS™) laser printer. Attaching the PQ7 Protocol Converter to the IBM Proprinter® II, III, PPDS, and Epson® EX, FX, LQ, ESC/P, and ESC/P 2 printers will enable them to emulate the IBM 4214, 5225, 5224, and 5256 printers.

All system printer functions—font selection, page orientation, duplex printing, etc.—are directly controlled by the IBM host.

Setup of the PQ7 Protocol Converter is easy. All standard features are selected by DIP-switch settings on the front of the box. After you set the DIP switches, print out a self-test page to confirm your selections, and begin printing.

There's also an alternate terminal setup option which displays on the screen of an attached twinax terminal. Special setup selections and custom user strings can be specified through an alternate host download option.

The PC auto-sharing parallel port automatically enables twinax system and PC printing to be performed by the same printer. The PQ7 Protocol Converter restores the twinax system setup of the printer prior to printing a host print job, and the user-defined parallel port initialization string can restore the PC sharing port's setup prior to printing a PC print job.

HP emulation is compatible with the XPoint forms generation software designed for the twinax host.

2.1 Unpacking

Check the box for freight or water damage. If any damage is evident, contact the carrier immediately. Check your box for the following items:

- PQ7 Protocol Converter
- Twinax auto-terminating V-cable
- Wall-mount transformer (12 VAC)
- IBM standard PC parallel cable for printer connection
- DB25M to Mini Centronics Auto-Sharing Cable.

If you are familiar with the PQ7 Protocol Converter, refer to Chapter 3. If you are a first-time user, refer to Chapter 4.

3. Quick Setup

Use these instructions if you are familiar with the PQ7 Protocol Converter. If you are a first-time user, refer to Chapter 4.

3.1 Installing the PQ7 Protocol Converter

1. Power off the printer.
2. Connect the 25-pin end of the standard Centronics parallel cable to the back of the PQ7 Protocol Converter.
3. Connect the 36-pin end of the parallel cable to the printer.
4. Connect the twinax V-cable to the back of the PQ7 Protocol Converter and attach the auto-terminating connectors to the host and other devices on the twinax cable.
5. Connect the wallmount transformer from the power outlet to the PQ7 Protocol Converter.
6. Optional: Connect the PC sharing cable (included) from the PC to the mini Centronics connector to the back of the PQ7 Protocol Converter.

3.2 Performing a Self-Test

1. Press the Cancel/Test button and continue to hold it while you power on the PQ7 Protocol Converter.
2. Release the Cancel/Test button when the test results begin printing.
3. Compare the printout to the example shown in Chapter 4. If the printout differs from the example, call your supplier.

3.3 DIP Switch Settings

Set the DIP Switches as listed in Section 4.2.

4. Installation

The PQ7 Protocol Converter is small and lightweight, so it can be placed in any convenient location near the power outlet. The PC parallel printer cable connects the 25-pin connector on the back of the interface to the 36-pin parallel connector on the printer. The twinax V-cable attaches to the DB9 connector on the back of the box and the auto-terminating twinax connectors attach to the IBM twinax host and auto cables through to other devices on the cable.

The optional PC parallel sharing cable (included) connects from the IBM DB25 parallel connector on a PC (or alternate host) to the mini Centronics® connector on the back of the box. Some installations may want to use hook-and-loop strips to secure the PQ7 Protocol Converter to the side of or even underneath a table.

Once you configure the PQ7 Protocol Converter, no changes should be required unless the system or attached printer is changed.

4.1 Self-Test

The internal self-test, a printout of the results, and a summary page of the setup parameters is accomplished by pressing the Cancel/Test button and holding it in while powering on the PQ7 Protocol Converter. The results begin printing within a few seconds and the button can then be released. An example of the self-test is shown on the next page.

PQ7 PROTOCOL CONVERTER

EXTERNAL TWINAX INTERFACE FOR ASCII PRINTERS
SOFTWARE VERSION AD1
RAM OK
ROM OK

Switch Settings:

SW1:1-3 PRINTER ADDRESS :3
SW1:4-5 PRINTER TYPE :Laser
SW1:6-8 EMULATION :3812 HP LaserJet
SW2:1-4 LANGUAGE : USA/CANADA
SW3:1 Char Set Code Page 850 :YES (Up)
SW3:2 No Paper Size Sent :NO (Down)
SW3:3 A4 Paper Only :NO (Down)
SW3:4 Portrait Option :NO (Down)
SW3:5 Landscape Option :NO (Down)
SW3:6 Auto Orientation On:YES (Up)
SW3:7 Balun Overdrive :NO (Down)
SW3:8 Buffer Print (EBCDIC) :NO (Down)

Printer Sharing Timeout :08
True LPI :NO
Alternate Delimiters :
Bin 1 Feed Command :1
Bin 2 Feed Command :4
Bin 3 Feed Command :5
Parallel Port Initialization:

Custom Defined Strings:

U0:
U1:
U2:
U3:
U4:
U5:
U6:
U7:
U8:
U9:

4.2 Setting the Switches

Set the PQ7 Protocol Converter for operation with twinax printers by setting the DIP switches in banks SW1, SW2, and SW3.

Tables 4-1 through 4-3 show each of the switches and their setup. Use a pointed object, like a small screw driver, to change the switch settings.

Table 4-1. SW1 (left) Group of Eight Switches.

Twinax Address	SW1:1	SW1:2	SW1:3
0	Down	Down	Down
1	Down	Down	Up
2	Down	Up	Down
3	Down	Up	Up
4	Up	Down	Down
5	Up	Down	Up
6	Up	Up	Down
7 (Terminal Setup with SW3:8 Switch Up)	Up	Up	Up
Printer Type	SW1:4	SW1:5	
Laser	Down	Down	
Proprinter (PPDS)	Down	Up	
Epson	Up	Down	
Generic	Up	Down	
Emulation, Laser	SW1:6	SW1:7	SW1:8
3812, HP LaserJet/4039	Down	Down	Down
3812, 4019 PPDS	Up	Down	Down
3812, 4029 PPDS	Up	Down	Up
3812, 4019/4029/HP	Up	Up	Down
Emulation, Matrix Printer	SW1:6	SW1:7	SW1:8
4214 Model 2, Proprinter/Epson	Down	Down	Down
5224 Model 3, Proprinter/Epson	Down	Down	Up
5225 Model 4, Proprinter/Epson	Down	Up	Down
5256 Model 1, Proprinter/Epson	Down	Up	Up
5256 Model 1, Generic	Up	Up	Up

Table 4-2. SW2 (middle) Group of Four Switches.

Twinax Language	SW2:1	SW2:2	SW2:3	SW2:4
Multinational 00	Down	Down	Down	Down
US/Canada 01	Down	Down	Down	Up
Austria/Germany 02	Down	Down	Up	Down
Belgium 03	Down	Down	Up	Up
Brazil 04	Down	Up	Down	Down
Canada French 05	Down	Up	Down	Up
Denmark/Norway 06	Down	Up	Up	Down
Finland/Sweden 07	Down	Up	Up	Up
France 08	Up	Down	Down	Down
Italy 09	Up	Down	Down	Up
Japan English 10	Up	Down	Up	Down
Portugal 12	Up	Up	Down	Down
Spain 13	Up	Up	Down	Up
Spanish Speaking 14	Up	Up	Up	Down
United Kingdom 15	Up	Up	Up	Up

Table 4-3. SW3 (Right) Group of Eight Switches.

Laser Printer Options (SW1:4 Down, SW1:5 Down)		
Switch	Description	Selection
SW3:1	Unused (Reserved)	Down*
SW3:2	Normal Operation Paper Size Sent	Down*
	Paper Size Not Sent to Printer	Up
SW3:3	Normal Operation Paper Size Sent	Down*
	A4 Paper Size Sent to Printer	Up
SW3:4	Normal Operation	Down*
	Portrait Orientation Selected	Up
SW3:5	Normal Operation	Down*
	Landscape Orientation Option Selected	Up
SW3:6	Auto Print Orientation (APO) is Not Active	Down
	Normal Operation APO is Active	Up*
SW3:7	Normal Operation	Down*
	Balun Overdrive (only if needed)	Up
SW3:8	Normal Operation	Down*
	EBCDIC Hex Buffer Printing	Up

*These selections recommended for normal operation.

NOTE: Selecting SW3:4 UP and SW3:5 UP disables COR override. Selecting SW3:4 DOWN and SW3:5 DOWN enables COR override.

If SW3:2 is set to UP, SW3:3 is ignored.
If SW3:2 is DOWN, then SW3:3 overrides SW3:2.

Table 4-3 (continued). SW3 (Right) Group of Eight Switches.

Proprinter (PPDS) Options (SW1:4 Down, SW1:5 Up)		
Switch	Description	Selection
SW3:1	Proprinter III (Code Page 850)	Down
	Proprinter II (Code Page 437 PC Set 2 IBM extended)	Up
SW3:2	9-Pin Print Head	Down
	24-Pin Print Head	Up
SW3:3	Wide Carriage (Wrap Text)	Down
	Narrow Carriage (Truncate at 8:)	Up
SW3:4	Normal Operation	Down
	Front Panel Override of Host	Up
SW3:5	Draft is the default	Down
	NLQ is the default	Up
SW3:6	17 CPI prints for 15 CPI	Down
	True 15 CPI prints (slow speed)	Up
SW3:7	Normal Operation	Down
	Balun Overdrive (only if needed)	Up
SW3:8	Normal Operation	Down
	EBCDIC Hex Buffer Printing	Up

Table 4-3 (continued). SW3 (Right) Group of Eight Switches.

Epson Options (SW1:4 Up, SW1:5 Down)		
Switch	Description	Selection
SW3:1	ESC/P 2 Printers (Code Page 850)	Up
	EX, FX, LQ ESC/P Printers (Code Page 437 PC Set 2 Epson Graphics)	Down
SW3:2	9-Pin Print Head	Down
	24-Pin Print Head	Up
SW3:3	Wide Carriage (Wrap Text)	Down
	Narrow Carriage (Truncate at 8")	Up
SW3:4	Normal Operation	Down
	Front Panel Override of Host	Up
SW3:5	Draft is the default	Down
	NLQ is the default	Up
SW3:6	Normal Operation	Down
	DFX Model Printers	Up
SW3:7	Normal Operation	Down
	Balun Overdrive (only if needed)	Up
SW3:8	Normal Operation	Down
	EBCDIC Hex Buffer Printing	Up

5. Configuration

The PQ7 Protocol Converter has three features for printing control. These features apply to all laser- and matrix-printer emulations:

- Command Pass-Thru
- Host Download Commands
- Display Station Setup

5.1 Command Pass-Thru

Command Pass-Thru sends commands that are normally not available through host commands to the printer. The following is an example of how to bold a word in 4214 emulation using Command Pass-Thru:

1. Find the command for the print feature in the printer's manual. An example is "ESC E" which begins bold printing, and "ESC F" which ends bold printing for an Epson printer.
2. Convert the printer command to hexadecimal. ESC E is 1B 45 (ESC = 1B and E = 45), and ESC F is 1B 46.
3. Place the delimiter &% in the document at the point where the command is to take effect. This

signals the start of the printer command. Enter the printer command in hexadecimal, then the delimiter again. No spaces are allowed.

4. Move the cursor to the point in the text where the printer command is to end. Place the delimiter, followed by the printer command, to end bold, and then the delimiter again into the document. For example, enter:

This is a
&%1B45&%bold&%1B46&%
word.

to print on the Epson printer as:

This is a **bold** word.

NOTE

Spaces are not allowed between the delimiter (&%) and the hex code. Only numbers or letters A—F are allowed. Errors in the Command Pass-Thru sequence will cause the interface to ignore the command and resume printing at the point the error occurred.

Command Pass-Thru may invalidate horizontal spacing and/or vertical spacing.

5.2 Host Download Commands

Host download commands are placed in a document (or on the screen for screen dumps) and let you customize the printer and interface setups. These commands take effect immediately. They are also stored in the interface's memory, and are saved when the printer is turned off.

