
Xerox DocuPrint Network Printer Series Installation Planning Guide for Models 96/4635/180 NPS

**THE DOCUMENT COMPANY
XEROX**

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Laser safety



Warning: Adjustments, use of controls, or performance of procedures other than those specified herein may result in hazardous light exposure. ⚠

The Xerox DocuPrint printers are certified to comply with the performance standards of the U.S. Department of Health, Education, and Welfare for Class 1 laser products. Class 1 laser products do not emit hazardous radiation. The DocuPrint printers do not emit hazardous radiation because the laser beam is completely enclosed during all modes of customer operation.

The laser danger labels on the system are for Xerox service representatives and are on or near panels or shields that must be removed with a tool. **DO NOT REMOVE LABELED PANELS OR PANELS NEAR LABELS. ONLY XEROX SERVICE REPRESENTATIVES HAVE ACCESS TO THESE PANELS.**

DANGER

**LASER RADIATION WHEN OPEN
AVOID DIRECT EXPOSURE TO BEAM**

Ozone information

This product produces ozone during normal operation. The amount of ozone produced depends on copy volume. Ozone is heavier than air. The environmental parameters specified in the Xerox installation instructions ensure that concentration levels are within safe limits. If you need additional information concerning ozone, call 1-800-828-6571 to request the Xerox publication 600P83222, *OZONE*.

Operation safety

Your Xerox equipment and supplies have been designed and tested to meet strict safety requirements. They have been approved by safety agencies, and they comply with environmental standards. Please observe the following precautions to ensure your continued safety.

- Always connect equipment to a properly grounded electrical outlet. If in doubt, have the outlet checked by a qualified electrician.



Warning: Improper connection of the equipment grounding conductor may result in risk of electrical shock. ⚠

- Never use a ground adapter plug to connect equipment to an electrical outlet that lacks a ground connection terminal.
- Always place equipment on a solid support surface with adequate strength for its weight.

-
- Always use materials and supplies specifically designed for your Xerox equipment. Use of unsuitable materials may result in poor performance and may create a hazardous situation.
 - Never move either the printer or the printer controller without first contacting Xerox for approval.
 - Never attempt any maintenance that is not specifically described in this documentation.
 - Never remove any covers or guards that are fastened with screws. There are no operator-serviceable areas within these covers.
 - Never override electrical or mechanical interlocks.
 - Never use supplies or cleaning materials for other than their intended purposes. Keep all materials out of the reach of children.
 - Never operate the equipment if you notice unusual noises or odors. Disconnect the power cord from the electrical outlet and call service to correct the problem.

If you need any additional safety information concerning the equipment or materials Xerox supplies, call Xerox Product Safety at the following toll-free number in the United States:

1-800-828-6571

For customers outside the United States, contact your local Xerox representative or operating company.

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This *Xerox Printing Systems Installation Planning Guide* helps you prepare for delivery and installation of your new Xerox DocuPrint printing system.

About this guide

This guide is intended for the person responsible for coordinating the installation of the DocuPrint printer at your site. It lists the tasks you must complete before installation can begin, as well as your responsibilities during the installation.

Before using this guide, become familiar with its contents and conventions.

Contents

This guide contains the following:

- Chapter 1, "Product overview," provides an overview of the DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS printing systems.
- Chapter 2, "Controller components and options," describes system controller hardware, software, and options.
- Chapter 3, "Printer components and options," describes printer components, configurations, and options.
- Chapter 4, "Preparing for installation," provides a checklist of tasks that must be accomplished before the installation. It also explains connectivity requirements for transporting documents from the host or client to the DocuPrint printing system.
- Chapter 5, "Controller specifications and requirements," describes power, environmental, and space requirements for the system controller.
- Chapter 6, "Printer specifications and requirements," describes power, environmental, and space requirements for the printer. Space planning guidelines and diagrams are provided to help you set up the work area.
- Chapter 7, "System connections," provides cable requirements for your DocuPrint 96/4635/180 and 96/4635/180 MICR systems.
- Chapter 8, "Installation," describes the activities that occur during installation. It also describes ongoing maintenance activities.

- Appendix A, "Supplies," describes how to select, store, and use supplies for the DocuPrint printing system. It also provides a list of consumable supplies you can order.
- Appendix B, "Xerox support services," explains how to utilize available Xerox support services.
- Appendix C, "Related publications," lists other Xerox documents that are part of this publication set.
- Appendix D, "DocuPrint NPS on a Novell network," describes some of the considerations to make before the installation of DocuPrint on a Novell network.

A glossary and index are provided at the back of the guide.

Conventions

This document uses the following conventions:

- *Italics*—Document and library names are shown in italics (for example, the *Xerox DocuPrint IPS Series Messages Guide*).
- Capitalization of graphical user interface (GUI) window titles matches the titles as they appear on the screen. In cases where a window does not have a title, it is referenced using all lower case. For example:
 - At the graphical user interface, use the Output Configuration window to group the trays.
 - The main window displays the current system status.



Note: Notes are hints that help you perform a task or understand the text.



Caution: Cautions alert you to an action that could damage hardware or software.



Warning: Warnings alert you to conditions that may affect the safety of people.

Notice

This publication may contain descriptions of concepts and features not currently available for your Xerox printing system. Consult your Xerox sales representative or your operating system software program description for additional information.

1.

Product overview

This chapter provides an overview of the features and functions of the following Xerox DocuPrint Network Printing Systems (NPS):

- 96 NPS
- 96 MICR NPS
- 4635 NPS
- 4635 MICR NPS
- 180 NPS
- 180 MICR NPS

System overview

The Xerox DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS are versatile, high-performance printing systems. They enable personal computers and other network-connected devices (such as workstations and graphic scanners) to produce documents incorporating graphics, forms, logos, signatures, and fonts.

With DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS, management information systems (MIS) and data processing (DP) environments can have a high-performance, high-speed, PostScript, VIPP, ASCII, and HP PCL 5e compatible printer. The DocuPrint 96 MICR NPS, 4635 MICR NPS, and 180 MICR NPS provide Magnetic Ink Character Recognition (MICR) printing.

The DocuPrint system enables personal computer (PC), Sun Workstation, DEC workstation, HP/Apollo, IBM RS/6000, and Apple Macintosh users to print PostScript Levels 1 and 2, HP PCL5c, HP PCL5e, or ASCII documents on a high-speed Xerox DocuPrint Model 96/4635/180 NPS and 96/4635/180 MICR NPS printer.

One or more of the following network communication systems may be used to transport documents from the client workstation to the printer:

- Ethernet local area network (LAN) running Transmission Control Protocol/Internet Protocol (TCP/IP), AppleTalk, or Novell NetWare network protocol software.
- Token Ring running TCP/IP, Novell 3.x, or AppleTalk network protocol software.
- Fiber Distributed Data Interface (FDDI) running TCP/IP, Novell 3.x, or Apple Talk network protocols. The FDDI supports a Single Connection configuration only.

Multiple network devices may be installed on the same NPS controller. The default network device that ships with your NPS controller is a 100 Mbit Ethernet connection. You may install other network devices by installing additional network cards, provided each card has a unique network to which it connects. For example, if you use a Token Ring network connection, you have the option of using the default Ethernet device as a secondary network.

If you choose to install multiple network devices on your NPS controller, the following parameters apply:

- You must select a primary network device and designate any others as secondary. The primary network device does not have to be the default Ethernet device that ships with your controller; it can be any of the network devices installed.
- You must run the TCP/IP protocol on the primary network device. You may also run TCP/IP on other network devices. For each network device running TCP/IP, you must specify a unique IP address and IP netmask. For the primary network device, you must specify the HostName and router IP address. The HostName for any secondary devices is created from the name chosen for the primary device.

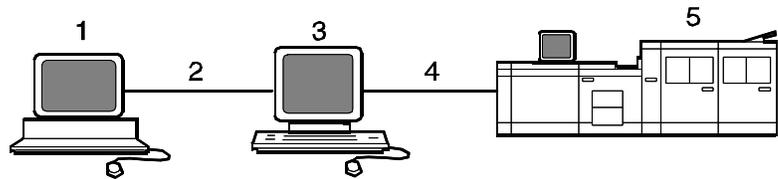


Note: You may not use the NPS controller as an IP router. Consequently, the router IP address must be on the primary network devices network only.

- You may run the AppleTalk protocol on only one network device. The network device on which AppleTalk is run does not have to be the primary network device.
- You may run Novell protocols on only the primary network device.

The following illustrates the DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS system components

Figure 1-1. **DocuPrint Model 96/4635/180 NPS and 96/4635/180 MICR NPS system components**



- 1 Customer-supplied client PC or workstation**
- 2 Customer-supplied network**
- 3 Xerox-supplied printer controller**
- 4 Xerox-supplied printer interface**
- 5 DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS printer**

The following provides a brief description of the functionality of the system components.

Customer-supplied client PC or workstation

Users create their documents at the networked client PCs or workstations using software applications that generate PostScript Levels 1 and 2, VIPP (Variable Data Intelligent PostScript Print Ware), HP PCL 5c, HP PCL5e, or ASCII output. When ready to print, users submit the documents to the printer controller.

Customer-supplied network

The customer will need to supply one or more of the following networks:

- Ethernet local area network (LAN) running TCP/IP, AppleTalk, or Novell NetWare network protocol
- Token Ring running TCP/IP, Novell, or AppleTalk network protocol software.
- Fiber Distributed Data Interface (FDDI) running TCP/IP, Novell 3.x, or Apple Talk network protocols. The FDDI supports a Single Connection configuration only.

Xerox-supplied printer controller

The printer controller (color monitor, processor, CD-ROM drive, keyboard, mouse, and optional cartridge tape drive) accepts the print job from the client workstation, converts the files into page images, and sends the page images to the printer. The user interface at the printer controller allows you to perform tasks such as monitoring job status, prioritizing jobs, and configuring the system. The optional cartridge tape drive is used for tasks such as backing up files. The CD-ROM drive also allows you to install the printer controller software.

Xerox-supplied printer interface

The printer interface cable provides high-speed data transport and communication between the printer controller and the printer.

Xerox-supplied DocuPrint printer

The printer (also known as an IOT or print engine) accepts data from the printer controller and prints the document according to the print options specified by the user. The printer also provides paper stacking, collating, and optional finishing.

DocuPrint Network Printing System (NPS)

The entire DocuPrint Network Printing System includes the printer, printer controller, printer interface, and all appropriate software. "DocuPrint printer" or "printer" refers to the base printer engine (IOT) only, without the printer controller and interface.



Note: It is your responsibility to supply, install, and maintain hardware and software on any PC, DECStation, Sun Workstation, HP/Apollo Workstation, IBM RS/6000 Workstation, or Macintosh system used to generate documents for printing on the DocuPrint printers. You are also responsible for obtaining, installing, and maintaining the required Ethernet LAN or Token Ring network, transceivers, and connecting cables.

The DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS consist of a printer controller and a printer. They accept print input created by client software in PostScript Levels 1 and 2, VIPP (Variable Data Intelligent PostScript Print Ware), HP PCL 5c, HP PCL5e, or ASCII. This print input is passed to the printer controller through an Ethernet, Token Ring, or FDDI connection. The printer controller accepts the print job from the client workstation, converts the files into page images, and sends the page images to the printer.

The DocuPrint 4635 NPS and 4635 MICR NPS print data at a rate of up to 135 pages per minute, or up to 154 pages per minute with the smaller, 7 by 10 inch (178 by 254 mm) paper used with the optional 7 by 10 inch enablement feature.

The DocuPrint 96 NPS and 96 MICR NPS print data at a rate of up to 96 pages per minute in all four orientations (portrait, inverse portrait, landscape, and inverse landscape). 7 by 10 inch (178 by 254 mm) paper may be used with the optional 7 by 10 inch enablement feature.

The DocuPrint 180 NPS and 180 MICR NPS print data at a rate of up to 180 pages per minute, or up to 206 pages per minute with the smaller, 7 by 10 inch (178 by 254 mm) paper used with the optional 7 by 10 inch enablement feature.

Xerox is responsible for the physical installation and service of the printer and printer controller hardware and software components. You have the general responsibility for the site of ensuring that the correct personnel, supplies, and network hardware and software are available. Refer to the "Preparing for installation" chapter of this guide for a detailed description of the shared responsibilities of the customer and of Xerox.

Client workstations and system software

To send print jobs to the DocuPrint NPS printer, the customer needs to provide the proper client hardware as well as operating system and network software.

Supported hardware and operating systems

Xerox DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS support the following types of networked client workstations and operating systems:

- Sun Workstation running Solaris 1.1.X or Solaris 2.X
- PC running MS-DOS 6.2 and Microsoft Windows 3.1, using Ethernet with TCP/IP or Novell NetWare 3.11 and 3.12



Note: Customers using Novell 4.1 must set the “Bindery Emulation Mode” to be backwards compatible with Novell 3.12.

- PC 386 or 486, running MS-DOS, version 6.2, with one of the following TCP/IP packages:
 - PathWay Access 3.1, Wollongong Integrated Networking/ Transmission Control Protocol (WIN/TCP) for DOS, release 6.0
 - File Transfer Program (FTP) software, PC-TCP/IP, release 3.0 or higher
 - Sun Personal Computer–Network File Services (PC-NFS), version 5.1
- IBM RS/6000 running IBM AIX, version 4.1
- HP/Apollo running HP-UX, version 10.01
- DECStation 5000/200 running DEC Ultrix, version 4.3
- Apple Macintosh, System 7.x or 8.x, using AppleTalk through EtherTalk, phase 1 or 2
- Any system that supports RFC-1179 lpr/lpd.

DocuPrint Model 96/4635/180 NPS and 96/4635/180 MICR NPS software may be compatible with workstation models and software versions other than those listed above.

Client networking software

Xerox client software, a third-party TCP/IP lpr networking software, Novell, or Apple/Macintosh Printer Access Protocol (PAP) networking software must be installed on your client workstations or downloaded from the printer controller. This software provides an interface with the printer controller, which allows you to submit print jobs and check job status.



Note: The DocuPrint printing options available to a client user vary according to the networking software loaded on the client workstation.

For additional information on submitting jobs from a client workstation, refer to the *Guide to Submitting Jobs from the Client*.

Ethernet LAN

Users of networked client workstations may send print jobs to the DocuPrint NPS printer over the Ethernet LAN using TCP/IP, AppleTalk using EtherTalk Link Access Protocol (ELAP), or Novell NetWare 3.1x as the network protocol.

Regardless of printing or transmission protocol, the Ethernet connection to the printer controller must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard.

Token Ring

Users of network client workstations may send print jobs to the DocuPrint NPS printer over Token Ring network using TCP/IP, Novell 3.x, or AppleTalk network protocol.

Regardless of printing transmission protocol, the Token Ring connection to the printer controller must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.5 standard.

Fiber Distributed Data Interface

TCP/IP, Novell 3.x, and Apple Talk network protocols are supported over FDDI. The FDDI supports a Single Connection configuration only.

NPS/IPS Dual Mode

The Xerox DocuPrint Dual Mode option enables both DocuPrint IPS and NPS systems to coexist on the same printer controller (Sun workstation). This allows the DocuPrint system to receive data streams supported by NPS and IPS, including IPDS, PostScript Levels 1 and 2, HP PCL5c, HP PCL5e, and ASCII.

The customer may switch from one mode to the other. When your system is operating in IPS mode, it can accept PostScript and PCL data streams in the background; however, you can print these jobs only when the system is in NPS mode. When in NPS mode, the system cannot accept IPDS data streams in the background; you can print them only when the system is in IPS mode.

Refer to the *Xerox DocuPrint IPS/NPS Dual Mode Switching Instructions* and other Xerox DocuPrint IPS documentation for more information.

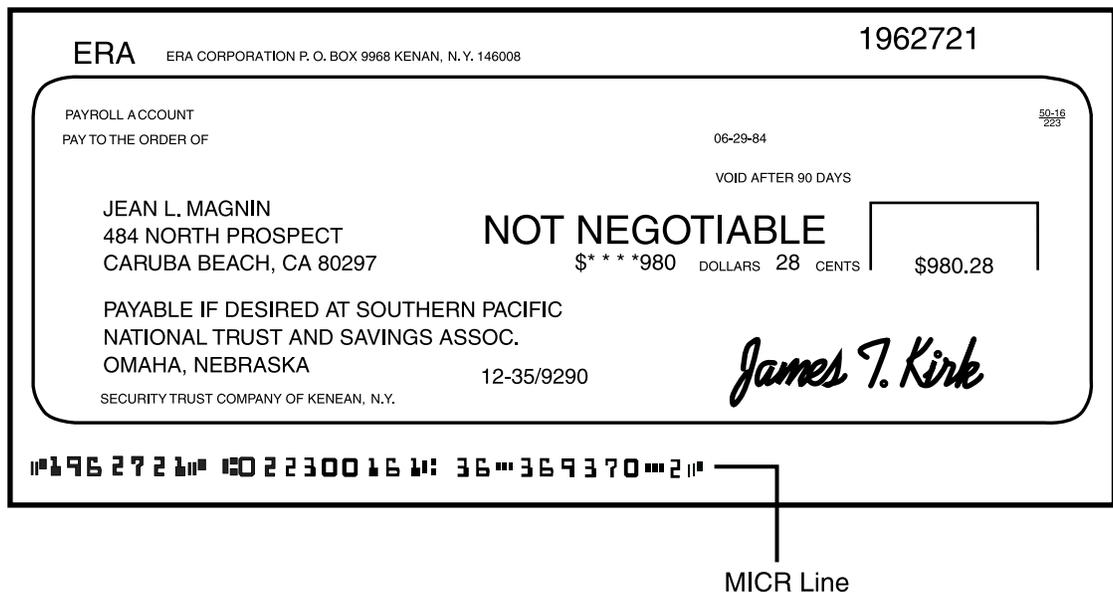
MICR printing features

The DocuPrint 96 MICR NPS, 4635 MICR NPS, and 180 MICR NPS produce a Magnetic Ink Character Recognition (MICR) line on negotiable and turnaround documents such as checks and bills. The MICR printing system prints documents using magnetic ink and special fonts to create machine readable information that allows for quick document processing.

In general, MICR is used to print accounting and routing information on blank checks and other negotiable documents. The magnetic encoding capabilities can be used for any printed output.

The following illustrates a check printed with a MICR line in U.S. format. The entire MICR line, which consists of numbers and characters (called symbols), is printed using magnetic ink.

Figure 1-2. Example of a check printed with MICR line (U. S.)



The 96 MICR, 4635 MICR, and 180 MICR NPS meet ABA standards and ANSI and ISO specifications for automatic check handling. They print the variable data and the MICR line at the same time. This single-pass printing capability reduces processing time and costs.

Unsupported features

The DocuPrint 96 MICR, 4635 MICR, and 180 MICR NPS do not support the security and audit feature or bar code reading. In addition, although the Line Thickening selection and the Virtual Printer Imaging parameters are available when you use MICR, it is not recommended that you use these features when printing MICR documents as they corrupt the MICR line.

In general, all print quality adjustments and enhancement settings should be set at the nominal settings when printing MICR output.

MICR fonts Xerox provides a set of 300 dpi E13B and CMC7 MICR fonts for use with your 96/4635/180 MICR NPS. To receive the high print quality guaranteed by Xerox, you must use these MICR fonts.

E13B fonts: The E13B font series includes the following:

- E13B
- E13B Landscape
- E13B Test
- E13B Test Landscape.

CMC7 fonts: CMC7 fonts have been adopted in various countries outside of the U.S., and are the official standard in France. Like the E13B font, they are magnetically readable, but with a different character design and recognition criteria. (Currently, CMC7 is available only through Xerox Ltd. of Europe.)

The CMC7 series includes:

- CMC7
- CMC7 Landscape
- CMC7 Test
- CMC7 Test Landscape

The “Test” fonts are non-readable MICR hollow bitmap (or outline) fonts, provided for testing MICR applications and printing non-negotiable documents.

Sixth Sense

Sixth Sense is a unique suite of diagnostic tools that allows Xerox customer service engineers, analysts, and consultants to serve customers more effectively.

Sixth Sense is intended to automate and expedite the range of service-related support functions. Sixth Sense is a tool that enables Xerox to provide benchmark service support. Xerox customers benefit from the ability to bring broader support to focus more quickly.

For example, Sixth Sense can allow the Service Representative to repeatedly “preview” the condition of the system prior to an actual site visit. This may provide the ability to determine the correct part or piece of information to have on hand when the site visit is made.

Sixth Sense is a no charge feature available to customers through Xerox Service. The customer need only provide an analog phone line for use by the Sixth Sense modem connection. For those customers unable to dedicate a phone line to the Sixth Sense connection, three and five port phone share devices are available for purchase. (Refer to your local Xerox sales representative for further information.)

To take advantage of Sixth Sense, the customer needs to:

- Request Sixth Sense enablement through Xerox Service
- Provide an analog phone line
- Provide a 120V outlet in which to plug a modem
- If necessary, purchase an optional phone share device.

More information about Sixth Sense can be found in the *Xerox DocuPrint NPS 96/4635/180 Troubleshooting Guide*.

2. Controller components and options

The printer controller provides the printer with print data and commands, and receives status information from the printer. This chapter describes the components and options available for the controller.

