

***The Xerox DocuPrint 4512/  
4512N Network Laser Printer***

**Setting Up Guide**

Xerox Corporation 701 South Aviation Blvd. El Segundo, CA 90245 USA	Xerox Canada, Limited 5650 Yonge Street North York, Ontario Canada M2M 4G7
Americas Operations Support 800 Long Ridge Road Stamford, CT 06904-1600 USA	Rank Xerox, Limited Parkway Marlow Buckinghamshire SL7 1YL United Kingdom

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## Notice

Specifications described in this publication are subject to change without notice. Use of some features may be limited by your hardware or software configuration. Contact your dealer, Xerox, or Rank Xerox for details.

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## Overview

Setting up your Xerox DocuPrint 4512/4512N Network Laser Printer is quite easy. It will likely take 10 to 30 minutes, depending on which printer options you install. Follow all instructions in this guide to complete printer setup.

1. “*Selecting a Printer Location*” (page 3)
2. “*Unpacking the Printer*” (page 4)
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7. “*Connecting to the Host*” (page 14)
8. “*Xerox Font Manager*” (page 16)
9. “*Installing a Printer Driver*” (page 17)

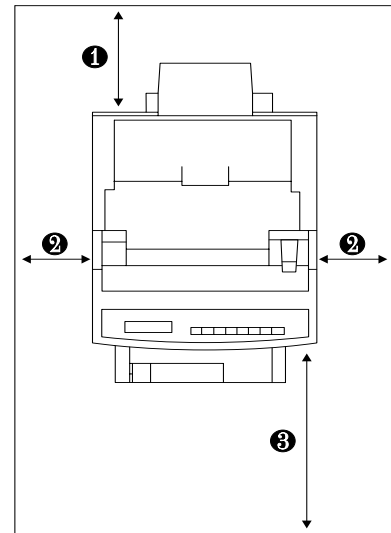
## Selecting a Printer Location

Select a printer location that meets the minimum space requirements shown in Figure 1. Set the printer on a flat, stable surface away from direct sunlight and electrical interference.

**Figure 1** Minimum space requirements around the printer

### Top View

- 1 8 in. (203 mm)
- 2 4 in. (102 mm)
- 3 20 in. (508 mm)



In selecting a location for the printer, you should also consider the following:

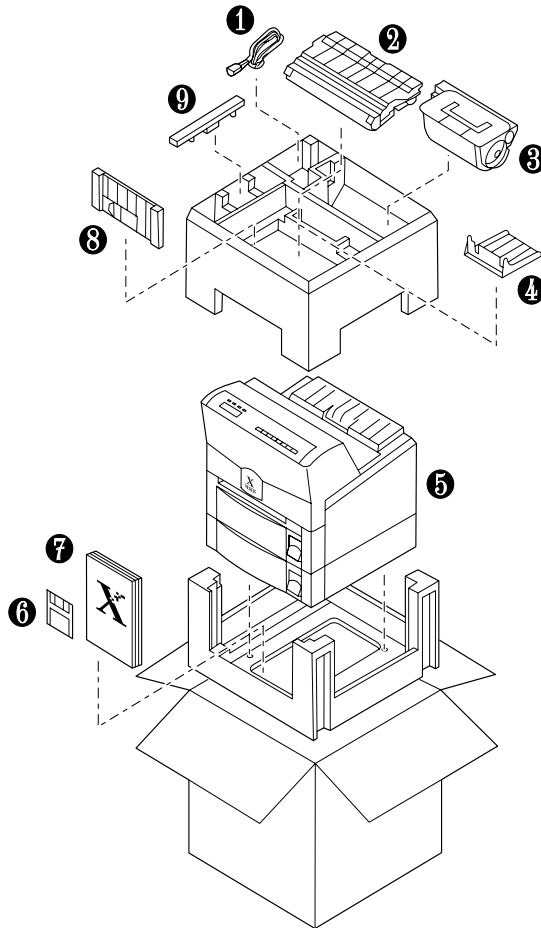
- Is the Control Panel accessible for viewing and use?
- Is there enough clearance above and around the printer to replace consumables?
- Is there enough clearance above the printer to add the optional High Capacity Feeder? It adds 155 mm (6.5 in.) to the height of the printer.
- Is there enough clearance around the printer to install options on the controller board (accessed from the rear)?
- Is there enough clearance around the printer should it ever require servicing? (If not, you may need to relocate the printer for servicing.)

## Unpacking the Printer

Unpack the printer from its box. Make sure that all of the parts, as shown in Figure 2, are present. If they are not, contact your dealer or Xerox/Rank Xerox.

Figure 2 Printer parts

- 1 Power Cord
- 2 Photoconductor / Drum
- 3 Toner Cartridge
- 4 Tray Extension
- 5 Printer
- 6 Diskettes
- 7 User Documentation
- 8 Manual Feed Guide
- 9 Cleaning Felt



### Note

Keep all packing material should you ever need to repack and transport the printer.

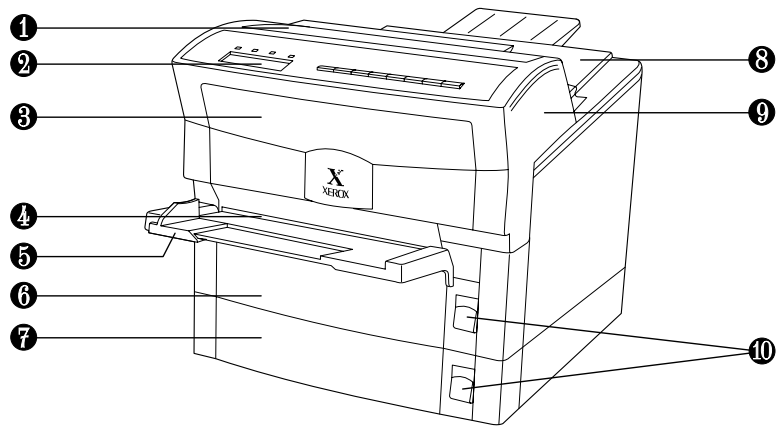
## Getting to Know the Printer

First, familiarize yourself with the major components identified in Figure 3. Then continue with “Assembling the Printer” (page 6).

Figure 3 Major printer components

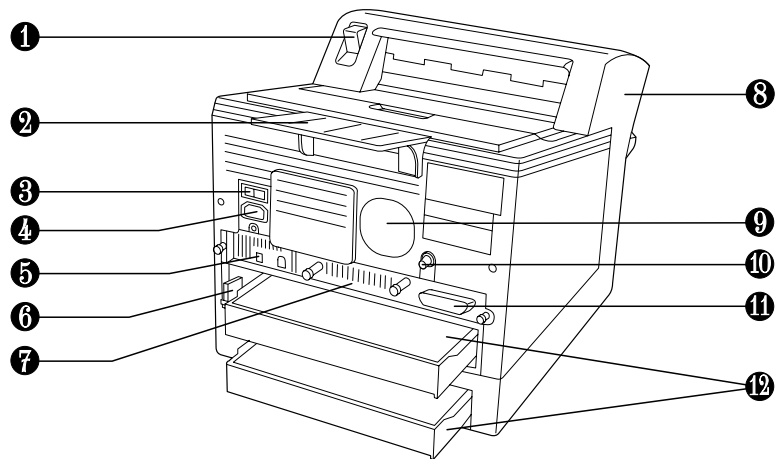
### Front View

- 1 Fuser Cover
- 2 Control Panel Display
- 3 Front Cover
- 4 Manual Feed Slot
- 5 Manual Feed Guide
- 6 Upper Paper Tray
- 7 Lower Paper Tray
- 8 Paper Output Tray
- 9 Top Cover
- 10 Tray Release Buttons



### Rear View

- 1 Top Cover Release Lever
- 2 Tray Extension
- 3 Power Switch
- 4 Power Cord Connector
- 5 High Capacity Feeder Connector
- 6 Corotron Cleaner
- 7 Controller Board
- 8 Top Cover
- 9 Cooling Fan Outlet
- 10 Print Density Adjuster
- 11 Parallel Interface
- 12 Paper Trays



## Assembling the Printer

Assembling the printer is easily accomplished in just a few steps:

- Install the Toner Cartridge.
- Install the Photoconductor / Drum.
- Install the Cleaning Felt.
- Load the paper tray(s) with paper.
- Attach the Manual Feed Guide and the Tray Extension.
- Connect the power cord.

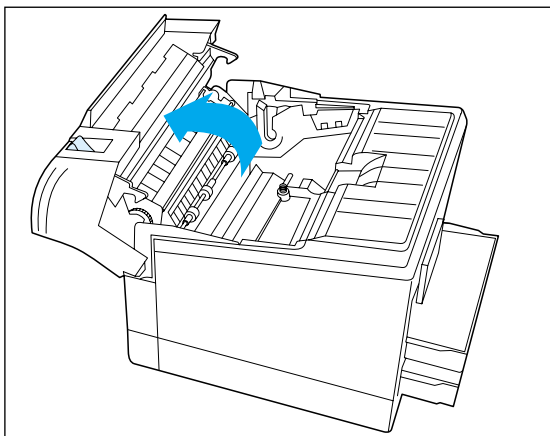
Follow the instructions below to assemble the printer.



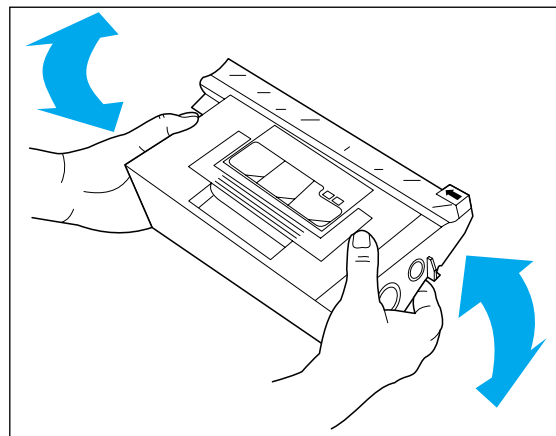
**Caution**

**Do not expose the Photoconductor / Drum to direct sunlight or artificial light for more than 15 minutes. Overexposure will permanently damage the photosensitive imaging drum.**

**Complete the Toner Cartridge and Photoconductor / Drum installation within 15 minutes of removing them from their packaging.**

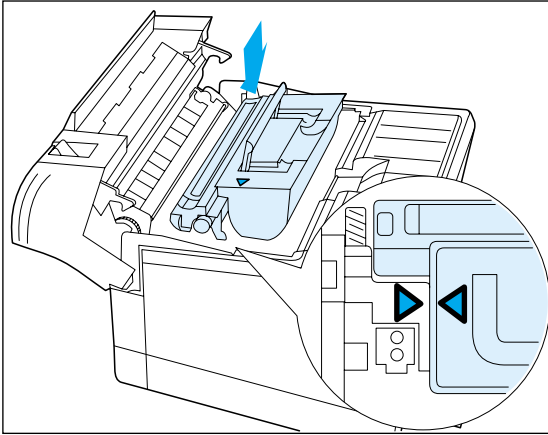


- 1** Open the top cover by pulling up on the top cover release lever and pivoting the cover toward the front of the printer.



- 2** Remove the Toner Cartridge from its wrapper and shake it several times to evenly distribute the toner.

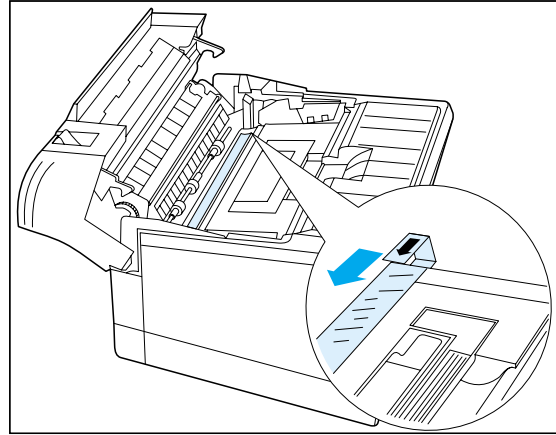




- 3** Hold the Toner Cartridge by its handle and gently lower it into the printer.

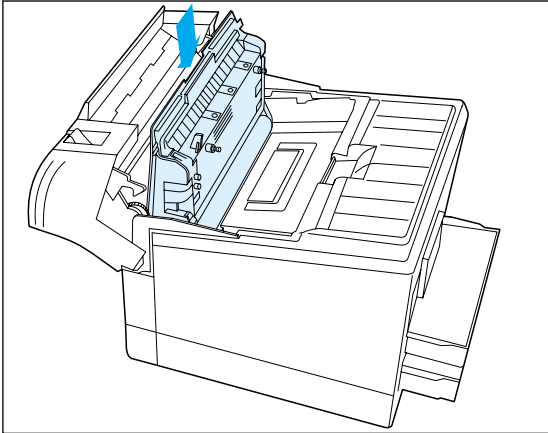


*The cartridge does not click into place.  
The arrows on the cartridge and printer  
should line up.*




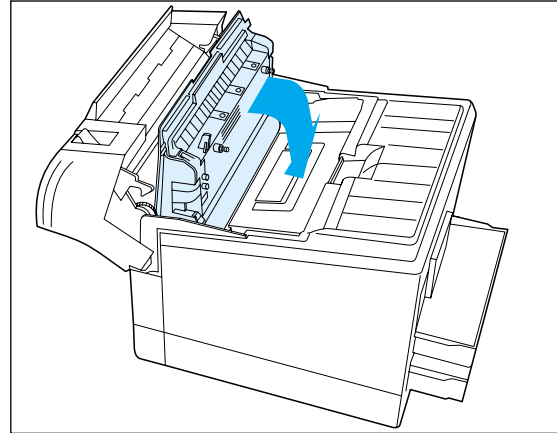
- 4** Hold the Toner Cartridge in place and pull the tab to remove the tape strip.

*Assembling the Printer*

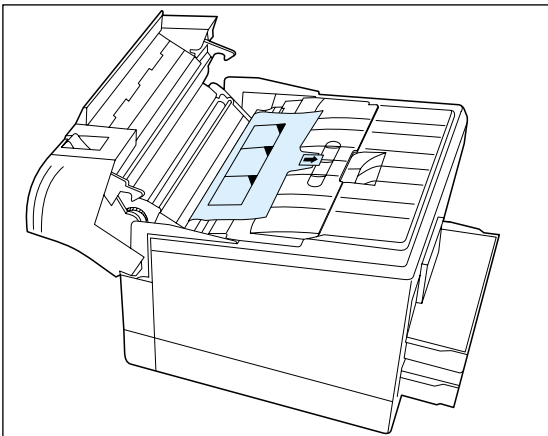


- 5** Remove the Photoconductor / Drum from its wrapper and insert it vertically into the slots on the sides of the printer's interior.


 The photosensitive drum is easily damaged. Do not touch it or expose it to direct light.

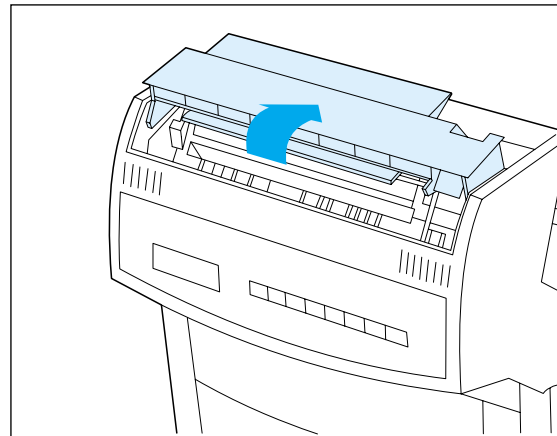


- 6** Pivot the Photoconductor / Drum down toward the back of the printer until it falls into place horizontally.

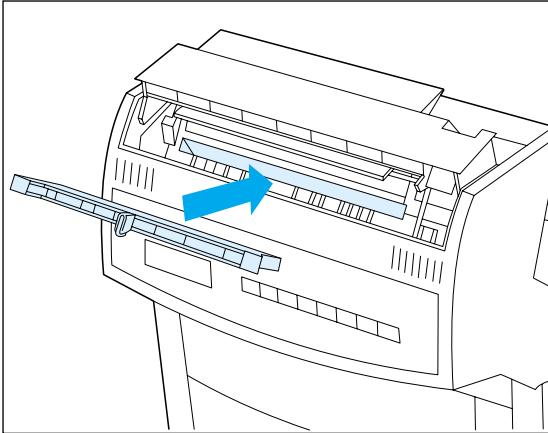


- 7** Carefully remove the sheet of black protective paper from the Photoconductor / Drum.

 Be sure not to leave any torn pieces of paper in the printer.

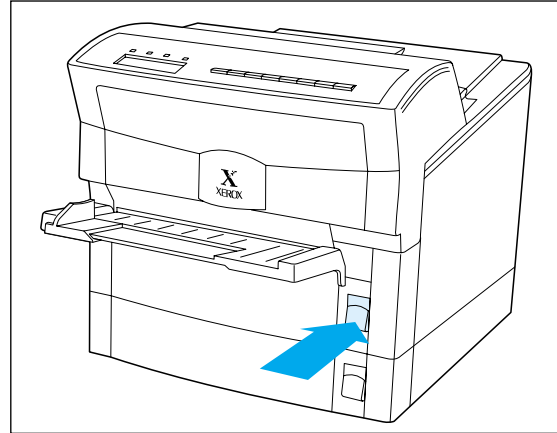


- 8** Rotate the fuser cover to the rear.

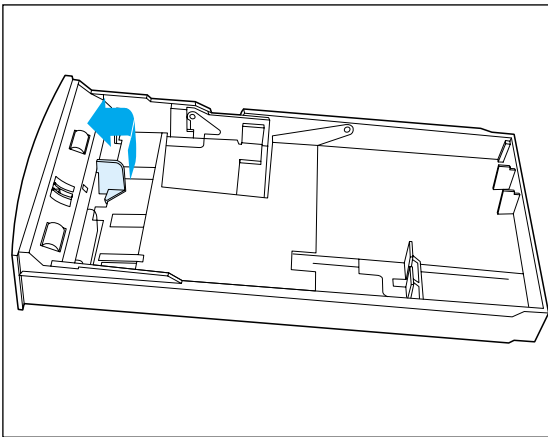


- 9** Remove the Cleaning Felt from its wrapper and, holding it by the protruding grip, insert it into the slot.

Close the front cover and the top cover.



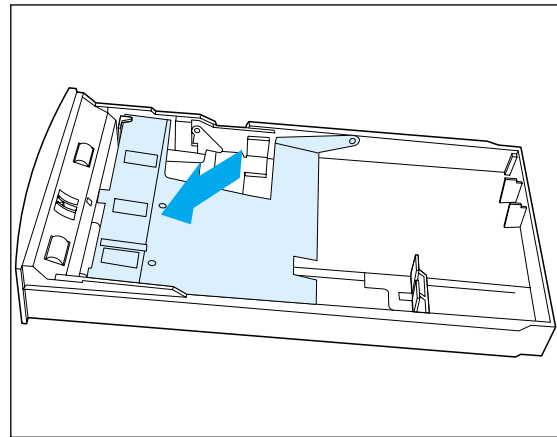
- 10** Press the tray release button on the right side of the upper paper tray, then remove the tray from the printer.



- 11** Remove the stopper that protects the tray's spring mechanism by twisting it out.

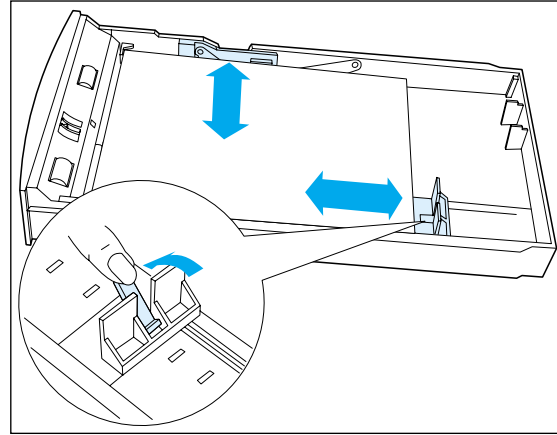
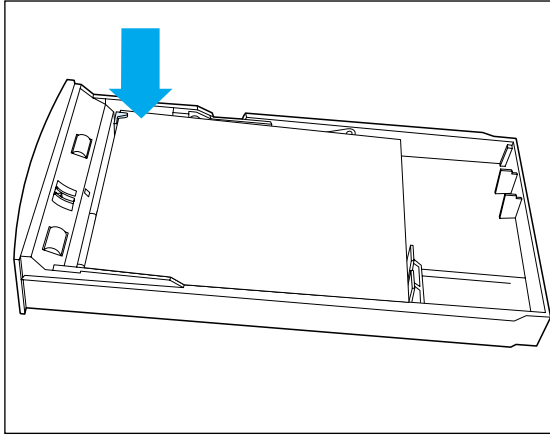


*Keep the stopper in case you need it when transporting the printer.*



- 12** Push down the metal pressure plate until it locks into place.

*Assembling the Printer*



- 13** Insert a stack of paper into the tray so that the stack fits under the two metal tabs at the inside front corners of the tray. Do not overload the tray.



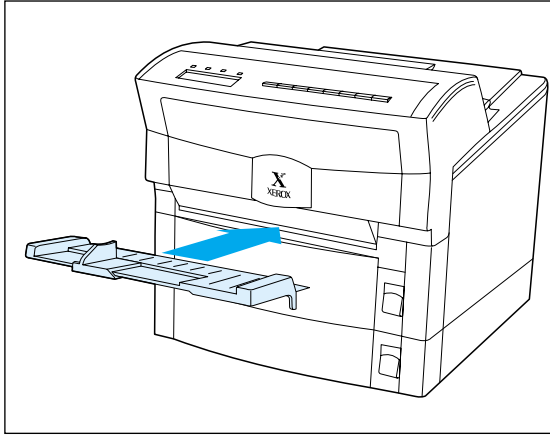
*The side of paper facing up gets printed.*

- 14** If the paper does not fit within the preset paper guides, adjust the guides so that they rest against the stack of paper. Then insert the tray into the printer.

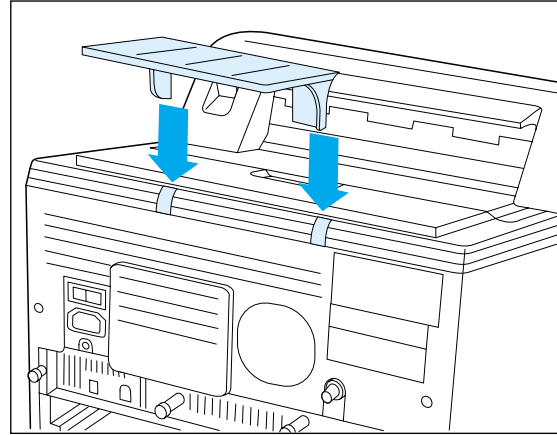



**Repeat steps 10-14 for the lower tray.**

*The lower tray will not feed paper unless the upper tray is in place.*



- 15** Insert the Manual Feed Guide into the manual feed slot on the front of the printer.  
It should rest on its support brackets in an almost horizontal position.



- 16** Insert the Tray Extension into the back of the paper output tray.  
 *The Tray Extension supports printed sheets of paper as they come out of the printer. You may find it convenient to leave it permanently in place.*

- 17** Check that the power switch is in the OFF (O) position, then insert the power cord into the power cord connector and plug it into a properly grounded and rated wall outlet.



**The printer has two configurations:**

**110-115 V or 220-240 V**

**Read the data plate on the back of the printer to verify which configuration you have before connecting the printer to the wall outlet.**

## Testing the Printer

To test the printer, power it ON, then print a configuration sheet using the Control Panel.

**1 Power ON the printer and observe the following sequence on the Control Panel:**

The display reads **Self Test**.

The *On Line* light goes on.

The display reads **Emulation Size/Size**.

where **Emulation** is the emulation (PCL, PS2, Auto, HEX), and **Size/Size** is the size of paper in the upper tray/lower tray.

**2 Press On Line** .

The *On Line* light goes off.

The display reads **Printing Menu**.

**3 Press Menu**  **until:**

The display reads **Test Menu**.

**4 Press Item**  **until:**

The display reads **Config. Sheet**.

**5 Press Enter** .

The *Data* light goes on and the Configuration Sheet prints.



*If the Configuration Sheet does not print, refer to Chapter 6: Troubleshooting in the DocuPrint 4512/4512N User Guide.*

When the page finishes printing, the *DATA* light goes off.

**6 Press On Line** .

The *On Line* light goes on.

The display reads **Emulation Size/Size**.

**7 If you have purchased printer options, power off the printer, unplug the power cord, and continue to “Installing Printer Options” (page 13). Otherwise, skip to “Connecting to the Host” (page 14).**

## Installing Printer Options

A number of options are available to increase the capabilities of your DocuPrint 4512/4512N. Contact your dealer or Xerox/Rank Xerox for ordering information.

Printer options include:

- Memory SIMMS
- PostScript
- AppleTalk/Serial Interface Board
- Ethernet Interface Board (pre-installed on the 4512N)
- Token Ring Interface Board

Paper handling options include:

- High Capacity Feeder
- Envelope Tray

If you have purchased any of these options, install them now. Refer to *Appendix B: Installing Options* in the *DocuPrint 4512/4512N User Guide* for complete instructions.



### Note

*Installation of memory SIMMS, PostScript and/or an interface card requires removal of the controller board. If you have more than one of these options, you can install all of them while the controller board is removed (before reinserting the controller board into the printer).*

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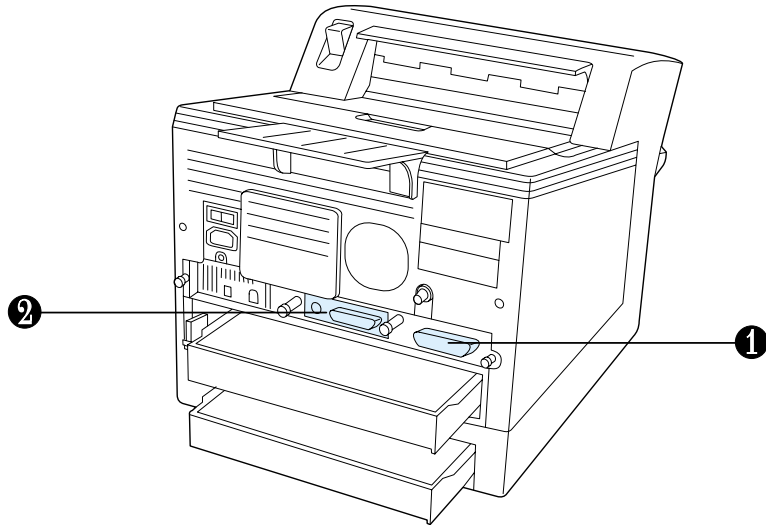
## Connecting to the Host

The DocuPrint 4512 can have up to two communication ports (Figure 4). These ports allow you to connect to two distinct host systems concurrently.

**Figure 4 DocuPrint 4512 input/output ports**

### Rear View

- 1 Parallel Interface
- 2 Network port (option)



You must supply the appropriate interface cable(s) to connect the printer to the host(s). Refer to Table 1 on page 15 for specifications.

If the printer has the Ethernet NIC option preinstalled, refer to the NIC card installation manual to initialize, configure and set up the NIC card on the printer.



**Caution**

**Always power off the DocuPrint 4512 and the host before attaching the printer interface cable.**



**Table 1 DocuPrint 4512 cable specifications**

Port Type	Cable Type(s)	Connection Type	Maximum Length
Parallel P1284	IEEE P1284-B Compliant Parallel Cable	Standard Centronics 36-pin male	6 feet (2 meters)
Serial (option)	9 to 25-pin M/F RS-232	DB-25	9 feet (3 meters)
Ethernet (option)	ThinNet (10base2) (RG-58 coaxial cable)	BNC	607 feet (185 meters) and 30 devices per segment
	10baseT (24 gauge, unshielded twisted pair cable)	RJ-45	330 feet (100 meters) per cable
Token Ring (option)	STP (shielded twisted pair)	DB-9	330 feet (100 meters) per cable
	UTP (unshielded twisted pair)	RJ-45	330 feet (100 meters) per cable
LocalTalk (option)	LocalTalk PhoneNet	DIN-8	990 feet (300 meters) with a maximum of 32 devices

Install the appropriate DocuPrint 4512 printer driver(s) (described on page 17) on your host as per the instructions provided with each driver. To verify communications, send a job to the printer.

Refer to *Appendix B: Installing Options* in the *DocuPrint 4512/4512N User Guide* for complete instructions.

## **Xerox Font Manager**

The Xerox Font Manager ships with 110 fonts. Most importantly, the Xerox Font Manager uses Agfa's new MicroType font compression technology, designed for high throughput of all type styles with uncompromised type rendering.

The Xerox Font Manager also includes a number of productivity enhancements, such as double clicking for font previews, on-demand drive search, font grouping, and available font listings. In addition, the Xerox Font Manager installs and de-installs all the major Windows fonts, including TrueType, PostScript, screen bitmaps, and MicroType.

## Installing a Printer Driver

The DocuPrint 4512 supports the PCL 5e emulation printer drivers listed in Table 2. To take full advantage of all the printer's features when printing PCL jobs, install the appropriate DocuPrint 4512 PCL 5e emulation printer driver(s). (Consult your operating system user manual for instructions on installing a new printer driver.)

**Table 2 DocuPrint 4512 PCL 5e emulation printer drivers**

Environment	Printer Driver	Diskette
DOS <sup>†</sup>	Microsoft Word Ver. 6.0	Xerox DocuPrint 4512 Printer Driver for MS Word 6.0 for DOS
	WordPerfect Ver. 6.0	Xerox DocuPrint 4512 Printer Driver for WordPerfect 6.0 for DOS
Windows	Windows 3.1 / Windows 95	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for Microsoft Windows 3.1/ Windows 95
	Windows NT 3.5	OnPAGE PCL 5e Emulation Printer Driver for Microsoft Windows NT 3.5
IBM OS/2	OS/2 Ver. 2.1	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for IBM OS/2 Ver. 2.1
	OS/2 WARP	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for IBM OS/2 WARP

<sup>†</sup> If you are using a DOS application other than Microsoft Word or WordPerfect, use the HP LaserJet 4si printer driver supplied with your application software.