Each command follows the format of a delimiter, followed by the command number, and then the command. Follow these steps:

1. Place the delimiter in the document.

2. Immediately following the delimiter, place the command number into the document.

3. Type in a comma (,) followed by the command.

No spaces are allowed in the command. A space or invalid character causes the interface to ignore the command and resume printing from the point the error occurred.

For example, to change the time-out value from the default of 8 seconds to 20 seconds, enter: `&%Z02,20`.

Table 5-1 lists the host download commands.

Table 5-1. Host-Download Commands

Command Number	Command	Description
Z01	Type in new characters Two spaces	Select an alternate delimiter in addition to the default &%. If changed here, the alternate delimiter also works as a Command Pass-Thru delimiter. Enter the new delimiter characters after the command comma. Example: <code>&%Z01,%?</code> selects %?. Deletes alternate delimiter.
Z02	01 to 60	Enter a new time-out value for the interface to wait between print jobs. Each digit equals one second (factory default is 8 seconds). Example: <code>&%Z02,05</code> selects 5 seconds.

Table 5-1 (continued). Host Download Commands.

Command Number	Command	Description
Z03	0()	Enter an initialization string to send to the printer at the start of a PC print job. This string may change printer modes, select different fonts, etc. Place the hex codes (found in the printer's manual) inside the parenthesis (up to 25 hex pairs). Example: &%Z03,0 (1B 5B 4B 01 05 07) resets the printer to its factory defaults. &%Z03,0() deletes this command from memory.
Z04	0 to 9()	Use these commands to send user-defined strings to the printer. Place the hex codes inside the parenthesis (up to 25 hex pairs). The command is stored in the interface's memory. To activate the command, place a &%UX (where X is the command) in the document. Example: &%Z04,3(00 0B) is the command to select Courier 10 pitch font for an Epson printer. When using this font, place &%U3 in the document. The interface recalls the printer string and sends it to the printer to select this font. &%Z04,X() [where X is the command] deletes that command from memory.
Z05	0, 1, or 2	Select compressed or true lines per inch (LPI) printing as follows: 0 = Compresses LPI 1 = True LPI 2 = XPoint Example: &%Z05,1 selects true LPI. This is used when characters need to be positioned precisely, or in a preprinted form. Only select 2 (XPoint) when converting from XPoint's box to the PQ7. If you don't, the first line of print will not print.

Table 5-1 (continued). Host Download Commands.

Command Number	Command	Description
Z13, Z14 and Z15	1 to 6	HP and 4039 only: Commands Z13 to Z15 determine the paper source for each bin number. Command Z13 assigns the paper source for bin 1, Command Z14 assigns the paper source for bin 2, and Command Z15 assigns the paper source for bin 3. The numbers 1 to 6 correspond to the paper sources listed in the printer's manual. Please refer to the specific printer's manual to determine paper sources. Example: &%Z13,(n). (n) is the paper source determined from the HP manual.
Z98	0	Deletes all host downloads from the interface's memory and restores the factory defaults.

5.3 Display Station Setup

This feature lets you enter download commands into the interface without entering command strings into the host document. Follow these steps:

1. Turn off the printer and all other devices on the printer's cable.
2. Disconnect the twinax cable connected to the host. With all other devices turned off, turn on a twinax display station on the same cable as the printer and the interface.
3. Set the SW1 group of DIP switches to address 7 and buffer print active (SW3:8 UP). Turn on the attached printer and the PQ7 Protocol Converter. The PQ7 sends a main menu setup screen over the twinax cable to the powered-on display station as shown below.

```
Twinax Printer Interface Version 2.1
MAIN MENU
```

- ```
(1) Configure Switch Settings
(2) Specify Configuration Parameters
(3) Print Setup Parameters
(4) Print Selected EBCDIC Table
(5) Print Selected ASCII Table
(6) Restore Default Configuration
```

```
Enter = Select Option Field Ext, Field + = Down Field -, Backtab
 = Up
```

## Twinax Printer Interface Version 1.03

|                               |                  |
|-------------------------------|------------------|
| SW1:1-3 Address .....         | 7                |
| SW1:4-5 Printer .....         | Laser            |
| SW1:6-8 Emulation .....       | 3812 HP LaserJet |
| SW2:1-4 Language .....        | 01 USA/CAN       |
| SW3:1 Char Set Code Page 850: | No (Down)        |
| SW3:2 No Paper Size .....     | No (Down)        |
| SW3:3 A4 Paper Only .....     | No (Down)        |
| SW3:4 Portrait Option .....   | No (Down)        |
| SW3:5 Landscape Option .....  | No (Down)        |
| SW3:6 Auto Orientation On ..  | Yes (Up)         |
| SW3:7 Balun Overdrive .....   | No (Down)        |
| SW3:8 Buffer Print (EBCDIC) : | Yes (Up)         |

## 6. Operation

### 6.1 Laser Printer Operation

#### 6.1.1 PRINTER SHARING

The PQ7 Protocol Converter lets IBM and HP Laser Printers print from an attached PC with an optional PC parallel sharing cable and the twinax host. The interface uses a time-out between each print to select the next printing without the need to change cables or switches.

#### 6.1.2 PC PRINTING

If the optional PC printer cable is available, make sure it is attached to the mini Centronics connector on the back of the PQ7. Then select a printer mode (either IBM or HP) through the printer's front panel as shown in the printer's manual. This mode can also be changed by host download commands.

Send a print job to the printer. The yellow LED on the interface goes on, and the Buffer light on the printer operator panel goes on. If the Buffer light and the Ready light remain steady, press the Print/Check or Print Buffer button on the printer's operator panel to eject the page that is in the printer's memory.

Printing options such as CPI, LPI and page length must be set before PC printing if the PC print job follows a host print job. The PC is responsible to set up the printer

before printing. The PQ7 will automatically restore the printer's setup to match the twinax host before printing begins.

If the PC print job is sent while a host job is printing, the printer responds as "busy" to the PC print request. The print job can be spooled through a spool program (not supplied) and sent to the printer once the host job is complete. If the PC's printer port is set for infinite retry through the DOS Mode command "Configure printer" (described in the DOS manual), the print job continues until the printer receives the data.

#### 6.1.3 HOST PRINTING

The IBM 3812-1 printer is a laser printer which provides font changing capability, plus text rotation and compression features called Computer Output Reduction (COR) and Automatic Page Orientation (APO).

The PQ7 emulation of the 3812 provides bolding, underlining, superscripting, and subscripting by recognizing the host commands for these features in the document. A shadow print for bolding is performed automatically on fixed pitch fonts. For proportionally spaced typographic fonts, you must specify the font that will be printed. Like a 5219, the 3812 is configured

Table 6-1. Data Processing Fonts—3812 Emulation.

| Typestyle Number | Font ID (Hex) | Pitch (CPI) | Name             |
|------------------|---------------|-------------|------------------|
| 05               | 05            | 10          | Presentation     |
| 11               | 0B            | 10          | Courier          |
| 13               | 0D            | 10          | Courier          |
| 80               | 50            | 12          | Prestige Elite   |
| 85               | 55            | 12          | Courier          |
| 86               | 56            | 12          | Prestige Elite   |
| 87               | 57            | 12          | Letter Gothic    |
| 91               | 5B            | 12          | Letter Gothic    |
| 158              | 9E            | Prop.       | Times Roman      |
| 159              | 9F            | Prop.       | Times Roman bold |
| 160              | A0            | Prop.       | Helvetica        |
| 162              | A2            | Prop.       | Helvetica Italic |
| 223              | DF            | 15          | Letter Gothic    |

with a default font ID on the host. Configure the most commonly used font as the system default, then change as necessary with a printer override or OCL command.

Table 6-1 shows which fonts can be used as system defaults for a System/36 or System/38 host.

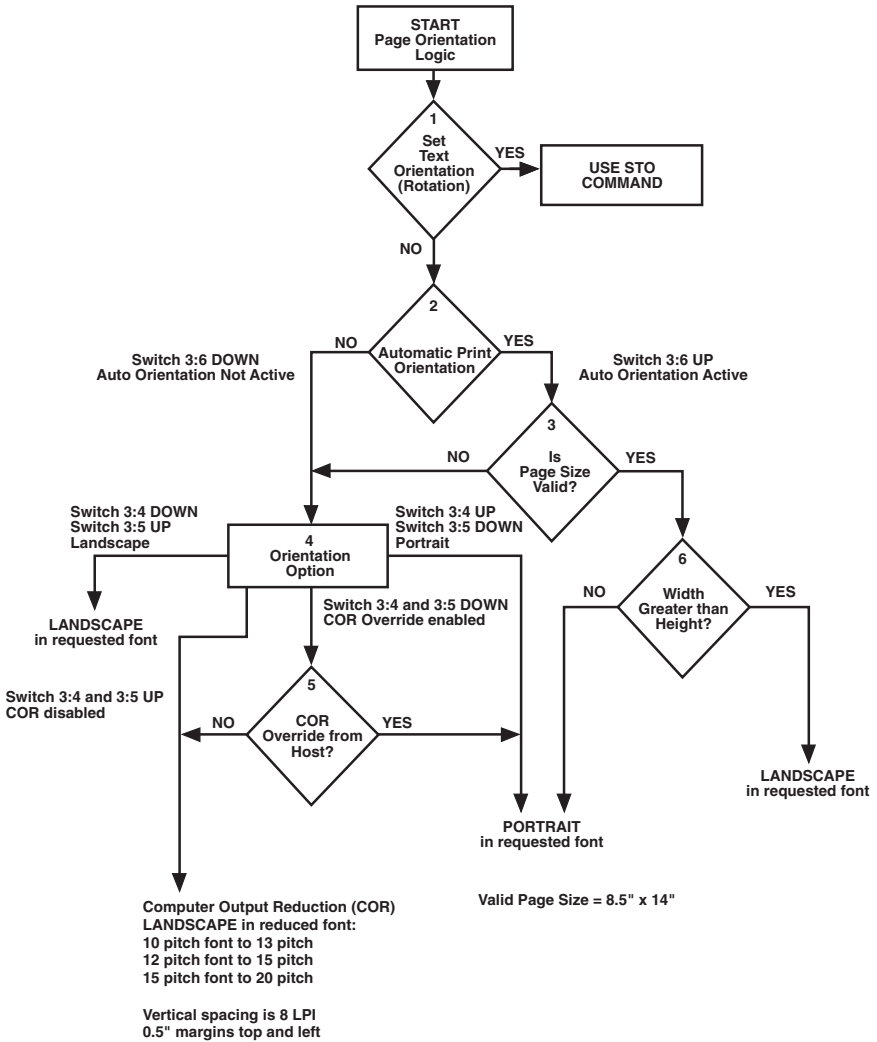
#### 6.1.4 COR AND APO

The COR and APO features let the PQ7 respond to rotation commands and font selections as an IBM 3812 printer. The following steps describe printing with the 3812 emulation enabled. See Figure 6-1.

- 1.If a Set Text Orientation (STO) rotation command is specified, the report prints using the STO command to control orientation

in the specified font. If an STO command is not specified, the report continues to block 2.

- 2.If Auto Print Orientation (APO) is Active (switch SW3:6 UP), the report continues to block 3. With APO Not Active (Switch SW3:6 Down), the report continues to block 4.
- 3.At block 3, the page size is calculated. If the calculated page size is valid (8.5 x 14 or smaller) the report continues to block 6. The report prints at block 6 depending on the page layout. An invalid page size (larger than 8.5 x 14) causes the report to continue to block 4.



**Figure 6-1. 3812 Emulation Printing.**

4. At block 4, the orientation selected on switches SW3:4 and SW3:5 determine the output. If landscape is selected, the report prints in landscape with the specified font.

If portrait is selected, the report prints in portrait with the specified font.

If neither landscape nor portrait is selected, the COR override selection determines the orientation, CPI, and LPI.