Controller hardware

The DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS printer controller hardware typically consists of the following components and features:

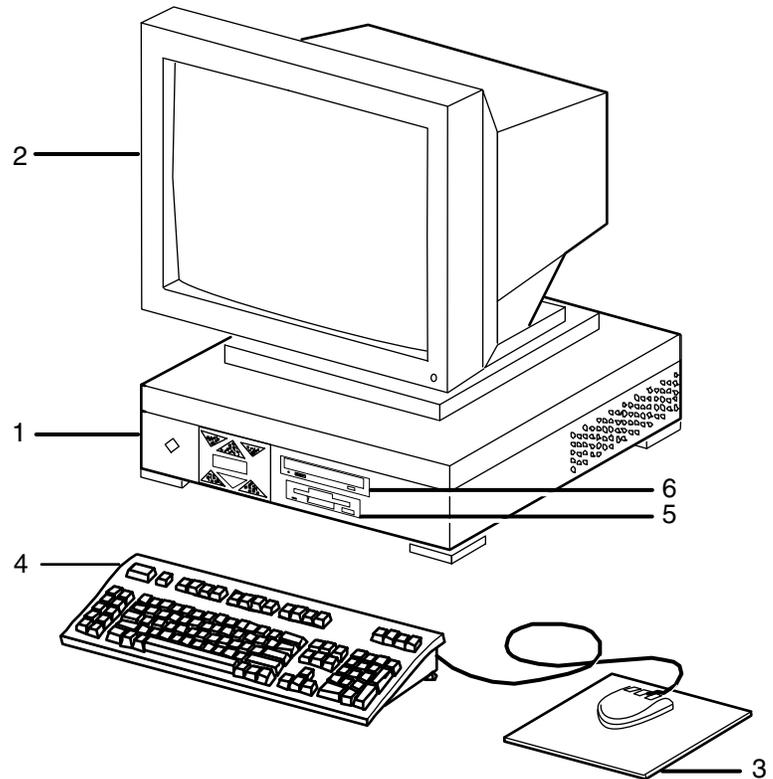
Your controller may be either a Sun Ultra 2 or Ultra 60 workstation. The following sections contain information about both the Ultra 2 and the Ultra 60.

Sun Ultra 2 workstation

The Sun workstation provides a user interface to the print engine. It is used to operate the NPS software that controls the printer. The workstation contains the following hardware components:

- Sun Ultra 2 workstation processor (system unit)
- Display monitor
- Keyboard and mouse
- Connectivity boards for Ethernet and, optionally, Token Ring
- A Data Control Interface Module (DCIM2) card installed in the processor to interface with the print engine.

Figure 2-1. Components of the Sun Ultra 2 workstation



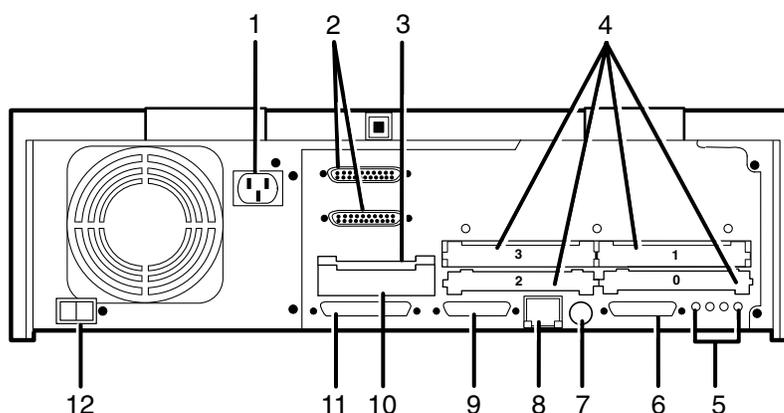
- 1 Processor
- 2 Monitor
- 3 Mouse and mouse pad
- 4 Keyboard
- 5 Diskette drive
- 6 CD-ROM drive

Processor The 256 MB RAM processor is the central processing unit of the Sun workstation. It contains a power switch, an internal disk drive, a diskette drive, a CD-ROM drive, a power receptacle and outlet, connectors and ports.

The processor has the following components:

- **Internal disk drive:** One 4.2 GB internal disk drive is provided as a standard feature of the processor. The operating system, the NPS application, and any queued print jobs are stored on the internal disk. This disk cannot be used to store other applications or data except as directed by your service representative. Up to three optional disk drives are available in increments of 4 or 9 GB.
- **Diskette drive:** Diskettes inserted into a diskette drive are used to load files to, and back up files from, the internal disk drive. The diskette drive uses industry standard 3.5 inch, 1.44 MB, double-sided, high-density diskettes. This diskette drive is not an input source for print jobs nor any other data or application; it is reserved exclusively for use by a service representative to update software and to store files. The diskette drive is located in the processor, on the right front section for the Ultra 2.

- **CD-ROM drive:** The CD-ROM drive is a high density, read-only, optical laser storage device used for loading the NPS operating system and other files. The CD-ROM drive is located in the processor above the diskette drive.
- **Cartridge tape drive (not shown):** An optional 8 GB, 4 mm SCSI cartridge tape drive also is available for the NPS. Like the diskette and CD drives, this tape drive is not an input source for print jobs or for any other data or application. It provides the service representative with another means of loading system maintenance files or saving diagnostic information.
- **Back panel:** The back panel of the processor has a power switch, a power receptacle and outlet, connectors, connector openings, and ports. The following figure shows the back panel of the Sun workstation that is a part of your NPS controller.

Figure 2-2. **Back panel of the Sun Ultra 2 processor**

- 1 **Power inlet**
- 2 **Serial connectors (2): RS-432/RS-232**
- 3 **Graphics/video output: UPA slot**
- 4 **Sbus slots** (Number of slots varies depending on the model)
- 5 **Audio connectors (4)**
- 6 **Parallel connector**
- 7 **Keyboard/mouse connector**
- 8 **TPE connector**
- 9 **MII connector**
- 10 **UPA slot**
- 11 **SCSI connector**
- 12 **Power on/Standby switch**

Display monitor

The display monitor has a 1192 x 700 pixel screen which displays the NPS text user interface windows.

The text user interface allows you to interact with the printer and to monitor its interaction with the various components. During a print job, printer error messages may display to notify you of any unexpected conditions.

Keyboard The keyboard consists of alphanumeric keys similar to a typewriter, symbols and special character keys, an extended character set, and function keys. The keyboard is one of your main methods of communicating with the printer. You can use the keyboard to make selections, and to enter commands that control functions such as requesting sample prints, obtaining billing meter totals, shutting down the system, and so forth.

Mouse The mouse is another main method of communicating with the printer. The mouse has three buttons. The left and right buttons are used to select NPS functions. The center button provides additional functions that you will not be required to use. If your workstation has an optical mouse, it must remain on its designated metallic pad to be active. If the mouse has a roller ball instead of an optical sensor underneath, it requires a non-metallic pad.



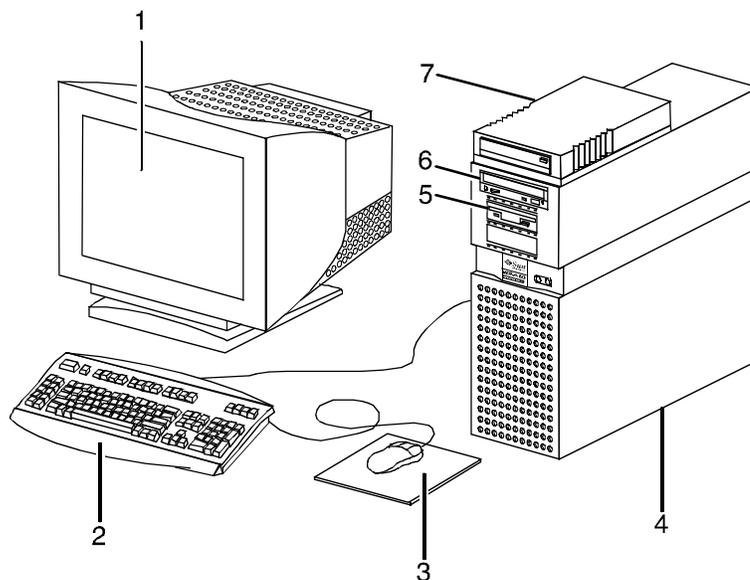
Note: Printer controller hardware configurations are subject to upgrade.

Sun Ultra 60 workstation

The Sun Ultra 60 workstation provides a user interface to the print engine. It has a high performance RISC processor chipset, based on the industry standard Scalable Processor Architecture (SPARC). It is used to operate the software that controls the printer. The workstation contains the following hardware components:

- Sun Ultra 60 workstation processor (system unit)
- Display monitor
- Keyboard and mouse
- Diskette, CD-ROM, and cartridge tape drives
- Connectivity board for Ethernet and, optionally, Token Ring
- A Data Control Interface Module (PDCIMu) card installed in the processor to interface with the print engine.

Figure 2-3. Components of the Sun Ultra 60 workstation



- 1 Monitor
- 2 Keyboard
- 3 Mouse
- 4 Processor
- 5 Diskette drive
- 6 CD-ROM drive
- 7 Cartridge tape drive

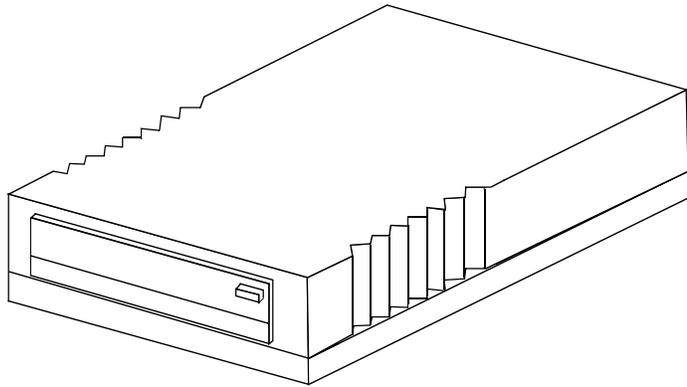
Processor The 256 MB RAM processor is the central processing unit of the Sun Ultra 60 workstation. It contains a power switch, a disk drive, a diskette drive, a CD-ROM drive, a power receptacle and outlet, connectors and ports.

The processor has the following components:

- **Internal disk drive:** Two 18.2 GB primary disk drives are provided as a standard feature of the processor. The operating system, the NPS application, and any queued print jobs are stored on the internal disk. This disk cannot be used to store other applications or data except as directed by your service representative.
- **Diskette drive:** Diskettes inserted into a diskette drive are used to load files to, and back up files from, the internal disk drive. The diskette drive uses industry standard 3.5 inch, 1.44 MB, double-sided, high-density diskettes. This diskette drive is not an input source for print jobs nor any other data or application; it is reserved exclusively for use by a service representative to update software and to store files.
- **CD-ROM drive:** The CD-ROM drive is a high density, read-only, optical laser storage device used for loading the NPS operating system and other files. The CD-ROM drive is located in the processor above the diskette drive.

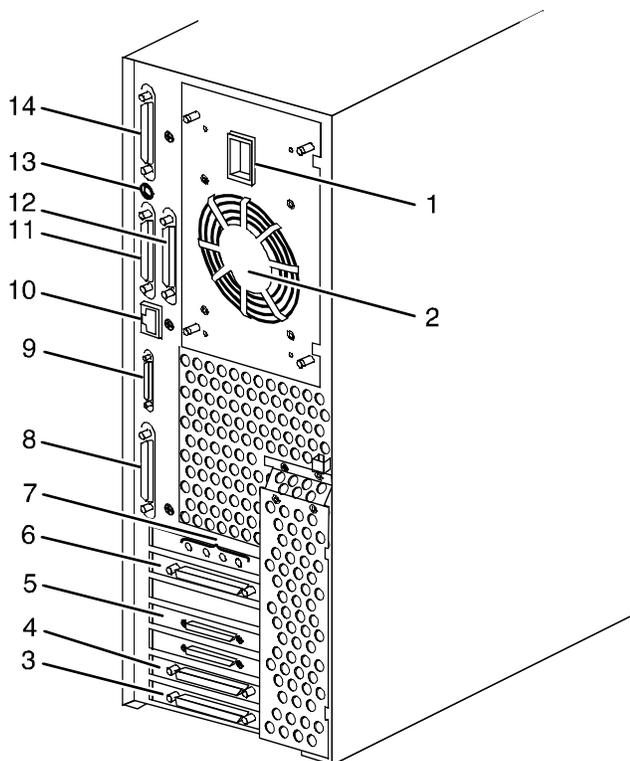
- **Cartridge tape drive:** A 4 GB external SCSI quarter inch cartridge (QIC) tape drive is an external device provided with the printing system. The cartridge tape drive connects to the controller through the SCSI port on the processor back panel. Like the diskette and CD drives, this tape drive is not an input source for print jobs or for any other data or application. You use it to load resource files, and the service representative uses it to load system maintenance files or to save diagnostic information.

Figure 2-4. **External cartridge tape drive**



- **Back panel:** The back panel of the processor has a power receptacle and outlet, connectors, connector openings, and ports. The following figure shows the back panel of the Sun Ultra 60 workstation that is a part of your NPS controller.

Figure 2-5. Back panel of the Sun Ultra 60 processor



- 1 Power inlet
- 2 Fan vent
- 3 Online interface (if configured)
- 4 Differential SCSI PWB (optional)
- 5 Printer connector (PCI66 1)
- 6 Monitor connector
- 7 Audio connectors (4)
- 8 Single-ended SCSI connector
- 9 MII connector
- 10 TPE (Ethernet) connector
- 11 Serial connector A: RS-432/RS-232
- 12 Serial connector B: RS-432/RS-232
- 13 Keyboard connector
- 14 Parallel connector

Display monitor The graphical user interface allows you to interact with the printer and to monitor its interaction with the various components. During a print job, printer error messages may display to notify you of any unexpected conditions.

Keyboard The keyboard consists of alphanumeric keys similar to a typewriter, symbols and special character keys, an extended character set, and function keys. The keyboard is one of your main methods of communicating with the printer. You can use the keyboard to make selections, and to enter commands that control functions such as requesting sample prints, obtaining billing meter totals, shutting down the system, and so forth.

Mouse The mouse is another main method of communicating with the printer. The mouse has three buttons. The left and right buttons are used to select NPS functions. The center button provides additional functions that you will not be required to use. If your workstation has an optical mouse, it must remain on its designated metallic pad to be active. If the mouse has a roller ball instead of an optical sensor underneath, it requires a non-metallic pad.



Note: Printer controller hardware configurations are subject to upgrade.

Controller software

The installation of printer controller software is performed by your service representative once all the hardware components are in place and properly connected. The following is a summary of major software components installed on the printer controller:

- Xerox printer controller software
 - UNIX Sun operating system



Note: The printer controller's Sun operating system is based on the standard Sun operating system; however, it has been customized for use with the Xerox printer controller. Therefore, not all standard Sun operating system features are available.

- Additional software components for the user interface, printer driver, PDL decomposer, Job Pool Manager, and other operating system utilities.
- Xerox Client Software
 - Xerox client protocol software (an alternative to lpr) downloaded to client workstations or PCs as a means to communicate with the printer controller
 - Windows client (Windows 3.1, Windows 95, or Windows NT 4.0)
 - Macintosh client
 - Xerox PostScript and PCL print drivers
 - Xerox PPDs for use with third-party print drivers.
- Adobe Type 1 PostScript fonts
 - ITC AvantGarde Gothic (Book, Book Oblique, Demi, Demi Oblique)
 - ITC Bookman (Demi, Demi Italic, Light, Light Italic)
 - Courier (Courier, Bold, Oblique, Bold Oblique)
 - ITC Garamond (Light, Light Italic, Bold, Bold Italic)
 - Helvetica (Helvetica, Bold, Oblique, Bold Oblique, Light, Light Oblique, Black, Black Oblique)
 - Helvetica (Narrow, Narrow Bold, Narrow Oblique, Narrow Bold Oblique)
 - Helvetica (Condensed, Condensed Oblique, Condensed Bold, Condensed Bold Oblique)
 - ITC Korinna (Italic, Bold, Bold Italic)
 - New Century Schoolbook (Roman, Bold, Italic, Bold Italic)
 - Palatino (Roman, Bold, Italic, Bold Italic)
 - Symbol
 - Times (Roman, Bold, Italic, Bold Italic)
 - ITC Zapf Chancery Medium Italic

— ITC Zapf Dingbats

Using font installation commands, you can load other Type 1 PostScript fonts in .PFB file format from an MS-DOS-formatted, 3.5-inch diskette or CD-ROM. Refer to the *Guide to Configuring and Managing the System* for more information on the font installation commands. Type 1 and Type 3 PostScript fonts can also be downloaded with a print job.

• Adobe Type 0 fonts

Supports Chinese double byte printing with third party double byte fonts.

• PCL5 fonts

— 35 Intellifont typefaces

— 10 TrueType typefaces

— Bitmap typefaces.

3. Printer components and options

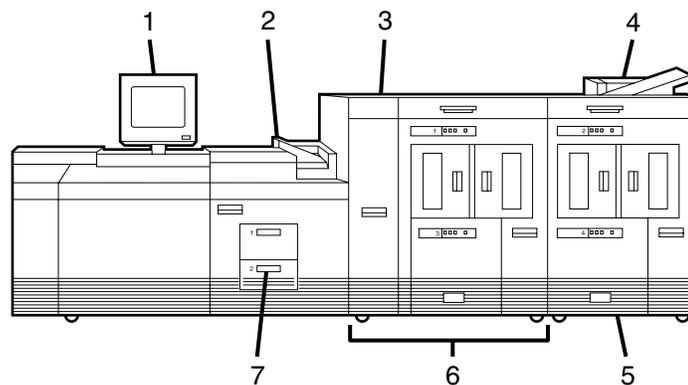
The printer processes the electronic data and images received from the controller and produces the printed report. This chapter describes the components and options available for the printer.

Printer components

The standard 96, 4635, and 180 printer components are the printer control console, the sample tray, the purge tray, the two processor feeder trays, and the feeder/stacker module(s).

- **4635 and 180:** The base configuration for the 4635 and 180 includes an inverter feeder/stacker and one additional feeder/stacker module.
- **96:** The 96 base printer configuration contains only the inverter feeder/stacker module. An additional feeder/stacker (as illustrated below) is an option.

Figure 3-1. Printer base components



- 1 **Printer control console**
- 2 **Sample tray**
- 3 **Attention light**
- 4 **Purge tray**
- 5 **Feeder/stacker module (optional on 96)**
- 6 **Inverter feeder/stacker module**
- 7 **Processor feeder trays**

The printer provides control buttons and displays for basic printer functions and status information. The printer control console contains message and graphic displays that assist you with jam clearance and printer maintenance. Labels are located throughout the printer to assist you with a variety of tasks such as clearing a paper jam.

Refer to the *System Overview* manual for a detailed description of the features and operation of the printer components.

Printer control console

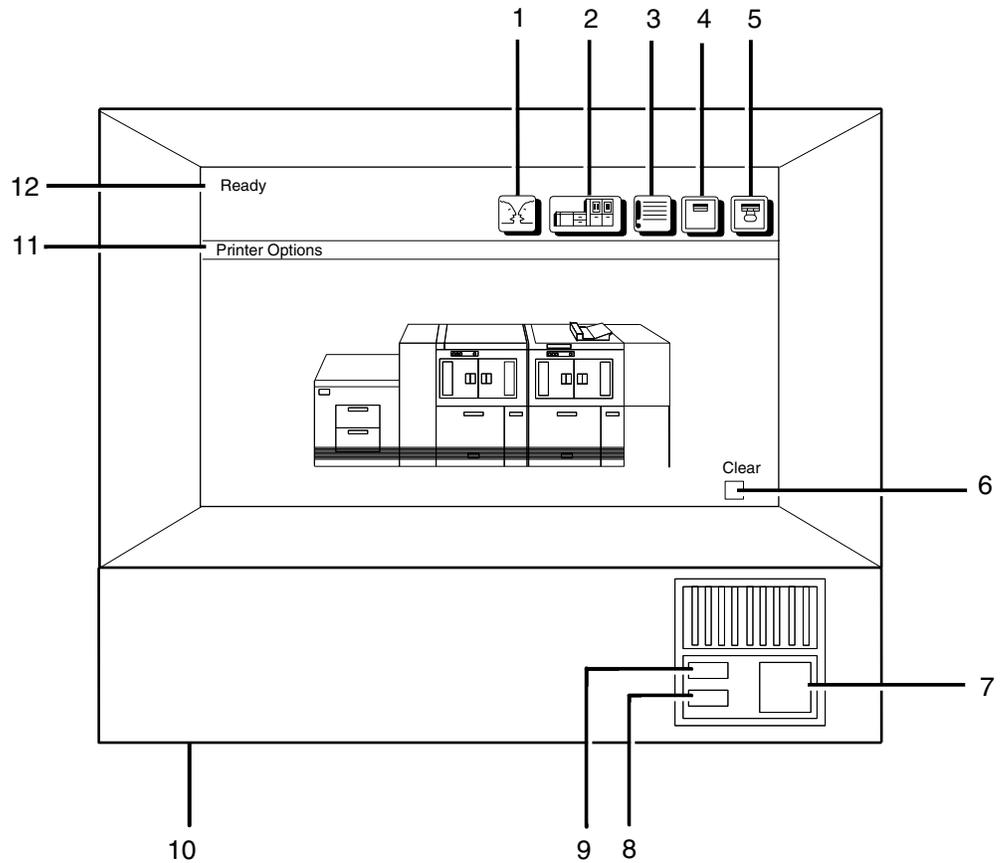
The printer control console is the color monitor located on top of the printer. It contains message areas and graphic displays that alert you to paper jams and other fault and status conditions (such as low dry ink). It also contains buttons which allow you to control certain functions of the printer (for example, continuing an interrupted job) without returning to the workstation controller.

The printer control console has the following features:

- **Local controls and displays** for jam clearance, paper loading/unloading, and diagnostics/service (used by the service representative). Two types of messages are displayed on the printer control console: fault messages, which relate to printer malfunctions, and information messages, which relate to printer conditions such as low dry ink.
- **Touch-sensitive areas** that allow you to select options by touching the printer control console screen. A tone sounds when you touch one of these areas.
- **Attention alarm tone** consisting of three beeps, repeated for ten seconds. The alarm is generated by any event that stops the printer and requires operator attention. The alarm may be disabled by the operator.

The tone stops after three cycles, or when the fault condition is cleared or clearing has started (for example, doors or covers specified in the clearance instructions are opened). You can stop the tone by pressing one of the printer control console buttons or by selecting a function through the touch screen.