If you purchased the PostScript option, your printer will also support the PostScript drivers listed in Table 3 on page 18. To take full advantage of all the printer's features when printing PostScript jobs, install the appropriate DocuPrint 4512 PostScript printer driver(s). (Consult your operating system user manual for instructions on installing a new printer driver.)

Contact your dealer or Xerox/Rank Xerox for any drivers you need beyond those supplied with the printer.

**Table 3 DocuPrint 4512 PostScript printer drivers**

Environment	Printer Driver	Diskette
Windows	Windows 3.1 / Windows 95	Xerox DocuPrint 4512 PS2 Printer Driver for Microsoft Windows 3.1/ Windows 95
	Windows NT 3.5	OnPAGE PS2 Printer Driver for Microsoft Windows NT 3.5
IBM OS/2	OS/2 Ver. 2.1	Xerox DocuPrint 4512 PS2 Printer Driver for IBM OS/2 Ver. 2.1
	OS/2 WARP	Xerox DocuPrint 4512 PS2 Printer Driver for IBM OS/2 WARP
Macintosh	System 6.x	OnPAGE
	System 7.x	OnPAGE
UNIX (SUN 4.1x, SCO UNIX, IBM AIX 3.1, HP.UX on HP 9000)	Document Manager	Xerox DocuPrint 4512 PS2 Printer Driver for SUN OS 4.1.3



*Printer software and drivers may be available through on-line services and the Internet.*

**Note**

## What to Do Next

Congratulations! You have completed your setup of the Xerox DocuPrint 4512/4512N Network Laser Printer.

If you have any questions or need to set optional parameters for printing, the *DocuPrint 4512/4512N User Guide* is a complete reference guide to all the printer's features and functions.



### Note

*For a listing of the printer's factory default settings, refer to Chapter 3: The Control Panel in the DocuPrint 4512/4512N User Guide.*

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*What to Do Next*

# Chapter 1

## ***Introduction***

<b><i>Overview of the User Guide</i></b> .....	<b>1-2</b>
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## Overview of the User Guide

This book is for use with both the Xerox DocuPrint 4512 and DocuPrint 4512N Network Laser Printers. The DocuPrint 4512N contains all the components of the DocuPrint 4512, plus the Ethernet Network Interface Card pre-installed.

As this guide serves both printers, the DocuPrint 4512N will hereafter be referred to as the DocuPrint 4512.

The DocuPrint 4512 is ready to go after you set it up following the instructions in the *Setting Up Guide*. As you use the printer, however, you may occasionally need to refer to this User Guide as a reference for the following:

- Learning about special printer features [“*Special Features*” (page 1-4)]
- Paper specifications, loading paper, and duplex printing (*Chapter 2: Paper Handling*)
- Instructions on using the Control Panel (*Chapter 3: The Control Panel*)
- Downloading fonts (*Chapter 4: Fonts*)
- Installing printer drivers (*Chapter 5: Printer Drivers*)
- Troubleshooting printing problems if they occur (*Chapter 6: Troubleshooting*)
- Tips on taking care of the printer (*Chapter 7: Printer Maintenance and Consumables*)
- Replacing consumables (*Chapter 7: Printer Maintenance and Consumables*)
- Ordering printer options (*Appendix A: Ordering Information*)
- Installing printer options (*Appendix B: Installing Options*)
- Printer specifications (*Appendix C: Printer Specifications*)



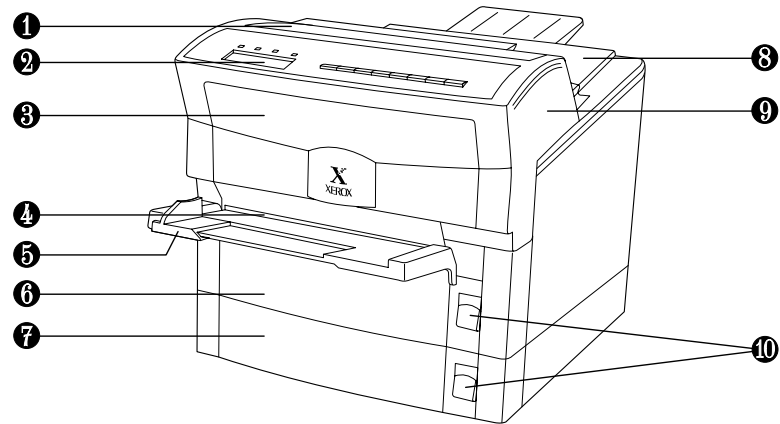
# Printer Components

The major printer components are indicated below.

Figure 1.1 Major printer components

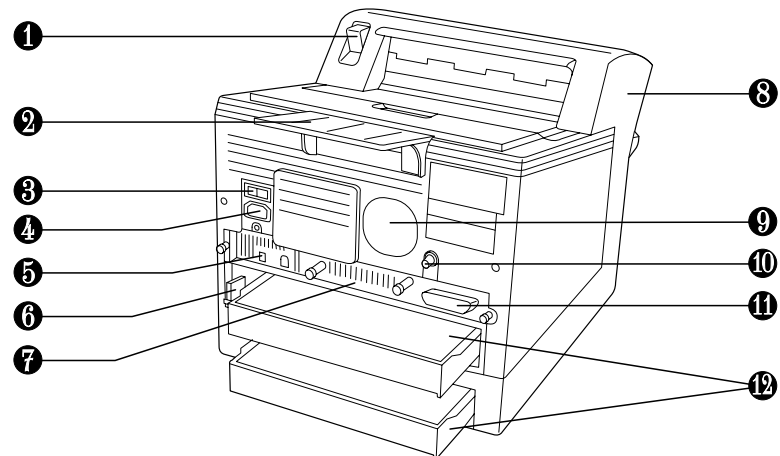
## Front View

- 1 Fuser Cover
- 2 Control Panel Display
- 3 Front Cover
- 4 Manual Feed Slot
- 5 Manual Feed Guide
- 6 Upper Paper Tray
- 7 Lower Paper Tray
- 8 Paper Output Tray
- 9 Top Cover
- 10 Tray Release Buttons



## Rear View

- 1 Top Cover Release Lever
- 2 Tray Extension
- 3 Power Switch
- 4 Power Cord Connector
- 5 High Capacity Feeder Connector
- 6 Corotron Cleaner
- 7 Controller Board
- 8 Top Cover
- 9 Cooling Fan Outlet
- 10 Print Density Adjuster
- 11 Parallel Interface
- 12 Paper Trays



## Special Features

Several features have been designed into the DocuPrint 4512 to enhance your printing environment. Using the Control Panel menu system, you can tailor printer settings to match your printing requirements.

See *Chapter 3: The Control Panel* for more information about the Control Panel and its menu system.

### Duplex Printing

The DocuPrint 4512 can print two-sided documents. Duplex printing is as easy as printing a one-sided job.

### Multiple Paper Trays and Increased Paper Handling

The DocuPrint 4512 offers two paper trays, each of which can hold up to 250 sheets of paper. When the paper source is set to AUTO SELECT (the factory default), the printer automatically senses the paper size and feeds paper from the appropriate tray according to print instructions from the application software. If both trays contain the same size of paper, the printer gives priority to the lower tray and feeds from there first, effectively giving you a 500-sheet capacity.

You can also install the optional 1000-sheet High Capacity Feeder to further extend your printing capacity.

For more information on using the paper trays, see the section “*Paper Tray Loading*” (page 2-5) in *Chapter 2: Paper Handling*.

### Automatic Emulation/Input Switching

When you have installed the PostScript option, the printer can process both PCL and PostScript jobs. When Emulation is set to *Auto*, the DocuPrint 4512 samples the incoming data stream to determine which language the print job requires. The DocuPrint 4512 then switches to the proper language for that job.

The DocuPrint 4512 can have up to two active ports when you install an optional interface card (AppleTalk/Serial Interface, Ethernet or Token Ring). The printer automatically switches between input sources, samples the print job, and switches to the appropriate processing language.

### State Saving

When you have installed the PostScript option and are printing both PostScript and PCL jobs, the printer clears any data in memory when it switches between PostScript and PCL 5e emulations. However, you can

set the State Saving item to *On*, and the printer will save the data in memory when it switches emulations. This saves you from having to download fonts and headers every time the printer switches between PostScript and PCL 5e emulation.

## **Printer Generated Reports**

Using the Control Panel, you can print the following reports:

- The **Configuration Sheet** lists the options you have installed and the current settings for each option in the Control Panel's menu system.
- The **PCL 5e Demo Page** provides a sample of the printer's capabilities and lists the printer's key features.
- The **PCL 5e Font List** shows which PCL fonts are currently available. The list includes resident fonts and downloaded fonts.
- When PostScript is installed on the DocuPrint 4512, the **PostScript (PS2) Font List** shows which PostScript fonts are currently available (both resident and downloaded fonts), and the **PostScript Demo Page** provides a sample of the printer's PostScript capabilities.

See *Chapter 3: The Control Panel* for more information about these reports.

## **Memory Expansion**

The DocuPrint 4512 printer has 2 MB resident memory and can be increased with additional memory SIMMs up to 50 MB. See "*Memory Considerations*" (page 1-7). Also see *Appendix A: Ordering Information* to order more printer memory.

*Special Features*



**MultiGray  
Enhancement**

When the PostScript option is installed, MultiGray enhancement multiplies the number of gray scales available for printing scanned photographs or computer graphic images with graded fills.

**Power Saving**

After 30 minutes of inactivity, the printer automatically turns off internal components to reduce the amount of electricity used. The printer automatically turns those parts back on when it receives a print job.

Using the Control Panel, you can send the printer into Power Saver mode after your choice of 15, 30, or 45 minutes of inactivity.

## Memory Considerations

In today's printing environments, technologies have advanced greatly. Corresponding memory requirements have increased too.

- DocuPrint 4512 printing features such as duplex printing, page protection and state saving, when on, use available printer memory—memory that is otherwise used for processing jobs.
- Downloading fonts also uses available printer memory.

If you plan to print highly complex jobs or need features like state saving and page protection, you may need to add printer memory.

Table 1.1 lists memory requirements when printing simplex (one-sided) and duplex (two-sided) jobs at 300 and 600 dpi.

**Table 1.1** Memory requirements

Page Protection Setting	Simplex		Duplex	
	300 dpi	600 dpi	300 dpi	600 dpi
Page Protection <i>Auto</i>				
	2 MB	2 MB	2 MB	2 MB
Page Protection <i>On</i>				
Letter	3 MB	8 MB	4 MB	14 MB
A4	3 MB	8 MB	4 MB	14 MB
A5	3 MB	8 MB	4 MB	14 MB
Executive	3 MB	8 MB	4 MB	14 MB
Legal	4 MB	10 MB	8 MB	18 MB
Folio	4 MB	10 MB	8 MB	18 MB



## Chapter 2

### ***Paper Handling***

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*Paper Handling*

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## Selecting Paper

Table 2.1 lists the size paper, envelopes, and other print media you can use with all DocuPrint 4512 input and output trays. Using sizes other than those listed below, or paper not recommended for laser printers, may result in paper jams.

**Table 2.1 Media specifications for all DocuPrint 4512 trays**

Paper Size	Upper Tray Lower Tray	High Capacity Feeder <sup>†</sup>	Envelope Tray <sup>†</sup>	Manual Feed
<b>A4</b> (210x297mm)	16-24lb 60-90 g/m <sup>2</sup>	16-24lb 60-90 g/m <sup>2</sup>		16-36lb 60-136 g/m <sup>2</sup>
<b>Letter</b> (8.5x11" / 216x279mm)	16-24lb 60-90 g/m <sup>2</sup>	16-24lb 60-90 g/m <sup>2</sup>		16-36lb 60-136 g/m <sup>2</sup>
<b>Folio (Legal 13")</b> (8.5x13" / 216x330mm)	16-24lb 60-90 g/m <sup>2</sup>	16-24lb 60-90 g/m <sup>2</sup>		16-36lb 60-136 g/m <sup>2</sup>
<b>Legal (Legal 14")</b> (8.5x14" / 216x356mm)	16-24lb 60-90 g/m <sup>2</sup>	16-24lb 60-90 g/m <sup>2</sup>		16-36lb 60-136 g/m <sup>2</sup>
<b>Executive</b> (7.25x10.5" / 184x267mm)	16-24lb 60-90 g/m <sup>2</sup>	16-24lb 60-90 g/m <sup>2</sup>		16-36lb 60-136 g/m <sup>2</sup>
<b>A5</b> (148.5x210mm)	16-24lb 60-90 g/m <sup>2</sup>	16-24lb 60-90 g/m <sup>2</sup>		16-36lb 60-136 g/m <sup>2</sup>
<b>Envelopes</b> COM-10 (4.12x9.5" / 105x241mm) Monarch (3.87x7.5" / 98x191mm) DL (4.33x8.66" / 110x220mm) C5 (6.38x9.01" / 162x229mm)			16-24lb 60-90 g/m <sup>2</sup>	
<b>Transparency</b> A4 (210x297 mm) Letter (8.5x11" / 216x279mm)				Clear, paper- backed or permanent stripe
<b>Label</b> A4 (210x297 mm) Letter (8.5x11" / 216x279mm)				Paper

<sup>†</sup> Optional paper handler. See *Appendix A* for ordering information.

## **Storing Paper**

The DocuPrint 4512's print quality is optimized when paper and other print media are properly stored. Proper storage ensures optimum print quality and trouble-free printer options.

- Store the paper on a flat surface, in a relatively low humidity environment.
- Do not unwrap paper until you are ready to use it, and rewrap any paper you are not using.
- Do not expose paper to direct sunlight or high humidity.

## Paper Tray Loading

Paper and other print media are loaded into the upper and lower trays identically. Refer to Table 2.1 on page 2-3 for acceptable paper sizes.

### Paper Trays

The DocuPrint 4512 provides the following paper trays:

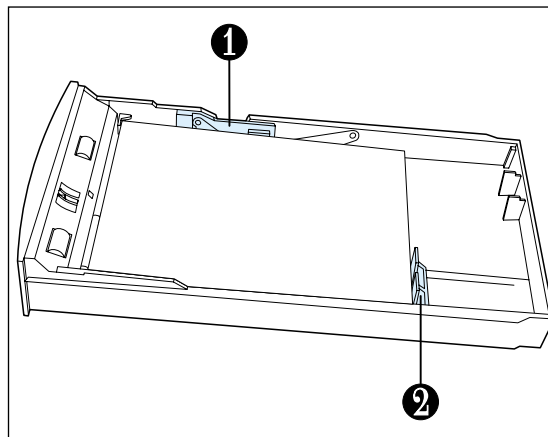
- The upper and lower trays each hold 250 sheets of 20 lb (75 g/m<sup>2</sup>) paper.
- The optional High Capacity Feeder holds 1,000 sheets of 20 lb (75 g/m<sup>2</sup>) paper.
- An optional Envelope Tray holds up to 20 envelopes and replaces the upper paper tray for automatic envelope loading.

### Adjusting Trays for Paper Size

Figure 2.1 shows how to adjust the upper and lower paper trays for different paper sizes.

**Figure 2.1** Upper/Lower tray paper adjustment guides

- 1 Side guide
- 2 End guide



The width guide (1) slides to fit the width of the paper.

The end guide (2) slides to fit the length of the paper.

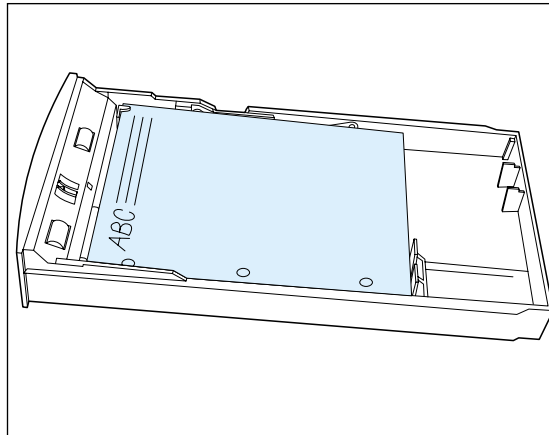
Proper orientation of media in the paper and envelope trays is discussed in the following sections.

*Paper Tray Loading*

**Loading Paper  
for Simplex  
(One-Sided) Printing**

Figure 2.2 shows the proper orientation when loading paper for simplex (one-sided) printing.

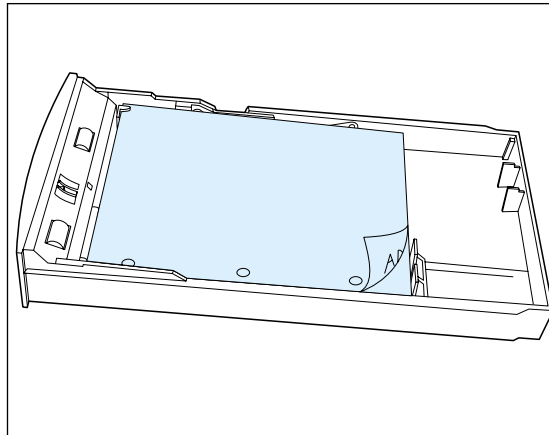
**Figure 2.2 Proper orientation in tray for simplex printing**



## Loading Paper for Duplex (Two-Sided) Printing

Figure 2.3 shows the proper orientation when loading paper for duplex (two-sided) printing.

**Figure 2.3** Proper orientation in tray for duplex printing



## Loading Envelopes in the Envelope Tray

Figure 2.4 shows how to adjust the Envelope Tray for different envelope sizes.

**Figure 2.4** Envelope Tray adjustment

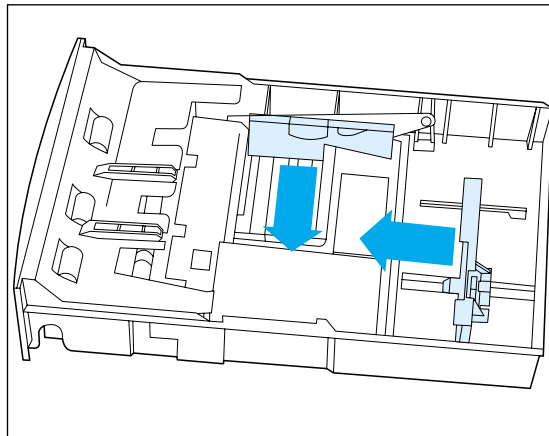
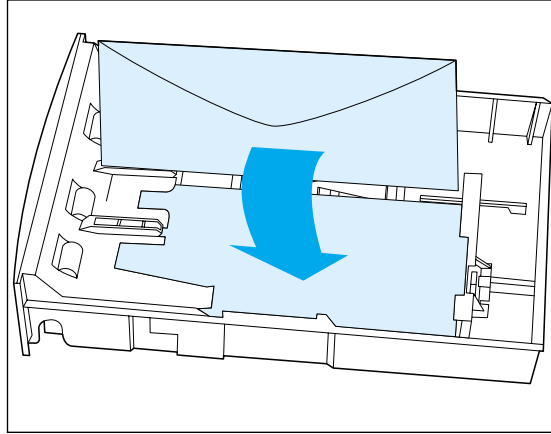


Figure 2.5 shows how envelopes are loaded flap down for printing. Use the software application for proper orientation.

**Figure 2.5 Proper envelope orientation in Envelope Tray**

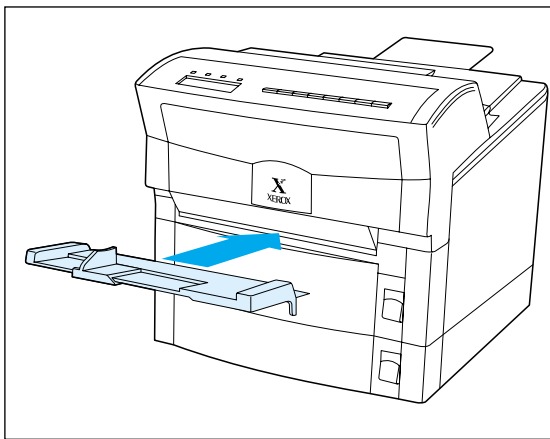


## Manual Feed Guide Loading

To print sizes of paper that the paper trays cannot accommodate, or to print other media such as envelopes, adhesive labels or transparencies, you will need to feed the media into the printer manually.

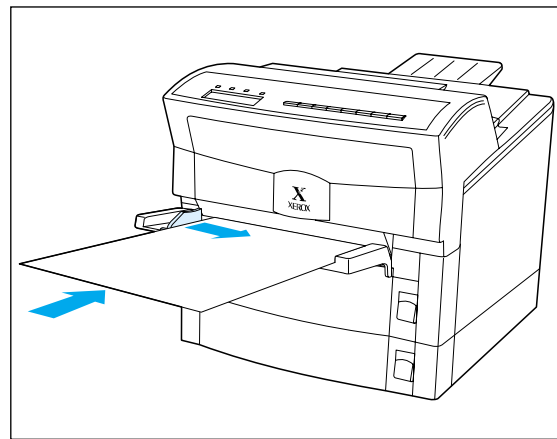
### Fitting and Adjusting the Manual Feed Guide

If the manual feed guide is not attached to the manual feed slot on the front of the printer, start with Step 1, below. Otherwise, skip to Step 2.



- 1 Insert the manual feed guide into the manual feed slot on the front of the printer.

It should rest on its support brackets in an almost horizontal position.



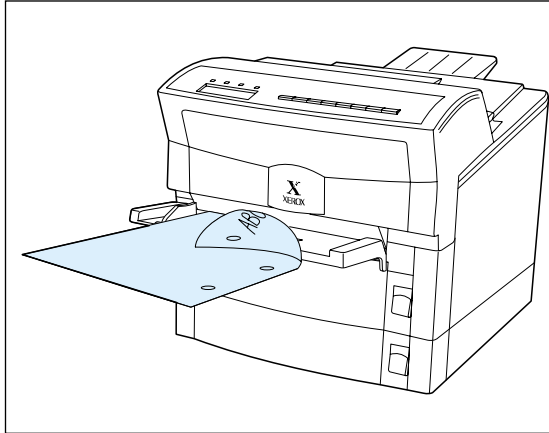
- 2 Place the item you want to print on the manual feed guide, lined up along the right edge. Then move the adjustable edge guide gently against the left edge of the item to be printed.

Proper orientation of media in the manual feed guide is discussed in the following sections.

## Feeding Paper for One-Sided Printing

Figure 2.6 shows the proper orientation for feeding paper for simplex (one-sided) printing.

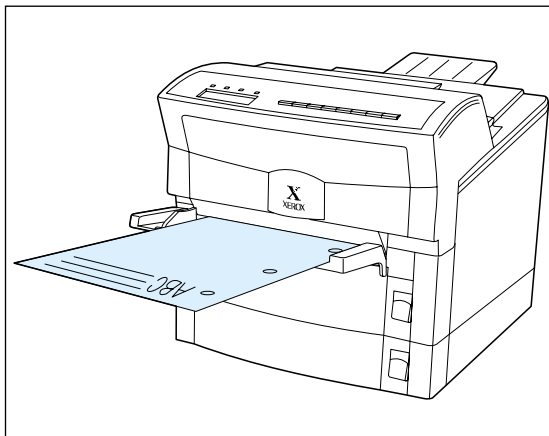
**Figure 2.6 Proper orientation in Manual Feed Guide for simplex printing**



## Feeding Paper for Two-Sided Printing

Figure 2.7 shows the proper orientation for feeding paper for duplex (two-sided) printing.

**Figure 2.7 Proper orientation in Manual Feed Guide for duplex printing**

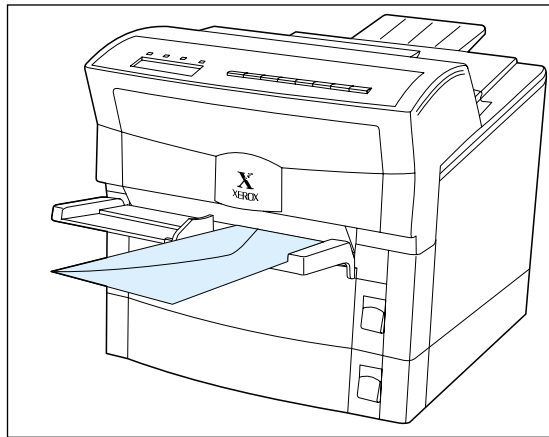




## Printing Envelopes

Figure 2.8 shows how envelopes are fed flap up. Use the software application for proper orientation.

**Figure 2.8** Manual feed envelope orientation



## Printing Labels and Transparencies

Figure 2.9 shows the correct orientation for feeding labels.

**Figure 2.9** Manual feed label orientation

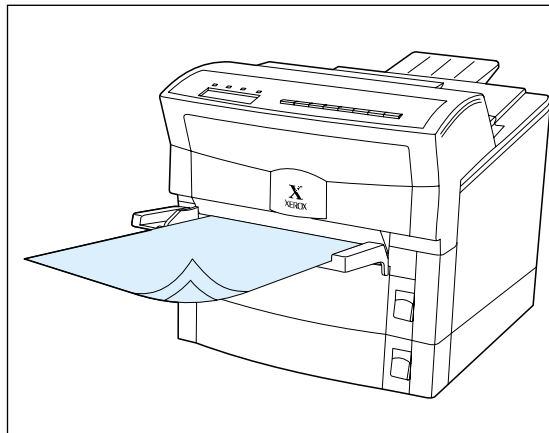
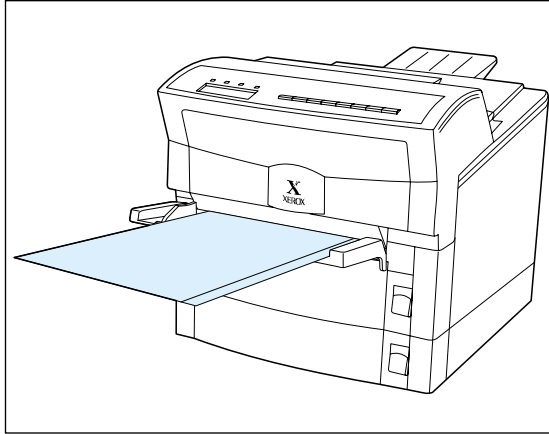


Figure 2.10 shows the correct orientation for feeding transparencies.

**Figure 2.10 Manual feed transparency orientation**



**Note**

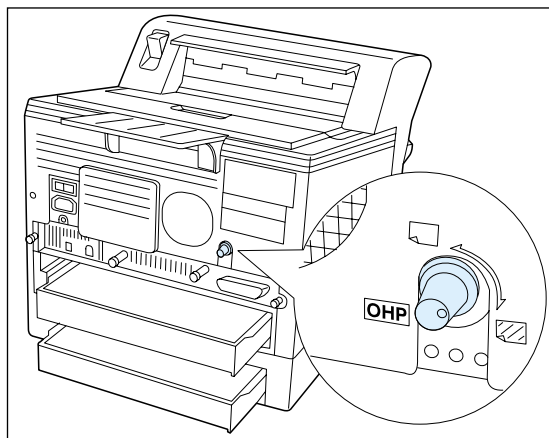
*If you get poor results when you change from normal printing on paper to printing on transparency film of the type used for overhead projectors, you should adjust the printer using the print density adjuster, discussed in the section “Adjusting Print Density” (page 2-13).*

## Adjusting Print Density

When printing graphics or when printing on media which you do not normally use, you may want to change the density of the toner. Greater toner density gives darker printing, but it also uses more toner, so you will have to replace your Toner Cartridge sooner. You can conserve toner by reducing density when doing draft printing.

There is a dial for adjusting the density of toner at the rear of the printer, between the fan outlet and the parallel port, as shown in Figure 2.11.

**Figure 2.11** Print density adjuster



The symbols on the dial offer approximate indicators of density settings. You may need to experiment before achieving optimum results. Turning the dial fully clockwise gives the greatest density. The toner density setting decreases as you turn the dial counterclockwise.

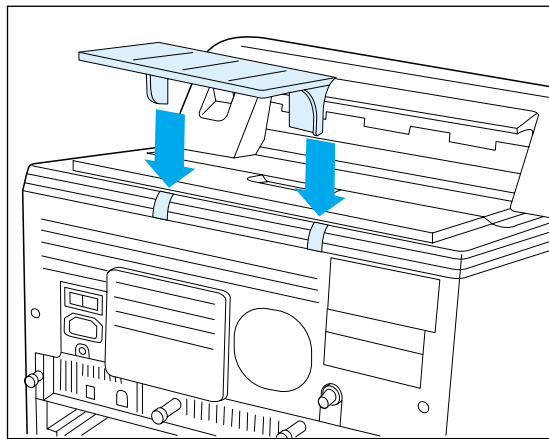
## Paper Output

Printed items are delivered face down to the output tray. The output tray supports up to 250 sheets of 80 g/m<sup>2</sup> paper. A Tray Extension supports larger sheet sizes and helps to neatly stack large volumes of output.

### Using the Tray Extension

The Tray Extension is inserted into the slots on the back of the printer as shown in Figure 2.12. (It may have already been installed as part of the procedure described in the *Setting Up Guide*.)

**Figure 2.12** The Tray Extension



You will probably find it convenient to leave the Tray Extension permanently in place. However should you want to remove it, grasp the bottom of the bracket and gently pull it out.

## Automatic Tray Switching

Automatic tray switching is available for both PCL and PostScript jobs. Tray switching is useful for:

- Increasing paper capacity.

When the current paper tray runs out of paper, the printer automatically switches to the next tray in the sequence, provided the paper in the next tray is the same size as that in the current tray.

- Searching for the correct paper size.