5. The host COR overrides include:

System/36 OCL: Text-Yes or Rotate-0

System/38 CL: PRTQLTY (\*STD) OR (\*NLQ) or Rotate-0

AS/400: PRTQLTY (\*STD) and PAGRTT (\*COR)

If the COR override is disabled (SW3:4 Down, SW3:5 Down), the COR feature causes the report to print in landscape orientation with the CPI and LPI reduced as shown in Figure 6-1.

If the COR override is enabled (SW3:4 Up, SW3:5 Up), the host COR will be executed.

### 6.1.5 CHANGING TYPESTYLES

The typestyle number (FGID) selected determines the HP font that is used. The system operator selects a default typestyle when the printer is configured on the host; however, a word processing program may also have a default typestyle. Since the default typestyle can vary depending on the system setup, ask the system operator if you have questions about the default typestyle on the system.

There are two ways to change typestyles:

- Select a typestyle number within the program or document.
- Use Font Change commands in the document.

Refer to the program manuals to change typestyles in the program. Font Change commands are placed in the document by the user (see Section 6.1.6). The four-character font command changes the text to the new font until another Font Change command is entered.

The host does not know that a font change has taken place, and may send the original font number to the printer at the beginning of each page. Therefore, the user may have to put a Font Change command at the beginning of each new page. If the pitch is changed, there may be formatting problems since the host



is still formatting each line according to the pitch of the original typestyle number. Text Management/38 does not allow more than one font per line of text, so Font Change commands must be used in such cases. Older HP printers with limited memory are limited to a maximum of about 20 font changes per page. IBM typestyle (FGID) numbers have been assigned to the equivalent HP emulation fonts whenever possible.

### 6.1.6 FONT CHANGE COMMANDS

The Font Change commands let you change fonts in the document without using host commands. The commands can be used in either data processing (RPG, Basic programs, etc.) or in word processing documents.

Font change commands can be placed anywhere in a document. The command consists of the “logical not” (¬) symbol, a capital “Q” and the typestyle number corresponding to the desired font. The “^” symbol can be used in place of the logical not for non-US applications. The resident fonts and the corresponding typestyle number for HP/4039 and 4019/4029 printers are listed in Appendices A and B. The Font Change command occupies space in the program or text; however, the command does not print. To change the font, insert a Font Change command at the beginning of the text where the change is to take place. For example, to bold the word “saves” in the following

sentence (assuming the current font is Courier 12 pitch, and the printer is an HP LaserJet® III) type:

Quality ¬Q88saves¬Q85 you time and money.  
Here’s how the print will look:

Quality **saves** you time and money.

The ¬Q85 following “saves” returns the printing back to the original font. The typestyle numbers can be found in Appendix A.

### 6.1.7 PAGE LENGTH

The Printer prints up to 66 lines a 6 LPI in HP emulation mode (the line spacing is slightly compressed to fit). The System/36 allows only 65 lines per page. If there are one or two lines at the top of a new page, more lines per page have been formatted than can print.

### 6.1.8 PAPER SIZE

The following describes how to select legal size paper is DisplayWrite®/36 or Office 400.

1. Choose legal size paper on the host and send the document to print.
2. The printer’s operator panel displays a load paper request. Install the legal size paper tray into the printer.
3. Press Start/stop on the printer operator panel to continue.

The System/38 sends margins and other format specifications to a printer only when they are different from the previous document or when the printer has been turned off. To choose a different size paper:

1. Select a paper size in the program, and install the correct paper size into the printer.
2. Power off the printer for approximately five seconds, then back on again.
3. Release the job for printing at the printer's controlling workstation.

Change the printer's setup to the paper size used most. The interface recognizes the following paper sizes:

|                 |                 |
|-----------------|-----------------|
| Letter Paper    | 8.5 x 11 in.    |
| A4 Paper        | 8.27 x 11.69 in |
| Legal Paper     | 8.5 x 14 in.    |
| Executive Paper | 7.25 x 10.5 in. |

If other paper dimensions are chosen in the word processing program, the interface ignores them and uses the previous paper size choice. You can also choose a paper size override through the SW3:2 and SW3:3 DIP switches. The "Page Size Not Sent to Printer" selection uses the paper installed in the tray, regardless of size. A paper size command is never sent to the printer by the PQ7. The "A4 Paper Size Sent to Printer" selection always specifies A4 paper.

### 6.1.9 BIN SELECTION

#### **HP LaserJet PCL and 4039 Mode:**

The interface recognizes three different paper sources. The values assigned to each bin number correspond to different paper sources, depending on which printer is used. Table 6-2 shows the default values and lists the corresponding paper tray used for an HP4Si and HP4 Plus.

To change the assigned paper tray, type the respective command followed by a comma (,) and the corresponding number of the chosen paper source. For example, to assign bin 1 to the optional 500-sheet cassette on an HP4 Plus, type Z13,5. Refer to the printer's user's guide to determine the appropriate paper sources.

**4019/4029 Mode:** The interface selects paper from bin 2 only if the optional paper tray is installed into the printer. If bin 2 or 3 is chosen in a host document, the printer will print from bin 1 if the optional paper tray is not installed; or bin 2 if the optional paper tray is installed.

**Table 6-2. Bin Selection.**

| <b>Command</b> | <b>Bin Number</b> | <b>Default Escape Value</b> | <b>HP4S1 Paper Tray</b> | <b>HP4 Plus Paper Tray</b> |
|----------------|-------------------|-----------------------------|-------------------------|----------------------------|
| Z13            | 1                 | ESC&13H                     | Upper                   | Cassette                   |
| Z14            | 2                 | ESC&14H                     | Lower                   | MP Tray                    |
| Z15            | 3                 | ESC&15H                     | Not Used                | 500-Sheet Cassette         |

**6.1.10 ENVELOPE PRINTING**

To print envelopes, set the interface to landscape orientation (SW3:5 Up) or activate the APO feature (SW3:6 Up). The following example shows how to print envelopes from a word processing program, using the printer's optional envelope feeder.

1. Select line 1 as the first typing line.
2. Specify Envelope size in the program.
3. Select Feed Envelope in the program. Then choose the font desired.
4. Set the left margin to 1.
5. Type the return address, starting at line 1 column 1.
6. Type the mailing address. The appropriate space for the address will vary with the envelope size. For a Commercial 10 envelope, the address starts at about line 10, column 55.
7. Print the envelope.

The following envelope sizes are supported by the PQ7.

- Monarch — 3 7/8" x 7 1/2"
- Commercial 10 — 4 1/8" x 9 1/2"
- International DL — 110 mm x 220 mm
- International D5 — 162 mm x 229 mm

**6.1.11 DOCUMENT/ENVELOPE PRINTING**

A letter and an envelope can be printed from DisplayWrite/36 or Office/400 in the same document by following this procedure:

1. Set the format for the letter and enter the letter file. On the first typing line, press CMD20 for Change Format.
2. Select 1 for Entire Document Options, then another 1 for Document Format. Select 3 for Typestyle/Color.
3. Select the Font ID number for the letter, such as No. 11, 86, etc., then press ENTER.

4. From the Document Format screen, select option 4 for Page Layout/Paper Options. Scroll to the second screen of these options and select a paper size of 8.5 (width) and 11 (length) inches and paper source 1. If the letter is more than one page, select paper source of 1 for each page. Press ENTER to return to the Document Format Screen, then CMD 12 to return to the Document Options screen.
5. Now setup the Alternate Format for the envelope. Select 2 for Alternate Format, then 3 for Typestyle/Color. Select the font ID for the envelope and press ENTER to return to the Alternate Format Screen.
6. Select 4, Page Layout/Paper Options. Choose a first typing line of 11, then scroll down to the second screen of the options and choose a paper width of 7.5 (monarch size) or 9.5 (commercial, or #10 size) and a paper length of 4 inches. For a paper source, select 5 for Envelope Feed. Press ENTER to return to the Alternate Format screen.
7. Select option 1 for Margins and Tabs and make the left margin 1. Press ENTER and CMD3 until you are back into the document.
8. Type in the letter. When done, add in a page end by pressing ALT P.
9. Now load in the Alternate Format for the envelope. Press the CMD5 key, type "go" and type in rf for Resetting Format. Press ENTER. Select option 4 on the Alternate Format screen, Begin Alternate Format. Press ENTER.
10. You will now be back in the document with the Alternate Format. The cursor should be on the first typing line of 11, with the left margin of 40. Type in the envelope address, and send the file to print. The letter will print out first, followed by the envelope.

### NOTE

**The printer may eject a blank page when printing orientation changes. If the buffer and the ready light remain steady, press the Print/Check button on the printer's operator panel to eject the last page.**

### 6.1.12 DUPLEX PRINT (HP LASERJET PCL AND 4039 MODE ONLY)

Some printers can perform both simplex (single sided) and duplex (double sided) printing. Duplex printing can be accomplished in two ways:

- In Office/400, select duplex printing on the host print options for that document.
- Place Duplexing commands in the document.

For most documents, select from the duplex printing options on the last page of the host print options. The choices include simplex, and duplex. Duplexing commands are similar to the Font Change commands. These commands are placed on the first line of the document (if not on the first line, the commands do not take effect until the second page of the document). The commands are listed below:

- D0 for simplex printing
- D1 for long-edge duplex printing
- D2 for short-edge duplex printing

When the printer receives a duplexing command, it prints in that mode until another printing command is received. Place the simplex command at the end of the document to return the printer to simplex mode. Envelope printing between documents does not change the printer's mode.

On some duplex printing, if the last page is single sided, the last page may remain in the printer. The form feed light remains on. When the next print job is sent, this page is ejected. To manually eject the last page, take the printer off-line by pressing the ONLINE button. Press the FORM FEED button to print the last page. Put the printer back on-line by pressing the ONLINE button again.

### 6.1.13 OTHER COMMANDS

Table 6-3 is a summary list of special commands that the laser printer emulation will obey if they are embedded in a user's document. The -E command allows an "Esc" command to be sent to the printer to control the printing. Simple escape commands eliminate the need for putting in complicated hex codes using Command Pass-Thru. These commands allow use of some of the special features of the LaserJet.

Check the printer's manual or any optional technical manual for a description of the feature and the escape commands needed to access the feature. These commands consist of characters which are all found on the IBM twinax keyboard except for the Escape character. For example, -E(s3B would begin bold printing.

Table 6-3. Special Commands.

| Command | Function                                  |
|---------|-------------------------------------------|
| -E      | Sends an ASCII ESC command to the printer |
| -TY     | Enables true 6 LPI printing               |
| -TN     | Disables true 6 LPI printing              |
| -I      | Ignores all host formatting commands      |
| -S      | Stop ignoring host formatting commands    |

The printer will slightly compress line spacing to fit 66 lines onto the page. This may be undesirable (such as when using pre-printed forms that must align correctly). In these cases, the -TY command prevents the printer from corresponding to line spacing.

Use the -I and -S commands to remove unwanted host commands from a print file. For example, when printing with forms generating software, these files are recognized by the host as text files, which causes the host to format the files with unwanted carriage returns and line feeds. Placing the -I at the end of a line and -S at the front of the next line causes the interface to remove the host carriage return and line feed commands and send only the data to the printer.

HP laser printer emulation is compatible with the Forms Generation software packages marketed by XPoint Corporation. Refer to Appendix A for the HP LaserJet printer font reference chart.

## 6.2 Matrix Printer Operation

### 6.2.1 IBM MATRIX (PROPRINTER) OPERATION

The IBM Matrix Emulation selection works with the IBM 4226, 2380, 2390, and Proprinter III printers using the Code Page 850 character set. The Proprinter II emulation is the same except it uses the IBM Extended (Code Page 437) character set. The character set selected is significant if non-standard US English characters are being printed.