Figure 3-2. **Printer control console**



- 1 Language icon**
- 2 Printer icon**
- 3 Fault List icon**
- 4 Tools icon**
- 5 Guarded Tools icon**
- 6 Clear button**
- 7 Continue button**
- 8 Stop button**
- 9 Sample button**
- 10 Brightness control thumbwheel**
- 11 Icon area**
- 12 Message area**

Refer to the *System Overview* manual for a detailed description of the features and operation of the printer control console components.

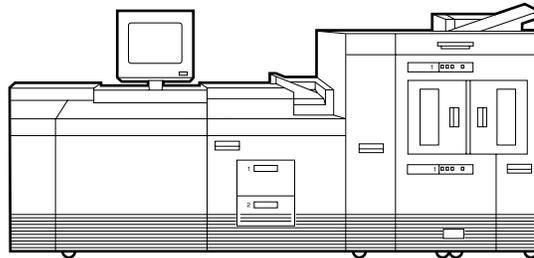
Printer configurations

The 96, 4635, and 180 systems are available in different basic configurations, illustrated below.

These configuration options allow you to customize your Xerox DocuPrint 96/4635/180 printers for increased efficiency and for specialized applications.

- Each of the 4635 and 180 configurations can have the optional 7 by 10-inch enablement kit, producing 154 pages per minute on the 4635 printer and 206 pages per minute on the 180 printer. (The 7 by 10-inch kit is not available for the 96 printer.)
- The following configurations may have the optional bypass transport and/or the input enablement kit added. (Refer to “Bypass transport printer configurations,” later in this chapter.)
 - Inverter feeder/stacker only (96 only)
 - Inverter feeder/stacker + feeder/stacker
 - Inverter feeder/stacker + feeder/stacker + feeder/stacker (4635 and 180 only)

Figure 3-3. 96 printer—Inverter feeder/stacker only



Note: This configuration is available on the 96 and 96 MICR only.

Figure 3-4. 96/4635/180 printer—Inverter feeder/stacker + feeder/stacker

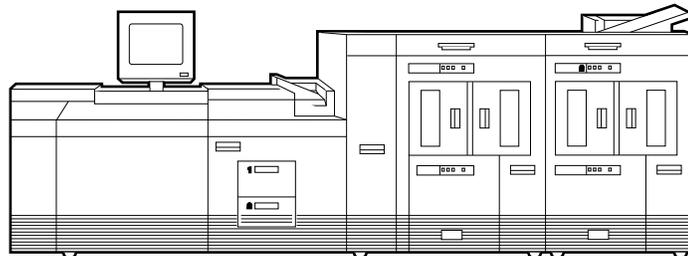


Figure 3-5. 4635/180 printer—Inverter feeder/stacker + feeder/stacker + feeder/stacker

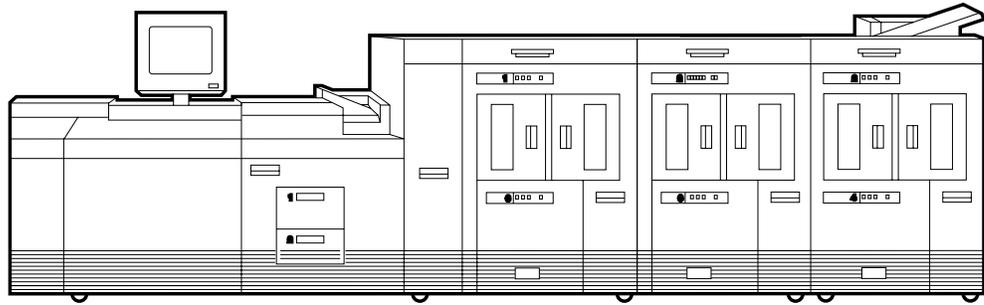
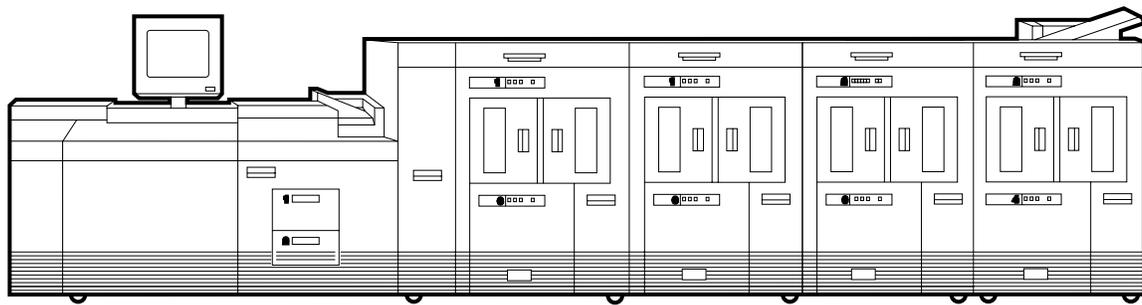


Figure 3-6. 4635/180 printer—Inverter feeder/stacker + feeder/stacker + feeder/stacker + feeder/stacker



Note: The bypass transport is not available on this configuration (printer and inverter feeder/stacker plus three feeder/stackers). The input enablement kit is available with this configuration only on the 180 printer.

Printer options

The bypass transport and input enablement options provide an interface between your DocuPrint system and your finishing and feeding accessories. However, these feeding and finishing options require separate AC and DC power sources that are independent of your printer.

Consult your Xerox sales representative, as well as the sales representative of the company from which you purchased your finishing and feeding equipment, for specific electrical and space requirements.

Bypass transport

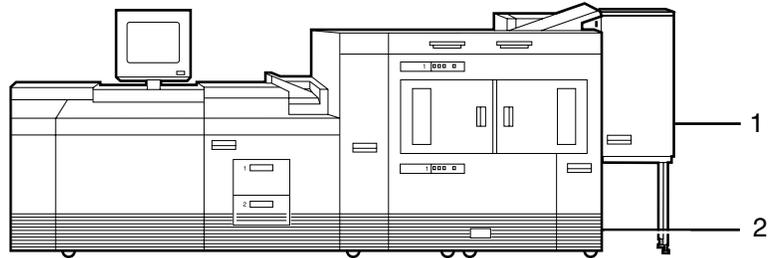
The ability to add a third-party finisher to your DocuPrint system is made possible by the bypass transport option. Finishers increase your production capabilities by providing a wide variety of finishing choices (for example, slitting, booklet making, binding, and so forth).

Connected to the feeder/stacker, the bypass transport allows finishers to interface directly with your DocuPrint system. It accepts all paper stocks within the DocuPrint 96/4635/180 range and accommodates simplex and duplex printing.

Bypass transport printer configurations

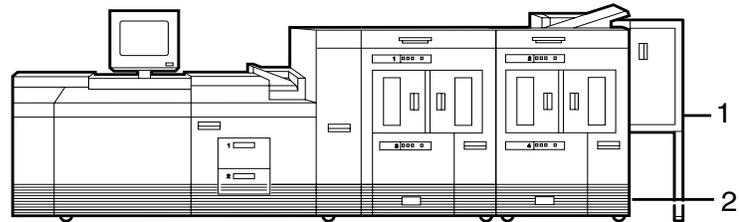
The following 96/4635/180 printer configurations may have the bypass transport:

Figure 3-7. **96 printer with inverter feeder/stacker + bypass transport**



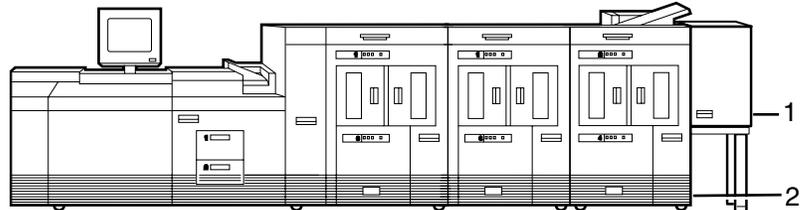
- 1 Bypass transport paper output location
- 2 Input enablement device paper input location

Figure 3-8. **96/4635/180 with inverter feeder/stacker + feeder/stacker + bypass transport**



- 1 Bypass transport paper output location
- 2 Input enablement device paper input location

Figure 3-9. **4635/180 with inverter feeder/stacker + feeder/stacker + feeder/stacker + bypass transport**



- 1 Bypass transport paper output location
- 2 Input enablement device paper input location



Note: This configuration is not available for the DP96. □

Input enablement

Adding a third-party feeder to your DocuPrint system is made possible by the input enablement option. The DocuPrint 96/4635 printers accept cut sheets from the feeding device through an entry slot at the lower right side of the last feeder/stacker module.

The input enablement option provides extended paper feed capability from third-party feeder devices. Sheets are received from third party feeder devices through an entry slot located in the last feeder/stacker module of the system.

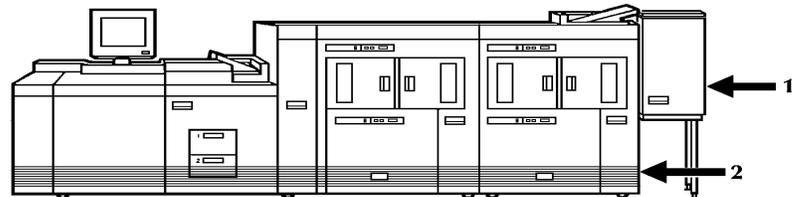
The DP180 printer accepts cut sheets from the rear of the stacker into a feeding device that replaces an existing high-capacity feeder assembly.



Note: The DocuPrint 4635 can support a maximum of three feeder/stackers with both the input enablement and the bypass transport. The DocuPrint 96 can support a maximum of two feeder/stackers with both the input enablement and the bypass transport. The DocuPrint 180 can support a maximum of three feeder/stackers with both the input enablement and the bypass transport. For the DocuPrint 180, a maximum of four feeder/stackers can be supported with the input enablement device only.

The following figure illustrates the system with the bypass transport and the input enablement device.

Figure 3-10. **Bypass transport module and input enablement device**



- 1 Bypass transport paper output location
- 2 Input enablement device paper input location

Configurations supported

The input enablement kit and/or bypass transport are supported on the 96/4635/180 configurations as follows:

96 configurations

Input enablement kit and/or bypass transport:

- Inverter feeder/stacker only
- Inverter feeder/stacker + feeder/stacker

4635 configurations

Input enablement kit and/or bypass transport:

- Inverter feeder/stacker + feeder/stacker
- Inverter feeder/stacker + feeder/stacker + feeder/stacker

180 configurations

Input enablement kit and/or bypass transport:

- Inverter feeder/stacker + feeder/stacker
- Inverter feeder/stacker + feeder/stacker + feeder/stacker

Input enablement kit only (no bypass transport):

Inverter feeder/stacker + feeder/stacker + feeder/stacker + feeder/stacker.

4. Preparing for installation

This chapter assists you in preparing for the installation of your Xerox DocuPrint 96/4635/180 NPS and 96/4635/180 MICR NPS.

Preparing for installation is a responsibility shared by personnel at your site and Xerox. Your service representatives are available to discuss installation issues and to assist you in completing the site installation tasks.

Prior to installation, you must select and prepare an appropriate location for the printer and order supplies. This chapter helps you accomplish these tasks by providing the following information:

- A summary of your responsibilities and those of your Xerox service representative
- A checklist of installation planning activities.

For information on controller power and space requirements, refer to the “Controller specifications and requirements” chapter of this guide. For facts about printer power and space requirements, refer to the “Printer specifications and requirements” chapter of this guide.

Responsibilities

This section describes your site responsibilities and the responsibilities of your service representatives. Included are some joint responsibilities.

Xerox responsibilities

This section lists the responsibilities of the service representatives and system analysts prior to, during, and after installation:

- **Site selection**
 - Assist in site selection
 - Inspect and approve the site.
- **Installation**
 - Schedule the delivery of the hardware
 - Monitor installation activities
 - Assist you in ordering any supplies required
 - Install the DocuPrint system
 - Install optional Sixth Sense hardware and software.

- **Training**
 - Provide initial operator training
 - Provide information and assistance in registering for Xerox Customer Education classes or obtaining tutorials.
- **Service**
 - Review preventive maintenance schedules and service call procedures
 - Provide ongoing maintenance
 - Assist in resolving hardware and software problems.

Customer responsibilities

Your responsibilities prior to, during, and after installation of the DocuPrint NPS system are to schedule and monitor your installation activities. Refer to the “Installation planning checklist” and the “NPS network installation planning checklist” sections in this chapter for a complete list of responsibilities.

Refer to the “Xerox support services” appendix for information on services designed to support you prior to, during, and after your installation.



Note: Operating system software is not the same for all laser printing systems. Therefore, make sure that your system specialists are familiar with the operating system software that is specific to your DocuPrint system. If your system specialists are familiar with one operating systems and you are converting to, or adding another, they should be familiar with the differences.

Site personnel

Identify the person (or persons) at your site who will be the primary interface with Xerox.

After the installation of your DocuPrint 96/4635/180 NPS or 96/4635/180 MICR NPS, there are a few ongoing tasks that must be performed. These tasks may include all or some of the following:

- Meter reading and reporting
- Overseeing routine maintenance
- Placing service calls for hardware problems
- Ordering additional documentation, software, or fonts
- Arranging additional operator training
- Maintaining an adequate inventory of consumable supplies.

It is your responsibility to designate a person (or persons) to perform these tasks.

Operator and systems training

Select personnel for operator and systems training and set up a training schedule.

Site preparation Select and prepare the site for DocuPrint NPS system installation (including proper power, air conditioning, and work space). Convert any host-resident fonts to 300 dots per inch (dpi). This conversion is required for DocuPrint 4635 MICR NPS and 96 MICR NPS.

Network installation Install the necessary network connections required to connect client workstations to the printer controller. Refer to the network installation planning checklist in this chapter.

Client workstations Make sure all client workstations that will be submitting print jobs have the proper hardware, operating system, and networking software supported by the DocuPrint system as client platforms.

Applications Work with your Xerox systems analyst to determine requirements for initial applications.

Installation planning checklist

To aid you in printer installation planning, the following is a checklist that lists the tasks that you and your service representative must complete before installation. If you have questions about any of these activities, contact your sales or service representative.

Use the time frames in this checklist as guidelines. It is best to consult your suppliers to determine the required lead times.

Table 4-1.96/4635/180 NPS installation planning checklist

Week	Activity	Reference	Responsibility	Date completed
-4	<ul style="list-style-type: none"> • Select location for DocuPrint system. 	Chapters 5 and 6	Customer	_____
	<ul style="list-style-type: none"> • Identify networked client workstations to be used. Make sure the hardware, operating systems, and networking software are supported by the DocuPrint NPS. 	Chapter 4 and Appendix D	Customer	_____
	<ul style="list-style-type: none"> • In the United States, sign up with Xerox Documentation and Software Services. Order additional documentation, if needed. 	Appendix B	Customer	_____
	<ul style="list-style-type: none"> • In the United States, register for Xerox Customer Education classes, if needed. 	Appendix B	Customer and Xerox	_____
-3	<ul style="list-style-type: none"> • Schedule hardware delivery. 	Sales rep	Customer and Xerox	_____
	<ul style="list-style-type: none"> • Prepare the site: <ul style="list-style-type: none"> — Install network to system location — Establish network addresses and logical unit names for print server and user workstations — Provide table with adequate space for hardware and cables — Ensure and install proper electrical receptacles — Ensure proper operating environment — Provide analog phone line access for optional Sixth Sense installations. 	Chapters 4 to 6 and <i>Guide to Configuring and Managing the System</i>	Customer	_____

Table 4-1.96/4635/180 NPS installation planning checklist (continued)

Week	Activity	Reference	Responsibility	Date completed
-2	<ul style="list-style-type: none"> • Inspect and approve site. • Order consumable supplies. • Minimum supplies needed for installation: <ul style="list-style-type: none"> — Paper (2 cartons) — Developer (1 carton) — Fuser agent (2 cartons) — Dry ink for DocuPrint 4635 NPS, 96 NPS or 180 NPS (1 carton black) — Dry ink for DocuPrint 4635 MICR NPS and 96 MICR NPS (1 carton black) <p>After installation, you will need to establish a procedure for ordering supplies according to your ongoing production requirements.</p>	<p>Chapter 4, Appendix A and Sales rep</p> <p>Customer preference</p> <p>5R161, 5R573-MICR</p> <p>8R2955</p> <p>6R206</p> <p>6R819</p>	<p>Xerox</p> <p>Customer and Xerox</p>	<p>_____</p> <p>_____</p> <p>_____</p>
-1	Schedule operator training.	Systems analyst	Customer and Xerox	_____
Install	<ul style="list-style-type: none"> • Ensure supplies are available. • Ensure system administrators are available during software installation. • Provide network address of print server (or host file containing this information), IP Address, IP Netmask, and Network device to use to Xerox personnel. Also, designate two client workstations if applicable, for Xerox Client Software installation. • Install DocuPrint system hardware and software. • Load Xerox Client Software on client workstations. • Have operators available for training. • Check documentation and software kits for completeness. • Have test jobs ready to run. 	<p>Chapter 4 and Appendix A</p> <p>Appendix D</p> <p><i>Guide to Configuring and Managing the System</i></p> <p>Appendix B</p>	<p>Customer</p> <p>Customer</p> <p>Customer</p> <p>Xerox</p> <p>Customer</p> <p>Customer</p> <p>Customer</p> <p>Customer</p>	<p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

Table 4-1.96/4635/180 NPS installation planning checklist (continued)

Week	Activity	Reference	Responsibility	Date completed
Post-install	<ul style="list-style-type: none"> • Become familiar with support services available. 	Appendix B	Customer	_____
	<ul style="list-style-type: none"> • Establish supplies ordering procedure. 	Appendix A	Customer	_____
	<ul style="list-style-type: none"> • Provide ongoing printer controller and DocuPrint printer maintenance. 	<i>Guide to Performing Routine Maintenance</i>	Customer and Xerox	_____
	<ul style="list-style-type: none"> • Adjust the IOT alignment and magnification. 		Xerox	_____

NPS network installation checklist

The DocuPrint NPS system is installed and configured by your service representative. The service representative needs certain information about your network environment to complete the DocuPrint printer controller software installation. Use the preinstallation checklist later in this chapter to gather the necessary information for the installation.

Some of the items in the checklist may not apply to your environment. Fill in those items that you know may apply, and refer to your network administrator for information, if necessary.



Note: If you are installing the DocuPrint NPS in a Novell NetWare environment, refer to the “DocuPrint NPS on a Novell network” appendix of this guide. In addition, ask your Novell network NPS administrator to assist you in completing the checklist in the preinstallation checklist table in this guide.

The information you may need to provide is defined as follows:

Hostname You may use up to 32 characters: upper and lower case alpha (a-z and A-Z), integers (0-9), and hyphens (-). The name you choose may be the same as the printer name.

IP address Series of four integers between 0 and 255 separated by a period, such as 192.9.200.1, to create an IP address for the DocuPrint system. (Do not use all zeros or designate 255 for all integers when assigning an IP address.)

- You must assign a unique IP address to each NPS controller connected to a TCP/IP network.



Note: To avoid routing problems that will slow down the controller, the IP addresses you assign must belong on different TCP/IP subnets, as determined by the IP subnet netmask.

- If you are not on a TCP/IP network, use the Xerox-supplied IP address value (192.9.200.1), or the IP address value assigned by your network administrator.

IP netmask Series of four integers between 0 and 255 separated by a period, such as 255.255.255.0 to create an IP netmask. (Do not use all zeros or designate 255 for all integers when assigning an IP netmask, and do not use the IP address value.)

- If you are on a TCP/IP network, assign a valid IP netmask.
- If you are not on a TCP/IP network and you used the Xerox-supplied IP address value (192.9.200.1), use 255.255.255.0 for the IP netmask.

Default router

Series of four integers between 0 and 255 separated by a period, such as 188.9.234.1, to specify a default router. Most TCP/IP networks broadcast routing information.



Caution: Specify a default router only if your network does not specify broadcast routing information.

- If the TCP/IP network does not broadcast routing information, specify an IP address of an existing router that is on the same subnet as the DocuPrint
- If you are not on a TCP/IP network, specify the default of NONE.

Superuser password (UNIX root password)

Select a password to prevent unauthorized access to the superuser account. You can select a series of any ASCII characters, except those that your UNIX system interprets in a special way. Passwords have no limits on the number of characters, but the system uses only the first eight characters to administer password security. The password selection you make is case sensitive to the system.



Caution: Select a password that cannot be easily obtained by others to avoid unauthorized access to the system. This is not the same password used for Operator or Administrator functions.

AppleTalk network information

If the DocuPrint NPS is installed in an AppleTalk network environment, indicate whether your AppleTalk network is phase 1 or 2. Also, indicate the AppleTalk zone name you want the DocuPrint to locate. The zone name must be the same name as the existing zone used on the network to which the DocuPrint is attached. In addition, you must specify the network device on which AppleTalk runs.



Note: Do not use the ampersand “&” in the zone name to avoid conflict with UNIX expressions. If the ampersand character must be used, enter “\&” instead.

Accounting information

Indicate whether to set an interval on the system to automatically purge accounting information. If accounting information is not purged manually or automatically, the system disk can reach storage limits. To keep your system running at optimum speed, you need to periodically purge accounting data.

Xerox client software

Indicate whether you have Xerox client software installed, and are supporting Xerox clients on the network.

lpr

Indicate whether to enable client use of lpr job submission and status commands.

UNIX command tool

Indicate whether to have a UNIX command tool available for use in the background menu.

- Retry count** Determine whether the DocuPrint NPS system supports a print production environment, or whether the system remains unattended. Once you determine the environment the DocuPrint NPS supports, you must decide the number of attempts the system makes to print a job before a sequencer restart causes the job to be held for intervention.
- If the DocuPrint NPS supports a print production environment, you may want to specify a large number or zero as the number of attempts the system makes to retry a print job. (Zero indicates an infinite number of retries.)
 - If the DocuPrint NPS is unattended, you may want to specify only 1 or 2 retries to print a job.

Novell network information

The Novell network information you provide to your service representative is based on whether you configure the DocuPrint as a print server or a remote printer. Refer to the “DocuPrint NPS on a Novell network” appendix of this guide and your Novell network administrator for assistance, if necessary.