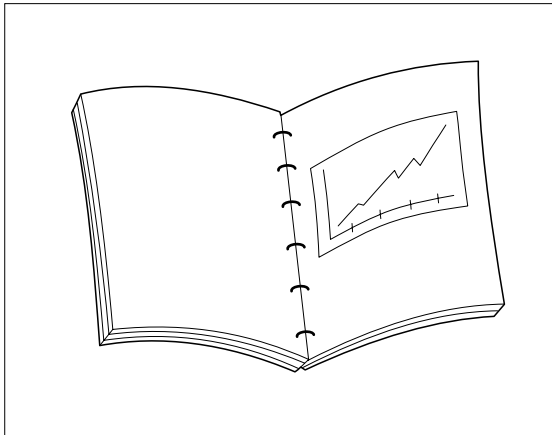
If the paper size specified in your software application does not match the size paper loaded in the current paper tray, the printer automatically searches the next tray in the sequence for a paper size that matches. The default tray is the lowest tray installed.

## Bind Options for Duplex Printing

To ensure that duplex jobs print in the proper orientation, set the Bind item (in the Control Panel's Printing menu) to the appropriate settings (see Figure 2.13).

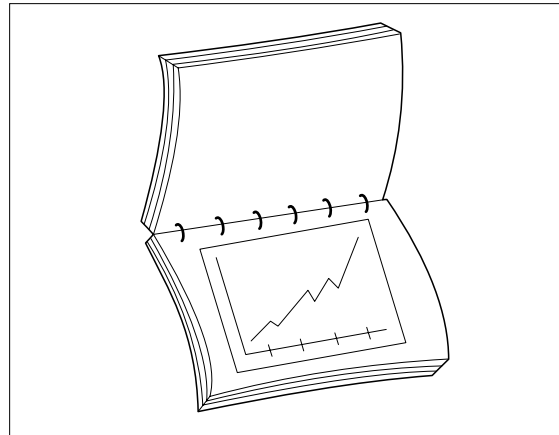
Figure 2.13 Duplex binding orientation and Control Panel menu settings

### Portrait Printing

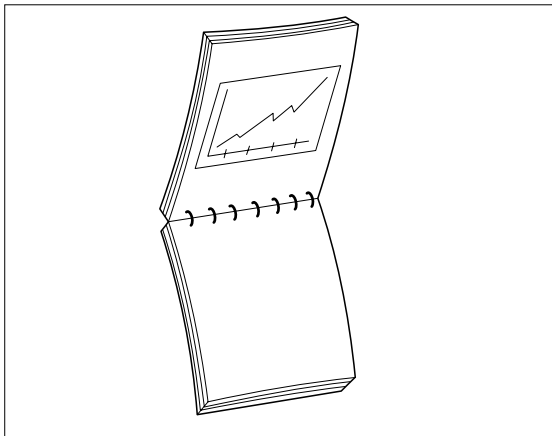


Set Bind to *Long Edge*

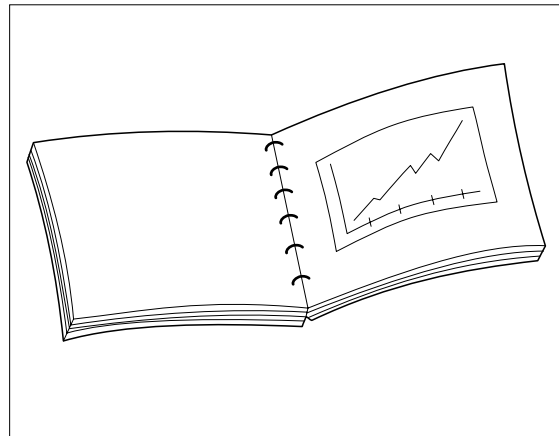
### Landscape Printing



Set Bind to *Long Edge*

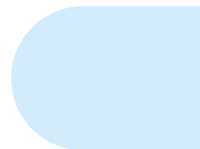


Set Bind to *Short Edge*

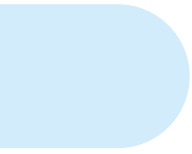


Set Bind to *Short Edge*

*Bind Options for Duplex Printing*

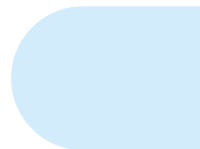


*Bind Options for Duplex Printing*





*Bind Options for Duplex Printing*



*Bind Options for Duplex Printing*



## Chapter 3

### *The Control Panel*

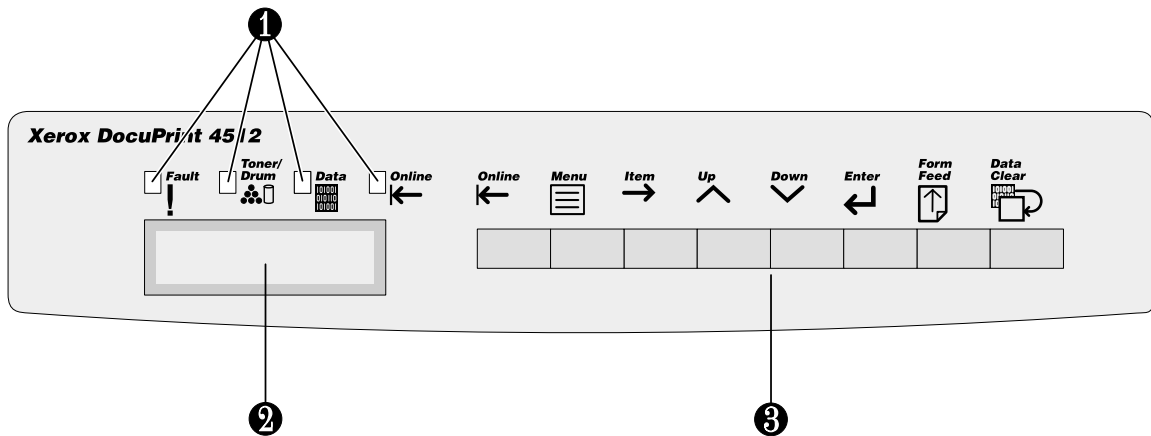
<b><i>Control Panel Features</i></b> .....	<b>3-2</b>
<i>Indicator Lights</i> .....	3-3
<i>Display Panel Messages</i> .....	3-3
<i>Control Keys</i> .....	3-4
<b><i>The Menu System</i></b> .....	<b>3-6</b>
<b><i>Using the Control Panel</i></b> .....	<b>3-7</b>
<i>Setting the Printer</i> .....	3-7
<i>Printing Test Sheets</i> .....	3-17
<i>Setting Power Saver Mode</i> .....	3-20
<i>Printing Simplex and Duplex Demo Pages</i> .....	3-20
<b><i>Printer Parameters and Default Settings</i></b> .....	<b>3-22</b>

## Control Panel Features

The DocuPrint 4512 Control Panel (Figure 3.1) serves two purposes:

- It displays information about the status of the printer (or the job in process) and
- It provides the means for changing printer settings to control how the DocuPrint 4512 operates.

Figure 3.1 DocuPrint 4512 Control Panel



- 1 Indicator lights
- 2 Display panel
- 3 Control keys (8)

## Indicator Lights

The Control Panel contains four indicator lights. Table 3.1 describes the function of each light.

**Table 3.1 Control Panel indicator lights and their functions**

Light	Description
<b>Fault (Yellow)</b>	Glows to show that an error has occurred. It flashes when the selected paper tray has run out of paper.
<b>Toner/Drum (Yellow)</b>	Begins to glow when the toner is low or when the Photoconductor / Drum is near the end of its life.
<b>Data (Green)</b>	Glows when the printer is processing data normally. It goes off when the final page of a print job has finished printing. It flashes if data for a page is in the printer memory and the end of page cannot be determined.
<b>On Line (Green)</b>	Glows when the printer is ready to receive print data from the computer. It flashes when the printer is receiving and/or processing data.

## Display Panel Messages

The Control Panel's display shows the following:

- Status messages  
These inform you of the printer's operating condition, such as [Self Test](#) or [PCL 5e A4/A4](#).
- Menu settings  
These are manually set using the Control Panel keys. See the section "*The Menu System*" (page 3-6) for an overview of the menus.
- Error conditions  
These indicate the likely cause of printer problems, such as paper jams and running out of supplies.
- Service messages  
These provide technical information about equipment failure.








## Control Keys

The Control Panel keypad consists of **eight** control keys. Table 3.2 describes the function of each key.

**Table 3.2 Control Panel keys and their functions**

Key	Description
<b>On Line</b> ←	Sets the printer on-line and off-line.  When on-line, the printer is ready to receive, or has already accepted, data for printing.  You must take the printer off-line to set menus, perform off-line print tests, and do other manual tasks. The other keys do not function when the printer is on-line.
<b>Menu</b> ☰	Cycles the display through the menus.
<b>Item</b> →	Cycles the display through the items in each menu.
<b>Up</b> ^	Cycles the display backward through the values for each menu item.  The current setting is indicated by an asterisk (*) at the right edge of the display.
<b>Down</b> v	Cycles the display forward through the values for each menu item.  The current setting is indicated by an asterisk (*) at the right edge of the display.
<b>Enter</b> ↵	Sets the displayed value of the currently displayed menu item, or executes the currently displayed off-line print test.
<b>Form Feed</b> ↑	Prints the data which is left in printer memory when the printer is taken off-line.  This key has no effect when the printer is on-line.
<b>Data Clear</b> ☐	Clears printer memory of print job data.

In general, the control keys are used in the following sequence:

1. Press **On Line**  to set the printer off-line.
2. Press **Menu**  to display the menu you want to access.
3. Press **Item**  to display the menu item you want to set.
4. Press **Up**  or **Down**  to change the item's value.
5. Press **Enter**  to set the item to the value displayed.
6. Press **On Line**  to set the printer on-line.

See “*The Menu System*” (page 3-6) for an overview of the Control Panel's menu structure, and “*Using the Control Panel*” (page 3-7) for specific procedures.

## The Menu System

Table 3.3 shows the Control Panel menu structure. The name of the menu appears at the top of the column, and the menu's items are displayed beneath it.

**Table 3.3 Control Panel menus and items**

Printing Menu	Job Menu	Config Menu	Serial Menu <sup>†</sup>	Test Menu	Misc Menu
Copies	Resolution	Warn Msg	Baud Rate	Config Sheet	Prt Screen
Font Number	Page P	Manual Set	Data Bit	PCL 5e Font List	Message
Duplex	St Saving	High Speed	Parity	PS2 Font List <sup>‡</sup>	
Bind <sup>††</sup>	Emulation	Adv Fnctns	Robust XON	PCL 5e Demo Page	
			DTR Polarity	PS2 Demo Page <sup>‡</sup>	

<sup>†</sup> Appears when the serial interface option is installed.

<sup>‡</sup> Appears when the PostScript option is installed.

<sup>††</sup> Appears when the Printing Menu's Duplex item is set to *On*.



## Using the Control Panel

The Control Panel is used to set various printer operations and to print test sheets.

### Setting the Printer

Table 3.4, starting on the next page, lists the most common printer setting tasks, organized by menu and menu item. The examples show a printer set for PCL 5e emulation with A4 paper in both upper and lower tray (PCL 5e A4/A4). Your settings may be different.

For an alphabetical listing of menu items (and more detailed descriptions), see Table 3.6 on page 3-23.

For each task listed in Table 3.4, you will find:

- All possible choices for the item to be set. The choice shown in **bold** is the **factory default setting**.
- The key press sequence to complete the task.
- For each key press, the action/response, along with the message displayed. ‘=X’ indicates the current setting, ‘=N’ indicates a new setting, and the asterisk (\*) indicates that the new setting has been entered.



#### Note

*You can normally control the printer's operation through your applications, such as specifying how many copies of the print job you want.*

**Table 3.4 Using the Control Panel to set printer operation**

Task	Key Press Sequence†	Action/Response	Display Shows
<b>Change the copies setting.</b> Sets how many copies to print. Choices: 1-999	On Line ←	Takes the printer off-line.	Printing Menu
	Item →	Displays the Copies item.	Copies=X *
	Up ^ or Down v	Changes the number of copies.	Copies=N
	Enter ↵	Sets the new value.	Copies=N *
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
<b>Change the font number setting.</b> Sets the printer's base font. Choices: 0-45	On Line ←	Takes the printer off-line.	Printing Menu
	Item →	Displays the Copies item.	Copies=X *
	Item →	Displays the Font Number item.	Font Number=X *
	Up ^ or Down v	Changes the font number.	Font Number=N
	Enter ↵	Saves the new value.	Font Number=N *
<b>Change the duplex setting.</b> Controls duplex (two-sided) printing. Choices: Off, On	On Line ←	Takes the printer off-line.	Printing Menu
	Item →	Displays the Copies item.	Copies=X *
	Item →	Displays the Font Number item.	Font Number=X *
	Item →	Displays the Duplex item.	Duplex=X *
	Up ^ or Down v	Toggles the duplex setting.	Duplex=N
	Enter ↵	Saves the new value.	Duplex=N *
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4

Table 3.4 Page 1 of 9

**Table 3.4** Using the Control Panel to set printer operation (continued)

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<b>Change the bind setting<sup>†</sup>.</b> Controls print orientation for duplex (two-sided) printing. Choices: <b>Long Edge,</b> <b>Short Edge</b> <sup>†</sup> When the Duplex item is set to <i>On</i> .	On Line ←	Takes the printer off-line.	Printing Menu
	Item →	Displays the Copies item.	Copies=X *
	Item →	Displays the Font Number item.	Font Number=X *
	Item →	Displays the Duplex item.	Duplex=On *
	Item →	Displays the Bind item.	Bind=X *
	Up ↗ or Down ↘	Toggles the binding setting.	Bind=N
	Enter ←	Saves the new value.	Bind=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	
<b>Change the resolution setting.</b> Sets the print resolution in dpi. Choices: <b>600, 300</b>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Item →	Displays the Resolution item.	Resolution=X *
	Up ↗ or Down ↘	Toggles the resolution setting.	Resolution=N
	Enter ←	Saves the new value.	Resolution=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	
<b>Change the page protection setting.</b> Controls how the printer completes a job that is causing a data loss error. Choices: <b>AUTO, On</b>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Item →	Displays the Resolution item.	Resolution=X *
	Item →	Displays the Page P item.	Page P=X *
	Up ↗ or Down ↘	Toggles the page protection setting.	Page P=N
	Enter ←	Saves the new value.	Page P=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

Table 3.4 Page 2 of 9

**Table 3.4 Using the Control Panel to set printer operation** (continued)

Task	Key Press Sequence†	Action/Response	Display Shows
<p><b>Change the state saving setting.</b></p> <p>Controls whether or not the printer saves data in memory when switching between PCL 5e and Postscript emulation.</p> <p>Choices: Off, On</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Item →	Displays the Resolution item.	Resolution=X *
	Item →	Displays the Page P item.	Page P=X *
	Item →	Displays the St Saving item.	St Saving=X *
	Up ^ or Down v	Toggles the state saving setting.	St Saving=N
	Enter ↵	Saves the new value.	St Saving=N *
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
<p><b>Change the emulation setting.</b></p> <p>Sets the base printer emulation.</p> <p>Choices: PCL 5e, PS2, AUTO, HEX</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Item →	Displays the Resolution item.	Resolution=X *
	Item →	Displays the Page P item.	Page P=X *
	Item →	Displays the St Saving item.	St Saving=X *
	Item →	Displays the Emulation item.	Emulation=X *
	Up ^ or Down v	Changes the emulation setting.	Emulation=N
	Enter ↵	Saves the new value.	Emulation=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

Table 3.4 Page 3 of 9

**Table 3.4** Using the Control Panel to set printer operation (continued)

Task	Key Press Sequence†	Action/Response	Display Shows
<b>Change the warning message setting.</b> Controls the display of memory-related warning messages. Choices: <b>On, Off</b>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ≡	Displays the Job Menu.	Job Menu
	Menu ≡	Displays the Config Menu.	Config Menu
	Item →	Displays the Warn Msg item.	Warn Msg=X *
	Up ^ or Down v	Toggles the warning messages setting.	Warn Msg=N
	Enter ↵	Saves the new value.	Warn Msg=N *
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
<b>Change the manual feed setting.</b> Controls the override of manual paper feed requests from computer applications. Choices: <b>On, Off</b>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ≡	Displays the Job Menu.	Job Menu
	Menu ≡	Displays the Config Menu.	Config Menu
	Item →	Displays the Warn Msg item.	Warn Msg=X *
	Item →	Displays the Manual Set item.	Manual Set=X *
	Up ^ or Down v	Toggles the manual feed setting.	Manual Set=N
	Enter ↵	Saves the new value.	Manual Set=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

Table 3.4 Page 4 of 9

**Table 3.4 Using the Control Panel to set printer operation** (continued)

Task	Key Press Sequence†	Action/Response	Display Shows
<p><b>Change the high speed setting.</b> Controls data transfer speed to slower or older computers. Choices: <b>On, Off</b></p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ≡	Displays the Job Menu.	Job Menu
	Menu ≡	Displays the Config Menu.	Config Menu
	Item →	Displays the Warn Msg item.	Warn Msg=X *
	Item →	Displays the Manual Set item.	Manual Set=X *
	Item →	Displays the High Speed item.	High Speed=X *
	Up ^ or Down v	Toggles the high speed setting.	High Speed=N
	Enter ↵	Saves the new value.	High Speed=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	
<p><b>Change the advanced functions setting.</b> Controls whether or not the printer will send status messages to the computer. Choices: <b>On, Off</b></p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ≡	Displays the Job Menu.	Job Menu
	Menu ≡	Displays the Config Menu.	Config Menu
	Item →	Displays the Warn Msg item.	Warn Msg=X *
	Item →	Displays the Manual Set item.	Manual Set=X *
	Item →	Displays the High Speed item.	High Speed=X *
	Item →	Displays the Adv Fnctns item.	Adv Fnctns=X *
	Up ^ or Down v	Toggles the advanced functions setting.	Adv Fnctns=N
Enter ↵	Saves the new value.	Adv Fnctns=N *	
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

Table 3.4 Page 5 of 9

**Table 3.4** Using the Control Panel to set printer operation (continued)

Task	Key Press Sequence†	Action/Response	Display Shows
<b>Change the baud rate setting.</b> Controls the rate at which data is transferred between the computer and the printer through the optional serial interface. Choices: 300, 600, 1200, 2400, 4800, <b>9600</b> , 19200, 38400, 57600	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Item →	Displays the Baud Rate item.	Baud Rate=X *
	Up ^ or Down v	Changes the baud rate setting.	Baud Rate=N
	Enter ←	Saves the new value.	Baud Rate=N *
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
<b>Change the data bit setting.</b> Controls a communications parameter for the optional serial interface. Choices: <b>8</b> , 7	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Item →	Displays the Baud Rate item.	Baud Rate=X *
	Item →	Displays the Data Bit item.	Data Bit=X *
	Up ^ or Down v	Changes the data bit setting.	Data Bit=N
	Enter ←	Saves the new value.	Data Bit=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

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**Table 3.4 Using the Control Panel to set printer operation** (continued)

Task	Key Press Sequence†	Action/Response	Display Shows
<p><b>Change the parity setting.</b></p> <p>Controls a communications parameter for the optional serial interface.</p> <p>Choices: None, Even, Odd</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Item →	Displays the Baud Rate item.	Baud Rate=X *
	Item →	Displays the Data Bit item.	Data Bit=X *
	Item →	Displays the Parity item.	Parity=X *
	Up ^ or Down v	Changes the parity setting.	Parity=N
	Enter ↵	Saves the new value.	Parity=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	
<p><b>Change the Robust XON setting.</b></p> <p>Controls a datastream handshaking protocol for the optional serial interface.</p> <p>Choices: On, Off</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Item →	Displays the Baud Rate item.	Baud Rate=X *
	Item →	Displays the Data Bit item.	Data Bit=X *
	Item →	Displays the Parity item.	Parity=X *
	Item →	Displays the Robust XON item.	Robust XON=X *
	Up ^ or Down v	Changes the Robust XON setting.	Robust XON=N
	Enter ↵	Saves the new value.	Robust XON=N *
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4

Table 3.4 Page 7 of 9



**Table 3.4** Using the Control Panel to set printer operation (*continued*)

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<b>Change the DTR Polarity setting.</b> Controls the configuration of Data Terminal Ready polarity for the optional serial interface. Choices: <b>High</b> , Low	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Item →	Displays the Baud Rate item.	Baud Rate=X *
	Item →	Displays the Data Bit item.	Data Bit=X *
	Item →	Displays the Parity item.	Parity=X *
	Item →	Displays the Robust XON item.	Robust XON=X *
	Item →	Displays the DTR Polarity item.	DTR Polarity=X *
	Up ↗ or Down ↘	Changes the polarity setting.	DTR Polarity=N
	Enter ↵	Saves the new value.	DTR Polarity=N *
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	
<b>Change the print screen setting.</b> Controls the default symbol set to allow 80 characters per line on A4 paper. Choices: <b>OFF</b> , 850, 852	On Line ←	Takes printer off-line.	Printing Menu
	Menu ☰	Displays Job Menu.	Job Menu
	Menu ☰	Displays Config Menu.	Config Menu
	Menu ☰	Displays Serial Menu (if present).	Serial Menu
	Menu ☰	Displays Test Menu.	Test Menu
	Menu ☰	Displays Misc Menu.	Misc Menu
	Item →	Displays Prt Screen item.	Prt Screen=X *
	Up ↗ or Down ↘	Changes the screen dump setting.	Prt Screen=N
	Enter ↵	Saves the new value.	Prt Screen=N *
On Line ←	Returns printer on-line.	PCL 5e A4/A4	

Table 3.4 Page 8 of 9

**Table 3.4 Using the Control Panel to set printer operation** (continued)

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<p><b>Change the Message setting.</b></p> <p>Sets the language of display panel messages.</p> <p>Choices:  <b>English</b>, FRENCH, GERMAN, ITALIAN, PORTUG, RUSSIAN, SPANISH</p>	On Line ←	Takes printer off-line.	Printing Menu
	Menu ≡	Displays Job Menu.	Job Menu
	Menu ≡	Displays Config Menu.	Config Menu
	Menu ≡	Displays Serial Menu (if present).	Serial Menu
	Menu ≡	Displays Test Menu.	Test Menu
	Menu ≡	Displays Misc Menu.	Misc Menu
	Item →	Displays Prt Screen item.	Prt Screen=X *
	Item →	Displays Message item.	Message=X *
	Up ^ or Down v	Changes the message language setting.	Message=N
	Enter ↵	Saves the new value.	Message=N *
On Line ←	Returns printer on-line.	PCL 5e A4/A4	

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<sup>†</sup> The number of menus and menu items will vary, depending on whether or not you have option boards installed in the printer. Therefore, the number of times you have to press the Menu or Item key may vary from that shown in this table.

## Printing Test Sheets

Table 3.5 lists the procedures for printing the various test prints.

**Table 3.5** Using the Control Panel to print test sheets

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<p><b>Print the Configuration Sheet.</b></p> <p>Lists the options you have installed and the current settings for each option in the Control Panel's menu system.</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Menu ☰	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Enter ↵	Prints the Configuration Sheet.	Config Sheet
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
<p><b>Print the PCL 5e Font List.</b></p> <p>Shows which PCL fonts are currently available. The list includes resident fonts and downloaded fonts.</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Menu ☰	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Item →	Displays the PCL 5e Font List item.	PCL 5e Font List
	Enter ↵	Prints the PCL 5e Font List.	PCL 5e Font List
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

Table 3.5 Page 1 of 3

**Table 3.5** Using the Control Panel to print test sheets (continued)

Task	Key Press Sequence†	Action/Response	Display Shows
<p><b>Print the PS2 Font List.</b></p> <p>Shows which PostScript fonts are currently available (if the PostScript option has been installed). The list includes resident fonts and downloaded fonts.</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Menu ☰	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Item →	Displays the PCL 5e Font List item.	PCL 5e Font List
	Item →	Displays the PS2 Font List item.	PS2 Font List
	Enter ↵	Prints the PS2 Font List.	PS2 Font List
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	
<p><b>Print the PCL 5e Demo Page.</b></p> <p>Provides a sample of the printer's capabilities and lists the printer's key features.</p>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Menu ☰	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Item →	Displays the PCL 5e Font List item.	PCL 5e Font List
	Item →	Displays the PS2 Font List item.	PS2 Font List
	Item →	Displays the PCL 5e Demo Page item.	PCL 5e Demo Page
	Enter ↵	Prints the PCL 5e Demo Page.	PCL 5e Demo Page
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

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**Table 3.5** Using the Control Panel to print test sheets (*continued*)

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<b>Print the PS2 Demo Page.</b> Provides a sample of the printer's PostScript capabilities (if the PostScript option has been installed).	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ≡	Displays the Job Menu.	Job Menu
	Menu ≡	Displays the Config Menu.	Config Menu
	Menu ≡	Displays the Serial Menu (if present).	Serial Menu
	Menu ≡	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Item →	Displays the PCL 5e Font List item.	PCL 5e Font List
	Item →	Displays the PS2 Font List item.	PS2 Font List
	Item →	Displays the PCL 5e Demo Page item.	PCL 5e Demo Page
	Item →	Displays the PS2 Demo Page item.	PS2 Demo Page
	Enter ↵	Prints the PS2 Demo Page.	PS2 Demo Page
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
			Table 3.5 Page 3 of 3


<sup>†</sup> The number of menus and menu items will vary, depending on whether or not you have option boards installed in the printer. Therefore, the number of times you have to press the Menu or Item key may vary from that shown in this table.

## Setting Power Saver Mode

The DocuPrint 4512 conforms to the U.S. EPA Energy Star power saver mode specifications. By default, the printer's power consumption drops to less than 30 watts when no data is received for a period of 30 minutes.



Other power saving modes are available that reduce power consumption to less than 10% of peak consumption after 15, 30, or 45 minutes.

To set the power saver mode:

- 1 Power off the printer.**
- 2 Press Data Clear  and hold the key down while powering the printer back on.**

The display will read:

POWER SAVE 30

- 3 Press Form Feed  or Data Clear  to cycle through the power saver choices.**

POWER SAVE 15

POWER SAVE 30



POWER SAVE 45

- 4 When the value you want is displayed, turn the printer off.**
- 5 Wait 10 to 15 seconds, then turn the printer back on.**

The new value will then be set.

## Printing Simplex and Duplex Demo Pages

The DocuPrint 4512 has a Demo Page Mode in which demo pages can be printed by a single key press. To enter Demo Page Mode:

- 1 Power off the printer.**
- 2 Press Form Feed  and Data Clear  and hold the keys down while powering the printer back on.**

The display will read:

DEMO PAGE

**3 To print a simplex demo page, press Enter ↵.**

**To print a duplex demo page, press Up ▲.**

If the PostScript option is installed, the PS2 demo pages will be printed.  
Otherwise, the PCL 5e demo pages will be printed.

**4 To cancel Demo Page Mode, either power off the printer or simultaneously press Menu ☰, Up ▲, and Down ▼.**

## Printer Parameters and Default Settings

Table 3.6, starting on the next page, contains an alphabetical listing of all Control Panel menu items. For each item listed, you will find:

- The menu item.
- The menu under which the item is located.
- All possible settings for the item.
- The factory default setting for the item. A **boldfaced** setting means it is a **factory default setting**.
- A description of the item.



### Note

*You can normally override many of the printer's default settings through your applications, such as the font(s) to be used for a print job.*



**Table 3.6 Control Panel menu items, settings, and descriptions**



Menu Item, Location, Setting(s)	Description
<b>Adv Fnctns</b> <i>Config Menu</i> <b>On, Off</b>	When set to <i>On</i> , allows status messages to be sent to the computer through the printer's bi-directional parallel port.
<b>Baud Rate</b> <sup>†</sup> <i>Serial Menu</i> 300, 600, 1200, 2400, 4800, <b>9600</b> , 19200, 38400, 57600 † Appears only when the serial interface option is installed.	Determines the rate at which data is transferred between the computer and the printer.  <i>Older computers require slower settings. Refer to your computer manual.</i>
<b>Bind</b> <i>Printing Menu</i> <b>Long Edge, Short Edge</b>	Sets the binding of the print job for duplex printing.
<b>Copies</b> <i>Printing Menu</i> <b>1 ~ 999</b>	Sets how many copies to print.
<b>Data Bit</b> <sup>†</sup> <i>Serial Menu</i> <b>8, 7</b> † Appears only when the serial interface option is installed.	Sets 7 or 8 bit communications.  <i>Printer and host values must match.</i>
<b>DTR Polarity</b> <sup>†</sup> <i>Serial Menu</i> <b>High, Low</b> † Appears only when the serial interface option is installed.	Sets the configuration of Data Terminal Ready polarity, which determines whether the signal at pin 20 of the serial interface connector is high or low when the printer is ready.