### 6.2.2 EPSON MATRIX PRINTER OPERATION

The Epson Matrix Emulation selection works with the new Epson ESC/P 2 printers and ESC/P printers using the Code Page 850 character set. The old Epson FX, LQ, EX, etc. emulation is the same except it uses the IBM extended (Code Page 437) character set. The character set is selected by using the front panel or DIP switches on the printer. The character set selected is significant if non-standard US English characters are being printed.

The following sections apply to IBM, Epson, and generic matrix printer operation.

### 6.2.3 PRINTER SHARING

The PQ7 lets the printer automatically share printing from an attached PC and the twinax host. The interface waits a timeout period (default is 8 seconds) after a print job completes before automatically switching to the other source without the need to change cables or switches. The printer must have paper and have "READY" displayed on the PQ7 before a job will print.

### 6.2.4 HOST PRINTING

The green LED on the interface shows line sync with the host (it should remain on steadily). When the LED is on, the interface is communicating with the host and will print host jobs. If the printer is printing a PC print job, all host jobs are saved in the host's spool file until the interface sends a ready message to the host.

If the green LED is not lit, the interface is not communicating with the host.

### 6.2.5 PC PRINTING

Make sure the PC parallel printer cable is attached to the mini Centronics connector on the back of the PQ7. Send a print job to the printer. The yellow LED on the interface lights, and the print job will print. When the PC print job is in the printer's data buffer, the

yellow LED on the interface goes out. The printer may continue to print after the PC shows the print job is finished, because of the data buffer.

If the PC print job is sent while a host job is printing, the printer responds as "busy" to the PC print request. The print job can be spooled through a spool program and sent to the printer once the host job is complete. If the PC's printer port is set for infinite retry through the DOS Mode command "Configure printer" (described in the DOS manual), the print job continues to retry until the printer receives the data.

### 6.2.6 PRINT QUALITY

The PQ7's IBM 4214 printer emulation offers draft, Near Letter Quality (NLQ), or default printer quality from the host. The print quality can be changed on the printer through the interface's switch settings. If switch SW3:5 is set to Down, the printer prints draft when the host sends a default print quality. The printer prints NLQ if switch SW3:5 is set to Up and the printer receives a default print quality from the host.

When configured as an IBM 5224/5225/5256 printer, the host does not send print quality commands. The Default print quality selected by switch SW3:5 determines the print quality.

Printing selections can be changed from the printer's front panel. If the front-panel selections are "locked" on the printer, or SW3:4 is Up to select Front Panel Override, the host commands for print quality, CPI, LPI, and font are ignored, and the printer's front-panel selections are used.

**For IBM matrix printers only:** The Courier and Gothic printer settings are not selectable by the 4214 emulation, but can be selected through a custom user string or Command Pass-Thru.

### 6.2.7 PITCH CONTROL

The interface's 4214 emulation permits the printer to print 5, 10, 12, 15, 17.1, and 20 (CPI (pitch)). The pitch can vary, depending on the CPI selected in the host document or the printer's front panel.

The 5224/5225 emulation allows only 10 and 15 CPI printing, and the 5256 emulation allows only 10 CPI printing, unless the CPI is overridden at the printer's front panel.

### 6.2.8 TWISTED-PAIR BALUN OVERDRIVE

For installations using twinax cabling, set switch SW3:7 to Down for normal operation.

If you have problems with dropping off-line when using a passive-star panel and twisted-pair cabling, set switch SW3:7 to the Up position. This increases the signal driving capability of the interface.

## NOTE

**The Balun overdrive selection may increase the noise on the cable since it boosts the communication signal beyond the normal range. Use this selection only if experiencing problems with twisted-pair cabling and a passive star panel system.**

### 6.2.9 GRAPHICS PRINTING

The interface will print the same Advanced Printer Functions (APF) and Business Graphics Utility (BGU) graphics as the IBM 4214, 5224, and 5225 printers using All Points Available (APA) bit-image graphics. This method is for printing continuous patterns such as bar codes and logos that come from the twinax host. This is the method of graphic printing that IBM used before IPDS was developed.



Graphics are printed on IBM System/34, /36, /38 from the APF and BGU programs and programmer-defined characters using the command Load Alternate Character (LAC).

The interface implements the LAC command by taking the dot pattern received from the twinax host and then printing that exact dot pattern using the printer's APA bit image graphics at high density 240 dpi. This permits the printer to print APF and BGU graphic output using exactly the same spacing as the IBM 4214/5224/5225 printers.

### 6.2.10 TRUNCATE/WRAP

For normal printing or wide paper (14 7/8" wide), select Wrap on DIP switch SW3:3 (Down). This lets printing extend the full width of the wide paper. The printer wraps printing beyond the margin to the next line on narrow paper when it is configured for narrow paper.

When using narrow paper (8.5" wide), the user can select Truncate on DIP switch SW3:3 (Up). This ignores any printing beyond 8".

Documents must be formatted to fit the narrow paper, since the text beyond an 8" margin will truncate (not print).

### 6.2.11 TRUE 15 CPI (IBM MATRIX PRINTERS ONLY)

When the printing must be true 15 CPI, such as when using preprinted forms that must align correctly, there are two ways to select 15 CPI:

- Set the SW3:6 DIP switch to the Up position. This selection affects only host printing, but will considerably reduce printing speed.
- For IBM 4226, 2380, and 2390 printers, lock the 15 CPI on the printer's front panel. The printer is locked into 15 CPI regardless of the CPI sent by the host; however, this will also select 15 CPI for PC shared printing.

# Appendix A: HP LaserJet Printer IBM Typestyle Reference Chart

| Typeface                                                  | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|-----------------------------------------------------------|------------|--------|-------|------------|------------------|
| <b>HP LaserJet Internal Resident Fonts</b>                |            |        |       |            |                  |
| Courier                                                   | R-8        | P/L    | 10    | 12         | 11               |
| Line Printer                                              | R-8        | P/L    | 15    | 9          | 223              |
| Line Printer                                              | R-8        | P/L    | 17.1  | 8.5        | 254              |
| Line Printer                                              | R-8        | P/L    | 19    | 8.0        | 282              |
| Line Printer                                              | R-8        | P/L    | 13.33 | 9.5        | 201              |
| <b>LaserJet IID, III, IIID Printers have in addition:</b> |            |        |       |            |                  |
| Courier Bold                                              | R-8        | P/L    | 10    | 12         | 46               |
| Courier Italic                                            | R-8        | P/L    | 10    | 12         | 18               |
| Courier                                                   | R-8        | P/L    | 12    | 10         | 85               |
| Courier Bold                                              | R-8        | P/L    | 12    | 10         | 88               |
| Courier Italic                                            | R-8        | P/L    | 12    | 10         | 89               |
| <b>LaserJet III and IIISi Resident Scalable Fonts</b>     |            |        |       |            |                  |
| CG Times                                                  | R-8        | P/L    | Prop. | 6          | 4605             |
|                                                           | R-8        | P/L    | Prop. | 8          | 4606             |
|                                                           | R-8        | P/L    | Prop. | 10         | 4607             |
|                                                           | R-8        | P/L    | Prop. | 12         | 4608             |
|                                                           | R-8        | P/L    | Prop. | 14         | 4609             |
|                                                           | R-8        | P/L    | Prop. | 18         | 4611             |
|                                                           | R-8        | P/L    | Prop. | 24         | 4614             |
|                                                           | R-8        | P/L    | Prop. | 30         | 4617             |

**PQ7 PROTOCOL CONVERTER**

| <b>Typeface</b>      | <b>Symbol Set</b> | <b>Orient</b> | <b>Pitch</b> | <b>Point Size</b> | <b>Typestyle Number</b> |
|----------------------|-------------------|---------------|--------------|-------------------|-------------------------|
| CG Times Bold        | R-8               | P/L           | Prop.        | 6                 | 4625                    |
|                      | R-8               | P/L           | Prop.        | 8                 | 4626                    |
|                      | R-8               | P/L           | Prop.        | 10                | 4627                    |
|                      | R-8               | P/L           | Prop.        | 12                | 4628                    |
|                      | R-8               | P/L           | Prop.        | 14                | 4629                    |
|                      | R-8               | P/L           | Prop.        | 18                | 4631                    |
|                      | R-8               | P/L           | Prop.        | 24                | 4634                    |
|                      | R-8               | P/L           | Prop.        | 30                | 4637                    |
| CG Times Italic      | R-8               | P/L           | Prop.        | 6                 | 4645                    |
|                      | R-8               | P/L           | Prop.        | 8                 | 4646                    |
|                      | R-8               | P/L           | Prop.        | 10                | 4647                    |
|                      | R-8               | P/L           | Prop.        | 12                | 4648                    |
|                      | R-8               | P/L           | Prop.        | 14                | 4649                    |
|                      | R-8               | P/L           | Prop.        | 18                | 4651                    |
|                      | R-8               | P/L           | Prop.        | 24                | 4654                    |
|                      | R-8               | P/L           | Prop.        | 30                | 4657                    |
| CG Times Bold Italic | R-8               | P/L           | Prop.        | 6                 | 4665                    |
|                      | R-8               | P/L           | Prop.        | 8                 | 4666                    |
|                      | R-8               | P/L           | Prop.        | 10                | 4667                    |
|                      | R-8               | P/L           | Prop.        | 12                | 4668                    |
|                      | R-8               | P/L           | Prop.        | 14                | 4669                    |
|                      | R-8               | P/L           | Prop.        | 18                | 4671                    |
|                      | R-8               | P/L           | Prop.        | 24                | 4674                    |
|                      | R-8               | P/L           | Prop.        | 30                | 4677                    |

## APPENDIX A: HP LaserJet Printer IBM Typestyle Reference Chart

| Typeface              | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|-----------------------|------------|--------|-------|------------|------------------|
| Univers Medium        | R-8        | P/L    | Prop. | 6          | 4805             |
|                       | R-8        | P/L    | Prop. | 8          | 4806             |
|                       | R-8        | P/L    | Prop. | 10         | 4807             |
|                       | R-8        | P/L    | Prop. | 12         | 4808             |
|                       | R-8        | P/L    | Prop. | 14         | 4809             |
|                       | R-8        | P/L    | Prop. | 18         | 4811             |
|                       | R-8        | P/L    | Prop. | 24         | 4814             |
|                       | R-8        | P/L    | Prop. | 30         | 4817             |
| Univers Med Italic    | R-8        | P/L    | Prop. | 6          | 4825             |
|                       | R-8        | P/L    | Prop. | 8          | 4826             |
|                       | R-8        | P/L    | Prop. | 10         | 4827             |
|                       | R-8        | P/L    | Prop. | 12         | 4848             |
|                       | R-8        | P/L    | Prop. | 14         | 4829             |
|                       | R-8        | P/L    | Prop. | 18         | 4831             |
|                       | R-8        | P/L    | Prop. | 24         | 4834             |
|                       | R-8        | P/L    | Prop. | 30         | 4837             |
| Univers Med Condensed | R-8        | P/L    | Prop. | 6          | 4845             |
|                       | R-8        | P/L    | Prop. | 8          | 4846             |
|                       | R-8        | P/L    | Prop. | 10         | 4847             |
|                       | R-8        | P/L    | Prop. | 12         | 4848             |
|                       | R-8        | P/L    | Prop. | 14         | 4849             |
|                       | R-8        | P/L    | Prop. | 18         | 4851             |
|                       | R-8        | P/L    | Prop. | 24         | 4854             |
|                       | R-8        | P/L    | Prop. | 30         | 4857             |