DocuPrint as a print server (PSERVER)

Provide the following information to the service representative if you configure DocuPrint NPS as a print server on the Novell network (for further information, refer to the “Installation” chapter of this guide):

- Novell file server name—indicates the name of the file server that the DocuPrint NPS services. The file server must have the appropriate print server definition and the queue to be serviced.
- Print server name—indicates the name used by the DocuPrint NPS print server. A print server definition with this name must exist on the file server that the DocuPrint NPS services. A single printer (type Remote Other/Unknown) must be defined for this print server and the queue (refer to “Queue name to service” below).
- Password for the print server—refers to a password you may have added in the print server definition (using PCONSOLE). It is not necessary to add a password to a print server, and there is no default password.
- Queue name to service—refers to the name of the queue from which the DocuPrint print server accepts jobs. The queue must be defined on the file server that the DocuPrint NPS services. The single printer that must be defined for the print server (as stated above) must also be defined to service the specified queue.
- Form names—distinct form names for DocuPrint NPS that map to the DocuPrint virtual printer names.

DocuPrint NPS as a remote printer (RPRINTER)

Provide the following information to the service representative if you configure DocuPrint NPS as a remote printer on the Novell network (for further information, refer to the "Installation" chapter of this guide):

- Novell print server name—indicates the name of the print server to which the DocuPrint will connect. An advertising print server with this name must be running on the Novell internet.
- Printer name(s) to service—refers to the name(s) of the printers defined for the Novell print server. Virtual printers should be defined with these names after DocuPrint NPS installation is complete. These printers should be defined as type Remote Other/Unknown.

IPX internal network number Specify the network number for the internal IPX network in the DocuPrint server. This number must be globally unique within the NetWare internet to which the DocuPrint NPS is connected. (Do not assign a number that is used by other machines to which the DocuPrint NPS will be connected.)

LAN network number Specify the network number for the cabling system to which the DocuPrint NPS is connected, for example the Ethernet or Token Ring segment.

Network framing type Specify the network framing type used for IPX/SPX communication by DocuPrint NPS. There are eight options:

- ETHERNET__II
- ETHERNET__802.3
- ETHERNET__802.2
- ETHERNET__SNAP
- TOKENRING
- TOKENRING__SNAP
- FDDI
- FDDI__SNAP.

Choose a framing type that is used by the file server that communicates with the DocuPrint NPS. You must make sure that you specify only one framing type, as multiple framing types are not supported. Therefore, when you are using print server and remote printer, and have the DocuPrint NPS communicate with a different machine for each, you must select a framing type that works with both machines.

If you are installing a new Novell network using Ethernet, it is recommended that you choose the ETHERNET__II framing type for the file server and the DocuPrint NPS. If you are using Token Ring and the Novell server has both TOKENRING and TOKENRING__SNAP enabled, use TOKENRING on the DocuPrint NPS. For FDDI networks running Novell, it is recommended that you choose the FDDI framing type.

TCP/IP, Novell 3.x, and AppleTalk network protocols are supported over FDDI. The FDDI supports a Single Connection configuration only.

Table 4-2. Preinstallation checklist

Network Information	Information you supply
Hostname	
IP address for primary net device	
IP netmask for primary net device	
IP address for secondary net device #1 (if applicable)	
IP netmask for secondary net device #1 (if applicable)	
IP address for secondary net device #2 (if applicable)	
IP netmask for secondary net device #2 (if applicable)	
IP address for secondary net device #3 (if applicable)	
IP netmask for secondary net device #3 (if applicable)	
Primary network device	
Default router	
Secondary network devices (if applicable)	
Superuser password	
Accounting information	
Xerox client software	
lpr and lpd	
UNIX command tool	
Retry count	
Novell Network Information	Information you supply
Novell network information (DocuPrint NPS as a print server) Novell file server name Print server name Password for the print server Queue name to service Form names	
Novell network information (DocuPrint NPS as a remote printer) Novell print server name Printer name(s) to service	
IPX internal network number	
LAN network number	
Ethernet framing type (ETHERNET__II, 802.3, 802.2, or SNAP; TOKENRING or TOKENRING__SNAP)	
AppleTalk Network Information	Information you supply
AppleTalk Phase 1 or 2	
AppleTalk zone name	
Network device used for the AppleTalk protocol	

Connectivity requirements

A Token Ring network or an Ethernet local area network (LAN) running Transmission Control Protocol/Internet Protocol (TCP/IP), AppleTalk, or Novell NetWare software is the network communication system used to transport documents from the client workstation to the printer.

Ethernet specifications

The Ethernet connection to the printer controller processor must be compatible with the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard.

The Ethernet interface on the printer controller processor is a 10Mb/sec twisted pair standard (10BaseT and 100BaseT). Attachment Unit Interface (AUI) Coax Ethernet is enabled with an adapter cable.

Work with your system administrator to assess what type of network you have and what modifications need to be made to supply an Ethernet connector to the printer controller processor.

Token Ring specifications

The Token Ring connection must be compatible with the IEEE 802.3 standard. The printer controller processor has a 4MB or 16 MB Token Ring Auto interface (16 MB is preferred).

Fiber Distributed Data Interface specifications

TCP/IP, Novell 3.x, and Apple Talk network protocols are supported over FDDI. The FDDI supports a Single Connection configuration only.

5. Controller specifications and requirements

This chapter provides power and space requirements for your 96/4635/180 NPS printer controller. It also provides controller environmental specifications.

For facts about printer power and space requirements, refer to the “Printer specifications and requirements” chapter of this guide.

Power requirements

Your 96/4635/180 NPS controller has important power requirements that must be accommodated. These requirements are summarized in the table below.

For details on printer power requirements, refer to the “Printer specifications and requirements” chapter of this guide.

Table 5-1. **96/4635/180 NPS controller 60 Hz electrical requirements**

	Voltage	Amp service	KVA rating	NEMA
Sun Ultra 2 printer controller	100 to 240 VAC	15 amp	0.4 KVA	5-15R
Sun Ultra 60 printer controller	100 to 240 VAC	15 amp.	0.4 KVA	5-15R

Table 5-2. **96/4635/180 NPS controller 50 Hz electrical requirements**

	Voltage	Amp service	KVA rating
Sun Ultra 2 printer controller	100 to 240 VAC	15 amp	0.4 KVA
Sun Ultra 60 printer controller	100 to 240 VAC	15 amp	0.4 KVA

Agency certification: UL 478 and 1950, IEC 950, CE Mark, CSA 22.2 #220-1986, FCC (Class A), and VDE 0871 (Class A).

If the optional Sixth Sense feature is configured, you must provide a 100 to 240 VAC outlet for modem power connection.

Outlet configurations

This section discusses specifications for system outlets and the required wall outlet configurations for the USA / Canada and internationally.



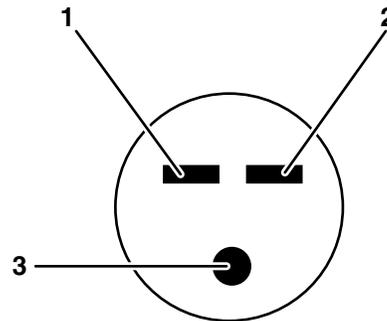
Note: All power outlets must be dedicated to this equipment. When determining the electrical connections for your printing system, make sure that:

- Each power cord has a separate circuit.
- The printer power cord configurations match your receptacle.
- Your electrical outlets are within the required specifications.

50 Hz systems: Ensure that power connections are per local codes/regulations. □

The following figure shows a 60 Hz American and Canadian wall outlet in which to plug the printer controller.

Figure 5-1. 60 Hz wall outlet



- 1 AC Hot (ACH)
- 2 AC Hot (ACH)
- 3 Earth Ground (GND)

The required American and Canadian wall outlet voltage is 100 to 120 VAC between AC hot and neutral, and between AC hot and GND. The voltage is less than three VAC between GND and neutral.

Refer to the 60 Hz and 50 Hz controller electrical requirements tables earlier in this chapter for a description of the power specifications for the controller.



Warning: To reduce the risk of electrical shock, do not plug components into any other type of power system. Contract your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your work area. ⚠

Space requirements

This section provides recommendations for placement of printer controller hardware components.

For printer component space requirements, refer to the “Printer specifications and requirements” chapter of this guide. Contact your service representative if you have questions not specifically addressed in this guide.

Printer controller placement

You should consider the following factors when deciding where to place the DocuPrint printer controller:

- Adequate work space and service clearance around the equipment
- Proximity to electrical and network connectors
- Security of the work area. You may need to place the system in an area where you can restrict access to it.

You must supply a table or desk as a work surface for the printer controller. The top of the table must provide at least 36 by 36 inches / 91.4 by 91.4 cm of space for each component, to allow enough space for the components and cables, as well as for service access.

Refer to the “Printer controller specifications and requirements” summary table at the end of this chapter to make sure the tables you supply can support the weight of the printer controller hardware elements, and that they are suitable for the intended use.



Warning: The printer controller must be positioned within the line-of-sight of the printer for safety purposes while servicing the equipment. 

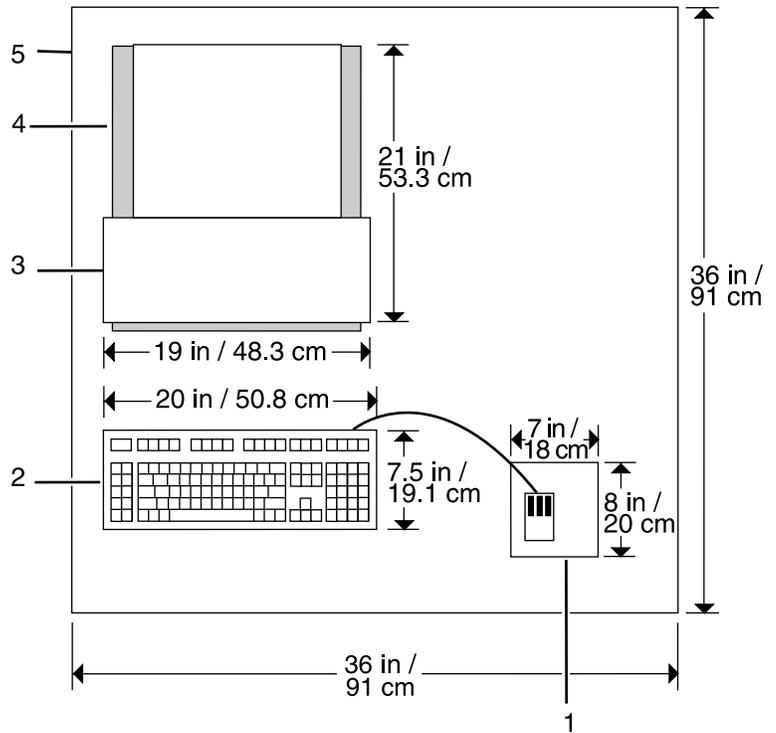


Caution: Position the table at least 6 inches / 15.2 cm from the wall. Make sure the printer controller processor is at least 12 inches / 30.4 cm from the wall. Do not put the processor on the NPS printer. 

Sun Ultra 2 workstation placement

Following are guidelines for placement of the Sun Ultra 2 workstation components of the printer controller.

Figure 5-2. **Sun Ultra 2 printer controller hardware**



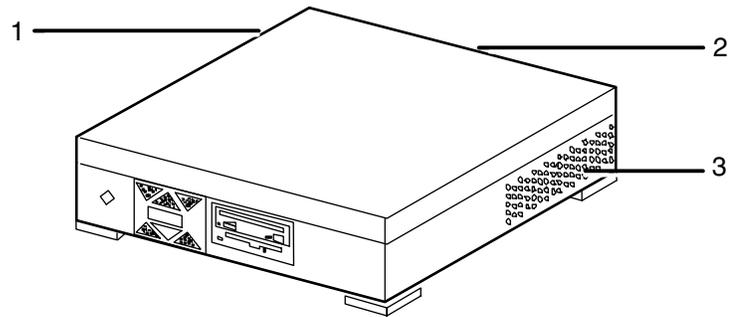
- 1 **Mouse and mouse pad**
- 2 **Keyboard**
- 3 **Monitor**
- 4 **Processor**
- 5 **Table**

Processor clearance

When you place your workstation processor on a table top, make sure to allow at least 6 inches / 15.2 cm of unobstructed space at the rear and both sides of the processor. Do not allow any piece of equipment to blow warm air into the air-intake vents of the processor.

The following illustration shows fan and vent locations on the Ultra 2 processor.

Figure 5-3. Sun Ultra 2 fan and vent locations to keep clear



- 1 Vent
- 2 Fan
- 3 Vent

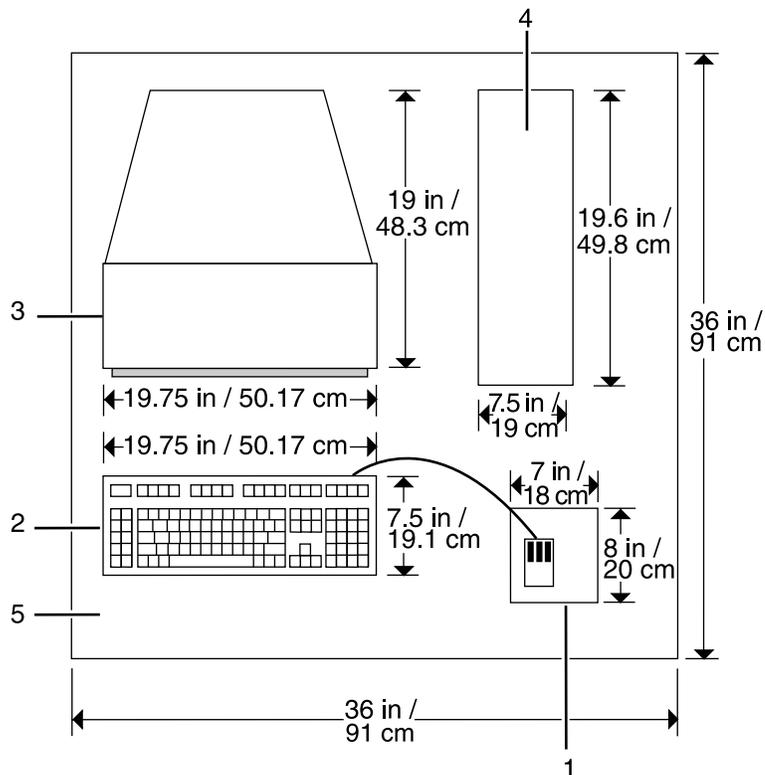


Caution: Do not place a monitor with a base larger than the processor on top of the unit. Do not block any fan or vents on the sides or rear of the processor. 

Sun Ultra 60 workstation placement

Following are guidelines for placement of the Sun Ultra 60 workstation components of the printer controller.

Figure 5-4. Sun Ultra 60 printer controller hardware



- 1 **Mouse and mouse pad**
- 2 **Keyboard**
- 3 **Monitor**
- 4 **Processor**
- 5 **Table**

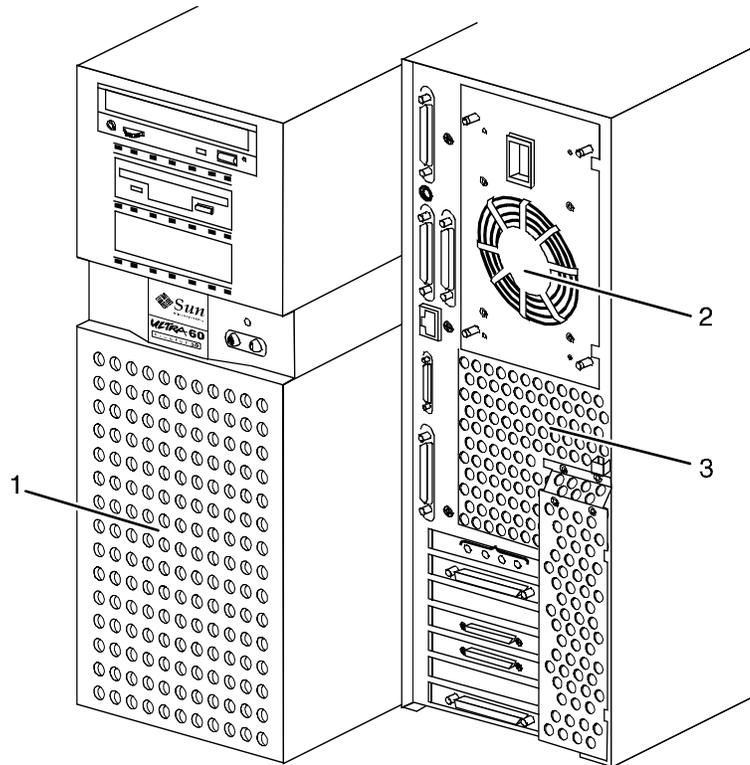
To ensure consistent performance and avoid any damage to equipment, follow these rules for placing the components of the Sun Ultra 60 controller.

Do:

- Place the monitor and processor on a desk or table top, separate from the printer. The monitor should be placed beside the processor, on the same surface. (The cartridge tape drive may be placed on top of the processor.)
- Keep the processor in an upright, vertical position as illustrated below.
- Allow at least 6 inches / 152 mm of unobstructed space at the front and rear of the processor, so the fan and vents are not blocked.

The following illustration shows fan and vent locations on the front and back of the controller.

Figure 5-5. Sun Ultra 60 fan and vent locations to keep clear



- 1 Vent in front of processor
- 2 Fan in back of processor
- 3 Vent in back of processor

Do not:

- Do not place the controller monitor on top of the processor.
- Do not allow any piece of equipment to blow warm air into the air intake vents of the processor.
- Do not place the processor on its side, or in any other position but the upright, vertical position shown in the previous figure.
- Do not place the processor or monitor on top of the printer.

Printer controller hardware specifications and requirements summary

The following table summarizes the specifications and electrical requirements of your DocuPrint NPS printer controller hardware components.

For a summary of printer hardware specifications and requirements, refer to the "Printer specifications and requirements" chapter of this guide. Contact your service representative if you have questions not specifically addressed in this guide.

Table 5-3.96/4635/180 NPS printer controller specifications and power requirements

Device	Dimensions (width, height, depth)	Weight	Heat dissipation	Power requirements	Cable lengths
Processor	W=16.4 in. (42 cm) H=3 in. (8 cm) D=16.1 in. (41 cm)	27 lbs. (12.7 kg)	1,100 BTU per hour	<p>Sun Ultra 2 (60 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA, 5-15R NEMA</p> <p>Sun Ultra 2 (50 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA</p> <p>Sun Ultra 60 (60 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA, 5-15R NEMA</p> <p>Sun Ultra 60 (50 Hz): 100 to 240 VAC, 15 amp, 0.4 KVA</p>	Power: 8 ft. (2.1 m) Interface to printer: 20 ft. (6.1 m) total length
Monitor	W=18.1 in. (46 cm) H=17.7 in. (45 cm) D=16.1 in. (41 cm)	61 lbs. (27.7 kg)	408 BTU per hour	<p>100-120 VAC, 1 phase, 50-60 Hz, 3.0 amp, 0.4 KVA</p> <p>200-240 VAC, 1 phase, 50-60 Hz, 2.0 amp, 0.4, KVA</p>	Power: 8 ft. (2.1 m) Video cable to processor: 46 in. (1.17 m)
Quarter-inch cartridge tape drive, 150 MB (optional)	W=9.6 in. (24 cm) H=2.8 in. (7 cm) D=10.4 in. (26 cm)	7 lbs. (3.18 kg)	---	100-120/200-240 VAC, 0.8/0.4 amp, 47-63 Hz	SCSI cable to processor or additional SCSI device: 28 in. (71 cm)
4 mm cartridge tape drive (optional)	W=7.5 in. (19 cm) H=2.8 in. (7 cm) D=12.2 in. (31 cm)	8 lbs. (6.6 kg)	---	100-120/200-240 VAC, 0.8/0.4 amp, 47-63 Hz	SCSI cable to processor or additional SCSI device: 28 in. (71 cm)
Keyboard	W=18 in. (45.7 cm) D=7.5 in. (17.8 cm)	2 lbs. (1 kg)	---	---	72 in. (1.8 m)

Table 5-3.96/4635/180 NPS printer controller specifications and power requirements (continued)

Device	Dimensions (width, height, depth)	Weight	Heat dissipation	Power requirements	Cable lengths
Mouse	W=4 in. (11 cm) H=2 in. (5 cm) D=3 in. (8 cm)	0.3 lbs. (0.14 kg)	---	---	25 in. (63 cm)

6. Printer specifications and requirements

This chapter provides power and space requirements for your 96/4635/180 printer. It also provides printer environmental specifications.

For facts about controller power and space requirements, refer to the “Controller specifications and requirements” chapter of this guide.

Power requirements

Your 96/4635/180 printer has important power requirements that must be accommodated. These requirements are summarized in the table below. For further details on power requirements, refer to the voltage charts and wiring diagrams that follow.

For details on controller power requirements, refer to the “Controller specifications and requirements” chapter of this guide.

Table 6-1. Printer electrical requirements

	Printer	Voltage	Amp. service	KVA rating	NEMA
Printer — 60 Hz (U. S. and Canada)	180 (Dual cords)	120/240 VAC or 120/208 VAC (Cord 1) 120/240 VAC or 120/208 VAC (Cord 2)	50 amp (Cord 1) 30 amp (Cord 2)	Operating: 7.3 + .75 per middle module stacker	14-50R (Cord 1) 14-30R (Cord 2)
	96/4635	120/240 VAC or 120/208 VAC	50 amp	Operating: 7.3 + .75 per middle module stacker	14-50R
Printer— 50 Hz	DELTA 180 4635 96	220, 230, 240 VAC (3 phase, 4 wire)	30 amp	Consult local service rep.	
	WYE (Star) 180 4635 96	380, 400, 415 VAC (3 phase, 5 wire)	20 amp	Consult local service rep.	