Table 3.6 Page 1 of 3

**Table 3.6 Control Panel menu items, settings, and descriptions** (continued)







Menu Item, Location, Setting(s)	Description
<p><b>Duplex</b> <i>Printing Menu</i> Off, On</p>	<p>When set to <i>On</i>, enables duplex (two-sided printing).</p>
<p><b>Emulation</b><sup>†</sup> <i>Job Menu</i> PCL 5e, PS2, AUTO, HEX <sup>†</sup> Appears only when a PostScript option is installed.</p>	<p>Sets the base printer emulation.</p>
<p><b>Font Number</b> <i>Printing Menu</i> 0-45</p>	<p>Sets the font number of the printer's base font.</p> <p> <i>The number varies according to how many fonts are installed on the printer.</i></p>
<p><b>High Speed</b> <i>Config Menu</i> On, Off</p>	<p>Controls data transfer speed.</p> <p> <i>This item should be set to Off for slower or older computers. Setting it to On improves data transfer speed.</i></p>
<p><b>Manual Set</b> <i>Config Menu</i> On, Off</p>	<p>Controls processing of manual feed request from computer application. When set to Off, causes paper to feed automatically from the paper tray even if the application requests manual feed.</p>
<p><b>Message</b> <i>Misc Menu</i> ENGLISH, FRENCH, GERMAN, ITALIAN, PORTUG, RUSSIAN, SPANISH</p>	<p>Sets the language for the messages that display on the Control Panel.</p>
<p><b>Page P</b> <i>Job Menu</i> AUTO, On</p>	<p>Controls how data is processed when DATA LOSS ERROR occurs.</p> <p> <i>If printing speed is a consideration, more memory may be required to make effective use of this item.</i></p>

Table 3.6 Page 2 of 3

**Table 3.6 Control Panel menu items, settings, and descriptions** (continued)

Menu Item, Location, Setting(s)	Description
<p><b>Parity</b><sup>†</sup></p> <p><i>Serial Menu</i></p> <p>None, Even, Odd</p> <p><sup>†</sup> Appears only when the serial interface option is installed.</p>	<p>Sets the parity communications parameter.</p> <p> <i>Printer and host values must match.</i></p>
<p><b>Prt Screen</b></p> <p><i>Misc Menu</i></p> <p>OFF, 850, 852</p>	<p>Controls the default symbol set to allow 80 characters per line on A4 paper.</p> <p> <i>A4 paper is usually 77 characters wide. When set to 850 or 852, A4 width will be able to accommodate 80 characters per line, and the default symbol set value will correspond to PC-850 or PC-852. This item is useful when printing the 80 characters per line width of computer displays.</i></p>
<p><b>Resolution</b></p> <p><i>Job Menu</i></p> <p>600, 300</p>	<p>Sets the print resolution in dpi (dots per inch).</p>
<p><b>Robust XON</b><sup>†</sup></p> <p><i>Serial Menu</i></p> <p>On, Off</p> <p><sup>†</sup> Appears only when the serial interface option is installed.</p>	<p>Controls the XON datastream handshaking protocol. When set to <i>On</i>, the printer sends signals at one-second intervals to tell the host it is ready to receive data.</p>
<p><b>St Saving</b><sup>†</sup></p> <p><i>Job Menu</i></p> <p>Off, On</p> <p><sup>†</sup> Used only when the PostScript option is installed.</p>	<p>Controls whether or not the printer saves data in memory when switching between PCL 5e and Postscript emulation. When set to <i>Off</i>, the user area is cleared at emulation change.</p> <p> <i>Setting this item to On may require more memory.</i></p>
<p><b>Warn Msg</b></p> <p><i>Config Menu</i></p> <p>On, Off</p>	<p>Controls the display of memory-related warning messages. When set to <i>On</i>, Data Loss Error and Data Memory Full messages will not be displayed.</p>
<p>Table 3.6 Page 3 of 3</p>	



# Chapter 4

## *Fonts*

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## Fonts in Your Printer

The DocuPrint 4512 base printer is equipped with 46 resident fonts that can be used for PCL jobs:

- 10 TrueType™ scalable typefaces
- 35 Intellifont™ scalable typefaces
- 1 PCL Bitmap font

The PostScript option provides an additional 35 PostScript-compatible fonts for PostScript jobs.



*To review the fonts in your printer, you can print font lists, as described in the section “Printing Font Lists” (page 4-5).*

### Note

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## Xerox Font Manager

The Xerox Font Manager ships with 110 fonts. Most important, the Xerox Font Manager uses Agfa’s new MicroType font compression technology, designed for high throughput of all type styles with uncompromised type rendering.

The Xerox Font Manager also includes a number of productivity enhancements, such as double clicking for font previews, on-demand drive search, font grouping, and available font listings. In addition, the Xerox Font Manager installs and de-installs all the major Windows fonts, including TrueType, PostScript, screen bitmaps, and MicroType.

**Intellifont**

Table 4.1 lists the 35 Intellifont scalable typefaces that are available in the DocuPrint 4512.

**Table 4.1 DocuPrint 4512 base printer Intellifont fonts**

Antique Olive™	Garamond Antiqua
Antique Olive Bold	Garamond Halbfett
Antique Olive Italic	Garamond Kursiv
Albertus™ Medium	Garamond Kursiv Halbfett
Albertus Extra Bold	Letter Gothic
CG Omega®	Letter Gothic Bold
CG Omega Bold	Letter Gothic Italic
CG Omega Bold Italic	Marigold
CG Omega Italic	Univers® Medium
CG Times®	Univers Medium Italic
CG Times Bold	Univers Bold
CG Times Bold Italic	Univers Bold Italic
CG Times Italic	Univers Medium Condensed
Clarendon Condensed	Univers Medium Condensed Italic
Coronet™	Univers Bold Condensed
Courier	Univers Bold Condensed Italic
Courier Bold	
Courier Bold Italic	
Courier Italic	

**TrueType**

Table 4.2 lists the ten TrueType typefaces that are available in the DocuPrint 4512.

**Table 4.2 DocuPrint 4512 base printer TrueType fonts**

Arial™	Times New Roman®
Arial Bold	Times New Roman Bold
Arial Bold Italic	Times New Roman Bold Italic
Arial Italic	Times New Roman Italic
Symbol	Wingdings

## Bitmap

There is one bitmap font available in the DocuPrint 4512:

Line Printer
--------------

## PostScript

When the PostScript option is installed, there are 35 resident PostScript-compatible fonts available for printing PostScript jobs (as shown in Table 4.3).

**Table 4.3 DocuPrint 4512 optional PostScript fonts**

ITC Avant Garde Gothic® Book	New Century Schoolbook® Roman
ITC Avant Garde Gothic Book Oblique	New Century Schoolbook Bold
ITC Avant Garde Gothic Demi	New Century Schoolbook Bold Italic
ITC Avant Garde Gothic Demi Oblique	New Century Schoolbook Italic
ITC Bookman® Demi	Palatino®
ITC Bookman Demi Italic	Palatino Bold
ITC Bookman Light	Palatino Bold Italic
ITC Bookman Light Italic	Palatino Italic
Courier®	Symbol
Courier Bold	Times® Roman
Courier Bold Oblique	Times Bold
Courier Oblique	Times Bold Italic
Helvetica®	Times Italic
Helvetica Bold	ITC Zapf Chancery® Medium Italic
Helvetica Bold Oblique	ITC Zapf Dingbats®
Helvetica Oblique	
Helvetica® Narrow	
Helvetica Narrow Bold	
Helvetica Narrow Bold Oblique	
Helvetica Narrow Oblique	



## Printing Font Lists

The DocuPrint 4512 can print font lists that show which fonts are currently available for use. The lists include resident fonts and downloaded fonts.

Table 4.4 lists the procedures for printing font lists.

**Table 4.4 Using the Control Panel to print font lists**

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<b>Print the PCL 5e Font List.</b>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Menu ☰	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Item →	Displays the PCL 5e Font List item.	PCL 5e Font List
	Enter ↵	Prints the PCL 5e Font List.	PCL 5e Font List
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4
<b>Print the PS2 Font List.</b>	On Line ←	Takes the printer off-line.	Printing Menu
	Menu ☰	Displays the Job Menu.	Job Menu
	Menu ☰	Displays the Config Menu.	Config Menu
	Menu ☰	Displays the Serial Menu (if present).	Serial Menu
	Menu ☰	Displays the Test Menu.	Test Menu
	Item →	Displays the Config Sheet item.	Config Sheet
	Item →	Displays the PCL 5e Font List item.	PCL 5e Font List
	Item →	Displays the PS2 Font List item.	PS2 Font List
	Enter ↵	Prints the PS2 Font List.	PS2 Font List
On Line ←	Returns the printer on-line.	PCL 5e A4/A4	

<sup>†</sup> The number of menus and menu items will vary, depending on whether or not you have option boards installed in the printer. Therefore, the number of times you have to press the Menu or Item key may vary from that shown in this table.

## Selecting Fonts

Selecting fonts is rarely done manually, due to the use of WYSIWYG (What You See Is What You Get) application software, which enables you to control the look of your output from the computer monitor.

There may be times, however, when you want to print older text files without going through application software. At such times, you can print files straight to the printer, using the printer's default font. Any of the printer's resident fonts can be set as the default, as described in the following section.

## Changing the Font Number Setting

You can set the printer's default font at the Control Panel. Table 4.5 lists the procedure. The factory default is 0 (zero). The '=X' indicates the current setting, the '=N' indicates a new setting, and the asterisk (\*) indicates that the new setting has been entered.

**Table 4.5** Using the Control Panel to change the font number setting

Task	Key Press Sequence <sup>†</sup>	Action/Response	Display Shows
<b>Change the Font Number setting.</b> Choices: 0-45	On Line ←	Takes the printer off-line.	Printing Menu
	Item →	Displays the Copies item.	Copies=X
	Item →	Displays the Font Number item.	Font Number=X
	Up or Down	Changes the font number.	Font Number=N
	Enter ↵	Saves the new value.	Font Number=N*
	On Line ←	Returns the printer on-line.	PCL 5e A4/A4

<sup>†</sup> The number of menus and menu items will vary, depending on whether or not you have option boards installed in the printer. Therefore, the number of times you have to press the Menu or Item key may vary from that shown in this table.



**Note**

*The PCL 5e Font List contains the names and corresponding numbers of the fonts that can be set with the Font Number item. Downloaded fonts cannot be selected through the Control Panel.*

## Downloading Fonts

Xerox DocuPrint 4512 printer drivers provide you with the ability to download fonts to the printer.

- To download fonts you must first install the appropriate DocuPrint 4512 Windows 3.1/95, Macintosh, Windows NT, or UNIX drivers. See *Chapter 5: Printer Drivers*.
- “Temporary” fonts downloaded to printer memory on a job basis are cleared from the printer’s memory after each job.
- “Permanent” fonts downloaded to printer memory are cleared from the printer’s memory whenever the printer is powered OFF, and whenever the printer switches PDLs and the *State Saving* option is set to *Off*.

(When *State Saving* is set to *On*, “permanent” fonts are only cleared from printer memory when you power OFF the printer.)



### Note

*The DocuPrint 4512 printer driver software contains Font Manager, a utility that enables you to easily download fonts.*

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# Chapter 5

## *Printer Drivers*

<i>DocuPrint 4512 PCL 5e Emulation Printer Drivers .....</i>	<i>5-2</i>
<i>DocuPrint 4512 PostScript Printer Drivers .....</i>	<i>5-3</i>

## DocuPrint 4512 PCL 5e Emulation Printer Drivers

The base DocuPrint 4512 supports the PCL printer drivers listed in Table 5.1. To take full advantage of all the printer's features when printing PCL jobs, install the appropriate DocuPrint 4512 PCL 5e emulation printer driver(s). (Consult your software application user manual for instructions on installing a new printer driver.)

If the driver you need did not come with the printer, see *Appendix A: Ordering Information*. (Printer software and drivers may also be available through on-line services and the Internet.)

**Table 5.1 DocuPrint 4512 PCL 5e emulation printer drivers**

Environment	Printer Driver	Diskette
DOS†	Microsoft Word Ver. 6.0	Xerox DocuPrint 4512 Printer Driver for MS Word 6.0 for DOS
	WordPerfect Ver. 6.0	Xerox DocuPrint 4512 Printer Driver for WordPerfect 6.0 for DOS
Windows	Windows 3.1 / Windows 95	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for Microsoft Windows 3.1/ Windows 95
	Windows NT 3.5	OnPAGE PCL 5e Emulation Printer Driver for Microsoft Windows NT 3.5
IBM OS/2	OS/2 Ver. 2.1	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for IBM OS/2 Ver. 2.1
	OS/2 WARP	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for IBM OS/2 WARP

† If you are using a DOS application other than Microsoft Word or WordPerfect, use the HP LaserJet 4si printer driver supplied with your application software.

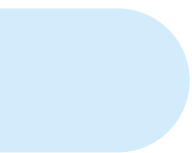
## DocuPrint 4512 PostScript Printer Drivers

The PostScript option supports the PostScript drivers listed in Table 5.2. To take full advantage of all the printer's features when printing PostScript jobs, install the appropriate DocuPrint 4512 PostScript printer driver(s). (Consult your software application user manual for instructions on installing a new printer driver.)

If the driver you need did not come with the printer, see *Appendix A: Ordering Information*. (Printer software and drivers may also be available through on-line services and the Internet.)

**Table 5.2 DocuPrint 4512 PostScript printer drivers**

Environment	Printer Driver	Diskette
Windows	Windows 3.1 / Windows 95	Xerox DocuPrint 4512 PS2 Printer Driver for Microsoft Windows 3.1/ Windows 95
	Windows NT 3.5	OnPAGE PS2 Printer Driver for Microsoft Windows NT 3.5
IBM OS/2	OS/2 Ver. 2.1	Xerox DocuPrint 4512 PS2 Printer Driver for IBM OS/2 Ver. 2.1
	OS/2 WARP	Xerox DocuPrint 4512 PS2 Printer Driver for IBM OS/2 WARP
Macintosh	System 6.x	OnPAGE
	System 7.x	OnPAGE
UNIX (SUN 4.1x, SCO UNIX, IBM AIX 3.1, HP.UX on HP 9000)	Document Manager	Xerox DocuPrint 4512 PS2 Printer Driver for SUN OS 4.1.3





# Chapter 5

## *Printer Drivers*

<i>DocuPrint 4512 PCL 5e Emulation Printer Drivers .....</i>	<i>5-2</i>
<i>DocuPrint 4512 PostScript Printer Drivers .....</i>	<i>5-3</i>

## DocuPrint 4512 PCL 5e Emulation Printer Drivers

The base DocuPrint 4512 supports the PCL printer drivers listed in Table 5.1. To take full advantage of all the printer's features when printing PCL jobs, install the appropriate DocuPrint 4512 PCL 5e emulation printer driver(s). (Consult your software application user manual for instructions on installing a new printer driver.)

If the driver you need did not come with the printer, see *Appendix A: Ordering Information*. (Printer software and drivers may also be available through on-line services and the Internet.)

**Table 5.1 DocuPrint 4512 PCL 5e emulation printer drivers**

Environment	Printer Driver	Diskette
DOS†	Microsoft Word Ver. 6.0	Xerox DocuPrint 4512 Printer Driver for MS Word 6.0 for DOS
	WordPerfect Ver. 6.0	Xerox DocuPrint 4512 Printer Driver for WordPerfect 6.0 for DOS
Windows	Windows 3.1 / Windows 95	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for Microsoft Windows 3.1/ Windows 95
	Windows NT 3.5	OnPAGE PCL 5e Emulation Printer Driver for Microsoft Windows NT 3.5
IBM OS/2	OS/2 Ver. 2.1	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for IBM OS/2 Ver. 2.1
	OS/2 WARP	Xerox DocuPrint 4512 PCL 5e Emulation Printer Driver for IBM OS/2 WARP

† If you are using a DOS application other than Microsoft Word or WordPerfect, use the HP LaserJet 4si printer driver supplied with your application software.

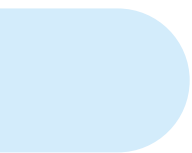
## DocuPrint 4512 PostScript Printer Drivers

The PostScript option supports the PostScript drivers listed in Table 5.2. To take full advantage of all the printer's features when printing PostScript jobs, install the appropriate DocuPrint 4512 PostScript printer driver(s). (Consult your software application user manual for instructions on installing a new printer driver.)

If the driver you need did not come with the printer, see *Appendix A: Ordering Information*. (Printer software and drivers may also be available through on-line services and the Internet.)

**Table 5.2 DocuPrint 4512 PostScript printer drivers**

Environment	Printer Driver	Diskette
Windows	Windows 3.1 / Windows 95	Xerox DocuPrint 4512 PS2 Printer Driver for Microsoft Windows 3.1/ Windows 95
	Windows NT 3.5	OnPAGE PS2 Printer Driver for Microsoft Windows NT 3.5
IBM OS/2	OS/2 Ver. 2.1	Xerox DocuPrint 4512 PS2 Printer Driver for IBM OS/2 Ver. 2.1
	OS/2 WARP	Xerox DocuPrint 4512 PS2 Printer Driver for IBM OS/2 WARP
Macintosh	System 6.x	OnPAGE
	System 7.x	OnPAGE
UNIX (SUN 4.1x, SCO UNIX, IBM AIX 3.1, HP.UX on HP 9000)	Document Manager	Xerox DocuPrint 4512 PS2 Printer Driver for SUN OS 4.1.3



## Chapter 6

### ***Troubleshooting***

<i><b>Contacting Technical Support</b></i> .....	<b>6-2</b>
<i>Before Calling for Service</i> .....	6-2
<i><b>Printer Operation Problems</b></i> .....	<b>6-3</b>
<i><b>Print Quality Problems</b></i> .....	<b>6-8</b>
<i><b>Control Panel Messages</b></i> .....	<b>6-15</b>
<i>Error Messages at Power On</i> .....	6-18
<i><b>Paper Jams</b></i> .....	<b>6-19</b>
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<i>Clearing the Jam</i> .....	6-20

## **Contacting Technical Support**

If you are unable to resolve a printing problem related to the printer by using the instructions in this chapter, contact the dealer from which you bought your printer or contact Xerox/Rank Xerox. However:

- If the problem is operating system related, consider contacting the original manufacturer.
- If the problem is related to a specific application package, consider contacting the original manufacturer.
- If the problem is driver related, consider accessing the Xerox CompuServe or Internet site.

## **Before Calling for Service**

Before contacting your dealer or Xerox/Rank Xerox, please have the following information available:

- Printer Serial No. (located on the inside of the printer, under the Photoconductor / Drum)
- A Configuration Sheet
- Any error code or message displayed on the Control Panel
- A description of the problem
- Type of network (if problem is possibly network related)

# Printer Operation Problems

Consult Table 6.1 for corrective actions when the printer will not print or when the printed output is not what you expect.

**Table 6.1** Printer operation problems

Problem	Probable Cause	Remedy
<b>Power</b>		
Printer does not switch on.	Printer is not connected to power source.	Check all connections and power switches, including at wall socket and on printer.
	Power source defective.	Check voltage rating of circuit. Check circuit breakers and fuses.
<b>Print data not received</b>		
Printer turns on, but will not print data from the computer.	Printer is not on-line.	Check if On Line indicator is glowing. If it is not, press the On Line key. A printer error may have occurred. Check the printer display panel.
	Interface cable not secured.	Reseat the interface cable at both the printer and computer ends.
	Computer and printer settings mismatch.	Confirm that the emulation selected on the printer matches the printer driver on the computer. Print out the Configuration Sheet and compare with computer settings.
	Computer connection problem.	Check the printer cable connections. Test your cable by using it with another printer that you know works. Test your printer after connecting it with another cable that you know works.
	Computer not properly set up.	Check the MS-DOS manual for mode settings and the computer manual for I/O port settings.

Table 6.1 Page 1 of 5

*Printer Operation Problems*

**Table 6.1 Printer operation problems (continued)**

<b>Problem</b>	<b>Probable Cause</b>	<b>Remedy</b>
<b>Print data not received</b>		
Write Error Fault message displayed.	Bad cable.	Check the interface cable connections. Test your cable by using it with another printer that you know works. Test your printer after connecting it with another cable that you know works.
	Printer not on-line.	Check if the printer is on-line. A printer error other than PAPER OUT may have set the printer off-line. Check the printer display panel.
Time Out Error message displayed.	Time out error.	<p>Increase the time for I/O time-out in the computer software.</p> <p>If the problem occurs when printing from DOS, try adding a Mode command to your computer's AUTOEXEC.BAT file. It can be put on its own on a single line after the PATH statement:</p> <p>If you are using a parallel interface, add:  MODE LPT1:.,P</p> <p>If you are using a serial interface, add (for example):  MODE COM1: 9600,N,8,1,P  MODE LPT1:COM1</p>

Table 6.1 Page 2 of 5



**Table 6.1** Printer operation problems (continued)

<b>Problem</b>	<b>Probable Cause</b>	<b>Remedy</b>
<b>Printing Errors</b>		
Print job stalled.	End of page code not received.	If a long time elapses before a page prints and the DATA indicator continues flashing, the printer has probably stalled. Press the On Line key and then the Form Feed key.
Full pages do not print.	Job prematurely terminated.	Check that all the data was received from the computer. If an application was exited before the data was sent, the computer may not have sent the complete file data. The data file may also have been corrupted before transmission. If you cancel a print job from the computer, partially printed pages may be produced.
	Pages too complex (data loss error).	Try simplifying the file by using fewer characters per line. Turn on page protection and try to print the file again.  Install more memory if you want to print complex files.
	Too many fonts transferred to printer (data memory full error).	Clearing soft fonts will free up memory. When printing without additional memory, avoid using too many soft fonts and macros. Lowering the resolution to 300 dpi will also reduce the memory requirements of a print job. If you are getting a lot of memory error messages, install more memory.
	Interface cable faulty.	Reseat the connectors at both the printer and the computer ends. Check the cable by using it with another printer.
	Software application sending wrong data.	To check if the application is causing the problem, print plain text from DOS with the Copy command or redirection, e.g.:  C:\copy filename.txt LPT1: or C:\dir >prn

Table 6.1 Page 3 of 5

**Table 6.1** Printer operation problems (continued)


Problem	Probable Cause	Remedy
<b>Printing Errors</b>		
Printer ejects blank page.	Print data.	<p>Check the print data sent from the computer. If there are natural page breaks and forced breaks close to each other in a word processor file, the application may send a blank page to the printer.</p> <p>Check the printing parameters in the application to see if they are set to send extra page eject commands.</p> <p>Some network software inserts blank pages to separate jobs.</p>
	Tape strip on Toner Cartridge.	Remove the tape strip from a newly installed Toner Cartridge.
	Toner Cartridge empty.	<p>Replace the Toner Cartridge.</p> <p> <i>If you are printing a long run of pages with more than 30% toner coverage, the printer may not give the usual toner status messages. Normally the printer will give advice messages on the display panel when toner runs out or is low.</i></p>
	Paper size mismatch.	Check that the page size setting in your application matches the paper size(s) available in the printer.
	Multiple sheets fed.	Remove the paper from the paper tray, fan the edges, straighten it up, and then put it back into the tray.
<b>PostScript Printing Errors</b>		
A page listing PostScript commands is output instead of your print job.	PCL 5e selected.	Set the emulation parameter to PS2 or Auto and try printing the job again.
A PostScript job fails to print.	Insufficient memory.	Either simplify the print job or install more memory.

Table 6.1 Page 4 of 5

**Table 6.1** Printer operation problems (continued)

<b>Problem</b>	<b>Probable Cause</b>	<b>Remedy</b>
<b>Print Speed Problems</b>		
Printing takes a long time.	Toner supply low.	Replace the Toner Cartridge.
Long time needed to print first page.	Printer standby.	Change the Power Saver mode (although the printer will consume more power).
<b>Paper Problems</b>		
Frequent paper jams.	Overloaded tray.	Remove some paper from the tray.
	Unsuitable media.	Check the paper specifications. See Table 2.1 on page 2-3.
	Bad media.	Check the paper batch for creases, tears, nicks, ragged edges, dirt, dampness, etc.
	Paper size mismatch.	Check that the page size setting in your application matches the paper size(s) available in the printer.
<b>Print Character Problems</b>		
Wrong characters print.	Characters not present in printer.	Check that the typefaces and fonts that you are trying to print are in the printer, installed in your software, or on your computer.
	Computer and printer settings mismatch.	Check your emulation setting options, and parity and data bit communication settings.
Table 6.1 Page 5 of 5		

## Print Quality Problems

Table 6.2 lists common print quality problems, possible causes, and recommended actions.

**Table 6.2** Print quality problems

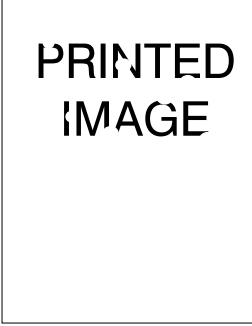
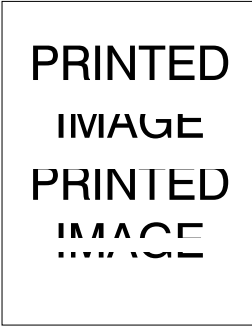
Problem	Possible Cause(s)	Corrective Action(s)
Spot deletions. 	Paper quality problem. Photoconductor / Drum damaged.	Replace paper stock. Replace the Photoconductor / Drum, as described in the section “ <i>Replacing the Photoconductor / Drum</i> ” (page 7-6).
Irregular faded patches of print. 	Paper quality problem. Corotron parts dirty. Toner low or unevenly distributed. Photoconductor / Drum unevenly worn.	Replace paper stock. Clean the transfer corotron and the main corotron, as described in the section “ <i>Cleaning the Corotron Wires</i> ” (page 7-10). Carefully remove the Toner Cartridge and gently agitate it to distribute toner evenly. Replace the Photoconductor / Drum, as described in the section “ <i>Replacing the Photoconductor / Drum</i> ” (page 7-6).

Table 6.2 Page 1 of 7

**Table 6.2** Print quality problems (continued)

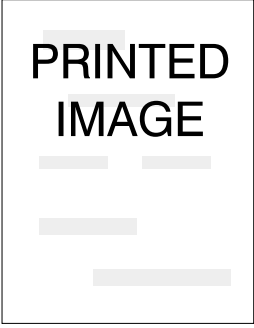
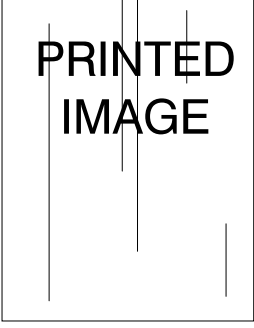
<b>Problem</b>	<b>Possible Cause(s)</b>	<b>Corrective Action(s)</b>
Staining. 	Paper quality problem.	Replace paper stock.
	Paper feed surfaces or guide dirty.	Inspect and clean the paper path, as described in the section “Cleaning the Paper Path” (page 7-9).
	Fusing unit dirty.	Replace the Cleaning Felt, as described in the section “Replacing the Toner Cartridge and Cleaning Felt” (page 7-2).
	Photoconductor / Drum damaged.	If marks repeat at regular 95mm intervals, the Photoconductor / Drum is damaged. Replace the Photoconductor / Drum, as described in the section “Replacing the Photoconductor / Drum” (page 7-6).
	Used Toner Cartridge from a different printer installed.	Install a new Toner Cartridge, as described in the section “Replacing the Toner Cartridge and Cleaning Felt” (page 7-2).
Vertical lines. 	Main corotron dirty.	Clean the main corotron, as described in the section “Cleaning the Corotron Wires” (page 7-10).
	Paper feed surfaces or guide dirty.	Inspect and clean the paper path, as described in the section “Cleaning the Paper Path” (page 7-9).
	Fusing unit dirty.	Replace the Cleaning Felt, as described in the section “Replacing the Toner Cartridge and Cleaning Felt” (page 7-2).
	Photoconductor / Drum damaged.	Replace the Photoconductor / Drum, as described in the section “Replacing the Photoconductor / Drum” (page 7-6).

Table 6.2 Page 2 of 7

**Table 6.2** Print quality problems (continued)



Problem	Possible Cause(s)	Corrective Action(s)
Vertical white stripes. 	Corotron parts dirty.	Clean the main corotron and transfer corotron, as described in the section “Cleaning the Corotron Wires” (page 7-10).
	Toner Cartridge defective.	Replace the Toner Cartridge, as described in the section “Replacing the Toner Cartridge and Cleaning Felt” (page 7-2).
	Fusing unit dirty.	Replace the Cleaning Felt, as described in the section “Replacing the Toner Cartridge and Cleaning Felt” (page 7-2).
	Photoconductor / Drum unevenly worn.	Replace the Photoconductor / Drum, as described in the section “Replacing the Photoconductor / Drum” (page 7-6).
Repetitive defects including ghost images. 	Print density set too high.	Turn the print density adjuster dial counterclockwise to decrease the toner density. Refer to “Printer Components” (page 1-3) to locate the print density adjuster.
	Fusing unit dirty.	Replace the Cleaning Felt, as described in the section “Replacing the Toner Cartridge and Cleaning Felt” (page 7-2).
	Toner low or unevenly distributed.	Carefully remove the Toner Cartridge and gently agitate it to distribute toner evenly.
	Photoconductor / Drum damaged.	Replace the Photoconductor / Drum, as described in the section “Replacing the Photoconductor / Drum” (page 7-6).

Table 6.2 Page 3 of 7

**Table 6.2** Print quality problems (continued)

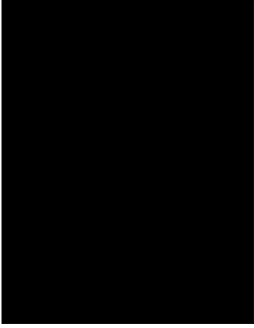
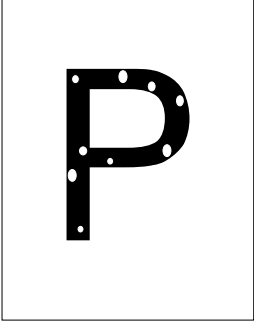
Problem	Possible Cause(s)	Corrective Action(s)
Black pages. 	Toner Cartridge defective.	Replace the Toner Cartridge, as described in the section “ <i>Replacing the Toner Cartridge and Cleaning Felt</i> ” (page 7-2).
	Photoconductor / Drum defective.	Replace the Photoconductor / Drum, as described in the section “ <i>Replacing the Photoconductor / Drum</i> ” (page 7-6).
Character voids. 	Paper quality problem.	Replace paper stock.
	Toner Cartridge defective.	Replace the Toner Cartridge, as described in the section “ <i>Replacing the Toner Cartridge and Cleaning Felt</i> ” (page 7-2).
	Photoconductor / Drum damaged.	Replace the Photoconductor / Drum, as described in the section “ <i>Replacing the Photoconductor / Drum</i> ” (page 7-6).

Table 6.2 Page 4 of 7

**Table 6.2** Print quality problems (continued)

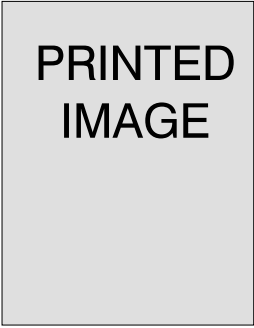

Problem	Possible Cause(s)	Corrective Action(s)
<p>Background areas of printed sheets gray or evenly spotted.</p> 	Print density set too high.	Turn the print density adjuster dial counter-clockwise to decrease the toner density.
	Corotron parts dirty.	Clean the main corotron and transfer corotron, as described in the section "Cleaning the Corotron Wires" (page 7-10).
	Paper quality problem.	Replace paper stock.
	Printing over uneven surfaces (envelope seams).	Change page layout in software application.
	Toner Cartridge defective.	Replace the Toner Cartridge, as described in the section "Replacing the Toner Cartridge and Cleaning Felt" (page 7-2).
	Photoconductor / Drum defective.	Replace the Photoconductor / Drum, as described in the section "Replacing the Photoconductor / Drum" (page 7-6).
<p>Light print.</p> 	The print density is set too low.	Turn the Print Density adjuster dial clockwise to increase the toner density.
	Paper quality problem.	Replace paper stock.
	Toner cartridge empty or defective.	Replace the Toner Cartridge, as described in the section "Replacing the Toner Cartridge and Cleaning Felt" (page 7-2).
	Photoconductor / Drum defective.	Replace the Photoconductor / Drum, as described in the section "Replacing the Photoconductor / Drum" (page 7-6).