## PQ7 PROTOCOL CONVERTER

| Typeface                        | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|---------------------------------|------------|--------|-------|------------|------------------|
| Univers Med<br>Condensed Italic | R-8        | P/L    | Prop. | 6          | 4865             |
|                                 | R-8        | P/L    | Prop. | 8          | 4866             |
|                                 | R-8        | P/L    | Prop. | 10         | 4867             |
|                                 | R-8        | P/L    | Prop. | 12         | 4868             |
|                                 | R-8        | P/L    | Prop. | 14         | 4869             |
|                                 | R-8        | P/L    | Prop. | 18         | 4871             |
|                                 | R-8        | P/L    | Prop. | 24         | 4874             |
|                                 | R-8        | P/L    | Prop. | 30         | 4877             |
| Univers Med<br>Condensed Italic | R-8        | P/L    | Prop. | 6          | 4885             |
|                                 | R-8        | P/L    | Prop. | 8          | 4886             |
|                                 | R-8        | P/L    | Prop. | 10         | 4887             |
|                                 | R-8        | P/L    | Prop. | 12         | 4888             |
|                                 | R-8        | P/L    | Prop. | 14         | 4889             |
|                                 | R-8        | P/L    | Prop. | 18         | 4891             |
|                                 | R-8        | P/L    | Prop. | 24         | 4894             |
|                                 | R-8        | P/L    | Prop. | 30         | 4897             |
| <b>General Font Assignments</b> |            |        |       |            |                  |
| Time                            | R-8        | P      | Prop. | 8          | 157              |
| Time                            | R-8        | P      | Prop. | 10         | 158              |
| Time Bold                       | R-8        | P      | Prop. | 10         | 159              |
| Time Italic                     | R-8        | P      | Prop. | 10         | 155              |
| Helvetica® Bold                 | R-8        | P      | Prop. | 14.4       | 34126            |
| Courier Bold                    | R-8        | P/L    | 10    | 12         | 46               |
| Courier Italic                  | R-8        | P/L    | 10    | 12         | 18               |
| Prestige                        | R-8        | P/L    | 12    | 10         | 86               |
| Prestige Bold                   | R-8        | P/L    | 12    | 10         | 111              |
| Prestige Italic                 | R-8        | P/L    | 12    | 10         | 112              |
| Letter Gothic                   | R-8        | P/L    | 12    | 12         | 87               |
| Letter Gothic Bold              | R-8        | P/L    | 12    | 12         | 110              |
| Letter Gothic Italic            | R-8        | P/L    | 12    | 10         | 112              |
| Helvetica                       | ASCII      | P      | Prop. | 6          | 181              |

## APPENDIX A: HP LaserJet Printer IBM Typestyle Reference Chart

| Typeface                             | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|--------------------------------------|------------|--------|-------|------------|------------------|
| Helvetica                            | ASCII      | P      | Prop. | 8          | 183              |
| Helvetica Bold                       | ASCII      | P      | Prop. | 8          | 182              |
| Helvetica Bold                       | ASCII      | P      | Prop. | 10         | 185              |
| Helvetica Bold                       | ASCII      | P      | Prop. | 12         | 188              |
| Helvetica Bold                       | ASCII      | P      | Prop. | 14         | 190              |
| Tax Line Draw                        | LinDrw-7   | P      | 10    | 12         | 34               |
| Letter Gothic                        | R-8        | P      | 10    | 14.4       | 40               |
| Letter Gothic                        | R-8        | P      | 17.1  | 9.4        | 255              |
| OCR-A 10N                            | OCR-A      | P      | 10    | 12         | 19               |
| OCR-B 10N                            | OCR-B      | P      | 10    | 12         | 3                |
| Code 3-9 4.6N                        | 3 of 9     | P      | 4.6   | 12         | 240              |
| Code 3-9 9.3N                        | 3 of 9     | P      | 9.3   | 12         | 61               |
| EAN/UPC Bd Bar Code                  | UPC        | P      | Prop. | 12         | 171              |
| EAN/UPC Bar Code                     | UPC        | P      | Prop. | 12         | 170              |
| <b>HP Cartridge Font Assignments</b> |            |        |       |            |                  |
| <b>ProCollection® Cartridge</b>      |            |        |       |            |                  |
| Line Printer                         | ASCII      | P/L    | 17.1  | 8.5        | 253              |
| Courier Bold                         | ASCII      | P/L    | 10    | 12         | 45               |
| Courier Italic                       | ASCII      | P/L    | 10    | 12         | 17               |
| Courier                              | ASCII      | P/L    | 12    | 10         | 85               |
| Courier Bold                         | ASCII      | P/L    | 12    | 10         | 108              |
| Courier Italic                       | ASCII      | P/L    | 12    | 10         | 92               |
| Courier                              | Legal      | P      | 10    | 12         | 51               |
| Courier Bold                         | Legal      | P      | 10    | 12         | 52               |
| Courier Italic                       | Legal      | P      | 10    | 12         | 53               |
| Courier                              | Legal      | P      | 12    | 10         | 93               |
| Courier Bold                         | Legal      | P      | 12    | 10         | 94               |
| Courier Italic                       | Legal      | P      | 12    | 10         | 95               |
| Prestige Elite                       | ASCII      | P/L    | 15    | 7          | 220              |
| Prestige Elite                       | ASCII      | P/L    | 12    | 10         | 83               |
| Prestige Elite Bold                  | ASCII      | P/L    | 12    | 10         | 113              |

## PQ7 PROTOCOL CONVERTER

| Typeface              | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|-----------------------|------------|--------|-------|------------|------------------|
| Prestige Elite Italic | ASCII      | P/L    | 12    | 10         | 114              |
| Prestige Elite        | Legal      | P      | 15    | 7          | 219              |
| Prestige Elite        | Legal      | P      | 12    | 10         | 97               |
| Prestige Elite Bold   | Legal      | P      | 12    | 10         | 98               |
| Prestige Elite Italic | Legal      | P      | 12    | 10         | 99               |
| Letter Gothic         | ASCII      | P/L    | 27    | 3.6        | 291              |
| Letter Gothic         | ASCII      | P/L    | 19    | 6          | 281              |
| Letter Gothic         | ASCII      | P/L    | 17.1  | 9.5        | 257              |
| Letter Gothic         | ASCII      | P/L    | 12    | 12         | 66               |
| Letter Gothic Bold    | ASCII      | P/L    | 12    | 12         | 69               |
| Letter Gothic Italic  | ASCII      | P/L    | 12    | 12         | 68               |
| Times Roman           | ASCII      | P      | Prop. | 8          | 163              |
| Times Roman           | ASCII      | P      | Prop. | 10         | 164              |
| Times Roman Bold      | ASCII      | P      | Prop. | 10         | 165              |
| Times Roman Italic    | ASCII      | P      | Prop. | 10         | 166              |
| Times Roman           | ASCII      | P      | Prop. | 12         | 167              |
| Times Roman Bold      | ASCII      | P      | Prop. | 12         | 168              |
| Times Roman Italic    | ASCII      | P      | Prop. | 12         | 169              |
| Times Roman           | Legal      | P      | Prop. | 8          | 173              |
| Times Roman           | Legal      | P      | Prop. | 10         | 174              |
| Times Roman Bold      | Legal      | P      | Prop. | 10         | 175              |
| Times Roman Italic    | Legal      | P      | Prop. | 10         | 176              |
| Times Roman           | Legal      | P      | Prop. | 12         | 177              |
| Times Roman Bold      | Legal      | P      | Prop. | 12         | 178              |
| Times Roman Italic    | Legal      | P      | Prop. | 12         | 179              |
| Helvetica             | ASCII      | P      | Prop. | 8          | 183              |
| Helvetica             | ASCII      | P      | Prop. | 10         | 184              |
| Helvetica Bold        | ASCII      | P      | Prop. | 10         | 185              |
| Helvetica Italic      | ASCII      | P      | Prop. | 10         | 186              |
| Helvetica             | ASCII      | P      | Prop. | 12         | 187              |
| Helvetica Bold        | ASCII      | P      | Prop. | 12         | 188              |
| Helvetica Italic      | ASCII      | P      | Prop. | 12         | 189              |
| Helvetica Bold        | ASCII      | P      | Prop. | 14         | 190              |
| Helvetica Bold        | Legal      | P      | Prop. | 14         | 191              |

## APPENDIX A: HP LaserJet Printer IBM Typestyle Reference Chart

| Typeface                      | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|-------------------------------|------------|--------|-------|------------|------------------|
| <b>WordPerfect® Cartridge</b> |            |        |       |            |                  |
| CG Times                      | DskTop     | P      | Prop. | 6          | 4685             |
| CG Times                      | DskTop     | P      | Prop. | 8          | 4686             |
| CG Times Bold                 | DskTop     | P      | Prop. | 8          | 4706             |
| CG Times Italic               | DskTop     | P      | Prop. | 8          | 4814             |
| CG Times                      | DskTop     | P      | Prop. | 10         | 4687             |
| CG Times Bold                 | DskTop     | P      | Prop. | 10         | 4707             |
| CG Times Italic               | DskTop     | P      | Prop. | 10         | 4815             |
| CG Times                      | DskTop     | P      | Prop. | 12         | 4688             |
| CG Times Bold                 | DskTop     | P      | Prop. | 12         | 4708             |
| CG Times Italic               | DskTop     | P      | Prop. | 12         | 4816             |
| CG Times                      | DskTop     | P      | Prop. | 14         | 4689             |
| CG Times Bold                 | DskTop     | P      | Prop. | 14         | 4709             |
| CG Times Italic               | DskTop     | P      | Prop. | 14         | 4817             |
| CG Times Bold                 | DskTop     | P      | Prop. | 18         | 4711             |
| CG Times Bold                 | DskTop     | P      | Prop. | 24         | 4714             |
| Univers                       | DskTop     | P      | Prop. | 14         | 4789             |
| Univers                       | DskTop     | P      | Prop. | 18         | 4791             |
| Univers                       | DskTop     | P      | Prop. | 24         | 4794             |
| <b>Microsoft® Cartridge</b>   |            |        |       |            |                  |
| Helv                          | R-8        | P      | Prop. | 8          | 34102            |
| Helv                          | R-8        | P      | Prop. | 10         | 34103            |
| Helv Bold                     | R-8        | P      | Prop. | 10         | 34123            |
| Helv Italic                   | R-8        | P      | Prop. | 10         | 34231            |
| Helv                          | R-8        | P      | Prop. | 12         | 34104            |
| Helv Bold                     | R-8        | P      | Prop. | 12         | 34124            |
| Helv Italic                   | R-8        | P      | Prop. | 12         | 34232            |
| Helv Bold                     | R-8        | P      | Prop. | 14         | 34125            |
| TmsRmn                        | R-8        | P      | Prop. | 8          | 5686             |
| TmsRmn                        | R-8        | P      | Prop. | 10         | 5687             |
| TmsRmn Bold                   | R-8        | P      | Prop. | 10         | 5707             |



## PQ7 PROTOCOL CONVERTER

| Typeface                                   | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|--------------------------------------------|------------|--------|-------|------------|------------------|
| TmsRmn Italic                              | R-8        | P      | Prop. | 10         | 5815             |
| TmsRmn                                     | R-8        | P      | Prop. | 12         | 5688             |
| TmsRmn Bold                                | R-8        | P      | Prop. | 12         | 5708             |
| TmsRmn Italic                              | R-8        | P      | Prop. | 12         | 5816             |
| TmsRmn Bold                                | R-8        | P      | Prop. | 14         | 5709             |
| Line Printer                               | R-8        | P/L    | 15    | 8.5        | 223              |
| <b>Polished Worksheets® Cartridge</b>      |            |        |       |            |                  |
| Prestige Elite                             | R-8        | P/L    | 15    | 7          | 221              |
| Prestige Elite                             | R-8        | P/L    | 12    | 10         | 86               |
| Prestige Elite Bold                        | R-8        | P/L    | 12    | 10         | 111              |
| Prestige Elite Italic                      | R-8        | P/L    | 12    | 10         | 112              |
| Prestige Elite                             | Legal      | P/L    | 15    | 7          | 219              |
| Prestige Elite                             | Legal      | P/L    | 12    | 10         | 97               |
| Prestige Elite Bold                        | Legal      | P/L    | 12    | 10         | 98               |
| Prestige Elite Italic                      | Legal      | P/L    | 12    | 10         | 99               |
| Letter Gothic                              | R-8        | P/L    | 27    | 3.6        | 290              |
| Letter Gothic                              | R-8        | P/L    | 12    | 12         | 87               |
| Letter Gothic Bold                         | R-8        | P/L    | 12    | 12         | 110              |
| Letter Gothic Italic                       | R-8        | P/L    | 12    | 12         | 109              |
| Letter Gothic                              | Legal      | P/L    | 27    | 3.6        | 292              |
| Letter Gothic                              | Legal      | P/L    | 12    | 12         | 90               |
| Letter Gothic Bold                         | Legal      | P/L    | 12    | 12         | 107              |
| Letter Gothic Italic                       | Legal      | P/L    | 12    | 12         | 106              |
| Presentation Bold                          | ASCII      | P/L    | 8.1   | 16         | 434              |
| Presentation Bold                          | Legal      | P/L    | 8.1   | 16         | 431              |
| <b>Persuasive Presentations® Cartridge</b> |            |        |       |            |                  |
| Letter Gothic                              | ASCII      | P/L    | 10    | 14         | 39               |
| Letter Gothic                              | Legal      | P/L    | 10    | 14         | 38               |
| Presentation Bold                          | ASCII      | P/L    | 10    | 14         | 6                |
| Presentation Bold                          | Legal      | P/L    | 10    | 14         | 7                |