Agency certification: UL 478 and 1950, IEC 950, CE Mark, CSA 22.2 #220-1986, FCC (Class A), and VDE 0871 (Class A).

Outlet configurations

This section discusses specifications for system outlets and the required wall outlet configurations for the USA / Canada and internationally.



Note: All power outlets must be dedicated to this equipment. When determining the electrical connections for your printer, make sure that:

- Each power cord has a separate circuit
- The printer power cord configurations match your receptacle
- Your electrical outlets are within the required specifications.

50 Hz systems: Ensure that power connections are per local codes/regulations.

Printer outlet voltages—60 Hz

The following table shows the voltages for the outlets on your printing system. All power outlets must have a dedicated circuit for each system equipment piece. Make sure each power cord has a separate circuit.

Table 6-2. **Printer (60 Hz) voltage requirements at power outlet**

Service outlet configuration	Measurement of wiring	Nominal	Range
4 Wire	Line 1 to neutral	120 V RMS	107-127 V RMS
4 Wire	Line 2 to neutral	120 V RMS	107-127 V RMS
4 Wire	Neutral to ground	0	0-10 V RMS
4 Wire	Line 1 to line 2	208 V RMS	182-220 V RMS
4 Wire	Line 1 to line 2	240 V RMS	210-254 V RMS

Printer power outlet/cord voltage configurations—60 Hz

The following figures shows the 60 Hz power outlet configuration for 50 amp NEMA 14-50R (96, 4635, and 180) and 30 amp NEMA 14-30R (180 only). Voltage to ground is shown for troubleshooting purposes.

Figure 6-1. 60 Hz power configuration—50 amp (96/4635/180)

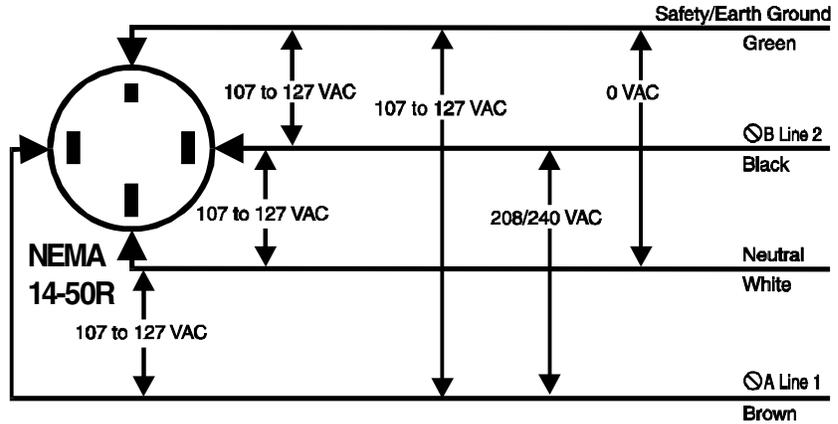
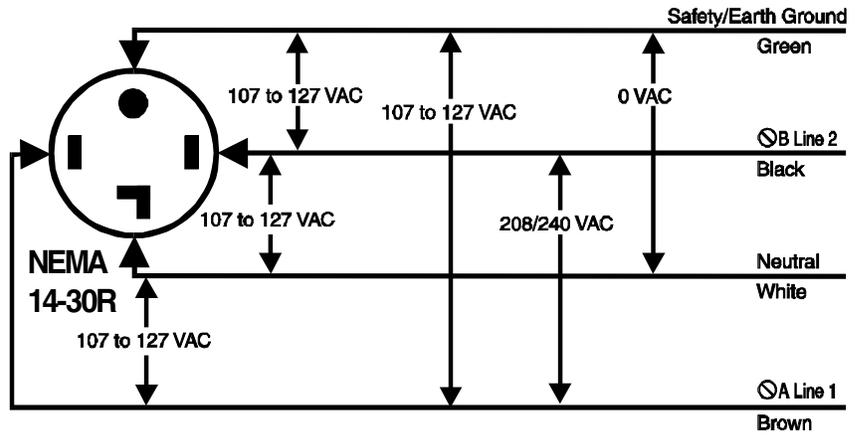


Figure 6-2. 60 Hz power configuration - 30 amp (180 only)



Printer outlet voltages—50 Hz

All power outlets must have a dedicated circuit for each system equipment piece. Make sure each power cord has a separate circuit.



Note: Consult with your service representative to determine the type of plug and receptacle to be used for your 50 Hz system.

DELTA configurations—50 Hz

For 50 Hz DELTA configurations, measure the DELTA connection voltages at the power source.

Table 6-3. **Printer (50 Hz) DELTA voltage**

Service outlet configuration	Measurement	Nominal	Range
4 Wire 220 V	Line 1 to line 2	220 V RMS	198-242 V RMS
4 Wire 220 V	Line 2 to line 3	220 V RMS	198-242 V RMS
4 Wire 220 V	Line 1 to line 3	220 V RMS	198-242 V RMS
4 Wire 230 V	Line 1 to line 2	230 V RMS	207-253 V RMS
4 Wire 230 V	Line 2 to line 3	230 V RMS	207-253 V RMS
4 Wire 230 V	Line 1 to line 3	230 V RMS	207-253 V RMS
5 Wire 240 V	Line 1 to line 2	240 V RMS	216-264 V RMS
5 Wire 240 V	Line 2 to line 3	240 V RMS	216-264 V RMS
5 Wire 240 V	Line 1 to line 3	240 V RMS	216-264 V RMS

WYE (or Star) configurations—50 Hz

For the 50 Hz WYE configuration, measure the WYE or Star connection voltages at the power source.

Table 6-4. **Printer (50 Hz) WYE (Star) 415 voltage**

Service outlet configuration	Measurement	Nominal	Range
5 Wire 415 V	Line 1 to line 2	415 V RMS	374-457 V RMS
5 Wire 415 V	Line 2 to line 3	415 V RMS	374-457 V RMS
5 Wire 415 V	Line 1 to line 3	415 V RMS	374-457 V RMS
5 Wire 415 V	Line 1 to neutral	240 V RMS	216-264 V RMS
5 Wire 415 V	Line 2 to neutral	240 V RMS	216-264 V RMS
5 Wire 415 V	Line 3 to neutral	240 V RMS	216-264 V RMS

The following lists the 50 Hz WYE/Star printer outlet information for 380 and 400 volts.

Table 6-5. **Printer (50 Hz) WYE (Star) 380 and 400 voltage**

Service outlet configuration	Measurement	Nominal	Range
5 Wire 380 V	Line 1 to line 2	380 V RMS	342-419 V RMS
5 Wire 380 V	Line 2 to line 3	380 V RMS	342-419 V RMS
5 Wire 380 V	Line 1 to line 3	380 V RMS	342-419 V RMS
5 Wire 380 V	Line 1 to neutral	220 V RMS	198-242 V RMS
5 Wire 380 V	Line 2 to neutral	220 V RMS	198-242 V RMS
5 Wire 380 V	Line 3 to neutral	220 V RMS	198-242 V RMS
5 Wire 400 V	Line 1 to line 2	400 V RMS	358-438 V RMS
5 Wire 400 V	Line 2 to line 3	400 V RMS	358-438 V RMS
5 Wire 400 V	Line 1 to line 3	400 V RMS	358-438 V RMS
5 Wire 400 V	Line 1 to neutral	230 V RMS	207-253 V RMS
5 Wire 400 V	Line 2 to neutral	230 V RMS	207-253 V RMS
5 Wire 400 V	Line 3 to neutral	230 V RMS	207-253 V RMS

Printer power outlet/cord voltage configurations—50 Hz

For 50 Hz systems outlet/power cord configurations, consult your local service representative to determine the type of plug and receptacle to use. □

Environmental specifications

When you select a site location for your DocuPrint printer, avoid environments with extreme variations in temperature and other hazards, such as excessive dust or humidity. Recommended environmental ranges for the work area are as follows:

Table 6-6. **Environmental specifications for 96/4635/180 printers**

Condition	Range
Operating temperature:	Recommended: 68° F to 76° F / 20° C to 24° C Minimum: 50° F / 10° C Maximum: 85° F / 29° C
Humidity:	Recommended: 45% ±10% Minimum: 30% Maximum: 65%
Altitude:	Normal: Up to 6,000 feet / 1,830 m above sea level Maximum: 9,000 feet / 2,743 m above sea level.
Heat dissipation: 96 and 4635 (2-stacker system) 180 (2-stacker system)	Operating: 28,140 BTU/hour Standby: 4,454 BTU/hour Energy Saver: 2,700 BTU/hour Operating: 32,770 BTU/hour Standby: 4,454 BTU/hour Energy Saver: 2,700 BTU/hour
Audible noise:	Operating: Continuous: 82 dB(A) Impulse: 82 dB(A) Standby: Continuous: 52 dB(A) Impulse: N/A

Space requirements

You should consider the following factors when deciding where to place the printing system hardware components:

- Adequate work space and service clearance around the equipment
- Proximity to electrical and network connectors
- Security of the work area. You may need to place the system in an area where you can restrict access to it. This may be important if your personnel need to print confidential documents or if you are concerned with unauthorized usage.

Dimensions and weights of the printer components are listed in this section, along with diagrams, to help you visualize the sizes and total space requirements.



Note: There must be a 78-inch / 198-cm vertical clearance throughout the entire area. Your printer must be installed in a fixed location with a minimum clearance space of 36 inches / 91.4 cm around all sides of each piece of equipment for access by service personnel. In addition, there must be 50 inches / 126.9 cm clearance space in front of the printer. □

For information on clearance space and other space planning considerations, refer to the “Space planning guidelines” section of this chapter. Contact your service representative if you have questions not specifically addressed in this guide.

Printer placement

The following configurations are available for the Xerox 96/4635/180 printers:

- Printer + inverter feeder/stacker (96 only)
- Printer + inverter feeder/stacker + feeder/stacker
- Printer + inverter feeder/stacker + feeder/stacker + feeder/stacker (4635 and 180 only)
- Printer + inverter feeder/stacker + feeder/stacker + feeder/stacker + feeder/stacker (4635 and 180 only).

Measurements and a top-view diagram for each of these configurations is provided on the following pages.

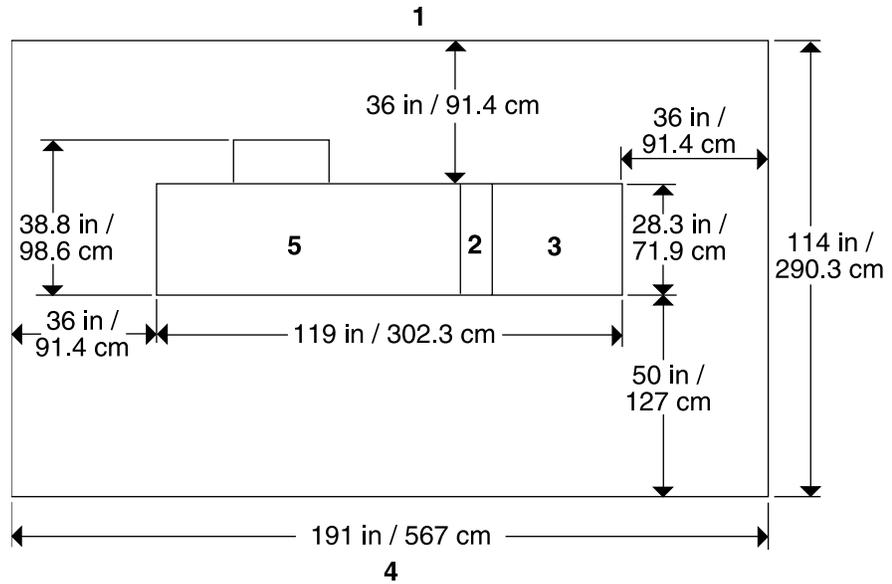
96 printer with inverter feeder/stacker only

The dimensions of the printer with the inverter feeder/stacker-only configuration are as follows:

Dimension	Specifications
Width:	119 inches / 302.3 cm
Depth:	38.8 inches / 98.6 cm
Height:	59.6 inches / 151.3 cm
Total weight:	1404 pounds / 6370 kg
Total space requirement:	191 by 114 inches / 567 by 290.3 cm

The following illustrates a top view of the space requirements for the printer with an inverter feeder/stacker-only configuration.

Figure 6-3. **96 with inverter feeder/stacker configuration**



- 1 Back of system
- 2 Inverter
- 3 Feeder/stacker
- 4 Front of system
- 5 Printer

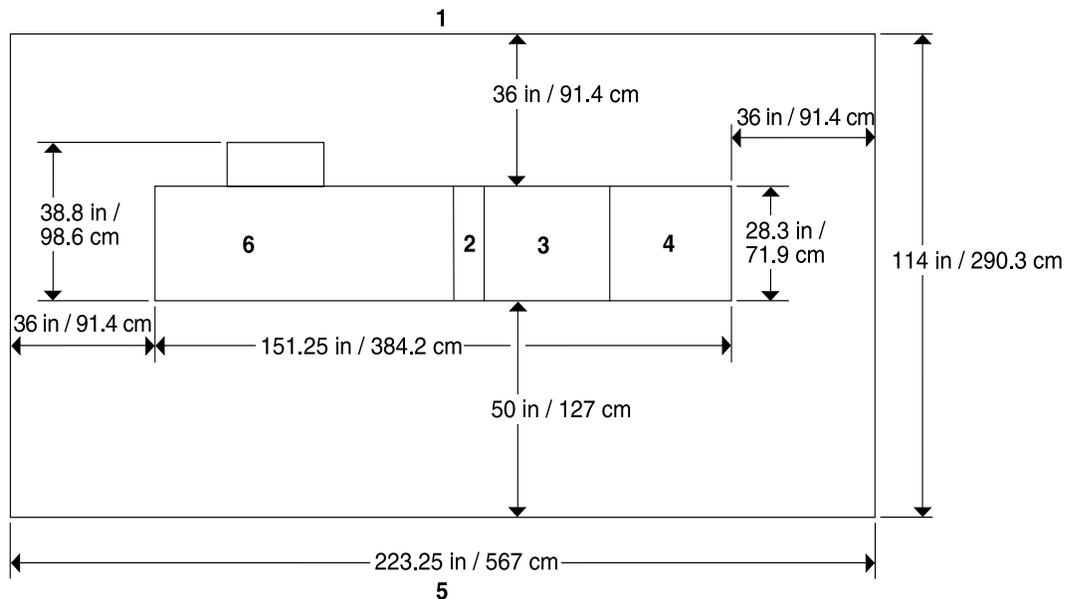
96/4635/180 printer with inverter feeder/stacker and one feeder/stacker

The dimensions of the printer with the inverter feeder/stacker and feeder/stacker are as follows:

Dimension	Specifications
Width:	151.25 inches / 384.2 cm
Depth:	38.8 inches / 98.6 cm
Height:	59.6 inches / 151.3 cm
Total weight:	2,588 pounds / 1174.9 kg
Total space requirement:	223.25 by 114 inches / 567 by 290.3 cm

The following illustrates a top view of the space requirements for the printer with an inverter feeder/stacker and one feeder/stacker.

Figure 6-4. **96/4635/180 with inverter feeder/stacker + feeder/stacker configuration**



- 1 Back of system
- 2 Inverter
- 3 Feeder/stacker
- 4 Feeder/stacker
- 5 Front of system
- 6 Printer

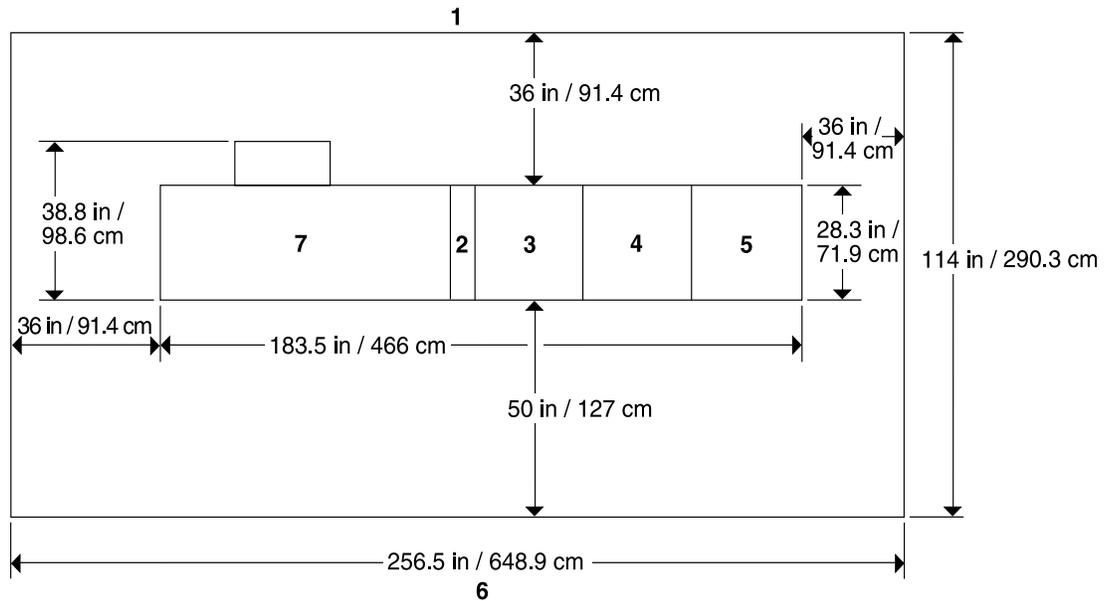
4635/180 printer with inverter feeder/stacker and two feeder/stackers

The dimensions of the printer with the inverter feeder/stacker, and two feeder/stackers are as follows:

Dimension	Specifications
Width:	183.50 inches / 466.1 cm
Depth:	38.8 inches / 98.6 cm
Height:	59.6 inches / 151.3 cm
Total weight:	3,109 pounds / 1,411.9 kg
Total space requirement:	256.5 by 114 inches / 648.9 by 290.3 cm

The following illustrates a top view of the space requirements for the printer with an inverter feeder/stacker and two feeder/stackers.

Figure 6-5. **4635/180 printer with inverter feeder/stacker + feeder/stacker + feeder/stacker**



- 1 Back of system
- 2 Inverter
- 3 Feeder/stacker
- 4 Feeder/stacker
- 5 Feeder/stacker
- 6 Front of system
- 7 Printer

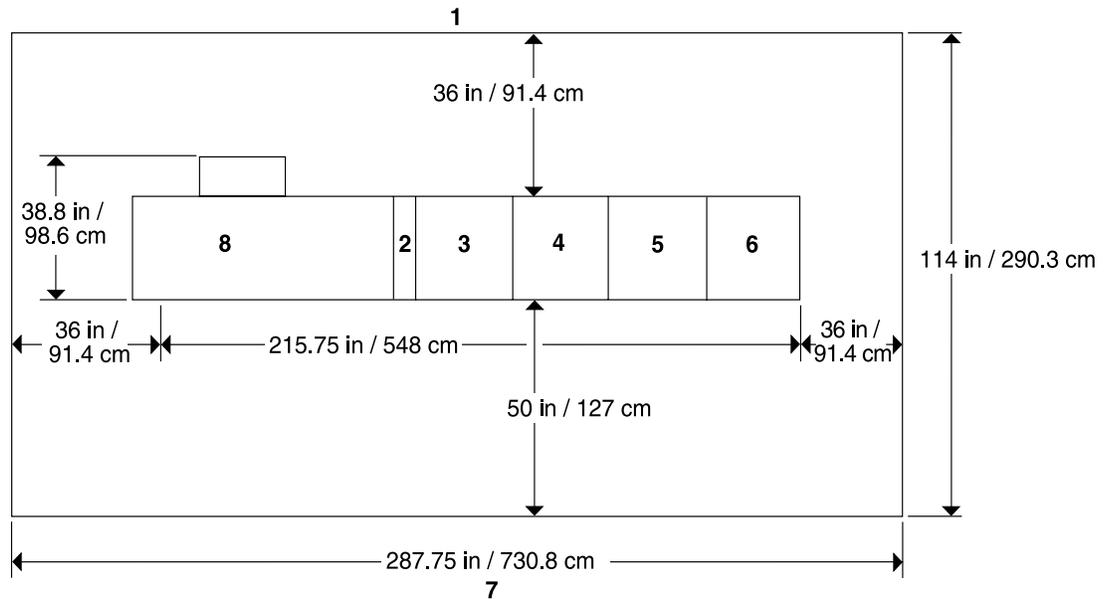
4635/180 printer with inverter feeder/stacker and three feeder/stackers

The dimensions of the printer with the inverter feeder/stacker and three feeder/stackers are as follows:

Dimension	Specifications
Width:	215.75 inches / 548 cm
Depth:	38.8 inches / 98.6 cm
Height:	59.6 inches / 151.3 cm
Total weight:	3,630 pounds / 1,648.9 kg
Total space requirement:	287.75 by 114 inches / 730.8 by 290.3 mm

The following illustrates a top view of the space requirements for the printer with a dual feeder and stitcher/stacker configuration.