Table 6.2 Page 5 of 7



**Table 6.2** Print quality problems (continued)

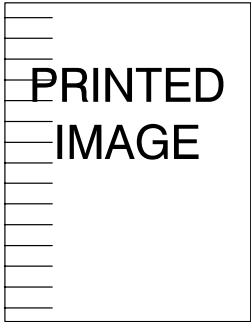
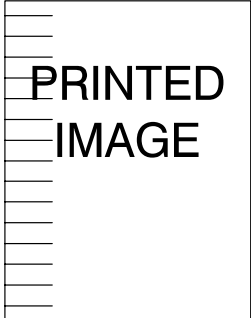
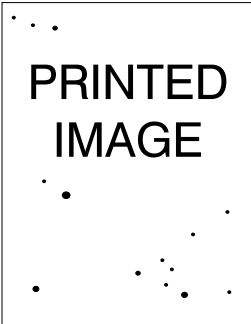
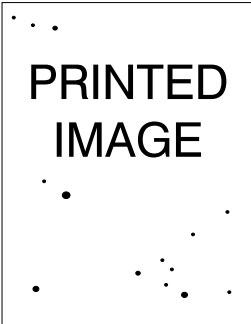
Problem	Possible Cause(s)	Corrective Action(s)
<p>Repetitive horizontal dark streaks.</p> 	<p>Paper feed surfaces or guide dirty.</p>	<p>Inspect and clean the paper path, as described in the section “<i>Cleaning the Paper Path</i>” (page 7-9).</p>
	<p>Photoconductor / Drum defective.</p>	<p>Replace the Photoconductor / Drum, as described in the section “<i>Replacing the Photoconductor / Drum</i>” (page 7-6).</p>
<p>Dark spots or marks.</p> 	<p>Fusing unit dirty.</p>	<p>Replace the Cleaning Felt, as described in the section “<i>Replacing the Toner Cartridge and Cleaning Felt</i>” (page 7-2).</p>
	<p>Photoconductor / Drum defective.</p>	<p>Replace the Photoconductor / Drum, as described in the section “<i>Replacing the Photoconductor / Drum</i>” (page 7-6).</p>

Table 6.2 Page 6 of 7

**Table 6.2** Print quality problems (continued)

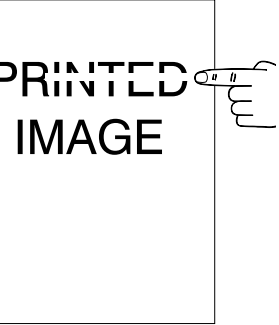
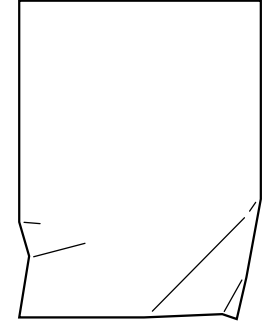
Problem	Possible Cause(s)	Corrective Action(s)
<p>Unfused or partially fused image.</p> 	<p>Damp paper stock.</p> <p>Unsuitable media.</p>	<p>Replace paper stock.</p> <p>Check the paper specifications. See Table 2.1 on page 2-3.</p>
<p>Wrinkled print.</p> 	<p>Poor paper condition.</p> <p>Unsuitable media.</p> <p>Paper not properly loaded in paper tray.</p>	<p>Inspect/replace paper stock.</p> <p>Check the paper specifications. See Table 2.1 on page 2-3.</p> <p>Reload the paper. See <i>Chapter 2: Paper Handling</i> for paper handling.</p>
<p>Back of printout dirty.</p>	<p>Paper feed surfaces or guide dirty.</p>	<p>Inspect and clean the paper path, as described in the section “<i>Cleaning the Paper Path</i>” (page 7-9).</p>

Table 6.2 Page 7 of 7

## Control Panel Messages

Table 6.3 lists Control Panel messages related to printer operation. For each message, the table provides the cause of the message, the indicator light status and advice on what to do. The messages are listed in alphabetical order.

**Table 6.3 Control Panel messages**


Message	Description/Corrective Action
A4	<p>A paper tray is loaded with A4 paper.</p> <p> <i>Media status is indicated in the display as UPPER/LOWER, indicating status of upper tray and lower tray. For example: A4/PO indicates that the upper tray is loaded with A4 paper and the lower tray is out of paper.</i></p> <p>The On Line light remains on. ACTION: None.</p>
Auto	<p>The printer is set to automatic emulation switching between PCL 5e and PS2. The On Line light remains on. ACTION: None.</p>
Cover Open	<p>A cover or the Photoconductor / Drum is not correctly fitted. The Error light remains on. ACTION: Close all the covers.</p>
Data Clear	<p>Data in the printer is being cleared. The On Line light remains on. ACTION: None.</p>
Data Loss Error	<p>The data is too complex to be processed at operating speed. Page ejects without printing. The Error light remains on. ACTION: Press the ENTER key. Normal printing begins with the next page.</p>
Data Memory Full	<p>Printer memory cannot handle the amount of data for the present page. The Error light remains on. ACTION: Press the ENTER key. Cancel the print job from the computer side. The remaining pages of this print job may not print properly. The next job will print normally.</p>
Drum Near End	<p>The Photoconductor / Drum is nearing the end of its rated life. The Supply light remains on. ACTION: Order a new Photoconductor / Drum.</p>

Table 6.3 Page 1 of 3

**Table 6.3 Control Panel messages** (continued)





Message	Description/Corrective Action
EV	<p>The Envelope Tray is loaded with envelopes.</p> <p> <i>Media status is indicated in the display as UPPER/LOWER, indicating status of upper tray and lower tray. For example: EV/PO indicates that the upper tray is loaded with envelopes and the lower tray is out of paper.</i></p> <p>The On Line light remains on.</p> <p>ACTION: None.</p>
Interface Error	<p>Improper signals have been received through the serial interface, most likely when the computer is powering up or down. The Error light remains on.</p> <p>ACTION: Press the On Line key. If trouble recurs, check cable connections, computer and printer settings. Also, try reseating the interface board into the controller board.</p>
LE	<p>A paper tray is loaded with letter-sized paper.</p> <p> <i>Media status is indicated in the display as UPPER/LOWER, indicating status of upper tray and lower tray. For example: LE/PO indicates that the upper tray is loaded with letter-sized paper and the lower tray is out of paper.</i></p> <p>The On Line light remains on.</p> <p>ACTION: None.</p>
LL	<p>A paper tray is loaded with legal-sized paper.</p> <p> <i>Media status is indicated in the display as UPPER/LOWER, indicating status of upper tray and lower tray. For example: LL/PO indicates that the upper tray is loaded with legal-sized paper and the lower tray is out of paper.</i></p> <p>The On Line light remains on.</p> <p>ACTION: None.</p>
Paper Out Paper Out Upper Paper Out Lower	<p>Paper has run out or paper tray is removed. The Error light flashes.</p> <p>ACTION: Re-install the tray(s). If the tray in use is empty, refill it. Do not overfill.</p>
Paper Jam	<p>Paper is stuck in the print path. The Error light remains on.</p> <p>ACTION: Clear the misfeed according to the section “Paper Jams” (page 6-19).</p>

Table 6.3 Page 2 of 3

**Table 6.3 Control Panel messages** (continued)

Message	Description/Corrective Action
Pause	The printing process has been suspended by setting the printer off-line. The On Line light goes off. ACTION: None.
PCL 5e	The printer is set to PCL 5e emulation. The On Line light remains on. ACTION: None.
PO	A paper tray is out of paper.  <i>Media status is indicated in the display as UPPER/LOWER, indicating status of upper tray and lower tray. For example: PO/A4 indicates that the upper tray is out of paper and the lower tray is loaded with A4 paper.</i> The On Line light remains on. ACTION: Re-load the applicable paper tray.
PS2	The printer is set to PostScript Level 2 emulation. The On Line light remains on. ACTION: None.
Repl Drum	The Photoconductor / Drum has worn out. The Supply and Error lights remain on. ACTION: Replace the Photoconductor / Drum.
Repl Toner	Toner has run out. The Supply and Error lights remain on. ACTION: Replace the Toner Cartridge.
Repl Drum&Toner	The Photoconductor / Drum has reached its rated life and toner has run out. The Supply and Error lights remain on. ACTION: Replace the Photoconductor / Drum and Toner Cartridge.
Self Test	The printer is testing itself at power on. The On Line light goes on at the completion of testing. ACTION: None.
Toner Low	Toner in reservoir is getting low. The Supply light remains on. ACTION: Order a new Toner Cartridge.
Table 6.3 Page 3 of 3	

## Error Messages at Power On

Table 6.4 lists Control Panel messages related to errors that may occur when the printer is powered on. If the printer discovers a problem while running its self test, you may see one of these messages. You may be able to clear the error by powering the printer off and on again, or by reseating any options installed on the controller board. If any of these messages persists, contact your dealer or Xerox/Rank Xerox.

**Table 6.4 Error messages  
when the printer is  
turned on**

Message	Description
ROM Error	Error with read only memory (ROM).
RAM Error	Error with random access memory (RAM).
I/F Board Error	Error with interface board.
ROM&RAM Error	Error with ROM and RAM.
ROM&IFB Error	Error with ROM and interface board.
RAM&IFB Error	Error with RAM and interface board.
ROM&RAM&IFB Err	Error with RAM, ROM, and interface board.

## Paper Jams

Your printer has been designed to provide reliable, trouble-free operation. Nonetheless, you may experience an occasional paper jam.

When the printer detects a misfeed or a paper jam, the printing process is halted, and a Control Panel message is displayed. See “Control Panel Messages” (page 6-15).

After the paper jam has been cleared, the printer will resume operation to complete the print job, reprinting the page that jammed.

## What Causes a Paper Jam?

Paper jams occur most often when:

- The throughput paper stock does not meet specification. See *Chapter 2: Paper Handling*.
- The paper stock is in poor condition.
- The paper stock has been improperly loaded into the paper trays.
- The printer needs cleaning.
- Printer parts are worn and need to be replaced.

## Locating the Jam

Paper jams may occur in any of the following three locations, listed below in order of the most likely area for a jam:

- Exiting the paper tray.
- Moving through the rollers to the fusing unit under the top cover.
- Moving through the output section under the front cover.

## Clearing the Jam

Search for the jammed paper, starting with the paper trays, then under the top cover, then under the front cover.

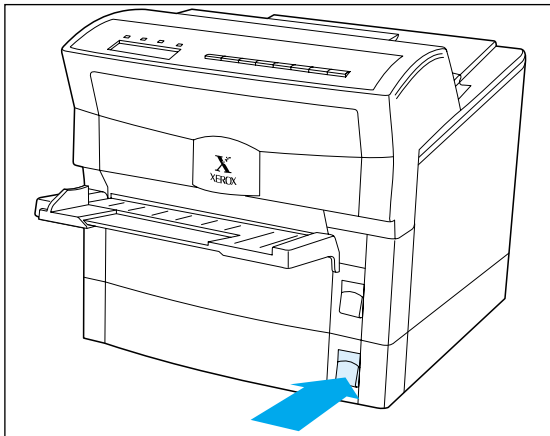


### Caution

Be careful not to touch any of the components inside the printer when removing jammed paper. They may be very hot.

Also, jammed paper may have loose toner on it and should therefore be handled carefully.

### From the Paper Tray(s)



**1** If you know which tray was feeding paper, open that tray first. If not, begin with the lower tray. Open the tray part way and look inside.

**2** If you see a misfed sheet of paper (out of alignment or loose in the tray), remove it as carefully as you can.



If you tear the paper, be sure to remove all of the pieces.

**3** If the paper has been partially fed from the lower tray to the upper tray, open the upper tray and try to remove the paper from there.



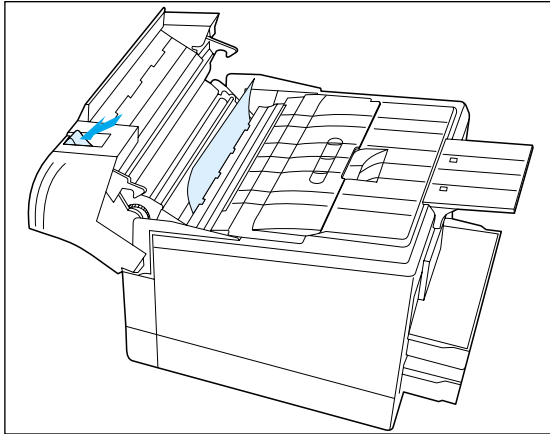
If a length of paper has already been fed up into the printer, do not try to remove it because the paper will have loose toner on it. Instead, close the paper tray(s) and go to “From Under the Top Cover” (page 6-21) for directions.

**4** When you have completely cleared the jam, push the tray(s) back in.


The printer will then resume the print job




### From Under the Top Cover



- 1 Open the top cover.
- 2 If you see a misfed sheet of paper, remove it as carefully as you can, pulling it straight up and out.

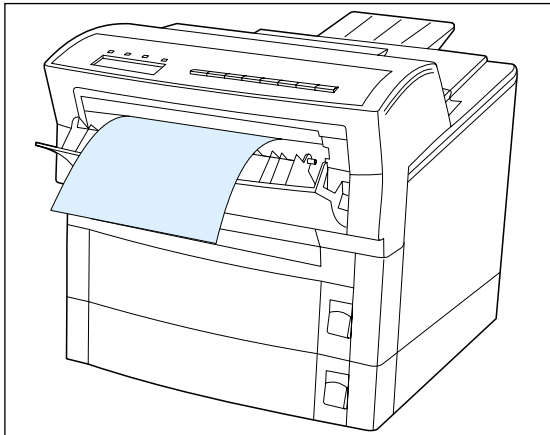
 If you tear the paper, be sure to remove all of the pieces.

 If you cannot get the paper completely out, do not try to remove it because it may have loose toner on it. Instead, close the cover and try the procedure “From Under the Front Cover,” below.


- 3 When you have completely cleared the jam, close the cover.


The printer will then resume the print job.

### From Under the Front Cover



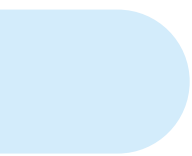
- 1 Open the front cover.
- 2 If you see a misfed sheet of paper, remove it as carefully as you can, pulling it straight up and out.

 If you tear the paper, be sure to remove all of the pieces. Also, the paper may have loose toner on it.

 If you cannot get the paper completely out, do not try to remove it because it may have loose toner on it. Instead, close the cover and try the procedure “From Under the Top Cover,” above.

- 3 When you have completely cleared the jam, close the cover.

The printer will then resume the print job.



## Chapter 7

# ***Printer Maintenance and Consumables***

<b><i>Replacing the Toner Cartridge and Cleaning Felt</i></b> .....	<b>7-2</b>
<i>Recycling the Toner Cartridge</i> .....	7-5
<b><i>Replacing the Photoconductor / Drum</i></b> .....	<b>7-6</b>
<i>Recycling the Photoconductor / Drum</i> .....	7-8
<b><i>Cleaning the Printer</i></b> .....	<b>7-9</b>
<i>Cleaning the Cabinet</i> .....	7-9
<i>Cleaning the Paper Path</i> .....	7-9
<i>Cleaning the Corotron Wires</i> .....	7-10
<b><i>Preparing the Printer for Transport</i></b> .....	<b>7-13</b>

## Replacing the Toner Cartridge and Cleaning Felt

A Toner Cartridge will print approximately 12,000 pages of A4 or 8.5 x 11 paper under average operating conditions (5% image area coverage). The number of prints per cartridge will decrease if you routinely:

- Print dense text and graphics.
- Adjust the Print Density to a dark setting.
- Exceed five percent area coverage.

Replace the Toner Cartridge as soon as you see the following message at the Control Panel display:

Toner Low

The Supply indicator light will also glow.

When you replace the Toner Cartridge, you should also replace the Cleaning Felt with the spare provided in the new Toner Cartridge kit. Instructions begin on the next page.



### Note

See Appendix A: Ordering Information for ordering a new Toner Cartridge.

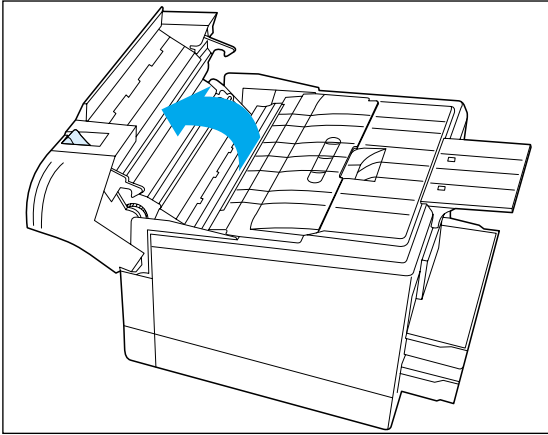


### Caution

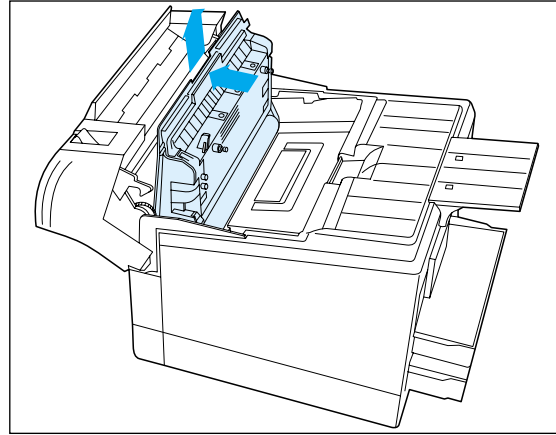
**Do not expose the Photoconductor / Drum to direct sunlight or artificial light for more than 15 minutes. Overexposure will permanently damage the photosensitive imaging drum.**

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*Replacing the Toner Cartridge and Cleaning Felt*



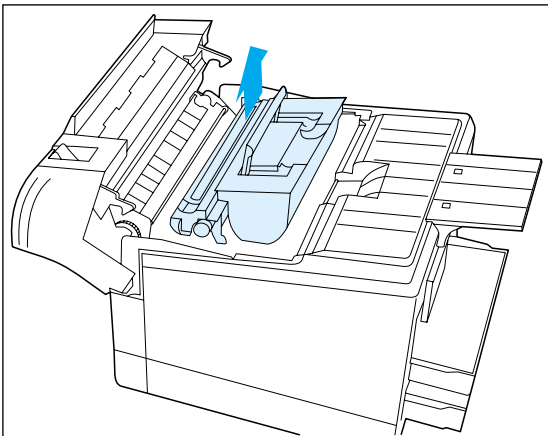
- 1** Power OFF the printer and open the top cover by pulling up on the top cover release lever and pivoting the cover toward the front of the printer.



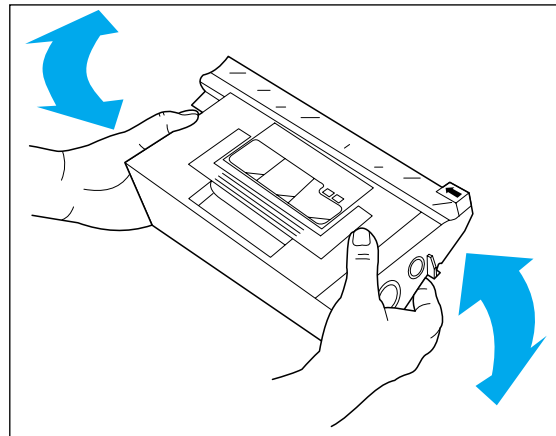
- 2** Pivot the Photoconductor / Drum up toward the front of the printer and lift it straight up and out. Set it on a smooth, flat surface.



The Photoconductor / Drum is easily damaged. Do not touch the drum or expose it to direct light.

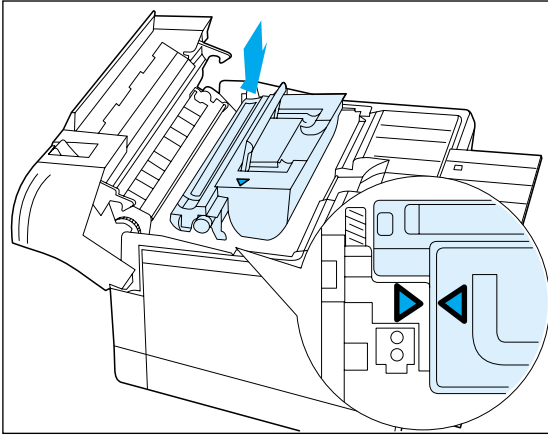


- 3** Lift the old Toner Cartridge by its handle straight up and out of the printer.



- 4** Remove the new Toner Cartridge from its wrapper and shake it several times to evenly distribute the toner.

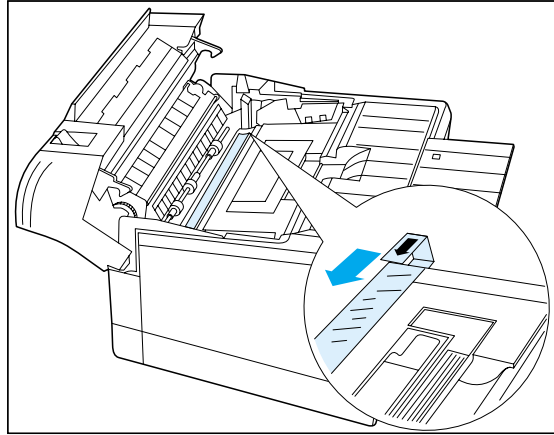
## Replacing the Toner Cartridge and Cleaning Felt



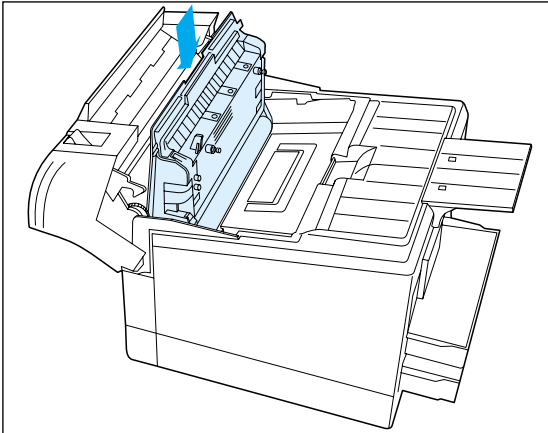
- 5** Hold the Toner Cartridge by its handle and gently lower it into the printer.



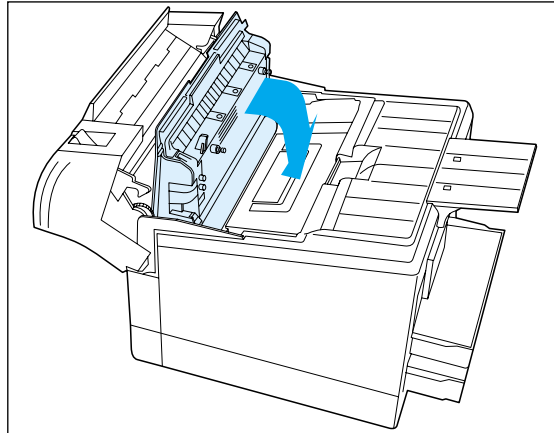
*The cartridge does not click into place.  
The arrows on the cartridge and printer  
should line up.*



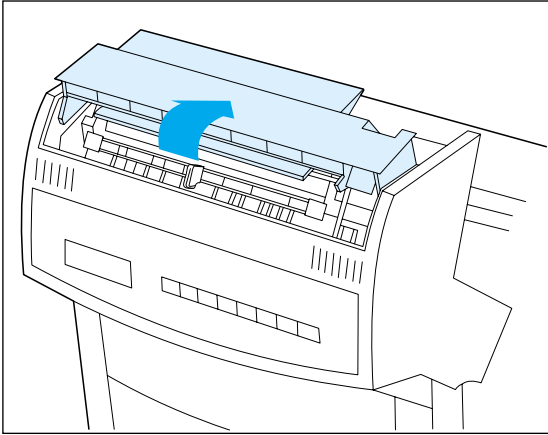
- 6** Hold the cartridge in place and pull the tab to remove the tape strip.



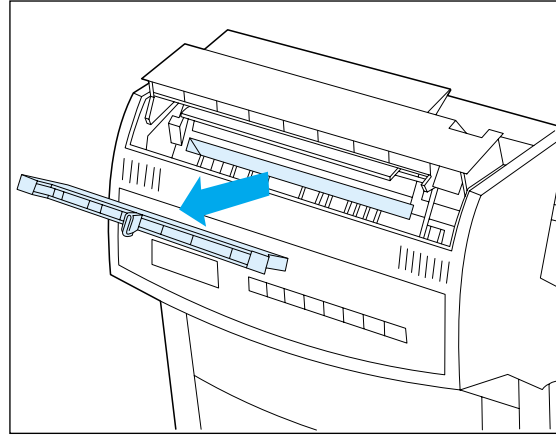
- 7** Re-insert the Photoconductor / Drum vertically into the slots on the sides of the interior.



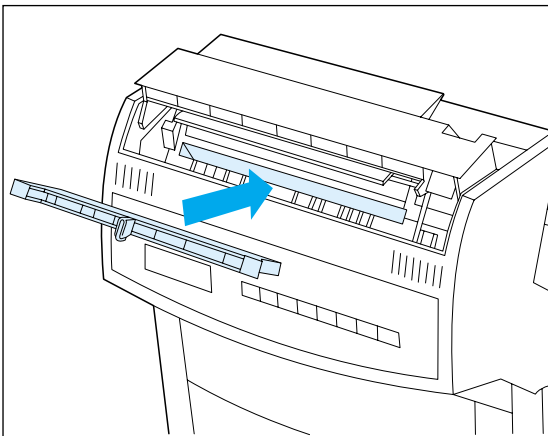
- 8** Pivot the Photoconductor / Drum down toward the back of the printer until it falls into place horizontally.



**9** Rotate the fuser cover to the rear.



**10** Remove the old Cleaning Felt by grabbing hold of its protruding grip.



**11** Remove the new Cleaning Felt from its wrapper and, holding it by the protruding grip, insert it into the slot.

Close the fuser cover and the top cover and power ON the printer.

## **Recycling the Toner Cartridge**

The DocuPrint 4512 Toner Cartridge can be recycled free of charge to you. Follow the instructions packaged with your new Toner Cartridge to recycle the old one.

## Replacing the Photo- conductor / Drum

The DocuPrint 4512's Photoconductor / Drum will print approximately 30,000 pages of A4 or 8.5 x 11 paper under average operating conditions (5% image area coverage). The number of prints per Photoconductor / Drum will decrease if you routinely:

- Print dense text and graphics.
- Adjust the Print Density to a dark setting.
- Exceed five percent area coverage.

Replace the Photoconductor / Drum as soon as you see the following message at the Control Panel display:

Drum Near End

The Supply indicator light will also glow.

Instructions begin on the next page.



See Appendix A: Ordering Information *for ordering a new Photoconductor / Drum.*

### Note



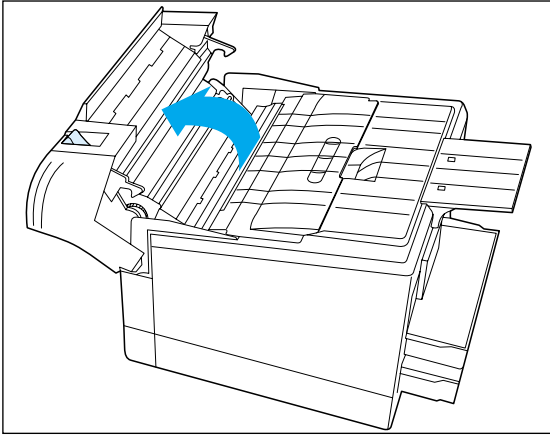
**Do not expose the Photoconductor / Drum to direct sunlight or artificial light for more than 15 minutes. Overexposure will permanently damage the photosensitive imaging drum.**

### Caution

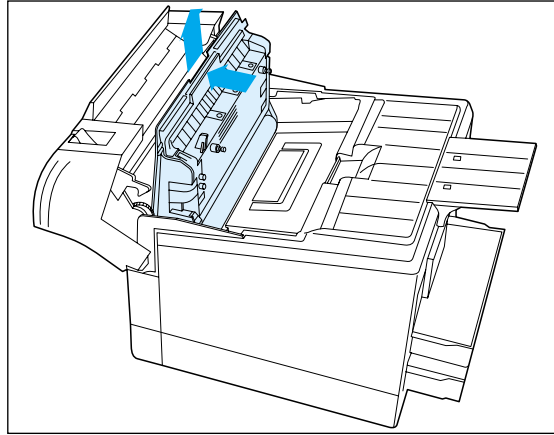
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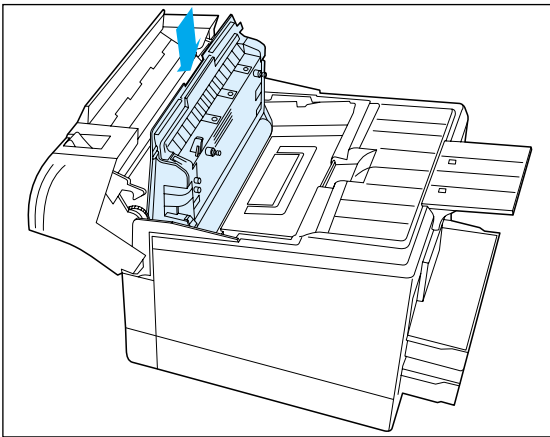
## Replacing the Photoconductor / Drum



- 1** Power OFF the printer and open the top cover by pulling up on the top cover release lever and pivoting the cover toward the front of the printer.