## APPENDIX A: HP LaserJet Printer IBM Typestyle Reference Chart

| Typeface                                          | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|---------------------------------------------------|------------|--------|-------|------------|------------------|
| Presentation Bold                                 | ASCII      | P/L    | 8.1   | 16         | 434              |
| Presentation Bold                                 | Legal      | P/L    | 8.1   | 16         | 431              |
| Presentation Bold                                 | ASCII      | P/L    | 6.5   | 18         | 435              |
| Presentation Bold                                 | Legal      | P/L    | 6.5   | 18         | 432              |
| Presentation Bold                                 | ASCII      | P/L    | 5.7   | 24         | 436              |
| Presentation Bold                                 | Legal      | P/L    | 5.7   | 24         | 433              |
| Helv Outline                                      | ASCII      | P/L    | Prop. | 24         | 34115            |
| Helv Outline                                      | Legal      | P/L    | Prop. | 24         | 34116            |
| Serifa                                            | ASCII      | P/L    | Prop. | 24         | 34215            |
| Serifa                                            | Legal      | P/L    | Prop. | 24         | 34216            |
| Line Draw                                         | LinDrw     | P/L    | 10    | 14         | 31               |
| PC Line Bold                                      | PCLin      | P/L    | 10    | 14         | 32               |
| <b>Forms, Etc.<sup>®</sup> Cartridge</b>          |            |        |       |            |                  |
| Univers                                           | R-8        | P/L    | Prop. | 6          | 33101            |
| Univers                                           | R-8        | P/L    | Prop. | 8          | 33102            |
| Univers Bold                                      | R-8        | P/L    | Prop. | 8          | 33122            |
| Univers Bold                                      | R-8        | P/L    | Prop. | 10         | 33123            |
| Univers Bold                                      | R-8        | P/L    | Prop. | 12         | 33124            |
| Univers Bold                                      | R-8        | P/L    | Prop. | 14         | 33125            |
| Helv Cond. Black Bold                             | TaxNum     | P/L    | Prop. | 24         | 34128            |
| OCR-A                                             | OCR-A      | P      | 10    | 12         | 19               |
| Tax Line Draw                                     | TaxLinDrw  | P/L    | 10    | 12         | 30               |
| <b>Bar Codes &amp; More<sup>®</sup> Cartridge</b> |            |        |       |            |                  |
| Letter Gothic                                     | R-8        | P/L    | 15    | 9.5        | 230              |
| Letter Gothic                                     | R-8        | P/L    | 12    | 12         | 87               |
| Letter Gothic                                     | R-8        | P/L    | 10    | 14         | 40               |
| OCR-A                                             | OCR-A      | P      | 10    | 12         | 19               |
| OCR-B                                             | OCR-B      | P      | 10    | 12         | 3                |
| Code 3 of 9                                       | 3 of 9     | P      | 8.1   | 12         | 60               |
| Code 3 of 9                                       | 3 of 9     | P      | 4.6   | 12         | 240              |

## PQ7 PROTOCOL CONVERTER

| Typeface                     | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|------------------------------|------------|--------|-------|------------|------------------|
| EAN/UPC 10 Mil               | UPC        | P      | Prop. | 12         | 170              |
| EAN/UPC 13 Mil Bold          | UPC        | P      | Prop. | 12         | 171              |
| USPS Zip                     | ZIP        | P/L    | Prop. | 12         | 172              |
| Line Draw                    | LinDrw     | P/L    | 10    | 12         | 33               |
| <b>Text Equations</b>        |            |        |       |            |                  |
| Prestige Elite               | R-8        | P      | 15    | 7          | 221              |
| Prestige Elite               | R-8        | P      | 17.1  | 7          | 256              |
| Prestige Elite               | R-8        | P      | 12    | 10         | 86               |
| Prestige Elite Bold          | R-8        | P      | 12    | 10         | 111              |
| Prestige Elite Italic        | R-8        | P      | 12    | 10         | 112              |
| CG Times                     | R-8        | P      | Prop. | 8          | 157              |
| CG Times                     | R-8        | P      | Prop. | 10         | 158              |
| CG Times Bold                | R-8        | P      | Prop. | 10         | 159              |
| CG Times Italic              | R-8        | P      | Prop. | 10         | 155              |
| <b>Global Text Cartridge</b> |            |        |       |            |                  |
| CG Century Schoolbook        | R-8        | P/L    | Prop. | 8          | 16950            |
| CG Century Schoolbook        | R-8        | P/L    | Prop. | 10         | 16951            |
| CG Century Schlbk Bold       | R-8        | P/L    | Prop. | 10         | 16971            |
| CG Century Schlbk Italic     | R-8        | P/L    | Prop. | 10         | 17079            |
| CG Triumvirate               | R-8        | P/L    | Prop. | 10         | 33335            |
| CG Triumvirate Bold          | R-8        | P/L    | Prop. | 14         | 33357            |

## APPENDIX A: HP LaserJet Printer IBM Typestyle Reference Chart

| Typeface                      | Symbol Set | Orient | Pitch | Point Size | Typestyle Number |
|-------------------------------|------------|--------|-------|------------|------------------|
| <b>Pretty Faces Cartridge</b> |            |        |       |            |                  |
| Microstyle                    | ASCII      | P      | Prop. | 18         | 5910             |
| Microstyle Bold               | ASCII      | P      | Prop. | 36         | 5920             |
| Hobo Medium                   | ASCII      | P      | Prop. | 30         | 5930             |
| Hobo Medium                   | ASCII      | P      | Prop. | 14         | 5940             |
| Thunderbird                   | ASCII      | P      | Prop. | 54         | 5950             |
| Signet Roundhand              | ASCII      | P      | Prop. | 18         | 5960             |
| Signet Roundhand              | ASCII      | P      | Prop. | 14         | 5970             |
| ITC Dingbats                  | ITC        | P      | Prop. | 36         | 5980             |
| ITC Dingbats                  | ITC        | P      | Prop. | 18         | 5990             |

# Appendix B: IBM 4019/4029 Laser Typestyle Reference Chart

|                              | Symbol Set | Pitch | Point | IBM Typestyle Number |
|------------------------------|------------|-------|-------|----------------------|
| <b>Resident Font Listing</b> |            |       |       |                      |
| Courier                      | CP850      | 10    | 12    | 11*                  |
| Courier Bold                 | CP850      | 10    | 12    | 46                   |
| Courier                      | CP850      | 10    | 12    | 85*                  |
| Courier                      | CP850      | Prop. | 12    | 159*                 |
| Courier                      | CP850      | 17.1  | 8.5   | 254                  |
| Courier                      | CP850      | 17.1  | 8.5   | 223*                 |
| Courier Outline              | CP850      | Prop. | 6     | 416                  |
|                              | CP850      | Prop. | 8     | 426                  |
|                              | CP850      | Prop. | 10    | 436                  |
|                              | CP850      | Prop. | 12    | 446                  |
|                              | CP850      | Prop. | 14    | 456                  |
|                              | CP850      | Prop. | 18    | 466                  |
|                              | CP850      | Prop. | 24    | 476                  |
|                              | CP850      | Prop. | 30    | 486                  |
| Courier Bold Outline         | CP850      | Prop. | 6     | 420                  |
|                              | CP850      | Prop. | 8     | 430                  |
|                              | CP850      | Prop. | 10    | 440                  |
|                              | CP850      | Prop. | 12    | 450                  |
|                              | CP850      | Prop. | 14    | 460                  |
|                              | CP850      | Prop. | 18    | 470                  |
|                              | CP850      | Prop. | 24    | 480                  |
|                              | CP850      | Prop. | 30    | 490                  |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                             | <b>Symbol Set</b> | <b>Pitch</b> | <b>Point</b> | <b>IBM Typestyle Number</b> |
|-----------------------------|-------------------|--------------|--------------|-----------------------------|
| Courier Italic Outline      | CP850             | Prop.        | 6            | 424                         |
|                             | CP850             | Prop.        | 8            | 434                         |
|                             | CP850             | Prop.        | 10           | 444                         |
|                             | CP850             | Prop.        | 12           | 454                         |
|                             | CP850             | Prop.        | 14           | 464                         |
|                             | CP850             | Prop.        | 18           | 474                         |
|                             | CP850             | Prop.        | 24           | 484                         |
|                             | CP850             | Prop.        | 30           | 494                         |
| Courier Bold Italic Outline | CP850             | Prop.        | 6            | 428                         |
|                             | CP850             | Prop.        | 8            | 438                         |
|                             | CP850             | Prop.        | 10           | 448                         |
|                             | CP850             | Prop.        | 12           | 458                         |
|                             | CP850             | Prop.        | 14           | 468                         |
|                             | CP850             | Prop.        | 18           | 478                         |
|                             | CP850             | Prop.        | 24           | 488                         |
|                             | CP850             | Prop.        | 30           | 498                         |
| Helvetica Outline           | CP850             | Prop.        | 6            | 2304                        |
|                             | CP850             | Prop.        | 8            | 2314                        |
|                             | CP850             | Prop.        | 10           | 2324                        |
|                             | CP850             | Prop.        | 12           | 2334                        |
|                             | CP850             | Prop.        | 14           | 2344                        |
|                             | CP850             | Prop.        | 18           | 2354                        |
|                             | CP850             | Prop.        | 24           | 2364                        |
|                             | CP850             | Prop.        | 30           | 2374                        |