Figure 6-6. **4635/180 printer with inverter feeder/stacker + feeder/stacker + feeder/stacker + feeder/stacker configuration**



- 1 Back of system**
- 2 Inverter**
- 3 Feeder/stacker**
- 4 Feeder/stacker**
- 5 Feeder/stacker**
- 6 Feeder/stacker**
- 7 Front of system**
- 8 Printer**

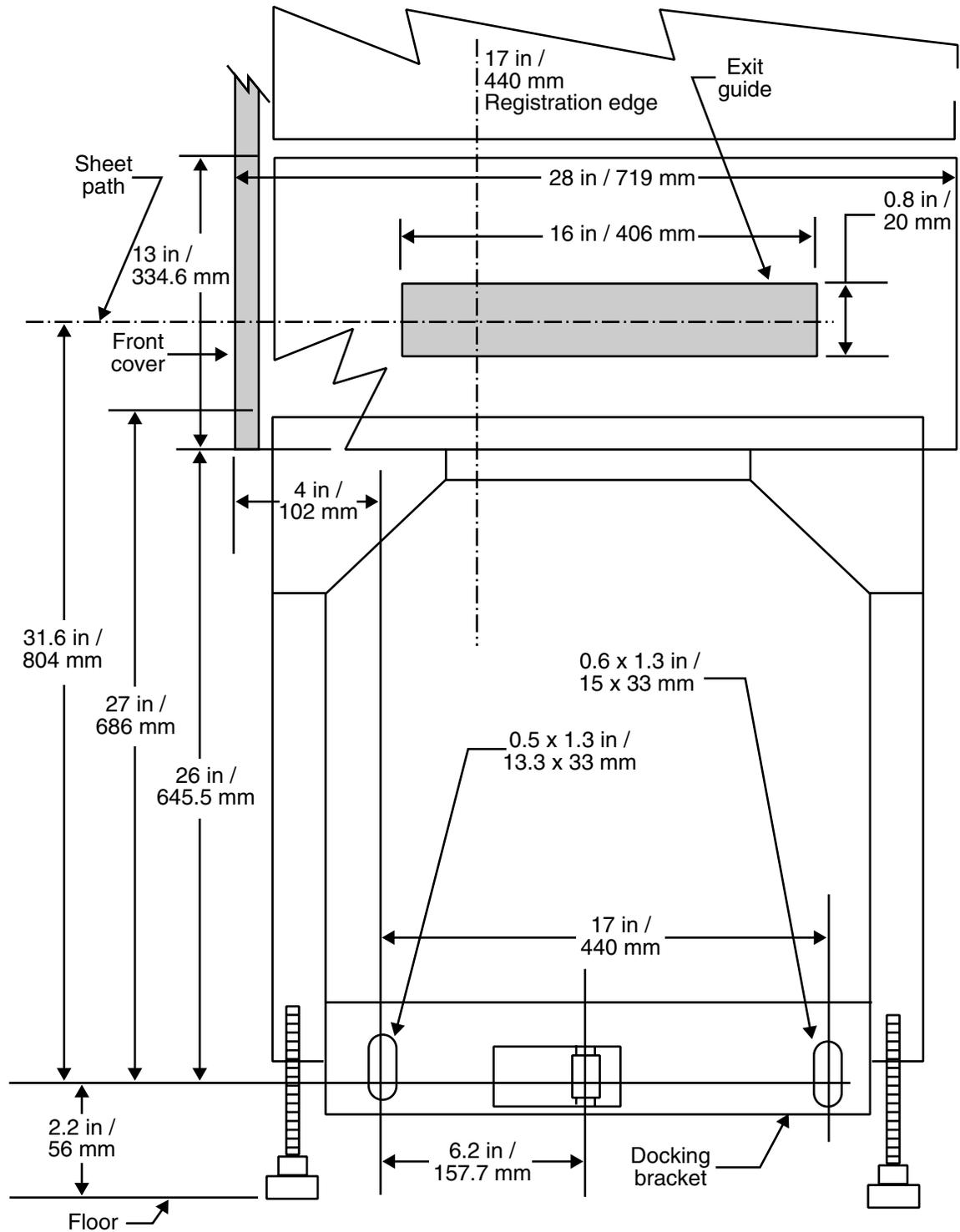
Bypass transport specifications

The bypass transport option enables you to add a third-party finishing device to your 96, 4635, or 180 printer. The bypass transport is installed by your service representative and remains permanently in place. You should not attempt to remove or reinstall it. The following is supported by the bypass transport:

- **Paper size and weight** — You can use all of the paper sizes and weights supported on the 96/4635/180 in the bypass transport.
- **Sheet exit orientation** — 1 to N (the same order in which sheets are fed from the printer), delivered face down.
- **Maximum throughput speed** — The bypass transport for the 96 and 135 printer supports throughput speeds of up to 139 ppm (pages per minute). The 180 bypass transport supports speeds up to 180 ppm. (These rates are based on stocks up to 9 by 14.33 / 229 by 364 mm in length.)
- **Sheet exit height** — 34 inches / 86 cm above the floor.

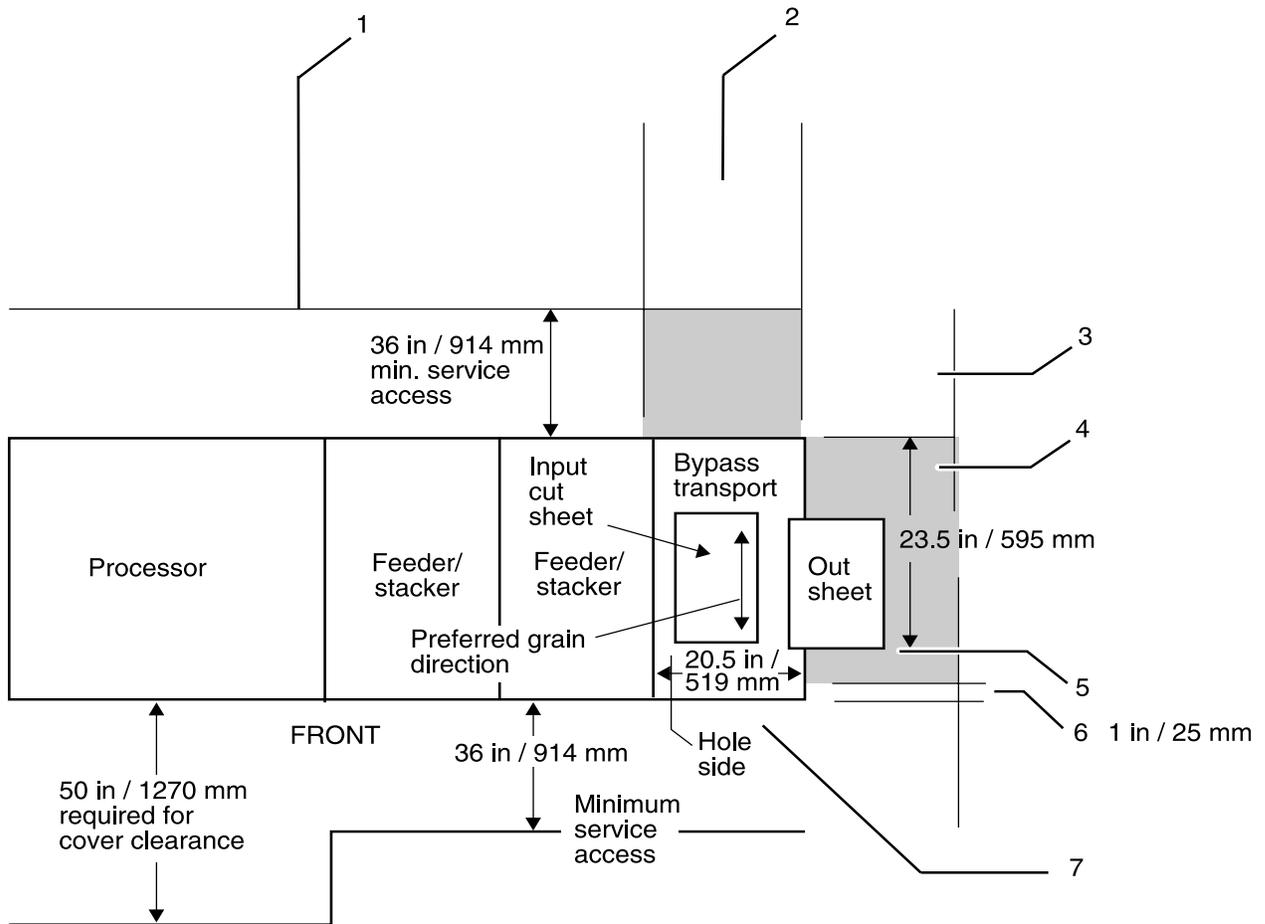
Dimensions The following figure shows the dimensions of the bypass transport in millimeters and inches from the right end view.

Figure 6-7. **Bypass transport dimensions**



Service access The following figure provides space planning information and service access requirements for the bypass transport from a top view.

Figure 6-8. **Bypass transport space planning diagram**

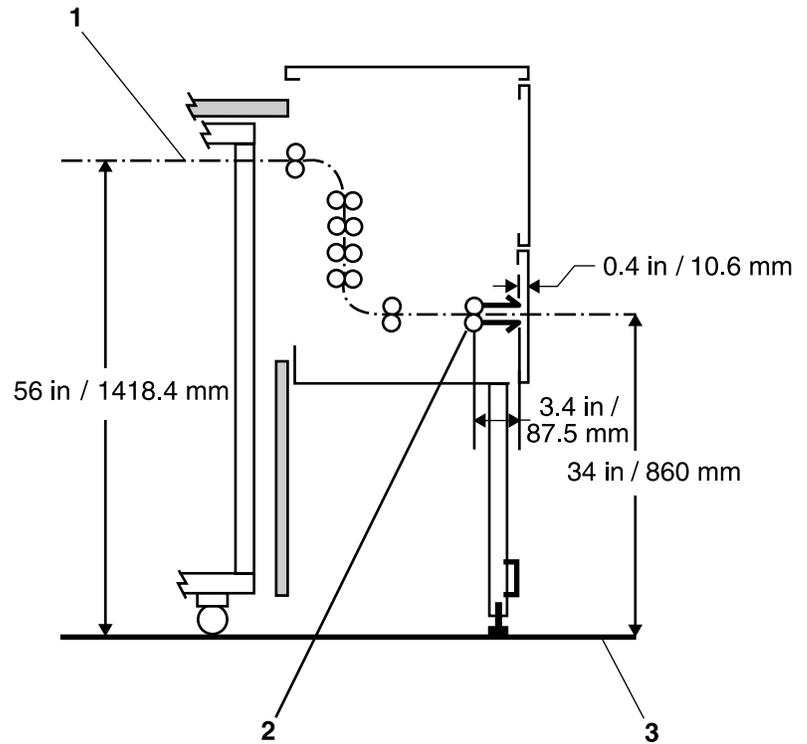


- 1 **Recommended third-party feeder hardware attaches at rear of 96/4635/180 printer.**
- 2 **Expected third-party input paper feed path**
- 3 **Neutral area, to remain unoccupied**
- 4 **Shaded areas at rear and right side of the bypass transport require third-party input/output devices to be undockable from the feeder/stacker or the bypass transport.**
- 5 **Register edge of the output sheet**
- 6 **Third-party hardware must not extend more than 1 inch / 25 mm beyond bypass transport front cover line for correct front door access.**
- 7 **Bypass transport / input enablement jam clearance space is required.**

Bypass transport paper path

The following figure shows the paper path through the bypass transport from a front view.

Figure 6-9. **Bypass transport paper path**

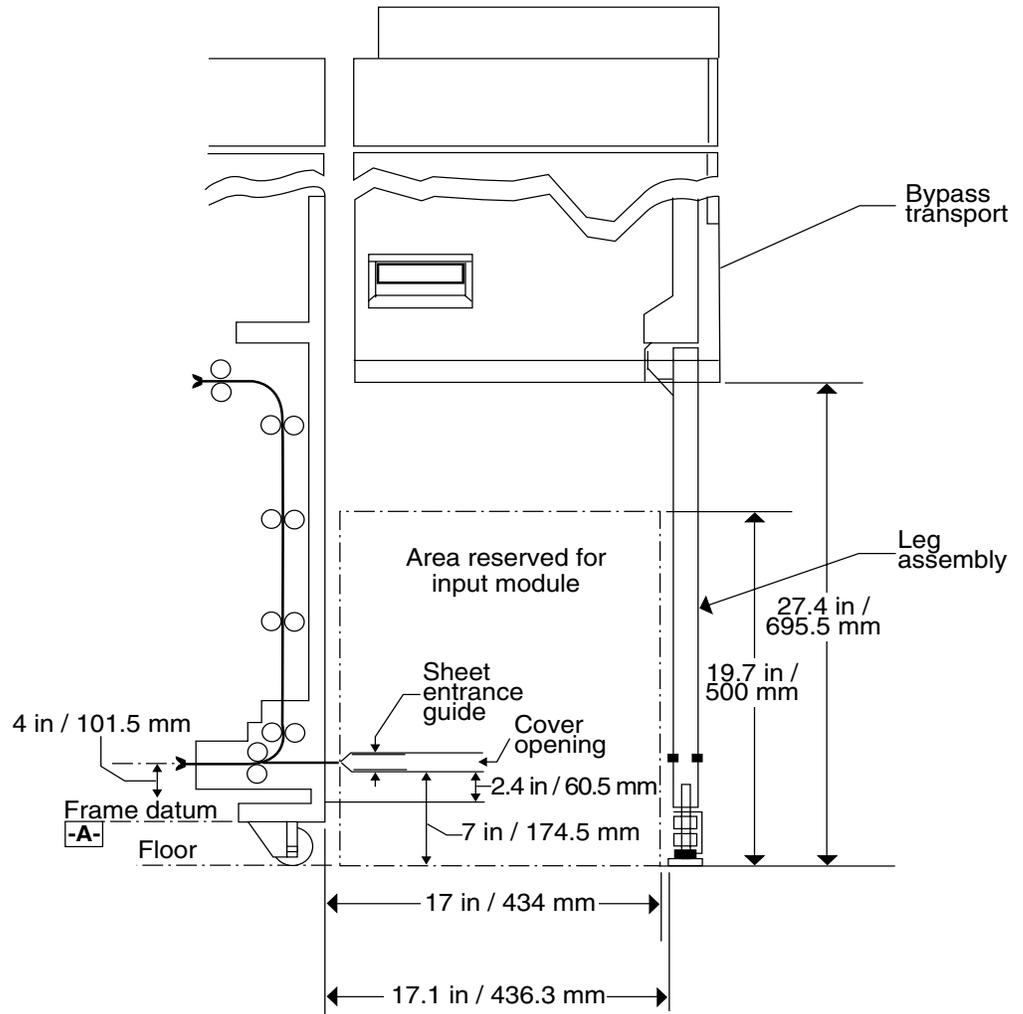


- 1 Sheet path
- 2 Exit rolls
- 3 Floor

Input enablement dimensions

The following figure shows the paper path and the dimensions of the input enablement area from a printer front view. The input enablement kit supports third-party feeding devices.

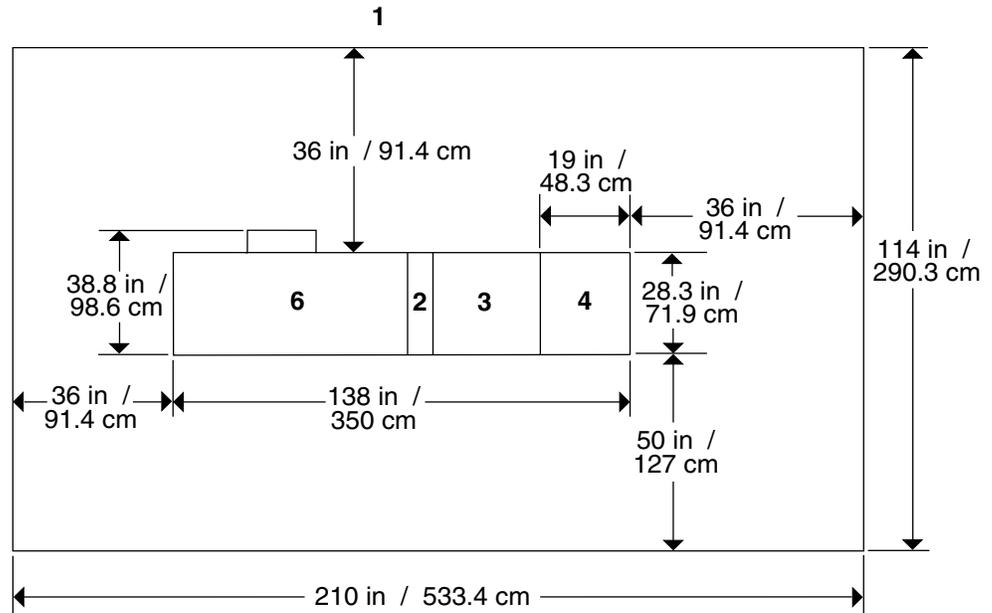
Figure 6-10. Input enablement paper path and dimensions



Configuration diagrams with bypass transport

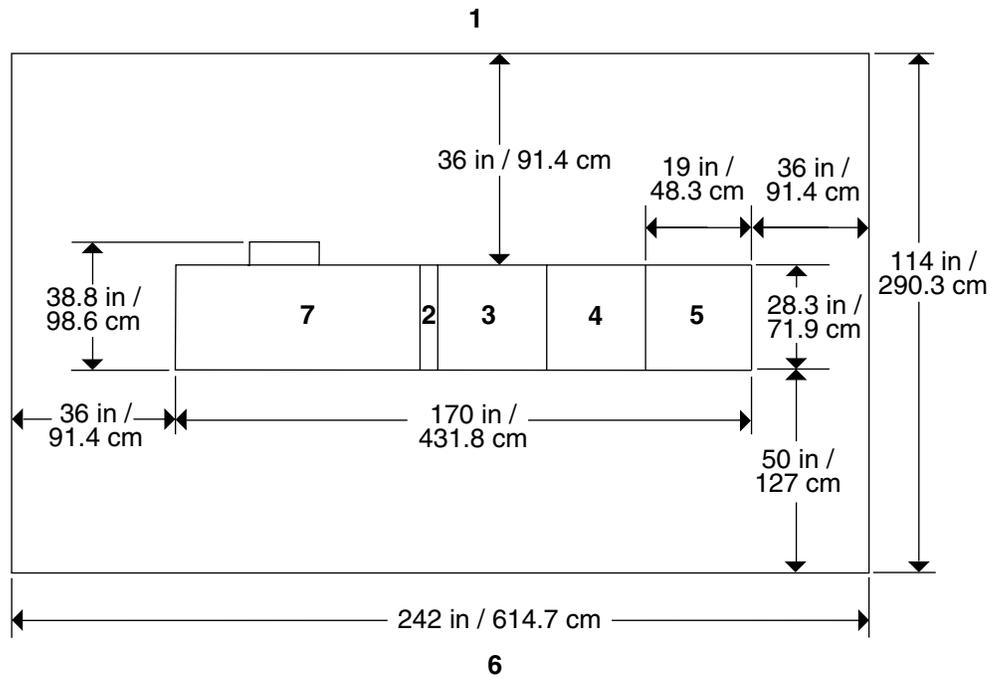
The following diagrams show the dimensions and space requirements of the 96, 4635, and 180 with a bypass transport. These diagrams represent top views of the components, surrounded by the minimum access space requirements on all sides.

Figure 6-11. **96 printer—inverter feeder/stacker-only configuration with bypass transport**



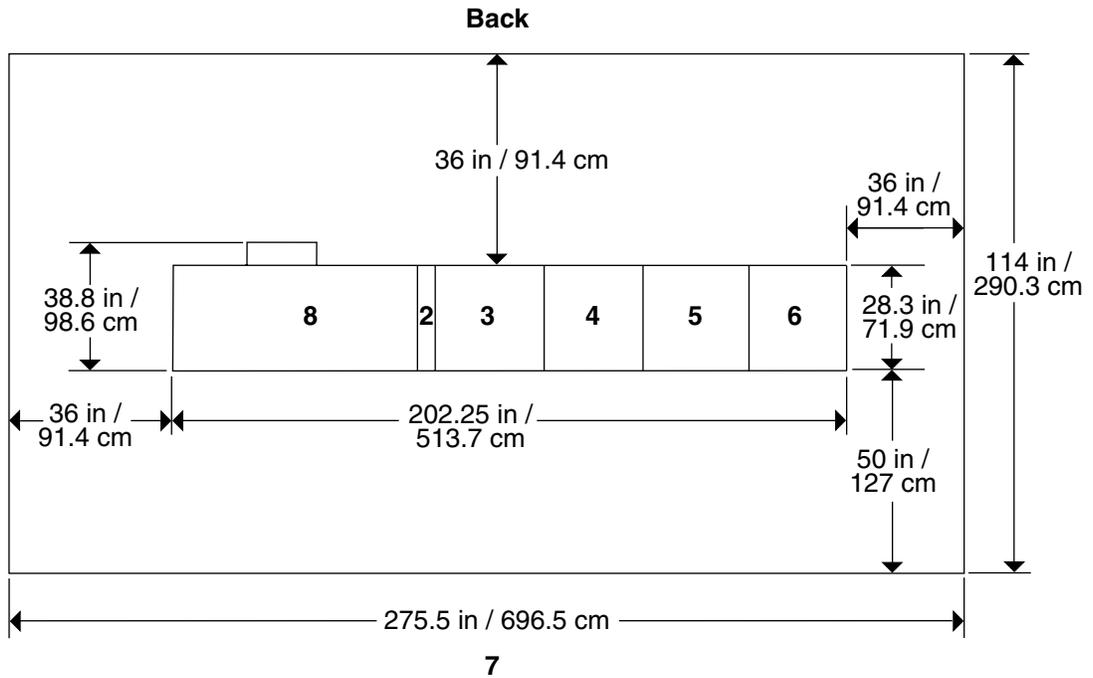
- 5
- 1 Back of system
 - 2 Inverter
 - 3 Feeder/stacker
 - 4 Bypass transport
 - 5 Front of system
 - 6 Printer

Figure 6-12. 96/4635/180 printer—inverter feeder/stacker + feeder/stacker configuration with bypass transport



- 1 Back of system
- 2 Inverter
- 3 Feeder/stacker
- 4 Feeder/stacker
- 5 Bypass transport
- 6 Front of system
- 7 Printer

Figure 6-13. 4635/180 printer—inverter feeder/stacker + feeder/stacker + feeder/stacker configuration with bypass transport



- 1 Back of system
- 2 Inverter
- 3 Feeder/stacker
- 4 Feeder/stacker
- 5 Feeder/stacker
- 6 Bypass transport
- 7 Front of system
- 8 Printer

Space planning guidelines

When determining your space requirements and planning for shared space between your printers, it is important to consider all of the components you plan to install.

To ensure all of the space requirements are met, it is important to work with your Xerox representative.