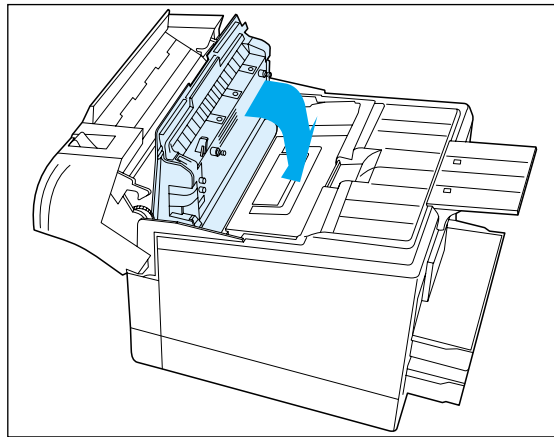
- 2** Pivot the old Photoconductor / Drum up toward the front of the printer and lift it straight up and out.



- 3** Remove the new Photoconductor / Drum from its wrapper and insert it vertically into the slots on the sides of the interior.

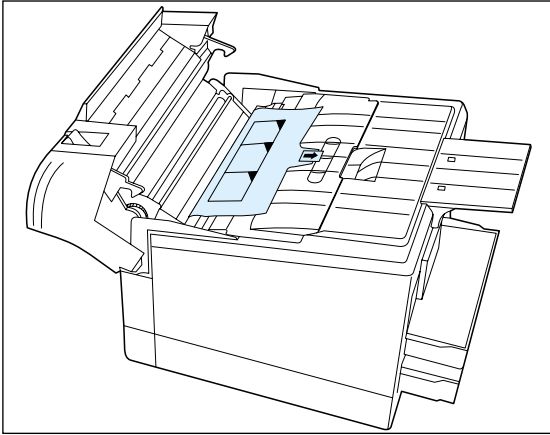


The Photoconductor / Drum is easily damaged. Do not touch the drum or expose it to direct light.



- 4** Pivot the Photoconductor / Drum down toward the back of the printer until it falls into place horizontally.

## *Replacing the Photoconductor / Drum*



**5** Carefully remove the sheet of black protective paper from the Photoconductor / Drum.



Be sure not to leave any torn pieces of paper in the printer.

Close the top cover and power ON the printer.

## **Recycling the Photoconductor / Drum**

The DocuPrint 4512 Photoconductor / Drum can be recycled free of charge to you. Follow the instructions packaged with your new Photoconductor / Drum to recycle the old one.

## Cleaning the Printer

Maintaining the printer in good operating condition is essential to having a reliable, well-running machine. The cabinet, paper path, and corotron wires should be cleaned regularly.



### Note

*For optimum performance, do not place the printer near vents or dust-producing equipment. Particles in the air may enter the printer and cause failures in internal mechanisms.*

## Cleaning the Cabinet

For best results, clean the outside of the printer with a soft, clean, lint-free cloth. If necessary, dampen the cloth slightly with water. Do not use detergents.

## Cleaning the Paper Path

Over time, toner may get into the printer, such as from a jammed sheet of paper to which it has not been fused, from a spill during removal of the Toner Cartridge, or from moving the printer. Also, dust from paper may accumulate inside the printer, further impairing performance.

There are several places along the paper path that should be cleaned, using a lint-free cloth (slightly dampened with cleaning alcohol if necessary).

### Cleaning the Manual Feed Slot


- 1 Remove the Manual Feed Guide from the Manual Feed slot.**
- 2 Wipe the slot clean.**



**There is a delicate media sensor lever about 1 in. (20 cm.) inside the right hand area of the Manual Feed Slot. Lateral pressure may damage this lever.**

- 3 Re-insert the Manual Feed Guide.**

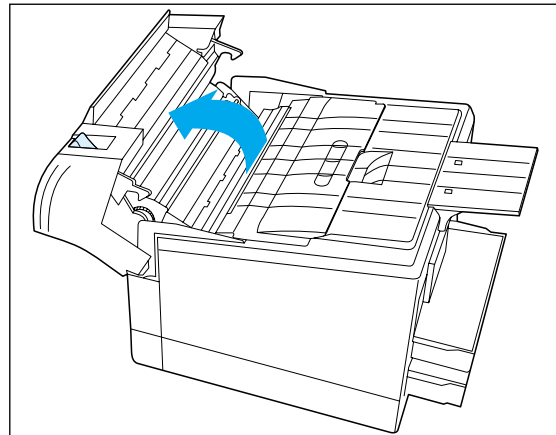
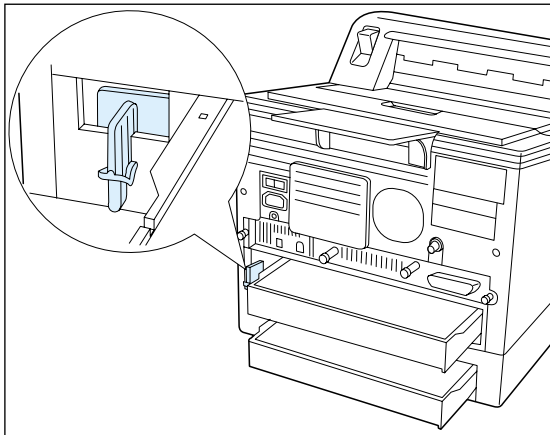
## **Cleaning the Autofeed Pickup Area**

- 1** Power OFF the printer, disconnect the power cord, and remove the Photoconductor / Drum and Toner Cartridge, following Steps 1 through 3 on page 7-3.
- 2** Wipe the interior surfaces of the printer.  
 The gears inside the printer are coated with grease and will soil hands and cleaning cloths. Try to avoid touching these gears.
- 3** Reassemble the printer and power it ON.

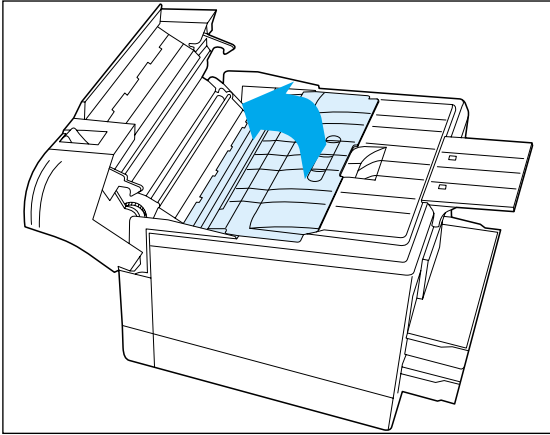
## **Cleaning the Corotron Wires**

If the corotron wires become dirty, printouts may show streaks and blotches. There are wires in the main corotron, located under the Photoconductor / Drum, and in the transfer corotron, located inside the top cover.

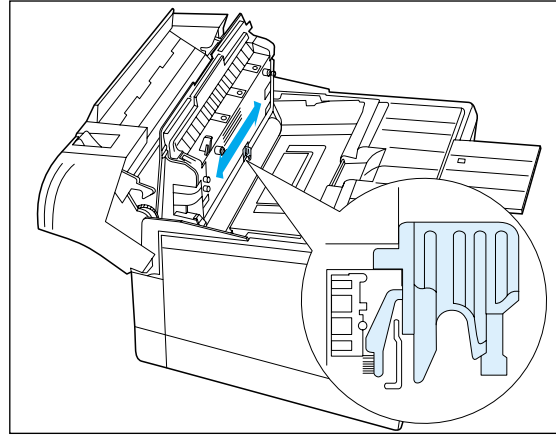
## **Cleaning the Main Corotron**



- 1** Power OFF the printer, disconnect the power cord, and remove the corotron cleaner from its slot.
- 2** Open the top cover by pulling up on the top cover release lever and pivoting the cover toward the front of the printer.



**3** Pivot the Photoconductor / Drum up toward the front of the printer.



**4** Locate the main corotron's wire inside the slot at the base of the raised Photoconductor / Drum, and insert the cleaner's red brush into one extreme end of the slot.



*The tabs above the brush on the cleaner fit into the groove above and parallel to the slot in the Photoconductor / Drum.*

**5** Draw the cleaner all the way along the main corotron to the other end of the slot, either to the left or the right.



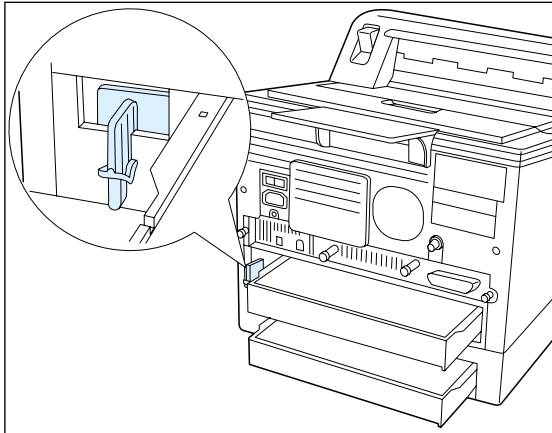
**Go the complete width, from one side of the Photoconductor / Drum to the other. Do not take the cleaner out halfway.**

**6** Return the corotron cleaner to its slot at the rear of the printer.

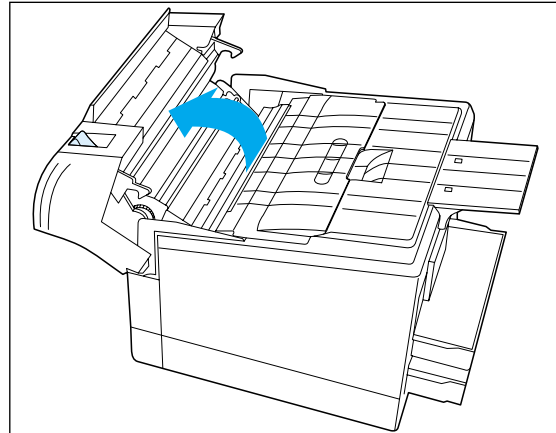
**7** Pivot the Photoconductor / Drum gently back into place.

**8** Close the top cover, reconnect the power cord, and power ON the printer.

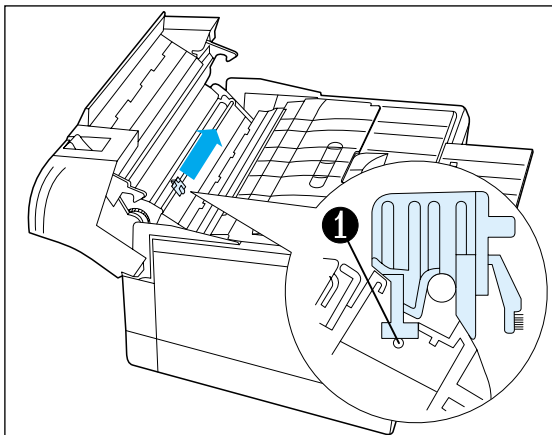
## Cleaning the Transfer Corotron




- 1** Power OFF the printer, disconnect the power cord, and remove the corotron cleaner from its slot.




- 2** Open the top cover by pulling up on the top cover release lever and pivoting the cover toward the front of the printer.



- 3** Locate the transfer corotron's wire on the open side of the top cover, and, looking at the open printer from the back, insert the cleaner's black indented edge over the left end of the wire (1).

 *The cleaner's other angled surfaces fit against other parts of the printer.*

- 4** Draw the cleaner from left to right along the wire.

 **Going from right to left may damage the corotron wire. Make one complete sweep from the left end of the wire to the right end. Do not stop halfway.**

- 5** Return the corotron cleaner to its slot at the rear of the printer.

- 6** Close the top cover, reconnect the power cord, and power ON the printer.

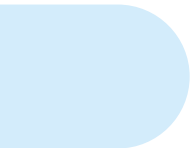
## **Preparing the Printer for Transport**

When transporting the printer more than a short distance, use the original shipping box and packaging materials. If the original shipping box or materials are not available, use a sturdy packing box and a generous amount of cushioning or packing materials.

To prepare your printer for transportation, follow the instructions below.

- 1 Power OFF the printer and disconnect the power cord and all interface cables.**
- 2 Remove any paper handling options and repack each in its original packaging.**
- 3 Remove the Photoconductor / Drum and pack it in its original packaging.**
- 4 Remove the Toner Cartridge and pack it in its original packaging.**
- 5 Pack the printer with the sealed Photoconductor / Drum, Toner Cartridge and power cord in the original printer box.**

If you need to return the printer for service, follow the instructions of your service provider for packing and shipping.







# Appendix A

## *Ordering Information*

*Ordering Information*

Contact your dealer or Xerox / Rank Xerox to order any of the printer options and accessories listed in Table A.1.

**Table A.1 Printer options and accessories**

<b>Options and Accessories</b>	<b>Part Number</b>	<b>Comments</b>
<b>Consumables</b>		
Toner Cartridge	106R00088	
Photoconductor / Drum	101R00090	
<b>Paper Handling Options</b>		
High Capacity Feeder	97S01502	1,000 sheet capacity
Envelope Tray	97S01493	Replaces upper paper tray
Universal Tray	97S01494	
<b>Memory Options</b>		
4 MB SIMM	97K15280	No parity, 70-ns, 32 bits, one sided
16 MB SIMM	97K15300	No parity, 70-ns, 32 bits, one sided
<b>PostScript Option</b>		
PostScript Option Kit	97S01491	English
PostScript Option Kit	97S01495	Spanish
PostScript Option Kit	97S01497	Portuguese
PostScript Option Kit	97K28490	French
PostScript Option Kit	97K28510	German
PostScript Option Kit	97K28500	Italian
PostScript Option Kit	97K28530	Russian
PostScript Option Kit	97K28520	RX Spanish
PostScript Option Kit	97K28480	English (Rank Xerox)

Table A.1 Page 1 of 3

**Table A.1 Printer options and accessories** (continued)

Options and Accessories	Part Number	Comments
<b>PostScript Option (cont'd)</b>		
Kit Contents		
OnPage Manual for MAC PostScript - MN	720P53970	English (only)
MAC PS (S/W)	301E7340	US English
	301E7390	French Canadian
	301E7440	AO Spanish
	301E7490	AO Portuguese
	301E7760	RX English
	301E7770	RX French
	301E7780	RX Italian
	301E7790	RX German
	301E7800	RX Spanish
<b>Network Interface Cards</b>		
AppleTalk/Serial Option	97S01492	English
Ethernet Option Kit	97S01498	English
Ethernet Option Kit	97S01499	Spanish
Ethernet Option Kit	97S01501	Portuguese
Ethernet Option Kit	97K28550	French
Ethernet Option Kit	97K28570	German
Ethernet Option Kit	97K28560	Italian
Ethernet Option Kit	97K28590	Russian
Ethernet Option Kit	97K28580	RX Spanish
Ethernet Option Kit	97K28540	English (Rank Xerox)

Table A.1 Page 2 of 3

Ordering Information

**Table A.1 Printer options and accessories** (continued)

Options and Accessories	Part Number	Comments
<b>Network Interface Cards</b>		
Token Ring Option Kit	97S01537	English
Token Ring Option Kit	97S01538	Spanish
Token Ring Option Kit	97S01540	Portuguese
Token Ring Option Kit	97K28670	French
Token Ring Option Kit	97K28690	German
Token Ring Option Kit	97K28680	Italian
Token Ring Option Kit	97K28710	Russian
Token Ring Option Kit	97K28700	RX Spanish
Token Ring Option Kit	97K28660	English (Rank Xerox)
<b>Base Documentation</b>		
Base Documentation Kit	673K29920	US English
Base Documentation Kit	673K29930	French Canadian
Base Documentation Kit	673K29940	AO Spanish
Base Documentation Kit	673K29950	AO Portuguese
Base Documentation Kit	673K30000	RX English
Base Documentation Kit	673K30010	RX French
Base Documentation Kit	673K30020	RX Italian
Base Documentation Kit	673K30030	RX German
Base Documentation Kit	673K30040	RX Spanish
Base Documentation Kit	673K30050	RX Russian
Table A.1 Page 3 of 3		



# Appendix B

## *Installing Options*

<i>Precautions</i> .....	<i>B-2</i>
<i>Memory SIMMs</i> .....	<i>B-3</i>
<i>PostScript Board</i> .....	<i>B-6</i>
<i>AppleTalk/Serial Interface Board</i> .....	<i>B-8</i>
<i>Ethernet/Token Ring Interface Board</i> .....	<i>B-10</i>
<i>Envelope Tray</i> .....	<i>B-12</i>

## Precautions

The DocuPrint 4512 printer options are easy to install. Installing and testing any one option is likely to take 5 to 15 minutes.

Before installing or removing any printer option, take the precautionary steps outlined below.



### Caution

**POWER OFF THE PRINTER:** The printer determines which options are installed through a self-test. The self-test is run when you power ON the printer. Therefore, for proper operation, you must power OFF the printer before installing/removing an option, then power it back ON after installing/removing an option.

---



### Caution

**DISCONNECT THE POWER CORD:** Never remove the printer controller board while the printer is plugged in.

To avoid the possibility of electrical shock, always disconnect the power cord when installing or removing ANY internal or external printer option.

---



### Caution

**DISCHARGE STATIC ELECTRICITY:** The controller board and internal printer options (SIMMs, PostScript board, and interface boards) are sensitive to static electricity. Before installing or removing an internal option, discharge static electricity from your body by touching something metal, such as the metal back plate on any device plugged into a grounded power source. If you walk around before finishing the installation, again discharge any static electricity.

---

## Memory SIMMs

Follow these instructions for installing additional memory into the printer.



### Note

*The DocuPrint 4512 has three SIMM slots that accept 72-pin, 70-ns, no parity SIMMs in the following sizes:*

- 1 MB
- 4 MB
- 8 MB
- 16 MB

*(4 MB SIMMs and 16 MB SIMMs are available from Xerox/Rank Xerox. See Appendix A: Ordering Information for ordering additional memory.)*

---



### Caution

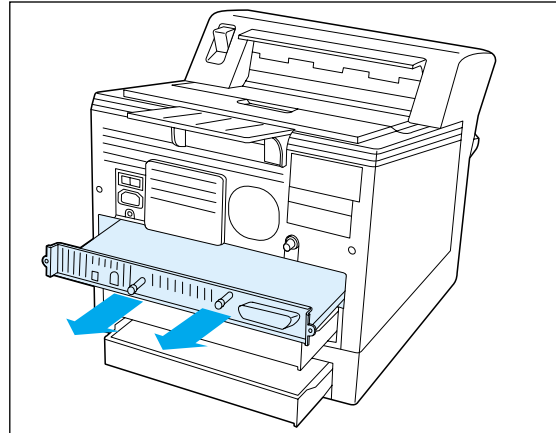
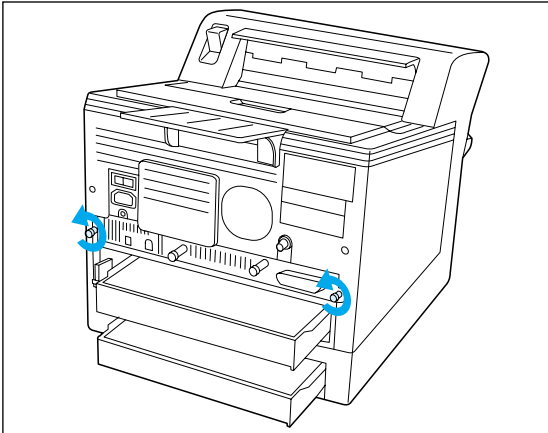
**SIMMs and controller boards are sensitive to static electricity. Before installing a SIMM, discharge static electricity from your body by touching something metal, such as the metal back plate on any device plugged into a grounded power source. If you walk around before finishing the installation, again discharge any static electricity.**

**Never remove the printer controller board while the printer is plugged in.**

---

*Memory SIMMs*

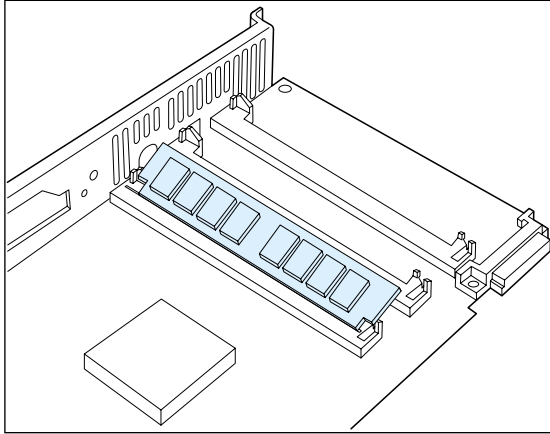
- 1** Power OFF the printer and disconnect all cables from the back of the printer.



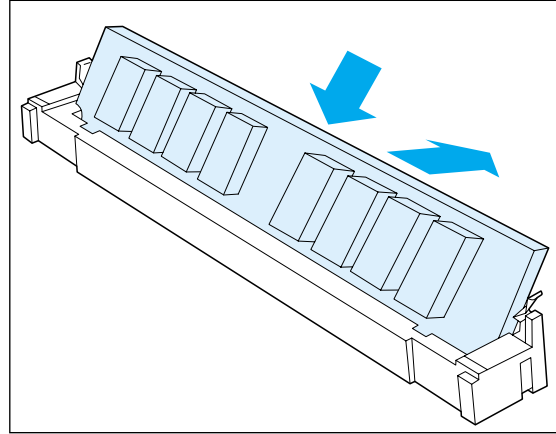
- 2** Unscrew the outside pair of retaining screws holding the controller board in place. Keep the screws in a safe place.

- 3** Carefully slide out the controller board.  
Set the controller board down on a safe, level surface.





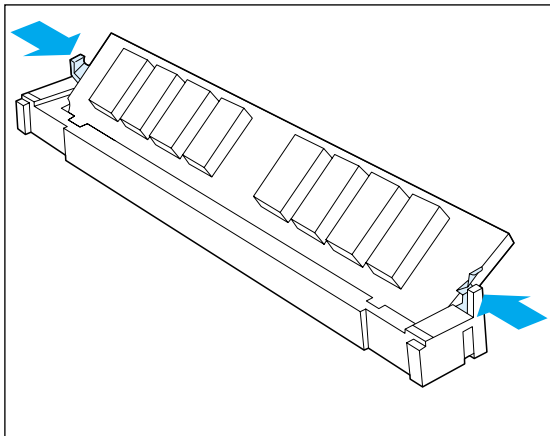
- 4** Select a slot for the SIMM and, holding the SIMM at an angle, line it up with the slot.



- 5** Push the SIMM gently but firmly down into the slot, then rotate it into position.



*The SIMM should pop into place with two retaining lugs fitting into holes on either side of the SIMM and the spring clips gripping it in position.*



- 6** To remove a SIMM, release the spring clips holding the SIMM in place.

- 7** Reinstall the controller board by sliding it carefully along the guide rails in the printer and gently pushing it back into place. When it is properly seated, replace the retaining screws.

- 8** Reconnect all cables to the printer and power it ON.

- 9** Print out a Configuration Sheet (see page 3-17) to check that the printer recognizes the additional memory.

## PostScript Board

Follow these instructions for installing the PostScript board into the printer.

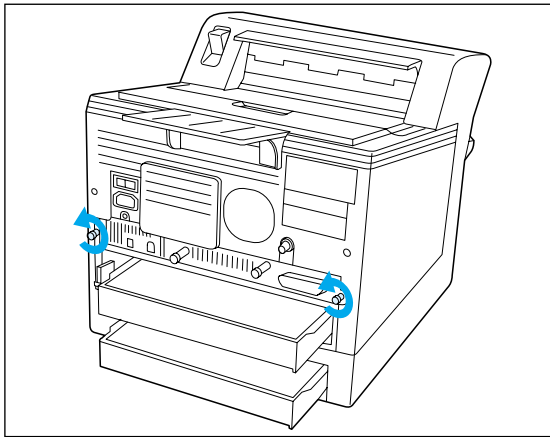


### Caution

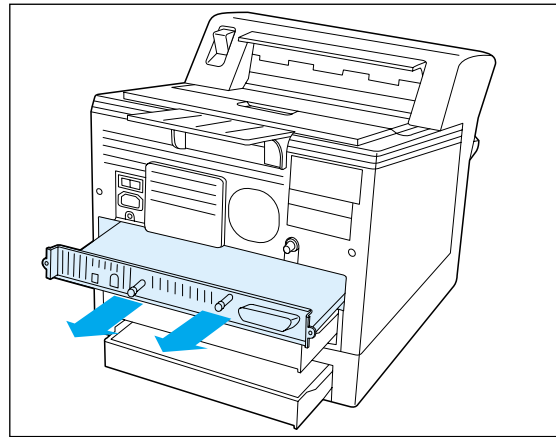
The controller and PostScript boards are sensitive to static electricity. Before installing the PostScript board, discharge static electricity from your body by touching something metal, such as the metal back plate on any device plugged into a grounded power source. If you walk around before finishing the installation, again discharge any static electricity.

Never remove the printer controller board while the printer is plugged in.

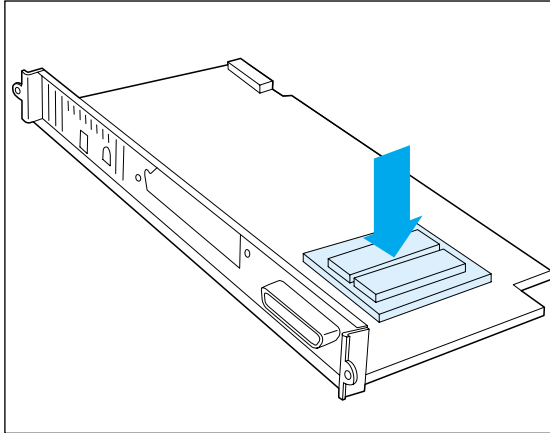
- 1 Power OFF the printer and disconnect all cables from the back of the printer.



- 2 Unscrew the outside pair of retaining screws holding the controller board in place. Keep the screws in a safe place.



- 3 Carefully slide out the controller board. Set the controller board down on a safe, level surface.



**4** Locate the socket on the right side of the controller board.



*There is a plug on the bottom of the PostScript board that fits into the socket. There is also a plastic post fitted on the bottom of the PostScript board near the edge opposite the connector. The plastic post fits into a hole at the side of the controller board.*

**Line up the PostScript board plug with the controller board socket and the plastic post with its locating hole. Then push the board into place.**

- 5** Reinstall the controller board by sliding it carefully along the guide rails in the printer and gently pushing it back into place. When it is properly seated, replace the retaining screws.
- 6** Reconnect all cables to the printer and power it ON.
- 7** Print out a Configuration Sheet (see page 3-17) to check that the printer recognizes the PostScript board.



*Keep the original packaging material in case you ever need to remove the option.*

**Note**

## AppleTalk/ Serial Interface Board

Follow these instructions for installing the AppleTalk/Serial Interface board into the printer.

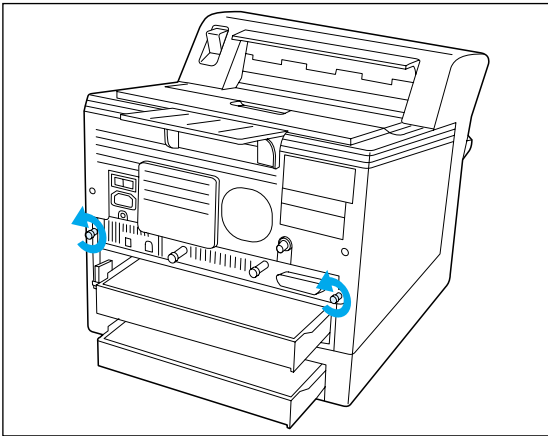


### Caution

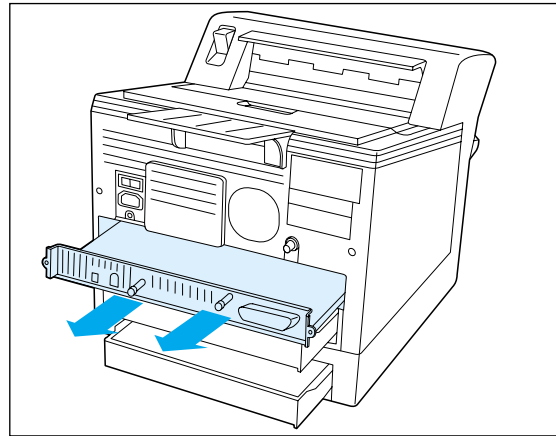
Controller and interface boards are sensitive to static electricity. Before installing the interface board, discharge static electricity from your body by touching something metal, such as the metal back plate on any device plugged into a grounded power source. If you walk around before finishing the installation, again discharge any static electricity.

Never remove the printer controller board while the printer is plugged in.

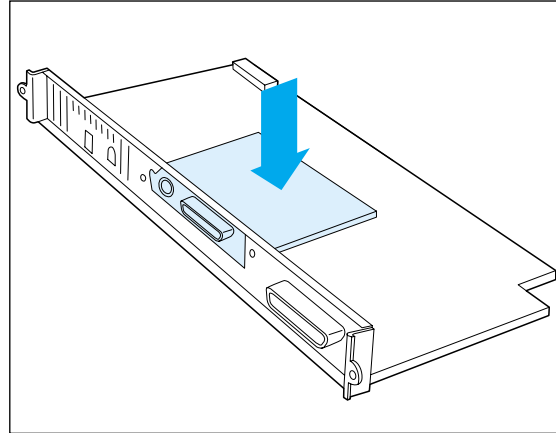
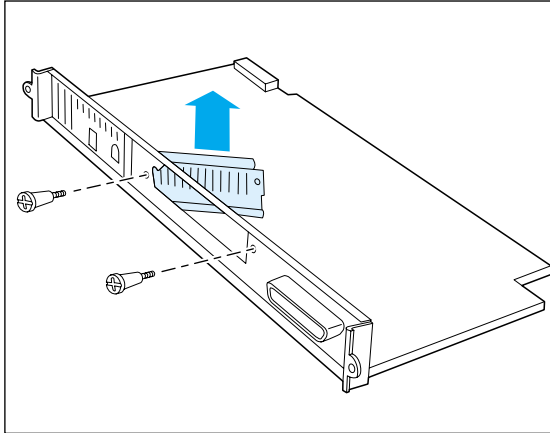
- 1 Power OFF the printer and disconnect all cables from the back of the printer.