**PQ7 PROTOCOL CONVERTER**

|                          | <b>Symbol Set</b> | <b>Pitch</b> | <b>Point</b> | <b>IBM Typestyle Number</b> |
|--------------------------|-------------------|--------------|--------------|-----------------------------|
| Helvetica Bold Outline   | CP850             | Prop.        | 6            | 2305                        |
|                          | CP850             | Prop.        | 8            | 2315                        |
|                          | CP850             | Prop.        | 10           | 2325                        |
|                          | CP850             | Prop.        | 12           | 2335                        |
|                          | CP850             | Prop.        | 14           | 2345                        |
|                          | CP850             | Prop.        | 18           | 2355                        |
|                          | CP850             | Prop.        | 24           | 2365                        |
|                          | CP850             | Prop.        | 30           | 2375                        |
| Helvetica Italic Outline | CP850             | Prop.        | 6            | 2306                        |
|                          | CP850             | Prop.        | 8            | 2316                        |
|                          | CP850             | Prop.        | 10           | 2326                        |
|                          | CP850             | Prop.        | 12           | 2336                        |
|                          | CP850             | Prop.        | 14           | 2346                        |
|                          | CP850             | Prop.        | 18           | 2356                        |
|                          | CP850             | Prop.        | 24           | 2366                        |
|                          | CP850             | Prop.        | 30           | 2376                        |
| Helvetica Bd It Outline  | CP850             | Prop.        | 6            | 2307                        |
|                          | CP850             | Prop.        | 8            | 2317                        |
|                          | CP850             | Prop.        | 10           | 2327                        |
|                          | CP850             | Prop.        | 12           | 2337                        |
|                          | CP850             | Prop.        | 14           | 2347                        |
|                          | CP850             | Prop.        | 18           | 2357                        |
|                          | CP850             | Prop.        | 24           | 2367                        |
|                          | CP850             | Prop.        | 30           | 2377                        |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                                | <b>Symbol Set</b> | <b>Pitch</b> | <b>Point</b> | <b>IBM Typestyle Number</b> |
|--------------------------------|-------------------|--------------|--------------|-----------------------------|
| Times New Roman Outline        | CP850             | Prop.        | 6            | 2308                        |
|                                | CP850             | Prop.        | 8            | 2318                        |
|                                | CP850             | Prop.        | 10           | 2328                        |
|                                | CP850             | Prop.        | 12           | 2338                        |
|                                | CP850             | Prop.        | 14           | 2348                        |
|                                | CP850             | Prop.        | 18           | 2358                        |
|                                | CP850             | Prop.        | 24           | 2368                        |
|                                | CP850             | Prop.        | 30           | 2378                        |
| Times New Roman Bold Outline   | CP850             | Prop.        | 6            | 2309                        |
|                                | CP850             | Prop.        | 8            | 2319                        |
|                                | CP850             | Prop.        | 10           | 2329                        |
|                                | CP850             | Prop.        | 12           | 2339                        |
|                                | CP850             | Prop.        | 14           | 2349                        |
|                                | CP850             | Prop.        | 18           | 2359                        |
|                                | CP850             | Prop.        | 24           | 2369                        |
|                                | CP850             | Prop.        | 30           | 2379                        |
| Times New Roman Italic Outline | CP850             | Prop.        | 6            | 2310                        |
|                                | CP850             | Prop.        | 8            | 2320                        |
|                                | CP850             | Prop.        | 10           | 2330                        |
|                                | CP850             | Prop.        | 12           | 2340                        |
|                                | CP850             | Prop.        | 14           | 2350                        |
|                                | CP850             | Prop.        | 18           | 2360                        |
|                                | CP850             | Prop.        | 24           | 2370                        |
|                                | CP850             | Prop.        | 30           | 2380                        |



## PQ7 PROTOCOL CONVERTER

|                                        | Symbol Set | Pitch | Point | IBM Typestyle Number |
|----------------------------------------|------------|-------|-------|----------------------|
| Times New Roman<br>Bold Italic Outline | CP850      | Prop. | 6     | 2311                 |
|                                        | CP850      | Prop. | 8     | 2321                 |
|                                        | CP850      | Prop. | 10    | 2331                 |
|                                        | CP850      | Prop. | 12    | 2341                 |
|                                        | CP850      | Prop. | 14    | 2351                 |
|                                        | CP850      | Prop. | 18    | 2361                 |
|                                        | CP850      | Prop. | 24    | 2371                 |
|                                        | CP850      | Prop. | 30    | 2381                 |
| <b>Universal 1255800</b>               |            |       |       |                      |
| Prestige Elite                         | CP850A     | 12    | 10    | 86*                  |
| Prestige Elite Italic                  | CP850A     | 12    | 10    | 112                  |
| Courier Italic                         | CP850A     | 10    | 12    | 18                   |
| Presentor                              | CP850A     | 10    | 14    | 25                   |
| Letter Gothic                          | CP850A     | 12    | 12    | 87*                  |
| Letter Gothic Italic                   | CP850A     | 12    | 12    | 109                  |
| Letter Gothic Symbol                   | CP899      | 12    | 12    | 80                   |
| Times Roman                            | CP850A     | Prop. | 10    | 5687                 |
| Times Roman Bold                       | CP850A     | Prop. | 10    | 5707                 |
| Times Roman Italic                     | CP850A     | Prop. | 10    | 5815                 |
| Helvetica                              | CP850A     | Prop. | 10    | 34103                |
| Helvetica Bold                         | CP850A     | Prop. | 10    | 34123                |
| Helvetica Italic                       | CP850A     | Prop. | 10    | 34231                |
| Letter Gothic Symbol                   | CP899      | 12    | 12    | 88                   |
| <b>Italic 1255801</b>                  |            |       |       |                      |
| Courier Italic                         | CP850      | 10    | 12    | 18                   |
| Courier Symbol                         | CP899      | 10    | 12    | 8                    |
| Courier Italic                         | CP850      | 12    | 10    | 92                   |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                              | Symbol Set | Pitch | Point | IBM Typestyle Number |
|------------------------------|------------|-------|-------|----------------------|
| Courier                      | CP850      | 15    | 9     | 223*                 |
| Boldface Italic              | CP850      | Prop. | 12    | 155                  |
| Courier Symbol               | CP899      | 10    | 12    | 13*                  |
| <b>Prestige 1255802</b>      |            |       |       |                      |
| Prestige Pica                | CP850      | 10    | 12    | 12*                  |
| Prestige Elite               | CP850      | 12    | 10    | 86*                  |
| Prestige Elite Bold          | CP850      | 12    | 10    | 111                  |
| Prestige Elite italic        | CP850      | 12    | 10    | 112                  |
| Prestige                     | CP850      | 17.1  | 8.5   | 256                  |
| Prestige                     | CP850      | Prop. | 12    | 164                  |
| Prestige Elite Symbol        | CP899      | 12    | 10    | 89                   |
| <b>Letter Gothic 1255803</b> |            |       |       |                      |
| Letter Gothic                | CP850      | 10    | 14    | 36                   |
| Letter Gothic                | CP850      | 10    | 12    | 87*                  |
| Letter Gothic Bold           | CP850      | 12    | 12    | 110                  |
| Letter Gothic Italic         | CP850      | 12    | 12    | 109                  |
| Letter Gothic Symbol         | CP899      | 12    | 12    | 88                   |
| <b>Delegate 1255804</b>      |            |       |       |                      |
| Delegate                     | CP850      | 10    | 12    | 2                    |
| Adjutant                     | CP850      | 12    | 10    | 95                   |
| Modern                       | CP850      | Prop. | 12    | 158*                 |
| Essay                        | CP850      | Prop. | 12    | 160*                 |
| Essay italic                 | CP850      | Prop. | 12    | 162*                 |

# PQ7 PROTOCOL CONVERTER

|                            | Symbol Set | Pitch | Point | IBM Typestyle Number |
|----------------------------|------------|-------|-------|----------------------|
| <b>Script/OCR</b>          |            |       |       |                      |
| Script                     | CP850      | 12    | 10    | 84*                  |
| Olde World                 | CP850      | 12    | 10    | 96                   |
| Title                      | CP850      | Prop. | 12    | 157                  |
| API                        | CP909      | 12    | 10    | 76                   |
| OCR A                      | CP896      | 10    | 12    | 19                   |
| OCR B                      | CP877      | 10    | 12    | 3                    |
| APT/TN                     | CP310      | 12    | 10    | 77                   |
| <b>Orator 1255806</b>      |            |       |       |                      |
| Orator Bold                | CP850A     | 8.1   | 16    | 434                  |
| Orator Bold                | CP850A     | 6.5   | 18    | 435                  |
| Orator                     | CP850A     | 10    | 14    | 5*                   |
| <b>Compressed 1255807</b>  |            |       |       |                      |
| Prestige                   | CP850      | 15    | 9     | 221                  |
| Letter Gothic              | CP850      | 15    | 9     | 222                  |
| Letter Gothic              | CP850      | 17.1  | 8.5   | 255                  |
| Letter Gothic              | CP850      | 20    | 7.5   | 281                  |
| Letter Gothic              | CP850      | 25    | 6     | 285                  |
| Light Italic               | CP850      | 12    | 10    | 91*                  |
| <b>Press Roman 1255808</b> |            |       |       |                      |
| Press Roman                | CP850      | Prop. | 10    | 186                  |
| Press Roman Bold           | CP850      | Prop. | 10    | 187                  |
| Press Roman Italic         | CP850      | Prop. | 10    | 188                  |
| Press Roman Bold Italic    | CP850      | Prop. | 10    | 189                  |
| Press Roman Symbol         | CP899      | 12    | 10    | 185                  |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                                       | Symbol Set | Pitch | Point | IBM Typestyle Number |
|---------------------------------------|------------|-------|-------|----------------------|
| <b>Foundry 1255809</b>                |            |       |       |                      |
| Foundry                               | CP850      | Prop. | 10    | 190                  |
| Foundry Bold                          | CP850      | Prop. | 10    | 191                  |
| Foundry Italic                        | CP850      | Prop. | 10    | 194                  |
| Foundry Bold Italic                   | CP850      | Prop. | 10    | 195                  |
| Foundry Symbol                        | CP899      | Prop. | 10    | 192                  |
| <b>Testimonial 1255820</b>            |            |       |       |                      |
| Testimonial                           | CP850A     | Prop. | 12    | 5943                 |
| Testimonial                           | CP850A     | Prop. | 14    | 5944                 |
| Testimonial                           | CP850A     | Prop. | 18    | 5945                 |
| <b>Engravers' Old English 1255821</b> |            |       |       |                      |
| Engravers Old English                 | CP850A     | Prop. | 12    | 37431                |
| Engravers Old English                 | CP850A     | Prop. | 14    | 37432                |
| Engravers Old English                 | CP850A     | Prop. | 18    | 37433                |
| <b>Times Roman 1255822</b>            |            |       |       |                      |
| Times Roman                           | CP850A     | Prop. | 12    | 5688                 |
| Times Roman Bold                      | CP850A     | Prop. | 14    | 5709                 |
| Times Roman Bold                      | CP850A     | Prop. | 18    | 5710                 |

## PQ7 PROTOCOL CONVERTER

|                                    | Symbol Set | Pitch | Point | IBM Typestyle Number |
|------------------------------------|------------|-------|-------|----------------------|
| <b>Times Roman 1255823</b>         |            |       |       |                      |
| Times Roman                        | CP850A     | Prop. | 6     | 5685                 |
| Times Roman                        | CP850A     | Prop. | 8     | 5686                 |
| Times Roman Bold Italic            | CP850A     | Prop. | 10    | 5835                 |
| Times Roman                        | CP850A     | Prop. | 10    | 5687                 |
| Times Roman Bold                   | CP850A     | Prop. | 10    | 5707                 |
| Times Roman Italic                 | CP850A     | Prop. | 10    | 5815                 |
| <b>Combo (Data Stream) 1255824</b> |            |       |       |                      |
| Prestige Elite                     | CP850      | 12    | 10    | 86*                  |
| Helvetica                          | CP850A     | Prop. | 14    | 34105                |
| Orator                             | CP 850     | 10    | 14    | 5*                   |
| OCR A                              | CP 876     | 10    | 12    | 19                   |
| OCR B                              | CP437A     | 10    | 12    | 3                    |
| <b>Helvetica 1255825</b>           |            |       |       |                      |
| Helvetica                          | CP850A     | Prop. | 12    | 34104                |
| Helvetica Bold                     | CP850A     | Prop. | 14    | 34125                |
| Helvetica Bold                     | CP850A     | Prop. | 18    | 34126                |
| <b>Helvetica 1255826</b>           |            |       |       |                      |
| Helvetica                          | CP850A     | Prop. | 6     | 34101                |
| Helvetica                          | CP850A     | Prop. | 8     | 34102                |
| Helvetica Bold Italic              | CP850A     | Prop. | 10    | 34251                |
| Helvetica                          | CP850A     | Prop. | 10    | 34103                |
| Helvetica Bold                     | CP850A     | Prop. | 10    | 34123                |
| Helvetica Italic                   | CP850A     | Prop. | 10    | 34231                |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                         | Symbol Set | Pitch | Point | IBM Typestyle Number |
|-------------------------|------------|-------|-------|----------------------|
| <b>Cursive 1255827</b>  |            |       |       |                      |
| Cursive                 | CP850A     | Prop. | 12    | 41783                |
| Cursive                 | CP850A     | Prop. | 14    | 41803                |
| Cursive                 | CP850A     | Prop. | 18    | 41804                |
| <b>Palatino 1255828</b> |            |       |       |                      |
| Palatino®               | CP850A     | Prop. | 12    | 6200                 |
| Palatino                | CP850A     | Prop. | 14    | 6219                 |
| Palatino                | CP850A     | Prop. | 18    | 6220                 |
| <b>Palatino 1255829</b> |            |       |       |                      |
| Palatino                | CP850A     | Prop. | 6     | 6197                 |
| Palatino                | CP850A     | Prop. | 8     | 6198                 |
| Palatino                | CP850A     | Prop. | 10    | 6199                 |
| Palatino Bold           | CP850A     | Prop. | 10    | 6128                 |
| Palatino Italic         | CP850A     | Prop. | 10    | 6327                 |
| Palatino Bold Italic    | CP850A     | Prop. | 10    | 6347                 |
| <b>Optima 1255830</b>   |            |       |       |                      |
| Optima                  | CP850A     | Prop. | 12    | 33336                |
| Optima Bold             | CP850A     | Prop. | 14    | 33356                |
| Optima Bold             | CP850A     | Prop. | 18    | 33357                |