Before installation, you must consider the following:

- Clearance space requirements where you intend to install the printer
- Recommended cable lengths and locations (refer to the “System connections” chapter of this guide for more information)
- Delivery access requirements
- Floor leveling.

Clearance space requirements

The printer must be installed in a fixed location that provides the following clearance space:

- 36 inches / 91.4 cm on all sides of each component
- 24 inches / 61 cm of exclusive operator area in front of each component
- 78 inches / 198 cm of vertical clearance throughout the entire area.



Note: There must be a total of 50 inches / 126.9 cm of clearance space in front of the printer.

Shared space

It is best to provide the full amount of clearance space around the hardware components. Your environment may require you to use shared space between components, such as between the printer and the printer controller or between the printer and another Xerox printing system. You can share the 36-inch / 91.4 cm clearance space around each component, as long as you follow these rules:

- Space may be shared only with other Xerox equipment.
- Components may share the 36-inch / 91.4 cm general service clearance areas, but they may not share the 24-inch / 61 cm operator area in front of each component.
- There must be 78 inches / 198 cm of vertical clearance throughout the entire area.



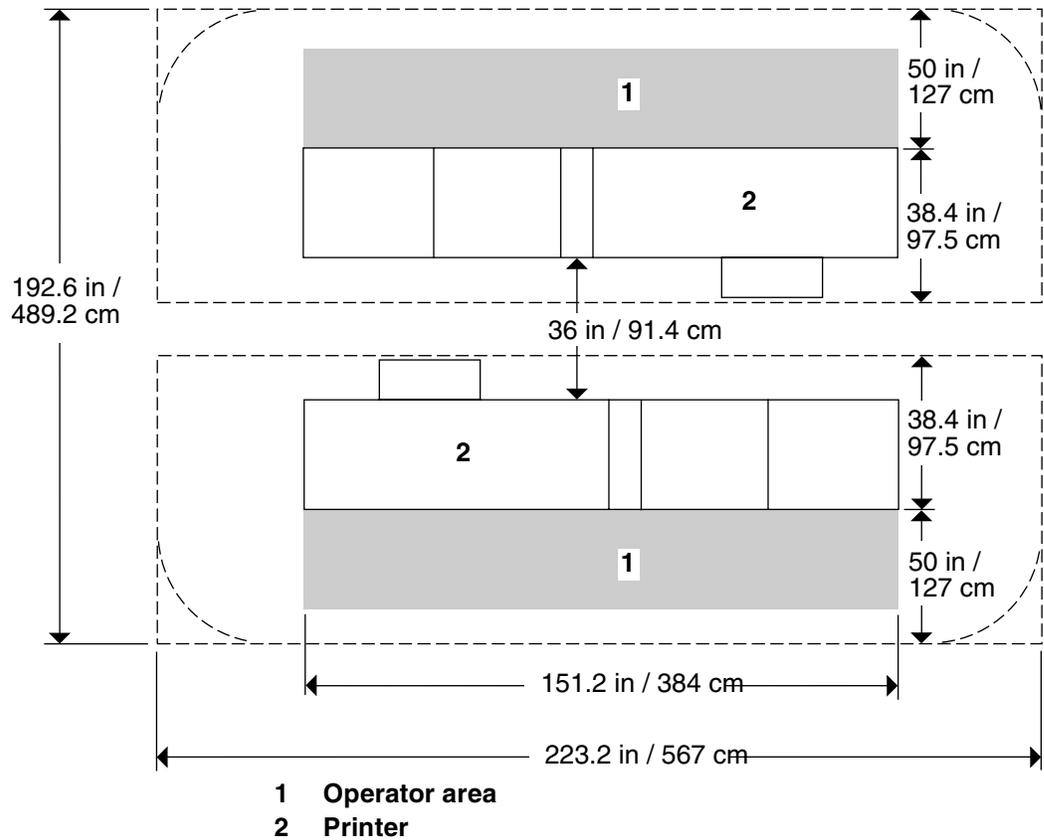
Note: Finishers attached to your bypass transport and feeders attached to your DocuPrint 4635, 96, or 180 printer through the input enablement device may occupy shared space with Xerox equipment. However, they must be removable to allow servicing of the DocuPrint

4635, 96, or 180 printer feeders and stackers. Consult with your Xerox representative to ensure all the requirements are met.

The following figures illustrate three possible configurations of shared space.

Back-to-back shared space The figure below illustrates the two printers placed in a back-to-back position. This allows them to share the entire 36 inches / 91.4 cm of general service space.

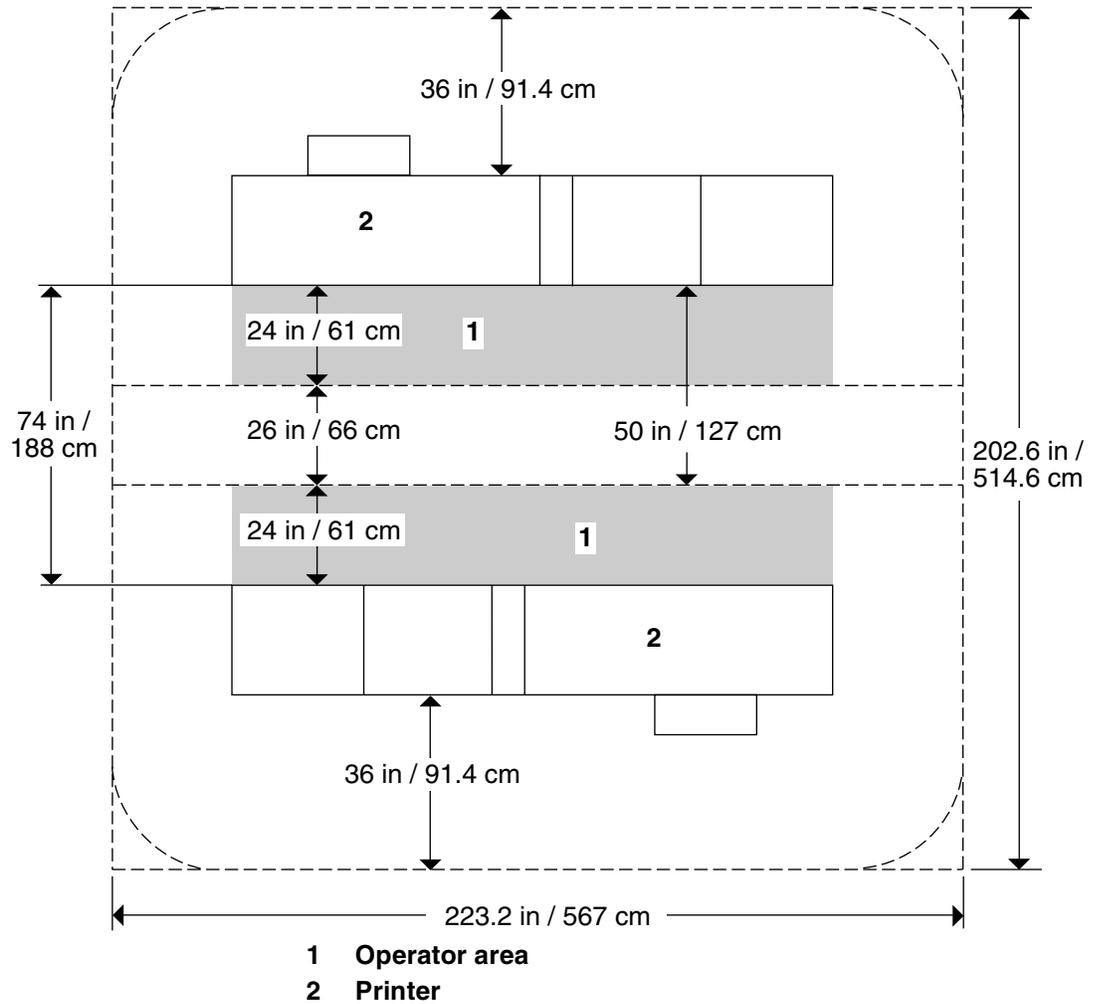
Figure 6-14. **Back-to-back shared service area space**



Face-to-face shared space

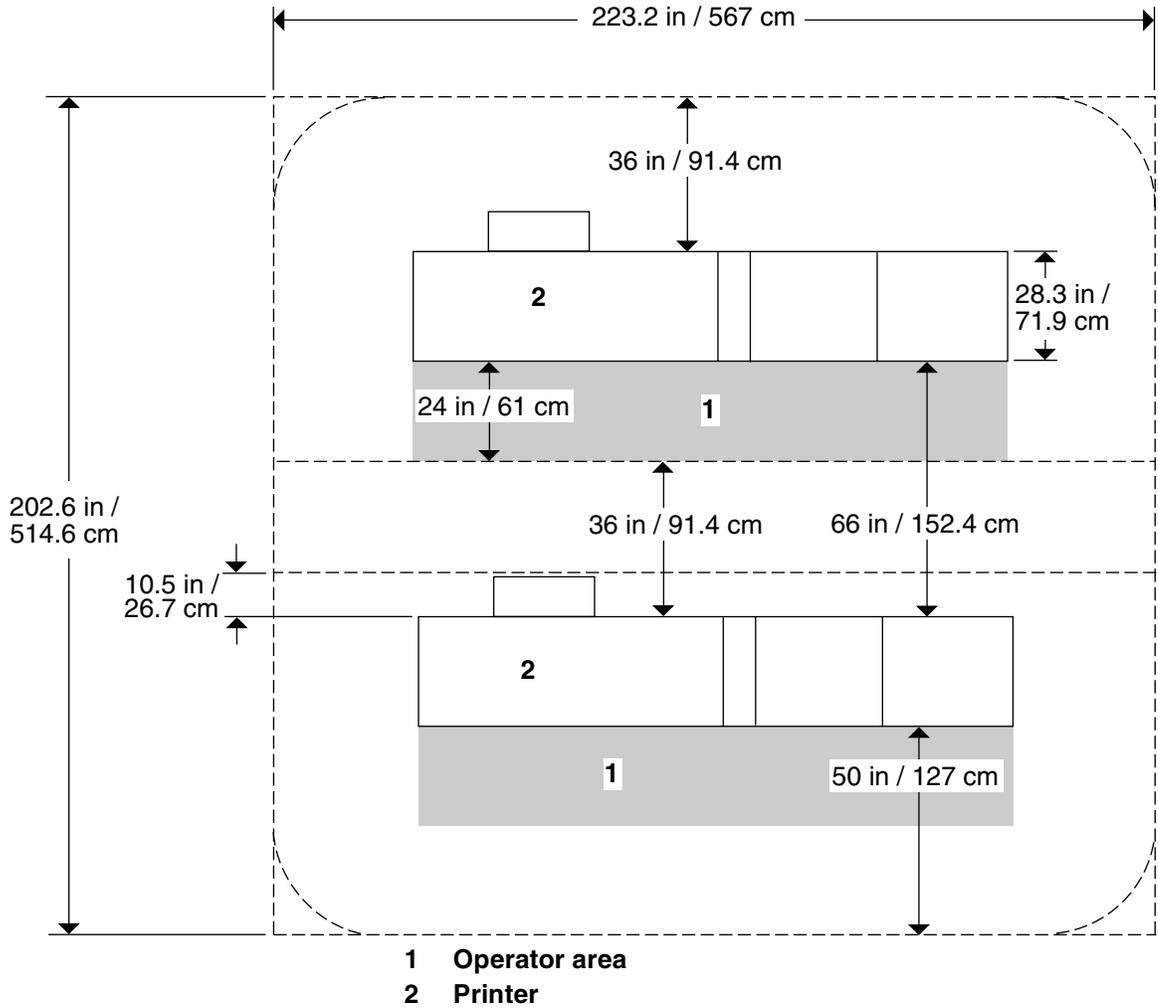
The following figure shows the two printers facing each other. The printers share 12 inches / 30.5 cm of the general service space, but not the exclusive operator area in front of each printer. Therefore, the printers should be separated by 24 inches / 61 cm, plus 24 inches / 61 cm, plus 12 inches / 30.5 cm. This allows for the entire operator space for each printer, plus the shared general service area of 12 inches / 30.5 cm.

Figure 6-15. **Face-to-face shared service area space**



Face-to-back shared space The following figure shows the two printers arranged with one facing the back of the other. Between them is 60 inches / 152.4 cm of space. This allows for 24 inches / 61 cm of operator space in front of the printer facing *toward* the other, plus 36 inches / 91.4 cm of service space behind the printer facing *away* from the other.

Figure 6-16. **Face-to-back shared space**



Floor leveling

For proper operation, the printer must be perfectly level. On floors less than two degrees out of level, installation personnel use a leveling kit to level the machine.



Note: The printer will not function properly on floors more than two degrees out of level. □

If the floor is more than two degrees out of level, this condition cannot be corrected by the leveling kit. Another suitable location must be found for the printer to be installed properly.

For your reference, two degrees represents a height discrepancy of approximately 3.8 inches / 9.6 cm measured at the casters with the printer tilting from left to right, or approximately 0.7 inches / 1.8 cm with the printer tilting from back to front.

If you move the printer unit after its initial installation, it is your responsibility to make sure that the printer can be leveled properly. If you do not have the leveling kit (the printer in its initial location did not require it), and you need one to level the printer in a new location, contact your Xerox site representative to obtain one.

Delivery access requirements

It is easy to overlook the path required to move the equipment from the truck to the operation site. To determine access, ask the following questions:

- Does the equipment need to go up stairs?
- Do you have an elevator, if the equipment is to be located above the first floor?
- Is the elevator large enough for the equipment?
- How wide are the hallways and doorways?
- Do you have a loading dock or a specific door to which the equipment should be delivered?

You need to review these issues prior to, or at the time of, the site inspection conducted by your service representative.

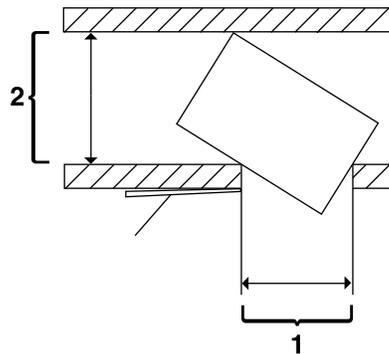
The equipment dimensions are specified earlier in this chapter, so it is easy to determine whether your hallways and doorways are wide enough to permit access.

Turning radius

You must also consider the width of the passageway when the equipment must negotiate a corner, whether into a room, an elevator, or another passageway.

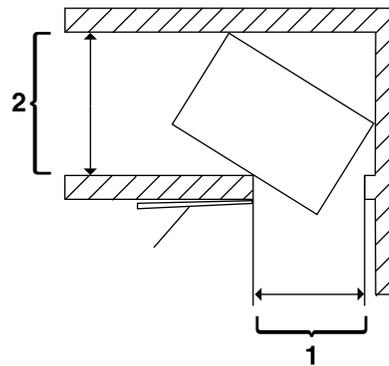
There are L-shaped turns and T-shaped turns. The diagrams and the tables that follow show the minimum space required to maneuver through the turns.

Figure 6-17. **T-shaped turn**



- 1 **Passage A**
- 2 **Passage B**

Figure 6-18. **L-shaped turn**



- 1 **Passage A**
- 2 **Passage B**

Using the turning radius tables

To use the tables:

1. Measure the minimum width of the passage or doorway you need to use. This is Passage A.
2. Find that number (or the next higher number) in the turning radius table and read across to the corresponding minimum value for Passage B, depending on the type of turn the equipment must negotiate.

Turning radius for printer with separated components

The 96, 4635 or 180 is delivered with the printer, inverter feeder/stacker, and each feeder/stacker as separate modules. If necessary, the printer can be separated into two pieces for ease in moving. The larger of the two parts contains the xerographic system; the smaller of the parts (the paper handling module, or PHM) contains paper trays 1 and 2. Do not confuse these two parts of the printer with the inverter and feeder/stacker modules, which have their own turning requirements.

The following table lists the turning requirements for the printer without the PHM (separated).

Table 6-7. Turning radius for printer (separated)

Passage or doorway A width	Minimum passage B width
29 inches / 73.7 cm	74.5 inches / 189.2 cm
30 inches / 76.2 cm	64.5 inches / 163.8 cm
31 inches / 78.7 cm	62 inches / 157.5 cm
32 inches / 81.3 cm	59.5 inches / 151.1 cm
34 inches / 86.4 cm	56 inches / 142.2 cm
36 inches / 91.4 cm	53 inches / 134.6 cm
38 inches / 96.5 cm	50 inches / 127 cm
40 inches / 101.6 cm	48 inches / 121.9 cm
42 inches / 106.7 cm	45.5 inches / 115.6 cm

The following table lists the turning requirements for the printer if it is upended for easier moving or stair-climbing. This table reflects requirements for the printer separated from the PHM.

Table 6-8. Turning radius for printer (separated and upended on dolly)

Passage or doorway A width	Minimum passage B width
30 inches / 76.2 cm	49 inches / 124.5 cm
31 inches / 78.7 cm	43 inches / 109.2 cm
32 inches / 81.3 cm	41 inches / 104.1 cm
34 inches / 86.4 cm	37.5 inches / 95.3 cm
36 inches / 91.4 cm	35 inches / 88.9 cm
38 inches / 96.5 cm	33.5 inches / 85.1 cm
40 inches / 101.6 cm	32 inches / 81.3 cm
42 inches / 106.7 cm	31 inches / 78.7 cm

Turning radius for unseparated printer components

The following table lists the turning requirements for the printer when attached to the paper handling module (not separated).

Table 6-9. **Turning radius for printer (not separated)**

Passage or doorway A width	Minimum passage B width
29 inches / 73.6 cm	83 inches / 210.8 cm
30 inches / 76.2 cm	76 inches / 193 cm
31 inches / 78.7 cm	73 inches / 185.4 cm
32 inches / 81.3 cm	70.5 inches / 179.1 cm
34 inches / 86.4 cm	66.5 inches / 169 cm
36 inches / 91.4 cm	63.5 inches / 161.3 cm
38 inches / 96.5 cm	61.5 inches / 156.2 cm
40 inches / 1,01.6 cm	58 inches / 147.3 cm
42 inches / 1,06.7 cm	55 inches / 139.7 cm

Turning radii for feeder/stacker modules

The following table lists the turning requirements for the inverter feeder/stacker module.

Table 6-10. **Turning radius for inverter feeder/stacker module**

Passage or doorway A width	Minimum passage B width
29 inches / 73.7 cm	43 inches / 109.2 cm
30 inches / 76.2 cm	41 inches / 104.1 cm
31 inches / 78.7 cm	40 inches / 101.6 cm
32 inches / 81.3 cm	38 inches / 96.5 cm
33 inches / 83.8 cm	37 inches / 94 cm
34 inches / 86.4 cm	36 inches / 91.4 cm
35 inches / 88.9 cm	35 inches / 88.9 cm
36 inches / 91.4 cm	34 inches / 86.4 cm
37 inches / 94 cm	33 inches / 83.8 cm
38 inches / 96.5 cm	32 inches / 81.3 cm
39 inches / 99.1 cm	31 inches / 78.7 cm
40 inches / 101.6 cm	31 inches / 78.7 cm
41 inches / 104.1 cm	30 inches / 76.2 cm
42 inches / 106.7 cm	29 inches / 73.7 cm
43 inches / 109.2 cm	29 inches / 73.7 cm



Note: These turning figures are based on inverter/feeder/stacker dimensions of 28 inches / 711 mm by 42 inches / 1,067 mm.

The following table lists the turning requirements for the feeder/stacker module.

Table 6-11. **Turning radius for feeder/stacker module**

Passage or doorway A width	Minimum passage B width
29 inches / 73.7 cm	33 inches / 83.8 cm
30 inches / 76.2 cm	32 inches / 81.3 cm
31 inches / 78.7 cm	31 inches / 78.7 cm
32 inches / 81.3 cm	30 inches / 76.2 cm
33 inches / 83.8 cm	29 inches / 73.7 cm



Note: These turning figures are based on inverter/feeder/stacker dimensions of 28 inches / 71.1 cm by 32.25 inches / 81.9 cm.

Printer hardware specifications and requirements summary

The following table summarizes the specifications and electrical requirements of your printer hardware components.

For a summary of controller hardware specifications and requirements, refer to the “Controller specifications and requirements” chapter of this guide. Contact your service representative if you have questions not specifically addressed in this guide.

Table 6-12. **Printer specifications and power requirements—96/4635/180**

Device	Dimensions (depth, width, height)	Weight	Heat dissipation	Power requirements
96 printer: Inverter feeder / stacker only	d=38.8 in. / 98.6 cm w=119 in. / 302.3 cm h= 59.6 in. / 151.3 cm Total space required (+ access): 191 in. w by 114 in. d / 567 cm w by 290.3 cm d	1925 lbs. / 874 kg	Operating: 28,140 BTU per hour Standby: 4,454 BTU per hour	60 Hz: 120/208 VAC (182 V to 220 V), KVA 7.3 (operating) Power cord: 50 amp, NEMA 14-50R 50 Hz: Consult your local service representative.
96/4635/180 printer: Inverter feeder / stacker + feeder / stacker	d=38.8 in. / 98.6 cm w=151.2 in. / 384 cm h= 59.6 in. / 151.3 cm Total space required (+ access): 223.25 in. w by 114 in. d / 567 cm w by 290.3 cm d	2,588 lbs. / 1,174.9 kg	96/4635: Operating: 28,140 BTU per hour Standby: 4,454 BTU per hour Energy Saver: 2,700 BTU per hour 180: Operating: 32,770 BTU per hour Standby: 4,454 BTU per hour Energy Saver: 2,700 BTU per hour	60 Hz: 96/4635: 120/240 VAC or 120/208 VAC; 50 amp service; NEMA L14-50R; KVA 7.3 (operating) 180: 120/208 VAC (182 V to 220 V), KVA 7.3 (operating) Cord 1: 50 amp, NEMA 14-50R Cord 2: 30 amp, NEMA 14-30R 50 Hz: Consult your local service representative.