- 2 Unscrew the outside pair of retaining screws holding the controller board in place. Keep the screws in a safe place.




- 3 Carefully slide out the controller board. Set the controller board down on a safe, level surface.



- 4** Unscrew the slot cover on the back plate of the controller board and remove it.

 *Keep the slot cover, in case the interface board is removed for any reason.*

- 5** Locate the socket on the controller board to the right of the slot opening.

 *There is a plug on the bottom of the interface board that fits into the socket.*

**Line up the interface board plug with the controller board socket while angling the interface board's connection port into the slot. Then push the board into place.**

- 6** Secure the interface board with the screws removed from the slot cover in Step 4.
- 7** Reinstall the controller board by sliding it carefully along the guide rails in the printer and gently pushing it back into place. When it is properly seated, replace the retaining screws.
- 8** Reconnect all cables to the printer and power it ON.
- 9** Print out a Configuration Sheet (see page 3-17) to check that the printer recognizes the interface board.
- 10** Configure the serial port using the Control Panel menus (see *Chapter 3: The Control Panel*).



*Keep the original packaging material in case you ever need to remove the option.*

**Note**

## Ethernet/Token Ring Interface Board

Follow these instructions for installing the Ethernet or Token Ring Interface board into the printer.

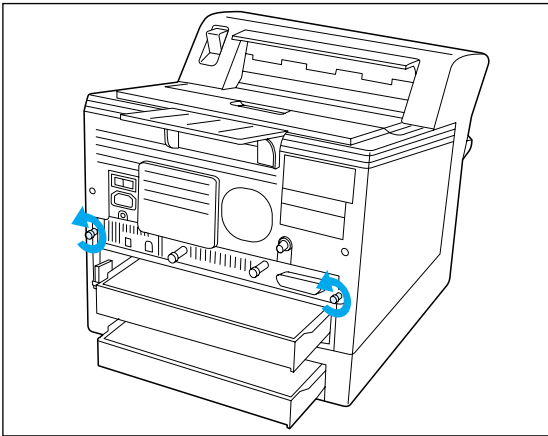


### Caution

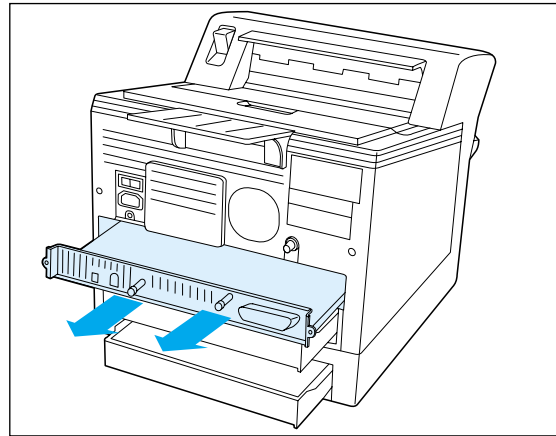
Controller and interface boards are sensitive to static electricity. Before installing the interface board, discharge static electricity from your body by touching something metal, such as the metal back plate on any device plugged into a grounded power source. If you walk around before finishing the installation, again discharge any static electricity.

Never remove the printer controller board while the printer is plugged in.

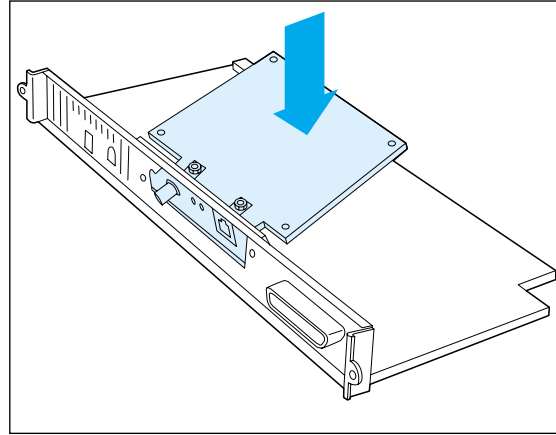
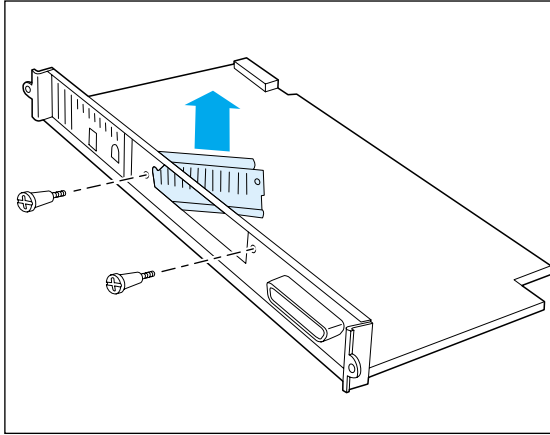
- 1 Power OFF the printer and disconnect all cables from the back of the printer.



- 2 Unscrew the outside pair of retaining screws holding the controller board in place. Keep the screws in a safe place.



- 3 Carefully slide out the controller board. Set the controller board down on a safe, level surface.



- 4** Unscrew the slot cover on the back plate of the controller board and remove it.



*Keep the slot cover, in case the interface board is removed for any reason.*

- 5** Locate the socket on the controller board to the right of the slot opening.



*There is a plug on the bottom of the interface board that fits into the socket.*

**Line up the interface board plug with the controller board socket while angling the interface board's connection port into the slot. Then push the board into place.**

- 6** Secure the interface board with the screws removed from the slot cover in Step 4.
- 7** Reinstall the controller board by sliding it carefully along the guide rails in the printer and gently pushing it back into place. When it is properly seated, replace the retaining screws.
- 8** Reconnect all cables to the printer and power it ON.
- 9** Print out a Configuration Sheet (see page 3-17) to check that the printer recognizes the interface board.



*Keep the original packaging material in case you ever need to remove the option.*

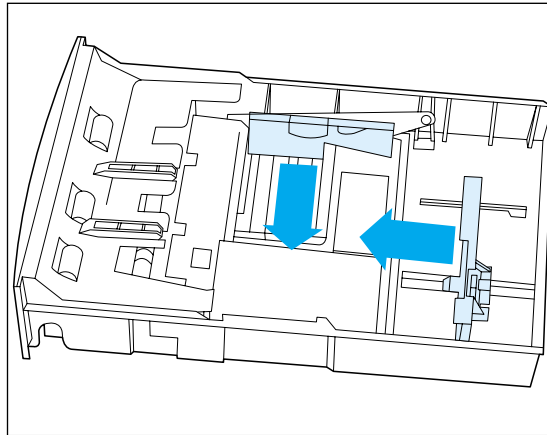
**Note**

## Envelope Tray

The Envelope Tray replaces the upper paper tray. To install it, remove the upper tray and slide the Envelope Tray into place. The Envelope Tray will not fit into the lower tray slot.

Figure B.1 shows how to adjust the Envelope Tray for different envelope sizes.

**Figure B.1** Envelope Tray adjustment



*Keep the original packaging material in case you ever need to remove the option.*

**Note**

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# Appendix C

## *Printer Specifications*

<i>DocuPrint 4512 Specifications</i> .....	<i>C-2</i>
<i>Interface Hardware</i> .....	<i>C-4</i>

**Table C.1 DocuPrint 4512 Specifications**

<b>Imaging Method</b>	Electro-photography
<b>Exposure System</b>	Semiconductor laser beam (laser diode) scanning
<b>Image Resolution</b>	300 x 300 dpi 600 x 600 dpi
<b>Warm Up Time</b>	Less than 60 seconds
<b>Continuous Print Speed</b>	Up to 12 impressions per minute, simplex Up to 8 impressions per minute, duplex
<b>Printable Area</b>	4900 dots x 8200 lines (600 dpi)
<b>Processor</b>	AMD 29240 20 MHz
<b>Maximum Monthly Duty Cycle</b>	Up to 35,000 prints
<b>Nominal Voltage</b>	There are two configurations:  110 - 115 V or 220 - 240 V
<b>Nominal Frequency</b>	50 Hz 60 Hz
<b>Power Consumption</b>	500 W peak consumption; In Energy Star sleep mode, power consumption reduces to about 5% of peak. Other Power Saver modes operational after specified period of not printing (15 minutes, 30 minutes, 45 minutes)
<b>Noise Level</b>	Less than 52 dBA (printing); 44 dBA (idle)
<b>Temperature</b>	50° F to 86° F during operation 10° C to 30° C during operation
<b>Relative Humidity</b>	20% to 85% during operation
<b>Dimensions</b>	13 x 13 x 18.4 inches (H x W x D) 330 x 330 x 468 mm (H x W x D)
<b>Weight</b>	34.2 lbs 15.5 kg
<b>Memory Capacity</b>	50 MB maximum
	Table C.1 Page 1 of 2

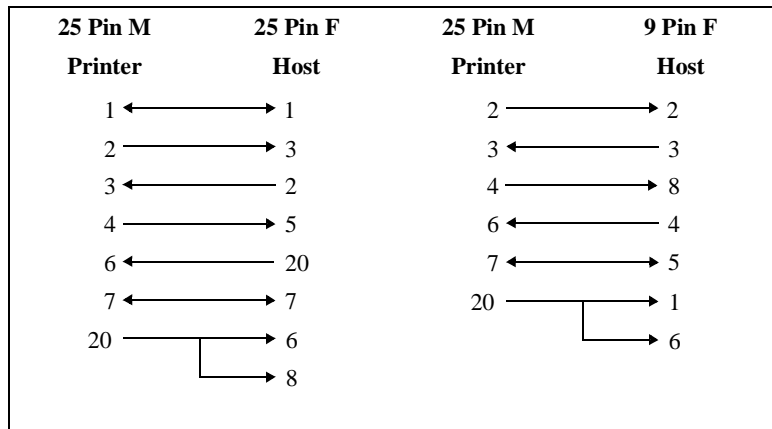
**Table C.1 DocuPrint 4512 Specifications** *(continued)*

<b>Factory-Provided Features</b>	<p>Two 250-sheet paper trays                  Manual Feed Guide                  Toner cartridge                  Photoconductor / Drum                  Power cord                  Printer driver diskettes                  User documentation                  2 MB RAM (printer memory)</p>
<p><b>Available Options</b>                  (See <i>Appendix A: Ordering Information</i> for more details.)</p>	<p>4 MB SIMM (72-pin, 70-ns)                  16 MB SIMM (72-pin, 70-ns)                  1,000-sheet High Capacity Feeder                  Envelope Tray                  PostScript Board                  AppleTalk/Serial Interface Board                  Ethernet Interface Board                  Token Ring Interface Board</p>
<p>Table C.1 Page 2 of 2</p>	

**Table C.2 Interface Hardware**

<b>Parallel</b>	Conforms to IEEE STD 1284, February 2, 1993 Connector: Female 36-pin DDK 57LE-40360-730B (D29) or equivalent	
<b>AppleTalk</b>	Connector: Female 8-pin TCS7189-01-201 or equivalent	
<b>Serial</b>	Connector: Female 25-pin DDK 17LE-13250-28 (D4CK) or equivalent	
	<b>Pin</b>	<b>Signal Name</b>
	1	Frame (Ground)
	2	Transmitted Data
	3	Received Data
	4	Request to Send
	6	Data Set Ready
	7	Ground (Signal)
	20	Data Terminal Ready
		<b>Source</b>
		....
		Printer
		Host
		Printer
		Host
		....
		Printer

Serial Cable Pin Outs



## Appendix D

### *DocuPrint 4512 Unique Printer Commands*

In addition to the standard PCL printer commands, Xerox has added some unique settings for the DocuPrint 4512 in the area of paper size.

Table D.1 shows the paper sizes and corresponding paper trays supported by the DocuPrint 4512. An “X” indicates support for a paper size in a specific tray. The escape sequence number refers to the “#” parameter in the PCL Page Size command (Esc & | # A).

**Table D.1 Paper size support**

Paper Size	Escape Sequence Number	Paper Trays			
		Upper Tray Lower Tray	High Capacity Feeder	Envelope Tray	Manual Feed
Executive	1	X	X		X
Letter	2	X	X		X
Legal (8.5 x 14")	3	X	X		X
Folio (8.5 x 13")	110	X	X		X
A4	26	X	X		X
A5	25	X	X		X
Envelopes					
Monarch	80			X	
Com10	81			X	
DL	90			X	
C5	91			X	

# Appendix E

## *Symbol Set Table*

Symbol Set Table

**8U Roman-8 (R8)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	' 96	p 112			NBS 160	- 176	â 192	Å 208	Á 224	Ð 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			À 161	Ý 177	ê 193	î 209	Ã 225	þ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			Â 162	ý 178	ô 194	Ø 210	ã 226	· 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			È 163	° 179	û 195	Æ 211	Ð 227	μ 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			Ê 164	Ç 180	á 196	â 212	ó 228	¶ 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			Ë 165	ç 181	é 197	í 213	Í 229	¾ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			Î 166	Ñ 182	ó 198	ø 214	Ì 230	– 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			Ï 167	ñ 183	ú 199	æ 215	Ó 231	¼ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			´ 168	ï 184	à 200	Ä 216	Ò 232	½ 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			` 169	í 185	è 201	ì 217	Õ 233	ª 249
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122			^ 170	æ 186	ò 202	Ö 218	õ 234	° 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			¨ 171	£ 187	ù 203	Ü 219	Š 235	« 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			~ 172	¥ 188	ä 204	É 220	š 236	■ 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			Û 173	§ 189	ë 205	ï 221	Ú 237	» 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			Û 174	f 190	ö 206	ß 222	ÿ 238	± 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127			£ 175	ç 191	ü 207	Ô 223	ÿ 239	



**7J DeskTop (DT)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	' 96	p 112			NBS 160	“ 176	– 192	< 208	ª 224	´ 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			¶ 161	” 177	± 193	> 209	° 225	` 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			§ 162	µ 178	× 194	« 210	æ 226	^ 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			‡ 163	‰ 179	÷ 195	» 211	Æ 227	¨ 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			‡ 164	• 180	° 196	' 212	ø 228	~ 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			© 165	● 181	' 197	„ 213	Ð 229	˘ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			@ 166	◦ 182	" 198	· 214	ij 230	˘ 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			™ 167	○ 183	¼ <sub>2</sub> 199	ı 215	IJ 231	” 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			% 168	■ 184	½ <sub>2</sub> 200	ı 216	ł 232	° 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			ç 169	■ 185	¾ <sub>3</sub> 201	Pt 217	Ł 233	· 249
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122			– 170	□ 186	ı 202	l 218	œ 234	˘ 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			— 171	□ 187	2 203	£ 219	Œ 235	˘ 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			... 172	' 188	3 204	¥ 220	ø 236	˘ 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			fi 173	¬ 189	/ 205	¤ 221	Ø 237	· 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			fl 174	ı 190		f 222	Ɔ 238	ı 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127						ß 223	Ɔ 239	

Symbol Set Table

**19U Windows 3.1 Latin 1 (W1)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112			NBS 160	° 176	À 192	Ð 208	à 224	ð 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113		' 145	ı 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114	,	' 146	ç 162	² 178	Â 194	Ò 210	â 226	ò 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115	f	" 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116	„	" 148	¤ 164	' 180	Ä 196	Ô 212	ä 228	ô 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117	...	• 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118	†	–	ı 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119	‡	–	§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120	^	~	¨ 168	˘ 184	È 200	Ø 216	è 232	ø 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121	‰	™	© 169	ı 185	É 201	Ù 217	é 233	ù 249
A	LF 10	SUB 26	* 42	:	J 74	Z 90	j 106	z 122	Š	š	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123	<	>	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124	Œ	œ	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			– 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127		ÿ 143	– 159	̇ 175	Ï 207	ß 223	ï 239	ÿ 255

**ON ISO 8859/1 Latin 1 (E1)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	' 96	p 112			NBS 160	° 176	À 192	Ð 208	à 224	ð 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			ı 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			ç 162	² 178	Â 194	Ò 210	â 226	ò 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			¤ 164	' 180	Ä 196	Ô 212	ä 228	ô 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			¦ 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			§ 167	· 183	Ç 199	× 215	ç 231	÷ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			© 169	¹ 185	É 201	Ù 217	é 233	ù 249
A	LF 10	SUB 26	* 42	:	J 74	Z 90	j 106	z 122	˘	˘	ª	º	Ê 202	Ú 218	ê 234	ú 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			¬ 172	¼ 188	Ï 204	Ü 220	ï 236	ü 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			– 173	½ 189	Í 205	Ý 221	í 237	ý 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127			— 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

Symbol Set Table

10U PC-8 Code Page 437 (PC)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	☒	⌌	⌌	α	≡
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	⌌	β	±
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	☹	↕	"	2	B	R	b	r	é	Æ	ó	☒	⌌	⌌	Γ	≥
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	♥	!!	#	3	C	S	c	s	â	ô	ú			⌌	π	≤
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ		-	⌌	Σ	∫
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	‡	+	F	σ	J
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	♠	-	&	6	F	V	f	v	å	û	ª		†	⌌	μ	÷
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	•	↕	'	7	G	W	g	w	ç	ù	º	⌌			T	≈
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	■	↑	(	8	H	X	h	x	ê	ÿ	¿	‡	⌌	≠	Φ	°
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	○	↓	)	9	I	Y	i	y	ë	Ö	⌌		⌌	⌌	Θ	•
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	◉	→	*	:	J	Z	j	z	è	Ü	⌌		≠	⌌	Ω	.
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	♂	←	+	;	K	[	k	{	ï	ç	½	⌌	⌌	■	δ	√
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	♀	⌌	,	<	L	\	l		î	£	¼	⌌	⌌	■	∞	n
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	♪	↔	-	=	M	]	m	}	ì	¥	¡	⌌	=	■	∅	²
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	🎵	▲	.	>	N	^	n	~	Ä	Pt	«	≠	⌌	■	∈	■
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	☀	▼	/	?	O	_	o	△	Å	f	»	⌌	≠	■	∩	
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

12U PC-850 Multilingual (PM)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	☒	Ł	ø	Ó	–
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	Ð	ß	±
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	☹	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	Ê	Ô	=
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	♥	!!	#	3	C	S	c	s	â	ô	ú		†	Ë	Ò	¾
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ	†	–	È	õ	¶
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	Á	†	ı	Õ	§
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	♠	_	&	6	F	V	f	v	å	û	<sup>a</sup>	Â	ã	Í	μ	÷
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	•	↕	'	7	G	W	g	w	ç	ù	°	À	Ã	Î	þ	´
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	■	↑	(	8	H	X	h	x	ê	ÿ	ı	©	℥	Ï	Ɔ	°
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	○	↓	)	9	I	Y	i	y	ë	Ö	®	¶	¶	┘	Ú	¨
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	◼	→	*	:	J	Z	j	z	è	Ü	¬		≡	Γ	Û	•
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	♂	←	+	;	K	[	k	{	ï	ø	½	¶	¶	■	Ù	ı
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	♀	└	,	<	L	\	l		î	£	¼	¶	¶	■	Ý	³
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	♪	↔	-	=	M	]	m	}	ì	Ø	ı	ç	=	ı	Ý	²
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	🎵	▲	.	>	N	^	n	~	Ä	×	«	¥	†	Ì	–	▪
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	☀	▼	/	?	O	_	o	⏏	Å	f	»	¬	¤	■	´	NBS
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Symbol Set Table

**10J PS Text (TS)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	' 96	p 112			NBS 160			— 208		
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			i 161	— 177	` 193		Æ 225	æ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			ç 162	† 178	' 194			
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			£ 163	‡ 179	^ 195		ª 227	
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			/ 164	· 180	~ 196			
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			¥ 165		— 197			
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			ƒ 166	¶ 182	ù 198			
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			§ 167	• 183	· 199			
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			¤ 168	, 184	¨ 200		Ł 232	ł 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			' 169	„ 185			Ø 233	ø 249
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122			“ 170	” 186	° 202		Œ 234	œ 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			« 171	» 187	· 203		° 235	ß 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			< 172	... 188				
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			> 173	‰ 189	” 205			
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			fi 174		· 206			
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111				ß 175	¿ 191	ù 207			

**12J MC TEXT (MC)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112	Ä 128	ê 144	† 160	∞ 176	ı 192	— 208	‡ 224	
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113	Å 129	ë 145	° 161	± 177	ı 193	— 209	· 225	Ò 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114	Ç 130	í 146	ç 162	≤ 178	¬ 194	“ 210	, 226	Ú 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115	É 131	ì 147	£ 163	≥ 179	√ <sup>-</sup> 195	” 211	„ 227	Û 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116	Ñ 132	î 148	§ 164	¥ 180	f 196	‘ 212	‰ 228	Ü 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117	Ö 133	ï 149	• 165	μ 181	≈ 197	’ 213	Â 229	ı 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118	Ü 134	ñ 150	¶ 166	ð 182	Δ 198	÷ 214	Ê 230	^ 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119	á 135	ó 151	β 167	Σ 183	« 199	◇ 215	Á 231	~ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120	à 136	ò 152	@ 168	Π 184	» 200	ÿ 216	Ë 232	- 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121	â 137	ô 153	© 169	π 185	... 201	ÿ 217	È 233	˘ 249
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122	ä 138	ö 154	™ 170	∫ 186	NBS 202	/ 218	Í 234	. 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123	ã 139	õ 155	˘ 171	ª 187	À 203	¤ 219	Î 235	° 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124	å 140	ú 156	“ 172	° 188	Ã 204	< 220	Ï 236	˘ 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125	ç 141	ù 157	≠ 173	Ω 189	Õ 205	> 221	Ì 237	" 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126	é 142	û 158	Æ 174	æ 190	Œ 206	fi 222	Ó 238	˘ 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	 127	è 143	ü 159	Ø 175	ø 191	œ 207	fl 223	Ô 239	˘ 255

Symbol Set Table

**13J Ventura International (VI)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	' 96	p 112			„ 160	% 176	â 192	Å 208	Á 224	Œ 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			À 161	“ 177	ê 193	î 209	Ã 225	œ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			Â 162	” 178	ô 194	Ø 210	ã 226	ƒ 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			È 163	° 179	û 195	Æ 211		‡ 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			Ê 164	Ç 180	á 196	å 212		‡ 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			Ë 165	ç 181	é 197	í 213	Í 229	— 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			Ï 166	Ñ 182	ó 198	ø 214	ì 230	- 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			Ĭ 167	ñ 183	ú 199	æ 215	Ó 231	
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			© 168	ı 184	à 200	Û 216	Ò 232	
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			® 169	ı 185	è 201	ì 217	Õ 233	ª 249
A	LF 10	SUB 26	* 42	:	J 74	Z 90	j 106	z 122			™ 170	¤ 186	ò 202	Ö 218	õ 234	° 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			< 171	£ 187	ù 203	Ü 219	Š 235	« 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			> 172	¥ 188	ä 204	É 220	š 236	• 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			Ù 173	§ 189	ë 205	ï 221	Ú 237	» 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			Û 174	f 190	ö 206	ß 222	ÿ 238	
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111				ç 191	ü 207	Ô 223	ÿ 239	...	255



11U PC-8 Danish/Norwegian (PD)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	☐	⊥	⊥	α	≡
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	⊥	β	±
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	☺	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	⊥	Γ	≥
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	♥	!!	#	3	C	S	c	s	â	ô	ú			⊥	π	≤
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ		-	⊥	Σ	∫
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	‡	+	⊥	σ	∫
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	♠	-	&	6	F	V	f	v	å	û	õ		‡	⊥	μ	÷
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	•	↕	'	7	G	W	g	w	ç	ù	Õ	⊥			τ	≈
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	■	↑	(	8	H	X	h	x	ê	ÿ	ı	‡	⊥	≠	Φ	°
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	○	↓	)	9	I	Y	i	y	ë	Ö	ã		⊥	⊥	θ	•
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	◉	→	*	:	J	Z	j	z	è	Ü	Ã		≠	⊥	Ω	.
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	♂	←	+	;	K	[	k	{	ï	ø	l	‡	⊥	■	δ	√ <sup>-</sup>
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	♀	⊥	,	<	L	\	l		î	£	'n	‡		■	∞	n
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	♪	↔	-	=	M	]	m	}	ì	Ø	j	⊥	=	■	ø	₂
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	♪	▲	.	>	N	^	n	~	Ä	L	₃	‡		■	e	■
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	☼	▼	/	?	O	_	o	△	Å	l	¤	⊥	≠	■	∩	NBS
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Symbol Set Table

**14J Ventura US (VU)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	' 96	p 112			„ 160	‰ 176				
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			“ 161					
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			” 162					¶ 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			° 163					‡ 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116								‡ 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117								— 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118								— 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119								
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			© 168					
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			® 169					
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122			™ 170					
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123								
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124								• 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125				§ 189				
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126								
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111					ç 191				... 255

**1U Legal (LG)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	° 96	p 112								
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113								
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114								
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115								
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116								
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117								
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118								
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119								
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120								
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121								
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122								
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	§ 123								
C	FF 12	FS 28	, 44	< 60	L 76	@ 92	l 108	¶ 124								
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	‡ 125								
E	SO 14	RS 30	. 46	ç 62	N 78	© 94	n 110	™ 126								
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127								

Symbol Set Table

**9U Windows 3.0 Latin 1 (WO)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112			NBS 160	° 176	À 192	Ð 208	à 224	ð 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			ı 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			ç 162	² 178	Â 194	Ò 210	â 226	ò 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			¤ 164	' 180	Ä 196	Ô 212	ä 228	ô 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			§ 167	• 183	Ç 199	× 215	ç 231	÷ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			¨ 168	¸ 184	È 200	Ø 216	è 232	ø 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			© 169	ı 185	É 201	Ù 217	é 233	ù 249
A	LF 10	SUB 26	* 42	:	J 74	Z 90	j 106	z 122			ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			¬ 172	½ 188	Ì 204	Ü 220	ì 236	ü 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			– 173	¾ 189	Í 205	Ý 221	í 237	ý 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			® 174	¾ 190	Î 206	Þ 222	î 238	þ 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127			– 175	¿ 191	Ï 207	ß 223	ï 239	ÿ 255

**6J Microsoft Publishing (PB)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32		2 64		' 96					° 176			Ω 224	
1	SOH 1	DC1 17	1 33								' 161	• 177	` 193	˘ 209		
2	STX 2	DC2 18	” 34			R 82					” 162	● 178	˘ 194	˘ 210		
3	ETX 3	DC3 19	3 35			Š 83	% 99	š 115			^ 163	● 179	^ 195	^ 211		
4	EOT 4	DC4 20	4 36			™ 84		Thin Space 116			~ 164	◦ 180	~ 196	~ 212		
5	ENQ 5	NAK 21	5 37									○ 181	- 197	- 213		ı 245
6	ACK 6	SYN 22	7 38									○ 182	˘ 198	˘ 214	IJ 230	ij 246
7	BEL 7	ETB 23	’ 39									■ 183	· 199	· 215	Ł 231	ł 247
8	BS 8	CAN 24	9 40									■ 184	” 200	” 216	Ł 232	ł 248
9	HT 9	EM 25	0 41			Ÿ 89					fi 169	■ 185				
A	LF 10	SUB 26	8 42			Ž 90		ž 122			fi 170	□ 186	° 202	° 218		
B	VT 11	ESC 27	† 43								fi 171	□ 187	˘ 203	˘ 219		
C	FF 12	FS 28	, 44	” 60			l 108				ffi 172	□ 188				
D	CR 13	GS 29	- 45	‡ 61	— 77		Em Space 109				ffi 173	‰ 189	” 205	” 221		
E	SO 14	RS 30	... 46		- 78	6 94	En Space 110	“ 126		Pt 142	158	< 174	◆ 190	˘ 206	˘ 222	
F	SI 15	US 31	/ 47		Œ 79	= 95	œ 111			f 143	159	> 175	◇ 191	˘ 207	˘ 223	’n 239
																255

Symbol Set Table

17U PC-852 Latin 2 (PE)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	☒	Ł	đ	Ó	-
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	☺	◀	!	1	A	Q	a	q	ü	Ł	í	☒	Ł	Đ	ß	"
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	☹	↕	"	2	B	R	b	r	é	Í	ó	☒	Ł	Ď	Ô	˘
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	♥	!!	#	3	C	S	c	s	â	ô	ú		Ł	Ě	Ň	ˇ
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	♦	¶	\$	4	D	T	d	t	ä	ö	À	Ł	-	đ	ń	˘
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	♣	§	%	5	E	U	e	u	ű	Ł	ą	Á	Ł	Ň	ň	§
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	♠	-	&	6	F	V	f	v	ć	ŕ	Ž	Â	Ă	Í	Š	÷
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	•	↕	'	7	G	W	g	w	ç	Ś	ž	Ě	ă	Î	š	˘
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	■	↑	(	8	H	X	h	x	ł	ś	Ě	Ś	Ł	ě	Ŕ	°
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	○	↓	)	9	I	Y	i	y	ë	Ö	e	Ł	Ł	Ł	Ú	˘
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	◉	→	*	:	J	Z	j	z	Ő	Ü		Ł	Ł	Ł	ŕ	•
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	♂	←	+	;	K	[	k	{	ő	Ť	ž	Ł	Ł	■	Ů	ů
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	♀	└	,	<	L	\	l		î	ť	Č	Ł	Ł	■	ý	ř
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	♪	↔	-	=	M	]	m	}	Ž	Ł	š	Ž	=	Ł	Ý	ř
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	🎵	▲	.	>	N	^	n	~	Ä	×	«	Ž	Ł	Ů	ť	■
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	☀	▼	/	?	O	_	o	◊	Ć	č	»	Ł	Ł	■	´	NBS
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