## PQ7 PROTOCOL CONVERTER

|                                   | Symbol Set | Pitch | Point | IBM Typestyle Number |
|-----------------------------------|------------|-------|-------|----------------------|
| <b>Optima 1255831</b>             |            |       |       |                      |
| Optima                            | CP850A     | Prop. | 6     | 33333                |
| Optima                            | CP850A     | Prop. | 8     | 33334                |
| Optima                            | CP850A     | Prop. | 10    | 33335                |
| Optima Bold                       | CP850A     | Prop. | 10    | 33355                |
| Optima Italic                     | CP850A     | Prop. | 10    | 33463                |
| Optima Bold Italic                | CP850A     | Prop. | 10    | 33483                |
| <b>Century Schoolbook 1255832</b> |            |       |       |                      |
| Century Schoolbook                | CP850A     | Prop. | 12    | 16952                |
| Century Schoolbook Bd             | CP850A     | Prop. | 14    | 16972                |
| Century Schoolbook Bd             | CP850A     | Prop. | 18    | 16973                |
| <b>Century Schoolbook 1255833</b> |            |       |       |                      |
| Century Schoolbook                | CP850A     | Prop. | 6     | 16949                |
| Century Schoolbook                | CP850A     | Prop. | 8     | 16950                |
| Century Schoolbook                | CP850A     | Prop. | 10    | 16951                |
| Century Schoolbook Bd             | CP850A     | Prop. | 10    | 16971                |
| Century Schoolbook It             | CP850A     | Prop. | 10    | 17079                |
| Century Schoolbook Bd It          | CP850A     | Prop. | 10    | 17099                |
| <b>Goudy Old Style 1255834</b>    |            |       |       |                      |
| Goudy Old Style                   | CP850A     | Prop. | 12    | 4920                 |
| Goudy Old Style Bold              | CP850A     | Prop. | 14    | 4940                 |
| Goudy Old Style Bold              | CP850A     | Prop. | 18    | 4941                 |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                                | Symbol Set | Pitch | Point | IBM Typestyle Number |
|--------------------------------|------------|-------|-------|----------------------|
| <b>Goudy Old Style 1255835</b> |            |       |       |                      |
| Goudy Old Style                | CP850A     | Prop. | 6     | 4917                 |
| Goudy Old Style                | CP850A     | Prop. | 8     | 4918                 |
| Goudy Old Style                | CP850A     | Prop. | 10    | 4919                 |
| Goudy Old Style Bold           | CP850A     | Prop. | 10    | 4939                 |
| Goudy Old Style Italic         | CP850A     | Prop. | 10    | 5047                 |
| Goudy Old Style Bd It          | CP850A     | Prop. | 10    | 5067                 |
| <b>Baskerville 1255836</b>     |            |       |       |                      |
| Baskerville                    | CP850A     | Prop. | 12    | 8504                 |
| Baskerville                    | CP850A     | Prop. | 14    | 8524                 |
| Baskerville                    | CP850A     | Prop. | 18    | 8525                 |
| <b>Baskerville 1255837</b>     |            |       |       |                      |
| Baskerville                    | CP850A     | Prop. | 6     | 8501                 |
| Baskerville                    | CP850A     | Prop. | 8     | 8502                 |
| Baskerville                    | CP850A     | Prop. | 10    | 8503                 |
| Baskerville                    | CP850A     | Prop. | 10    | 8523                 |
| Baskerville                    | CP850A     | Prop. | 10    | 8631                 |
| Baskerville                    | CP850A     | Prop. | 10    | 8651                 |
| <b>Futura 1255838</b>          |            |       |       |                      |
| Futura Book                    | CP850A     | Prop. | 12    | 33592                |
| Futura Heavy                   | CP850A     | Prop. | 14    | 33602                |
| Futura Heavy                   | CP850A     | Prop. | 18    | 33603                |



# PQ7 PROTOCOL CONVERTER

|                               | Symbol Set | Pitch | Point | IBM Typestyle Number |
|-------------------------------|------------|-------|-------|----------------------|
| <b>Futura 1255839</b>         |            |       |       |                      |
| Futura Book                   | CP850A     | Prop. | 6     | 33589                |
| Futura Book                   | CP850A     | Prop. | 8     | 33590                |
| Futura Book                   | CP850A     | Prop. | 10    | 33591                |
| Futura Heavy                  | CP850A     | Prop. | 10    | 33601                |
| Futura Book Ital              | CP850A     | Prop. | 10    | 33719                |
| Futura Heavy Ital             | CP850A     | Prop. | 10    | 33729                |
| <b>Resident Font Listing</b>  |            |       |       |                      |
| Courier                       | RM8        | 10    | 12    | 11*                  |
| Courier Bold                  | RM8        | 10    | 12    | 46                   |
| Courier                       | RM8        | 15    | 8.5   | 223*                 |
| Courier                       | RM8        | 17.1  | 8.5   | 254                  |
| <b>Font Cartridge Listing</b> |            |       |       |                      |
| <b>Combo 1255824</b>          |            |       |       |                      |
| OCR-A                         | CP1048     | 10    | 12    | 19                   |
| OCR-B                         | CP1049     | 10    | 12    | 3                    |
| Prestige Elite                | CP850      | 12    | 10    | 86*                  |
| Orator                        | CP850      | 10    | 14    | 5*                   |
| Courier                       | CP850      | 12    | 10    | 85*                  |
| Helvetica                     | CP850      | Prop. | 14    | 34105                |
| <b>Supports M 1255841</b>     |            |       |       |                      |
| Prestige Elite                | CP850      | 12    | 10    | 86*                  |
| Prestige Elite Bold           | CP850      | 12    | 10    | 111                  |
| Prestige Elite Italic         | CP850      | 12    | 10    | 112                  |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                             | Symbol Set | Pitch | Point | IBM Typestyle Number |
|-----------------------------|------------|-------|-------|----------------------|
| <b>Supports R 1255842</b>   |            |       |       |                      |
| Orator Bold                 | CP1054     | 6.5   | 18    | 435                  |
| Orator Bold                 | CP1054     | 8.1   | 16    | 434                  |
| Orator Bold                 | CP1054     | 10    | 14    | 38                   |
| Letter Gothic               | CP1054     | 10    | 14    | 40                   |
| Lines I                     | CP1056     | 10    | 14    | 31                   |
| Lines II                    | CP1055     | 10    | 14    | 32                   |
| <b>Supports U/V 1255843</b> |            |       |       |                      |
| Swiss 721                   | CP850A     | Prop. | 6     | 34101                |
| Swiss 721                   | CP850A     | Prop. | 8     | 34102                |
| Swiss 721 Bold              | CP850A     | Prop. | 10    | 34123                |
| Swiss 721 Bold              | CP850A     | Prop. | 12    | 34124                |
| Swiss 721 Bold              | CP850A     | Prop. | 14    | 34125                |
| Letter Gothic               | CP850      | 16.7  | 9.5   | 230                  |
| <b>Supports Z 1255844</b>   |            |       |       |                      |
| Press Roman                 | CP850A     | Prop. | 8     | 185                  |
| Press Roman                 | CP850A     | Prop. | 10    | 186                  |
| Press Roman Bold            | CP850A     | Prop. | 10    | 187                  |
| Press Roman Ital            | CP850A     | Prop. | 10    | 188                  |
| Press Roman                 | CP850A     | Prop. | 12    | 189                  |
| Press Roman Bold            | CP850A     | Prop. | 12    | 190                  |
| Press Roman Ital            | CP850A     | Prop. | 12    | 191                  |
| Press Roman Bold            | CP850A     | Prop. | 14    | 192                  |
| Letter Gothic               | CP850      | 16.7  | 8.5   | 255                  |

## PQ7 PROTOCOL CONVERTER

|                                  | Symbol Set | Pitch | Point | IBM Typestyle Number |
|----------------------------------|------------|-------|-------|----------------------|
| <b>Supports Z 1255845</b>        |            |       |       |                      |
| Swiss 721                        | CP850A     | Prop. | 10    | 34103                |
| Swiss 721 Italic                 | CP850A     | Prop. | 10    | 34231                |
| Swiss 721                        | CP850A     | Prop. | 12    | 34104                |
| Swiss 721 Italic                 | CP850A     | Prop. | 12    | 34232                |
| Swiss 721                        | CP850A     | Prop. | 8     | 34102                |
| Swiss 721 Bold                   | CP850A     | Prop. | 10    | 34123                |
| Swiss 721 Bold                   | CP850A     | Prop. | 12    | 34124                |
| Swiss 721 Bold                   | CP850A     | Prop. | 14    | 34125                |
| Letter Gothic                    | CP850      | 17.1  | 8.5   | 255                  |
| <b>Supports Resident 1255846</b> |            |       |       |                      |
| Courier                          | CP850      | 10    | 12    | 11*                  |
| Courier Bold                     | CP850      | 10    | 12    | 46                   |
| Courier Italic                   | CP850      | 10    | 12    | 18                   |
| Courier Bold                     | CP850      | 12    | 10    | 108                  |
| Courier Italic                   | CP850      | 12    | 10    | 92                   |
| Courier                          | CP850      | 16.7  | 8.5   | 252                  |
| Courier                          | CP850      | 12    | 10    | 85*                  |
| <b>Supports N 1255847</b>        |            |       |       |                      |
| Letter Gothic                    | CP850      | 12    | 12    | 87*                  |
| Letter Gothic                    | CP850      | 12    | 12    | 110                  |
| Letter Gothic                    | CP850      | 12    | 12    | 109                  |

## APPENDIX B: IBM 4019/4029 Laser Typestyle Reference Chart

|                                                                          | Symbol Set | Pitch | Point | IBM Typestyle Number |
|--------------------------------------------------------------------------|------------|-------|-------|----------------------|
| <b>Supports T 1255848</b>                                                |            |       |       |                      |
| Swiss 721                                                                | CP1054     | Prop. | 6     | 34101                |
| Swiss 721                                                                | CP1054     | Prop. | 8     | 34102                |
| Swiss 721 Bold                                                           | CP1054     | Prop. | 10    | 34123                |
| Swiss 721 Bold                                                           | CP1054     | Prop. | 12    | 34124                |
| Swiss 721 Bold                                                           | CP1054     | Prop. | 14    | 34125                |
| Swiss 721 Bold                                                           | CP1054     | Prop. | 8     | 34122                |
| Tax Line Draw                                                            | LinDrw     | 10    | 12    | 30                   |
| OCR-A                                                                    | OCR-A      | 10    | 12    | 19                   |
| Numbers with an * can be converted to hex for CL or OCL printer strings. |            |       |       |                      |



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