9T PC-Turkish (PT)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	▶		0	@	P	`	p	Ç	É	á	☐	⊥	⊥	α	≡
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	☺	◀	!	1	A	Q	a	q	ü	æ	í	☒	⊥	⊥	β	±
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	☺	↕	"	2	B	R	b	r	é	Æ	ó	☒	⊥	⊥	Γ	≥
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	♥	!!	#	3	C	S	c	s	â	ô	ú			⊥	π	≤
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	♦	¶	\$	4	D	T	d	t	ä	ö	ñ		-	⊥	Σ	∫
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	♣	§	%	5	E	U	e	u	à	ò	Ñ	‡	+	⊥	σ	∫
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	♠	-	&	6	F	V	f	v	â	û	Ğ		‡	⊥	μ	÷
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	•	↕	'	7	G	W	g	w	ç	ù	ğ	⊥			τ	≈
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	■	↑	(	8	H	X	h	x	ê	ï	ı	‡	⊥	≠	Φ	°
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	○	↓	)	9	I	Y	i	y	ë	Ö	ı			⊥	θ	•
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	◉	→	*	:	J	Z	j	z	è	Ü	ı		≠	⊥	Ω	.
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	♂	←	+	;	K	[	k	{	ï	ç	½		⊥	■	δ	=
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	♀	↔	,	<	L	\	l		î	£	¼			■	∞	n
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	♪	⊥	-	=	M	]	m	}	ì	¥	ı	⊥	=	■	∅	₂
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	♪	▲	.	>	N	^	n	~	Ä	Ş	«	≠		■	e	■
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	☀	▼	/	?	O	_	o	△	Å	ş	»	⊥	≠	■	∩	NBS
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

Symbol Set Table

**2N ISO 8859/2 Latin 2 (E2)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112			NBS 160	° 176	Ř 192	Đ 208	í 224	ď 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113			À 161	á 177	Á 193	Ň 209	á 225	ń 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114			˘ 162	˙ 178	Â 194	Ń 210	â 226	ñ 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115			Ł 163	ł 179	Ă 195	Ó 211	ă 227	ó 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116			ϣ 164	ˆ 180	Ä 196	Ô 212	ä 228	ô 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117			Ł 165	ł 181	Í 197	Ó 213	Í 229	ó 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118			Š 166	š 182	Ć 198	Ö 214	ć 230	ö 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119			§ 167	˘ 183	Ç 199	× 215	ç 231	÷ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			¨ 168	˙ 184	Č 200	Ř 216	č 232	ř 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121			Š 169	š 185	É 201	Û 217	é 233	û 249
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122			Ş 170	ş 186	È 202	Ú 218	e 234	ú 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123			Ť 171	ť 187	Ě 203	Ú 219	ě 235	ů 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124			Ž 172	ž 188	Ě 204	Û 220	ě 236	ü 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			- 173	˘ 189	Í 205	Ý 221	í 237	ý 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			Ž 174	ž 190	Î 206	Ţ 222	î 238	ţ 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127			Ž 175	ž 191	Ď 207	ß 223	d' 239	. 255



**9E Windows 3.1 Latin 2 (WE)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112			NBS 160	° 176	Ř 192	Đ 208	í 224	ď 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113		‘ 145	˘ 161	± 177	Á 193	Ň 209	á 225	ň 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114	,	’ 146	˘ 162	˘ 178	Â 194	Ň 210	â 226	ň 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115		“ 147	Ł 163	ł 179	Ă 195	Ó 211	ă 227	ó 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116	„	” 148	¤ 164	˘ 180	Ä 196	Ô 212	ä 228	ô 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117	…	• 149	Å 165	μ 181	Ĺ 197	Ó 213	í 229	ó 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118	† 134	— 150	 166	¶ 182	Č 198	Ö 214	č 230	ö 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119	‡ 135	— 151	§ 167	• 183	Ç 199	× 215	ç 231	÷ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120			¨ 168	˘ 184	Č 200	Ř 216	č 232	ř 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121	‰	™ 153	© 169	ª 185	É 201	Ů 217	é 233	ů 249
A	LF 10	SUB 26	* 42	:	J 74	Z 90	j 106	z 122	Š 138	š 154	Ş 170	ş 186	Ě 202	Ú 218	ě 234	ú 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123	<	> 155	« 171	» 187	Ě 203	Ů 219	ě 235	ů 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124	Š 140	ś 156	¬ 172	Ł 188	Ě 204	Ü 220	ě 236	ü 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125	Ť 141	ť 157	– 173	“ 189	Í 205	Ý 221	í 237	ý 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126	Ž 142	ž 158	® 174	ŀ 190	Î 206	Ť 222	î 238	ŧ 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127	Ž 143	ž 159	Ž 175	ž 191	Ď 207	ß 223	ď 239	· 255

Symbol Set Table

**5N ISO 8859/9 Latin 5 (E5)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	@	P	`	p			NBS	°	À	Ǻ	à	ǣ
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	SOH	DC1	!	1	A	Q	a	q			ı	±	Á	Ñ	á	ñ
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	STX	DC2	"	2	B	R	b	r			ç	²	Â	Ò	â	ò
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	ETX	DC3	#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	EOT	DC4	\$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	ENQ	NAK	%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	ACK	SYN	&	6	F	V	f	v				¶	Æ	Ö	æ	ö
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	BEL	ETB	'	7	G	W	g	w			§	•	Ç	×	ç	÷
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	BS	CAN	(	8	H	X	h	x			¨	¸	È	Ø	è	ø
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	HT	EM	)	9	I	Y	i	y			©	ı	É	Ù	é	ù
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	LF	SUB	*	:	J	Z	j	z			<sup>a</sup>	0	Ê	Ú	ê	ú
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	VT	ESC	+	;	K	[	k	{			«	»	Ë	Û	ë	û
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	FF	FS	,	<	L	\	l				¬	¼	Ì	Ü	ì	ü
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	CR	GS	-	=	M	]	m	}			-	½	Í	İ	í	ı
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	SO	RS	.	>	N	^	n	~			®	¾	Î	Ş	î	ş
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	SI	US	/	?	O	_	o	☒			-	ı	Ï	ß	ï	ÿ
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

**5T Windows 3.1 Latin 5 (WT)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	@ 64	P 80	` 96	p 112			NBS 160	° 176	À 192	Ā 208	à 224	ğ 240
1	SOH 1	DC1 17	! 33	1 49	A 65	Q 81	a 97	q 113		‘ 145	ı 161	± 177	Á 193	Ñ 209	á 225	ñ 241
2	STX 2	DC2 18	" 34	2 50	B 66	R 82	b 98	r 114	,	’ 146	ç 162	² 178	Â 194	Ò 210	â 226	ò 242
3	ETX 3	DC3 19	# 35	3 51	C 67	S 83	c 99	s 115	f 131	“ 147	£ 163	³ 179	Ã 195	Ó 211	ã 227	ó 243
4	EOT 4	DC4 20	\$ 36	4 52	D 68	T 84	d 100	t 116	„ 132	” 148	¤ 164	´ 180	Ä 196	Ô 212	ä 228	ô 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	U 85	e 101	u 117	… 133	● 149	¥ 165	µ 181	Å 197	Õ 213	å 229	õ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	V 86	f 102	v 118	‡ 134	— 150	 166	¶ 182	Æ 198	Ö 214	æ 230	ö 246
7	BEL 7	ETB 23	' 39	7 55	G 71	W 87	g 103	w 119	‡ 135	— 151	§ 167	• 183	Ç 199	× 215	ç 231	÷ 247
8	BS 8	CAN 24	( 40	8 56	H 72	X 88	h 104	x 120	^ 136	~ 152	¨ 168	˘ 184	È 200	Ø 216	è 232	ø 248
9	HT 9	EM 25	) 41	9 57	I 73	Y 89	i 105	y 121	‰ 137	™ 153	© 169	ı 185	É 201	Ù 217	é 233	ù 249
A	LF 10	SUB 26	* 42	: 58	J 74	Z 90	j 106	z 122	Š 138	š 154	ª 170	º 186	Ê 202	Ú 218	ê 234	ú 250
B	VT 11	ESC 27	+ 43	; 59	K 75	[ 91	k 107	{ 123	< 139	> 155	« 171	» 187	Ë 203	Û 219	ë 235	û 251
C	FF 12	FS 28	, 44	< 60	L 76	\ 92	l 108	 124	Œ 140	œ 156	¬ 172	¼ 188	Ì 204	Ü 220	ì 236	ü 252
D	CR 13	GS 29	- 45	= 61	M 77	] 93	m 109	} 125			- 173	½ 189	Í 205	Û 221	í 237	ı 253
E	SO 14	RS 30	. 46	> 62	N 78	^ 94	n 110	~ 126			® 174	¾ 190	Î 206	Ş 222	î 238	ş 254
F	SI 15	US 31	/ 47	? 63	O 79	_ 95	o 111	☒ 127		ÿ 143	˘ 159	ı 175	Ï 191	ß 207	ï 223	ÿ 255

Symbol Set Table

**6M Ventura Math (VM)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	≡ 64	) 80	— 96	p 112			◇ 160	® 176	≤ 192	↓ 208	 224	Π 240
1	SOH 1	DC1 17	! 33	1 49	A 65	U 81	α 97	u 113			√ 161	⊃ 177	♦ 193	← 209	· 225	™ 241
2	STX 2	DC2 18	∇ 34	2 50	B 66	R 82	β 98	r 114			l 162	⊇ 178	≥ 194	® 210	∠ 226	⇐ 242
3	ETX 3	DC3 19	# 35	3 51	X 67	S 83	χ 99	s 115			Γ 163	Γ 179	∂ 195	" 211	J 227	↔ 243
4	EOT 4	DC4 20	≡ 36	4 52	Δ 68	T 84	δ 100	t 116			 164		⌘ 196	f 212		∇ 244
5	ENQ 5	NAK 21	% 37	5 53	E 69	Y 85	ε 101	γ 117			L 165	♣ 181	' 197	⊆ 213	{ 229	Σ 245
6	ACK 6	SYN 22	& 38	6 54	F 70	ζ 86	φ 102	ω 118			l 166	⊕ 182	℔ 198	© 214	 230	™ 246
7	BEL 7	ETB 23	⊃ 39	7 55	G 71	V 87	γ 103	ω 119			 167	⊗ 183	∅ 199	± 215	> 231	 247
8	BS 8	CAN 24	( 40	8 56	H 72	J 88	η 104	ξ 120			↑ 168	⊆ 184	∞ 200	→ 216		J 248
9	HT 9	EM 25	) 41	9 57	I 73	C 89	ι 105	ψ 121			⇒ 169	∪ 185	♠ 201	↑ 217	¬ 233	∅ 249
A	LF 10	SUB 26	* 42	: 58	q 74	Z 90	φ 106	ζ 122			↓ 170	— 186	∞ 202	≠ 218	∇ 234	∩ 250
B	VT 11	ESC 27	+ 43	; 59	κ 75	@ 91	κ 107	{ 123			♀ 171	... 187	• 203	≡ 219	 235	€ 251
C	FF 12	FS 28	, 44	< 60	L 76	∴ 92	λ 108	 124			⊂ 172	 188	/ 204	° 220	 236	© 252
D	CR 13	GS 29	— 45	= 61	M 77	# 93	μ 109	} 125			J 173	∧ 189	♥ 205	↔ 221	 237	∉ 253
E	SO 14	RS 30	. 46	> 62	N 78	⊥ 94	v 110	~ 126			 174	↵ 190	× 206	∩ 222	J 238	 254
F	SI 15	US 31	/ 47	? 63	O 79	— 95	O 111				} 175	≈ 191	Υ 207	∫ 223	÷ 239	< 255

**8M Math-8 (M8)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	0 48	∴ 64	Π 80	∴ 96	π 112				— 176	⊕ 192	Å 208	┌ 224	┐ 240
1	SOH 1	DC1 17	√ 33	1 49	A 65	P 81	α 97	ρ 113			↑ 161	∇ 177	⊙ 193	┐ 209	└ 225	┘ 241
2	STX 2	DC2 18	" 34	2 50	B 66	Σ 82	β 98	σ 114			→ 162	∃ 178	⊗ 194	┌ 210	┐ 226	┘ 242
3	ETX 3	DC3 19	° 35	3 51	Γ 67	T 83	γ 99	τ 115			↓ 163	⊤ 179	⊖ 195	└ 211	{ 227	}
4	EOT 4	DC4 20	∞ 36	4 52	Δ 68	Υ 84	δ 100	υ 116			← 164	⊥ 180	⊘ 196	∃ 212	└ 228	┘ 244
5	ENQ 5	NAK 21	÷ 37	5 53	E 69	Φ 85	e 101	φ 117			↑ 165	∪ 181	∧ 197	∫ 213	┐ 229	┘ 245
6	ACK 6	SYN 22	∞ 38	6 54	Z 70	X 86	ζ 102	χ 118			⇒ 166	∩ 182	∇ 198	♯ 214	φ 230	 246
7	BEL 7	ETB 23	' 39	7 55	H 71	Ψ 87	η 103	ψ 119			⇓ 167	∈ 183	∇ 199	∠ 215	J 231	 247
8	BS 8	CAN 24	( 40	8 56	θ 72	Ω 88	θ 104	ω 120			⇐ 168	∋ 184	∩ 200	∅ 216	∇ 232	┘ 248
9	HT 9	EM 25	) 41	9 57	I 73	∇ 89	ι 105	∂ 121			↕ 169	∉ 185	○ 201	⌘ 217	 233	⟩ 249
A	LF 10	SUB 26	× 42	ℓ 58	K 74	∂ 90	κ 106	φ 122			↔ 170	⊂ 186	• 202	⌋ 218	∠ 234	┘ 250
B	VT 11	ESC 27	+ 43	ε 59	Λ 75	ς 91	λ 107	ω 123			↕ 171	⊃ 187	○ 203	⌋ 219	/ 235	∖ 251
C	FF 12	FS 28	, 44	< 60	M 76	≤ 92	μ 108	≈ 124			↔ 172	∄ 188	● 204	⊆ 220	— 236	< 252
D	CR 13	GS 29	— 45	= 61	N 77	≠ 93	∨ 109	≡ 125			↔ 173	∄ 189	○ 205	≈ 221	≡ 237	≠ 253
E	SO 14	RS 30	. 46	> 62	Ξ 78	≥ 94	ξ 110	≠ 126			↔ 174	⊆ 190	† 206	℞ 222	* 238	± 254
F	SI 15	US 31	/ 47	≈ 63	O 79	— 95	o 111	▣ 127			→ 175	⊇ 191	‡ 207	3 223	≡ 239	

Symbol Set Table

**15U Pi Font (PI)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	— 48	∴ 64	Ⓟ 80	┌ 96	┐ 112								
1	SOH 1	DC1 17		˘ 49	△ 65	Ⓢ 81	└ 97	┘ 113								
2	STX 2	DC2 18	” 34	˘ 50		<b>R</b> 82	┌ 98	┐ 114								
3	ETX 3	DC3 19	, 35	· 51		Σ 83	└ 99	┘ 115								
4	EOT 4	DC4 20	“ 36	↗ 52			┌ 100	┐ 116								
5	ENQ 5	NAK 21	” 37	↘ 53			└ 101	┘ 117								
6	ACK 6	SYN 22	‘ 38	↙ 54	f 70		— 102	└ 118								
7	BEL 7	ETB 23	, 39	↖ 55			 103	 119								
8	BS 8	CAN 24	) 40	△ 56	\ 72		U 104	U 120								
9	HT 9	EM 25	< 41	▷ 57			∩ 105	∩ 121								
A	LF 10	SUB 26	<b>TM</b> 42	▽ 58			∏ 106	∏ 122								
B	VT 11	ESC 27	SM 43	◁ 59			∏ 107	∏ 123								
C	FF 12	FS 28	® 44	≪ 60	ℒ 76		∏ 108	■ 124								
D	CR 13	GS 29	© 45	§ 61	ℓ 77		∏ 109	◆ 125								
E	SO 14	RS 30	Ⓜ 46	≫ 62		< 78	˘ 94									
F	SI 15	US 31		⌋ 63		> 79		▣ 127								

5M PS Math (MS)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F	
0	NUL 0	DLE 16	SP 32	<b>0</b> 48	$\equiv$ 64	$\Pi$ 80	$\text{—}$ 96	$\pi$ 112				$\circ$ 176	$\times$ 192	$\angle$ 208	$\diamond$ 224		240
1	SOH 1	DC1 17	<b>!</b> 33	<b>1</b> 49	<b>A</b> 65	$\theta$ 81	$\alpha$ 97	$\theta$ 113			$\gamma$ 161	$\pm$ 177	$\approx$ 193	$\nabla$ 209	$\langle$ 225	$\rangle$ 241	
2	STX 2	DC2 18	$\forall$ 34	<b>2</b> 50	<b>B</b> 66	<b>P</b> 82	$\beta$ 98	$\rho$ 114			' 162	" 178	$\Re$ 194	$\text{\textcircled{R}}$ 210	$\text{\textcircled{R}}$ 226	$\int$ 242	
3	ETX 3	DC3 19	<b>#</b> 35	<b>3</b> 51	<b>X</b> 67	$\Sigma$ 83	$\chi$ 99	$\sigma$ 115			$\leq$ 163	$\geq$ 179	$\wp$ 195	$\text{\textcircled{C}}$ 211	$\text{\textcircled{C}}$ 227	$\int$ 243	
4	EOT 4	DC4 20	$\exists$ 36	<b>4</b> 52	$\Delta$ 68	<b>T</b> 84	$\delta$ 100	$t$ 116			/ 164	$\times$ 180	$\oplus$ 196	<b>TM</b> 212	<b>TM</b> 228	$ $ 244	
5	ENQ 5	NAK 21	% 37	<b>5</b> 53	<b>E</b> 69	<b>Y</b> 85	$\epsilon$ 101	$v$ 117			$\infty$ 165	$\infty$ 181	$\otimes$ 197	$\Pi$ 213	$\Sigma$ 229	$J$ 245	
6	ACK 6	SYN 22	& 38	<b>6</b> 54	$\Phi$ 70	$\zeta$ 86	$\phi$ 102	$\omega$ 118			$f$ 166	$\partial$ 182	$\emptyset$ 198	$\sqrt{\quad}$ 214	$\int$ 230	$\int$ 246	
7	BEL 7	ETB 23	$\supset$ 39	<b>7</b> 55	$\Gamma$ 71	$\Omega$ 87	$\gamma$ 103	$\omega$ 119			$\clubsuit$ 167	$\bullet$ 183	$\cap$ 199	$\cdot$ 215	$ $ 231	$ $ 247	
8	BS 8	CAN 24	( 40	<b>8</b> 56	<b>H</b> 72	$\text{J}$ 88	$\eta$ 104	$\xi$ 120			$\blacklozenge$ 168	$\div$ 184	$\cup$ 200	$\neg$ 216	$\int$ 232	$\int$ 248	
9	HT 9	EM 25	) 41	<b>9</b> 57	<b>I</b> 73	$\Psi$ 89	$i$ 105	$\psi$ 121			$\heartsuit$ 169	$\neq$ 185	$\supset$ 201	$\wedge$ 217	$\int$ 233	$\int$ 249	
A	LF 10	SUB 26	* 42	: 58	$\text{\textcircled{D}}$ 74	<b>Z</b> 90	$\phi$ 106	$\zeta$ 122			$\spadesuit$ 170	$\equiv$ 186	$\supseteq$ 202	$\vee$ 218	$ $ 234	$ $ 250	
B	VT 11	ESC 27	+ 43	; 59	<b>K</b> 75	[ 91	$\kappa$ 107	{ 123			$\leftrightarrow$ 171	$\approx$ 187	$\not\subset$ 203	$\Leftrightarrow$ 219	$\int$ 235	$\int$ 251	
C	FF 12	FS 28	, 44	< 60	<b><math>\Lambda</math></b> 76	$\therefore$ 92	$\lambda$ 108	 124			$\leftarrow$ 172	$\dots$ 188	$\subset$ 204	$\Leftarrow$ 220	$\int$ 236	$\int$ 252	
D	CR 13	GS 29	- 45	= 61	<b>M</b> 77	] 93	$\mu$ 109	} 125			$\uparrow$ 173	$ $ 189	$\subseteq$ 205	$\Uparrow$ 221	{ 237	} 253	
E	SO 14	RS 30	. 46	> 62	<b>N</b> 78	$\perp$ 94	$v$ 110	$\sim$ 126			$\rightarrow$ 174	$\text{—}$ 190	$\in$ 206	$\Rightarrow$ 222	$\int$ 238	$\int$ 254	
F	SI 15	US 31	/ 47	? 63	<b>O</b> 79	$\text{—}$ 95	<b>O</b> 111				$\downarrow$ 175	$\lrcorner$ 191	$\notin$ 207	$\Downarrow$ 223	$ $ 239		255

Symbol Set Table

**19M Symbol Font (AS)**

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	SP	0	≡	Π	—	π				°	⌘	∠	◇	
	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	SOH	DC1	!	1	A	Θ	α	θ			Υ	±	≈	∇	<	>
	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	STX	DC2	∇	2	B	P	β	ρ			'	"	ℵ	®	®	∫
	2	18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	ETX	DC3	#	3	X	Σ	χ	σ			≤	≥	∅	©	©	∫
	3	19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	EOT	DC4	☐	4	Δ	T	δ	τ			/	×	⊕	™	™	
	4	20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	ENQ	NAK	%	5	E	Υ	ε	υ			∞	∞	⊗	Π	Σ	J
	5	21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	ACK	SYN	&	6	Φ	ζ	φ	ϖ			f	∂	∅	√		
	6	22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	BEL	ETB	☐	7	Γ	Ω	γ	ω			♣	•	∩	·		
	7	23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	BS	CAN	(	8	H	J	η	ξ			♦	÷	∪	∟		
	8	24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	HT	EM	)	9	I	Ψ	ι	ψ			♥	≠	⊃	∧		
	9	25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	LF	SUB	*	:	∂	Z	φ	ζ			♠	≡	⊃	∨		
	10	26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	VT	ESC	+	;	K	[	κ	{			↔	≈	♀	↔		
	11	27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	FF	FS	,	<	Λ	∴	λ				←	...	⊂	←		
	12	28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	CR	GS	—	=	M	]	μ	}			↑		⊆	↑	{	}
	13	29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	SO	RS	.	>	N	⊥	v	~			→	—	∈	⇒		
	14	30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	SI	US	/	?	O	_	o				↓	↩	∉	↓		
	15	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255



579L Wingdings Font (L\$)

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL 0	DLE 16	SP 32	48	64	80	96	112	128	144	160	176	192	208	224	240
1	SOH 1	DC1 17	33	49	65	81	97	113	129	145	161	177	193	209	225	241
2	STX 2	DC2 18	34	50	66	82	98	114	130	146	162	178	194	210	226	242
3	ETX 3	DC3 19	35	51	67	83	99	115	131	147	163	179	195	211	227	243
4	EOT 4	DC4 20	36	52	68	84	100	116	132	148	164	180	196	212	228	244
5	ENQ 5	NAK 21	37	53	69	85	101	117	133	149	165	181	197	213	229	245
6	ACK 6	SYN 22	38	54	70	86	102	118	134	150	166	182	198	214	230	246
7	BEL 7	ETB 23	39	55	71	87	103	119	135	151	167	183	199	215	231	247
8	BS 8	CAN 24	40	56	72	88	104	120	136	152	168	184	200	216	232	248
9	HT 9	EM 25	41	57	73	89	105	121	137	153	169	185	201	217	233	249
A	LF 10	SUB 26	42	58	74	90	106	122	138	154	170	186	202	218	234	250
B	VT 11	ESC 27	43	59	75	91	107	123	139	155	171	187	203	219	235	251
C	FF 12	FS 28	44	60	76	92	108	124	140	156	172	188	204	220	236	252
D	CR 13	GS 29	45	61	77	93	109	125	141	157	173	189	205	221	237	253
E	SO 14	RS 30	46	62	78	94	110	126	142	158	174	190	206	222	238	254
F	SI 15	US 31	47	63	79	95	111	127	143	159	175	191	207	223	239	255

*Symbol Set Table*

**ISO Substitution Table**

ISO	Name	ID	Decimal Character Equivalents											
			35	36	64	91	92	93	94	96	123	124	125	126
6	ASCII	0U	#	\$	@	[	\	]	^	`	{		}	~
4	United Kingdom	1E	£	\$	@	[	\	]	^	`	{		}	-
69	French	1F	£	\$	à	°	ç	§	^	µ	é	ù	è	-
21	German	1G	#	\$	§	Ä	Ö	Ü	^	`	ä	ö	ü	ß
15	Italian	0I	£	\$	§	°	ç	é	^	ù	à	ò	è	ì
11	Swedish for Names	0S	#	■	É	Ä	Ö	Å	Ü	é	ä	ö	å	ü
17	Spanish	2S	£	\$	§	ı	Ñ	ı	^	`	°	ñ	ç	-
60	Norwegian version 1	0D	#	\$	@	Æ	Ø	Å	^	`	æ	ø	å	-

## Appendix F

### *Environmental Specifications*

## *Environmental Specifications*

### **The Xerox Commitment to Environmental Quality**

Xerox Corporation is committed to an international program to safeguard our environment by diverting certain products and materials from the solid waste stream. We do this by reusing serviceable components and remanufacturing selected products.

To support this effort, we have made it easy for you to return selected printer equipment and empty print cartridges to Xerox. We recondition the print cartridges and refill them with Xerox toner and developer. All products we manufacture meet our stringent performance standards.

The worldwide effort to remanufacture printer equipment and recall EP (print) cartridges benefits the environment and conserves our natural resources by reducing waste going into our landfills. Besides, it makes good business sense for Xerox and Xerox customers. Please join us in this effort.

### **Acoustic Noise Figures**

On Standby (ROS Pause): 44 dB(A)

Under Operation:

Continuous Sound: 52 dB(A)

**FCC Compliance  
Statement for United  
States Users**

**Class B:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

Shielded cables must be used with this equipment to maintain compliance with FCC regulations.

**Caution:** Changes or modifications not expressly approved by Xerox Corporation could void the user's authority to operate the equipment.

**Compliance  
Statement for  
International Users**

**Canadian EME Regulations:**

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

Cet appareil numérique est conforme aux limites d'émission de bruits radioélectriques pour les appareils de Classe B stipulées dans le Règlement sur le brouillage radioélectrique du Ministère des Communications du Canada.

**European EME Regulations:**

“The CE marking applied to this product symbolizes Rank Xerox Declaration of Conformity with the following applicable Directives of the European Union as of the dates indicated:

January 1, 1995: - Council Directive 73/23/EEC amended by Council Directive 93/68/EEC, approximation of the laws of the member states related to low voltage equipment.

January 1, 1996: - Council Directive 89/336/EEC, approximation of the laws of the member states related to electromagnetic compatibility.

A full declaration, defining the relevant Directives and referenced standards can be obtained from your Rank Xerox representative.”

## Operational Safety

Your Xerox equipment and supplies were designed and tested to meet strict safety requirements. These include safety agency examination, approval, and compliance with established environmental standards.

Attention to the following notes ensures the continued safe operation of your equipment.

**Always** connect the equipment to a properly grounded power source receptacle. If in doubt, have the receptacle checked by a qualified electrician.

**WARNING:** Improper connection of the equipment grounding conductor can result in electrical shock.

**Always** follow all warnings and instructions marked on, or supplied with, the equipment.

**Always** locate the equipment on a solid support surface with adequate strength for the weight of the machine.

**Always** exercise care in moving or relocating the equipment.

**Always** place the equipment in an area which provides adequate room area for ventilation and servicing.

**Always** use the materials and supplies specifically designed for your Xerox equipment. Use of unsuitable materials may result in poor performance and, possibly, a hazardous situation.

**Never** use a ground adaptor plug to connect the equipment to a power source receptacle that lacks a ground connection terminal.

**Never** attempt any maintenance function that is not specifically described in this documentation.

**Never** obstruct ventilation openings. These are provided to prevent overheating.

**Never** install the equipment near a radiator or any other heat source.

**Never** override or “cheat” electrical or mechanical interlock devices.

**Never** push objects of any kind into the ventilation openings.

**Never** operate the equipment if you notice unusual noises or odors. Disconnect the power cord from the power source receptacle and contact your dealer or Xerox / Rank Xerox to correct the problem.

## *Environmental Specifications*

If you need any additional safety information concerning the equipment or materials, contact your dealer or Xerox / Rank Xerox.

**WARNING:** Use of controls, adjustments, or performance of procedures other than those specified herein may result in a hazardous radiation exposure.

This product will produce less than 0.1 ppm ozone during normal operation. The ozone produced is dependent on copy volume and is heavier than air. Providing the proper environmental parameters as specified by Xerox will ensure that concentration levels meet safe limits.

If additional information concerning ozone is needed, request the Xerox publication (600P83222), "Ozone," by calling in the USA 1-800-828-6571.



## **Laser Safety**

**WARNING:** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous light exposure.

This equipment complies with appropriate safety standards.

With specific regard to lasers, the equipment complies with laser product performance standards set by governmental, national, and international agencies as a Class 1 laser product. It does not emit hazardous light as the beam is totally enclosed during all phases of customer operation and maintenance.

When you perform various operator functions, laser danger labels may be visible. These labels are for your dealer or service technician and are placed on or near panels, or shields, which require a tool for removal. **THESE PANELS ARE NOT TO BE REMOVED BY USERS OF THE PRINTER. THERE ARE NO USER SERVICEABLE AREAS INSIDE THESE COVERS.**

## **Laser Safety Warning for Finland and Sweden**

Luokitus on tehty standardin EN 60825 mukaisesti  
Klassningen är gjord i enlighet med standarden EN 60 825

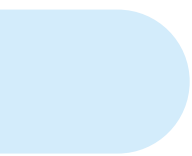
LUOKAN 1 LASERLAITE  
KLASS 1 LASER APPARAT

### **VAROITUS!**

Laitteen käyttäminen muulla kuin tässä käyttöohjeessa mainitulla tavalla saattaa altistaa käyttäjän turvallisuusluokan 1 ylittävälle näkymättömälle lasersäteilylle.

### **WARNING!**

Om apparaten används på annat sätt än i denna bruksanvisning specificerats, kan användaren utsättas för osynlig laserstrålning, som överskrider gränsen för laserklass 1.



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