Table 6-12. **Printer specifications and power requirements—96/4635/180** (continued)

Device	Dimensions (depth, width, height)	Weight	Heat dissipation	Power requirements
<p>4635/180 printer: Inverter feeder / stacker + two feeder / stackers</p>	<p>d=38.8 in. / 98.6 cm w=183.5 in./ 466.1cm h=59.6. in. / 151.3 cm</p> <p>Total space required (+ access): 256.5 in. w by 114 in. d / 648.9 cm w by 290.3 cm d</p>	<p>3,109 lbs. / 1,411.9 kg</p>	<p>4635: Operating: 28,140 BTU per hour Standby: 4,454 BTU per hour Energy Saver: 2,700 BTU per hour</p> <p>180: Operating: 32,770 BTU per hour Standby: 4,454 BTU per hour Energy Saver: 2,700 BTU per hour</p>	<p>60 Hz: 4635: 120/240 VAC or 120/208 VAC; 50 amp service; NEMA 14-50R, KVA 8.1(operating) 180: 120/208 VAC (182 V to 220 V), KVA 8.1(operating) Cord 1: 50 amp, NEMA 14-50R Cord 2: 30 amp, NEMA 14-30R 50 Hz: Consult your local service rep.</p>

Table 6-12. **Printer specifications and power requirements—96/4635/180** (continued)

Device	Dimensions (depth, width, height)	Weight	Heat dissipation	Power requirements
<p>4635/180 printer: Inverter feeder / stacker + three feeder / stackers</p>	<p>d=38.8 in. / 98.6 cm w=216 in. / 730.8 cm h=59.6 in. / 151.3 cm</p> <p>Total space required (+ access): 287.75 in. w by 114 in. d/ 730.8 cm w by 290.3 cm d</p>	<p>3,630 lbs. / 1,648.9 kg</p>	<p>4635: Operating: 28,140 BTU per hour Standby: 4,454 BTU per hour Energy Saver: 2,700 BTU per hour 180: Operating: 32,770 BTU per hour Standby: 4,454 BTU per hour Energy Saver: 2,700 BTU per hour</p>	<p>60 Hz: 4635: 120/240 VAC or 120/208 VAC; 50 amp service; NEMA 14-50R, KVA 8.8 (operating) 180: 120/208 VAC (182 V to 220 V), KVA 8.8 (operating) Cord 1: 50 amp, NEMA 14-50R Cord 2: 30 amp, NEMA 14-30R 50 Hz: Consult your local service rep.</p>
<p>Bypass transport</p>	<p>d=28.3 in. / 71.9 cm w=20.4 in. / 51.9 cm h=56.1 in. / 142.5 cm</p>	<p>176 lbs. / 80 kg</p>	<p>---</p>	<p>---</p>

Space planning templates

The dimensions and space requirements for your printer components are provided earlier in this chapter. The space planning templates are designed to simplify the space planning process by helping you to create a floor plan for your base components, particularly if you have shared clearance space.

The easiest way to use the space planning templates is to move the templates around on the grid located at the end of this section and determine the optimum placement for your printer components. Make sure to consider other pieces of equipment, such as cabinets, tables, and optional equipment when planning your space. Your customer support representative can help you plan space for additional components.

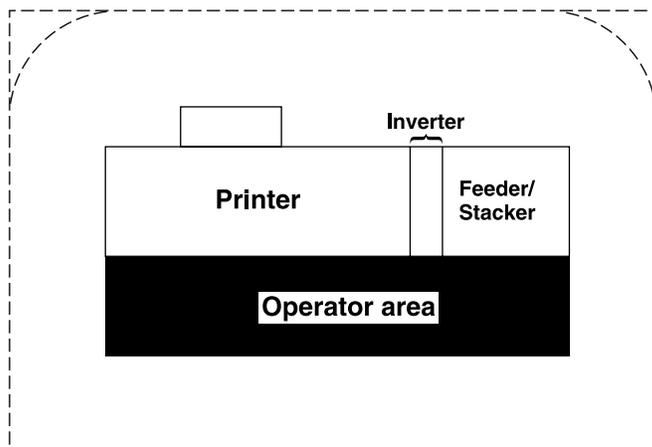
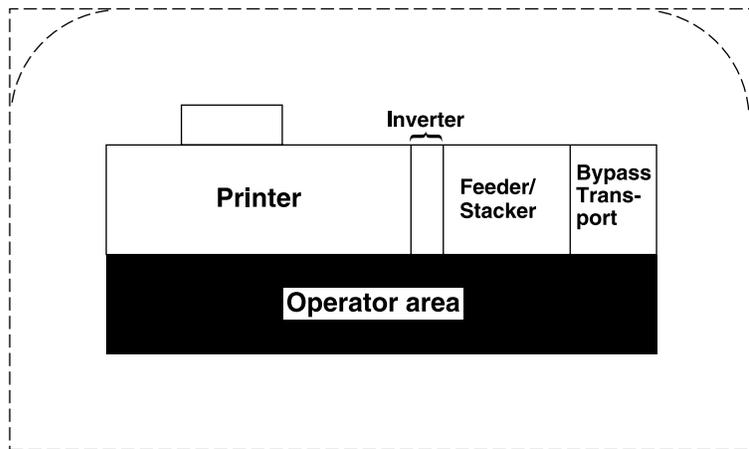
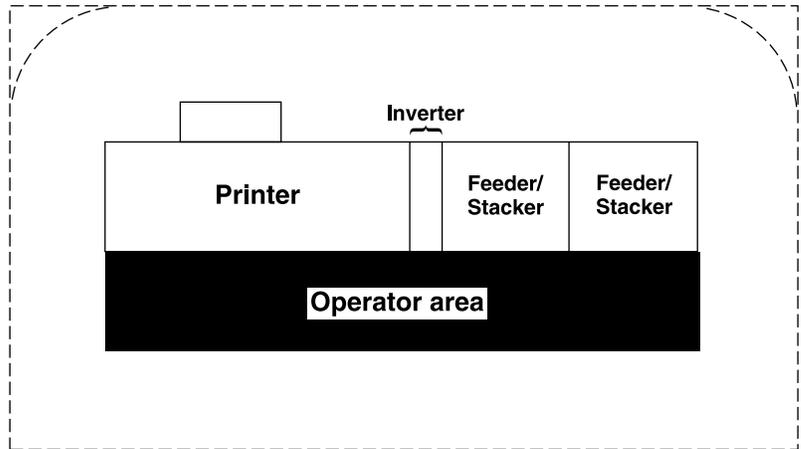
The templates are to scale with the grid; each square is equal to 12 by 12 inches/30.5 by 30.5 cm. The curved dotted lines in the corners of the space perimeters indicate the corners that may be rounded off while still maintaining the required clearance space.

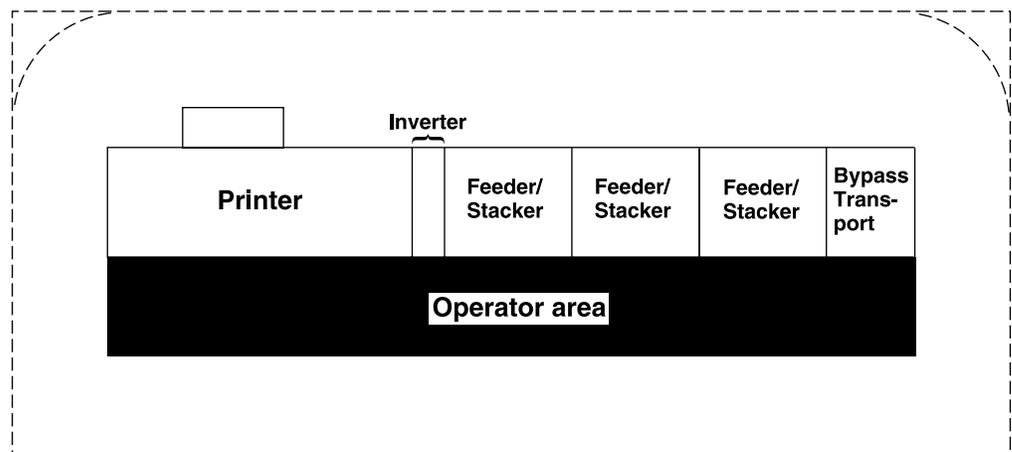
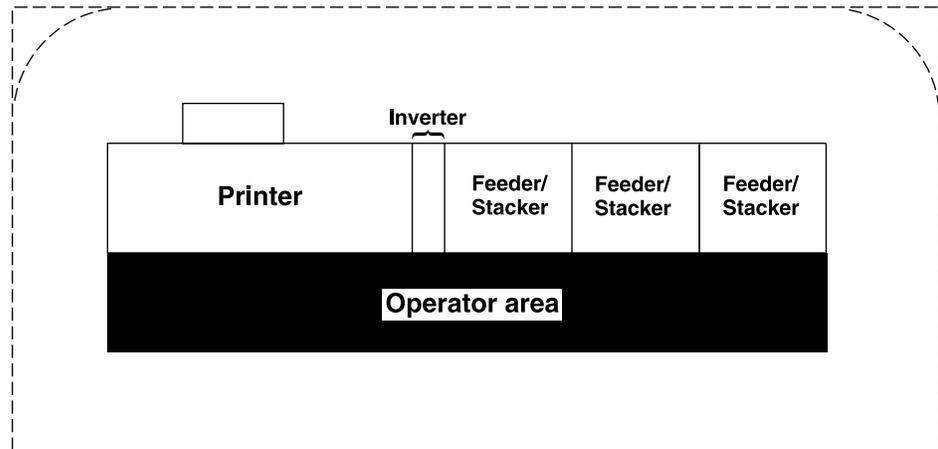
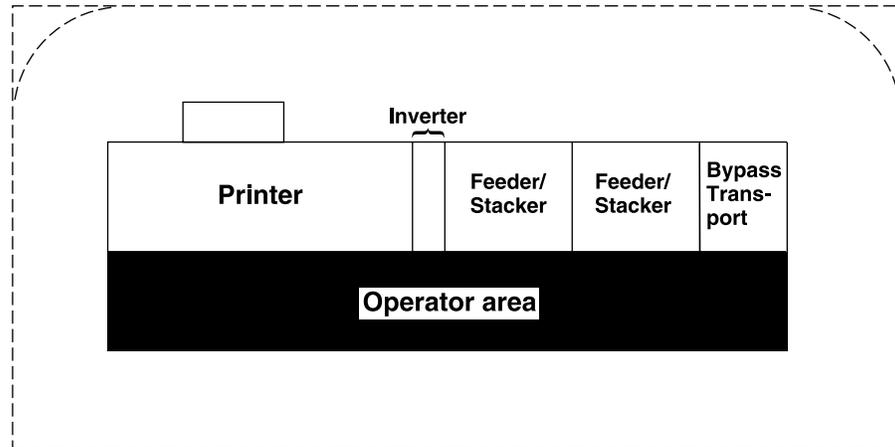
There are a number of factors to keep in mind when planning your site, including the following:

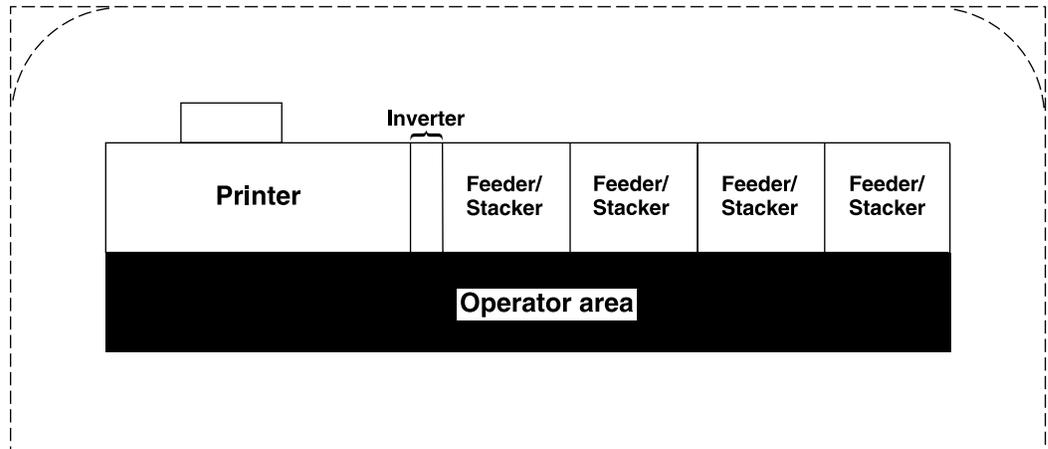
- Clearance space requirements
- Cable length.

Refer to these sections in this manual when considering the various factors involved in planning the appropriate location for your printing system.

When determining your space requirements, remember to consider all of the components you plan to have installed. If you have a bypass transport or input enablement device option on your printing system, you should contact the sales representatives for the company from which you purchased your finishers and feeders, as well as your Xerox representative, to ensure that all of your space requirements are met.







7. System connections

This chapter provides cable requirements for your 96/4635/180 NPS system. To ensure all of your cable requirements are met, it is important to work with your Xerox representative.

Cable lengths

Cable lengths are important considerations in planning your layout, as components can be separated only up to the length of the data interface cables that connect them.

Cables supplied with the printer are of sufficient length to meet the needs of most installations. Some of these cables are specific lengths to conform to engineering and safety standards.

Data cables The printer components can be separated up to the length of the data interface cables that connect them. The printer and controller are connected by a 20-foot / 6.1 meter data cable.

Power cables The 96/4635/180 power cable lengths are as follows:

Table 7-1. Power cable lengths

Power cable	Length
Printer controller	8 feet / 2.1 m
Printer	15 feet / 4.4 m



Warning: Using an inappropriate alternate cable may degrade the performance of your equipment and may also be hazardous.



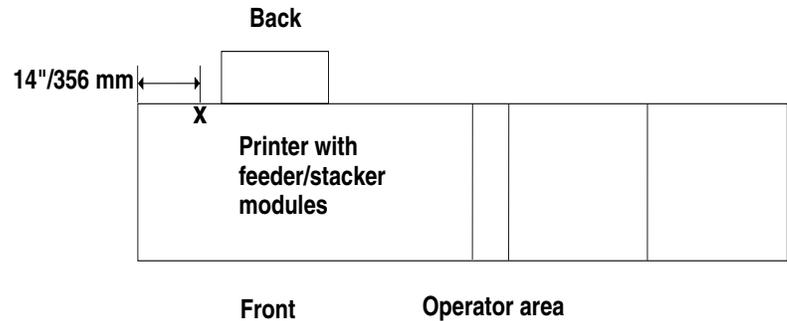
Note: Cable length loss must be factored in if equipment is installed in a raised-floor environment. You should also consider that part of the length of a cable is routed inside the equipment to connect with interior power or data receptacles.

Cable locations

To run the cables beneath the flooring effectively, it is necessary to know where the cables enter and exit the printer. The following diagrams show those locations (marked with an X).

All power cords attach to the back of the printer. Listed below are the distances of the printer power cord attachments from the left end of the printer as you face it.

Figure 7-1. **96/4635/180 cable enter/exit location (top view)**



- **180 power cord attachments**—distance from end of printer:
 - **Cord 1:** 36 inches / 914 mm (with ELCI)
 - **Cord 2:** 23 inches / 584 mm (with ELCI)
- **96 and 4635**—distance from end of printer: 14 inches / 356 mm

This chapter describes the activities performed by you and Xerox during the installation of the Xerox DocuPrint 96/96 MICR NPS, 4635/4635 MICR NPS, and 180/180 MICR NPS, and hardware and software components. Before installation can begin, you must complete the tasks described in the “Preparing for installation” chapter of this guide.

Installation process

Xerox is responsible for the physical installation of the 96/96 MICR, 4635/4635 MICR, or 180/180 MICR NPS hardware components and the software.

For customers outside the United States, contact your local Xerox operating company for your specific installation process.

The installation process can take one or several days to complete. Equipment, software kits, and documentation kits may all arrive in one day, or over the course of several days. When all of the necessary items are in place, Xerox personnel will complete the installation of the NPS components.

In the United States, the steps in the installation process typically occur in the following order:

1. Xerox personnel installs all DocuPrint NPS printer hardware and connects the printer controller to your site's network through the Ethernet, Token Ring, and FDDI connector you supply. This process takes approximately four hours if all the necessary network and electrical connectors are in place.
2. Xerox personnel loads printer controller software on the printer controller (approximately 1.5 hours).
3. Xerox personnel downloads Xerox client software, if applicable, on one client workstation to validate the installation (15 minutes). Software is downloaded on another client workstation as part of training conducted by your systems analyst. All other client software installations are your responsibility. Refer to the *Guide to Configuring and Managing the System* for more information.
4. If your site uses third-party Transmission Control Protocol/Internet Protocol (TCP/IP) lpr networking software, refer to the *Guide to Configuring and Managing the System* for information on modifying the printcap file.
5. Xerox personnel test the system and run sample jobs (30 minutes).
6. Xerox personnel conduct initial operations training (2 to 4 hours).

7. Xerox personnel review preventive maintenance schedules and service call procedures.

Your responsibilities

Xerox is responsible for the physical installation of the printer components and for loading the software and applications. You have the general site responsibility of ensuring that the right personnel, supplies, and network information are available.

At the time of installation, you should do the following:

- Make sure that your system administrator is available during the loading of software.
- For software loading purposes, be prepared to provide Xerox personnel with network information from the preinstallation checklist. Refer to the "Preparing for installation" chapter of this guide for specifics regarding network information.
- Designate two client workstations for downloading Xerox Client Software if applicable: one for initial system validation and another for use in operator training provided by your systems analyst.
- Check the documentation and software kits with their packing lists for completeness.
- Load Xerox client software on any additional client workstations.

Remember that you are responsible for supplying, installing, and maintaining your client workstations and the Token Ring network or Ethernet local area network (LAN) that connects them with the printer controller.

- Have test jobs ready to run.
- Have your operators available for training.

Refer to the installation planning checklist in the "Preparing for installation" chapter of this guide for a complete list of responsibilities.

Software licensing

When an NPS is purchased, the owner needs to receive a license to use the operating system software. Once a user calls in with a host ID, (Sun SPARC/Ultra host ID), the user receives a license string. Refer to the “Setting up the printer controller” chapter in the *Guide to Configuring and Managing the System* (section titled “Loading the NPS software license text stream”).

This license is enabled by entering a 20-character authorization text string at the printer controller keyboard. Your Xerox or service representative obtains this license text string for you and enters it when your NPS is installed.

Until this license string is entered, your NPS cannot receive data from the host to print. You can power on and boot the system, and perform all offline tasks such as setting up input and output configurations, but the NPS remains in Disabled mode and cannot print.

Although your service representative usually does this for you, you also can enter your license string, by selecting NPS Authorization Enablement from the Administration pulldown menu on the NPS main window. Refer to the NPS *Guide to Configuring and Managing the System*, “Setting up the printer controller” chapter, for the procedure.



Note: If your system will be operating in Dual Mode, it requires two license strings: one for IPS and one for NPS. 

Ongoing maintenance

After the installation of your Xerox DocuPrint NPS, there are a few ongoing tasks that must be performed. These tasks may include the following:

- Maintaining an adequate inventory of consumable supplies
- Overseeing routine maintenance and meter reporting
- Arranging for additional operator training
- Ordering additional fonts
- Ordering additional documentation
- Placing service calls for hardware problems
- Obtaining assistance in solving software-related problems.

As installation coordinator, it is your responsibility to designate the staff members responsible for these tasks.

Routine maintenance

A number of routine maintenance tasks must be performed to ensure maximum efficiency of your printer. These tasks include:

- Adding standard dry ink to your NPS
- Adding MICR dry ink to your 96/4635/180 MICR NPS
- Adding fuser agent
- Replacing the dry ink waste container
- Cleaning sensors in the printer
- Cleaning the exterior surfaces of the system.

Step-by-step instructions on performing these routine maintenance tasks are contained in the *Guide to Performing Routine Maintenance*. You need to decide how many operators will be responsible for performing these maintenance tasks. Most maintenance procedures are covered in the initial operator training provided shortly after installation.



Note: Only operators who have completed the Xerox ACT course or equivalent advanced customer training can replace stitcher wire. Refer to the “Xerox support services” appendix of this guide for additional information on training.

Meter reading and reporting

As print jobs are processed, the printer controller accumulates, saves, and maintains usage data.

During the last five working days of each month, you need to review and transmit the data to Xerox for billing purposes. Refer to your *Guide to Performing Routine Maintenance* for complete instructions on how to report meter readings.

This appendix provides information and specifications for the media you use with your Xerox DocuPrint 96, 4635, or 180 printer. Instructions for ordering supplies are also provided.

Consumable supplies (those that are depleted during operation of the system), such as paper, dry ink, developer, fuser agent, etc., must be ordered for your printer. It is important that an adequate supply of these items be on hand for installation, and that your supply be maintained afterwards.

Paper and other throughput stocks

The success of any print run is greatly dependent on the proper selection, care, and handling of the stock used.

Selecting paper

You need to select your paper carefully. If you do not use the proper paper, you increase the probability of paper jams and misfeeds. The stocks you use must meet the specifications set forth by Xerox for operability in the printer. For additional information about paper specifications, refer to *Helpful Facts about Paper*, delivered with your printer.

Acceptable paper stocks and sizes

Your 96, 4635 or 180 printer accepts the following standard size cut-sheet papers:

- 7 by 10 inches / 178 by 254 mm (with 7-inch kit option)
- B5: 7.17 by 10.12 inches / 182 by 257 mm (with 7-inch option)
- US Letter: 8.5 by 11 inches / 216 by 279 mm
- US Legal: 8.5 by 14 inches / 216 by 356 mm
- A4: 8.27 by 11.69 inches / 210 by 297 mm
- B4 (European): 9.84 by 13.89 inches / 250 by 353 mm
- JIS B4 (Japanese): 10.12 by 14.33 inches / 257 by 364 mm
- US Ledger/US Tabloid: 11 by 17 inches / 279 by 432 mm
- A3: 11.69 by 16.54 inches / 297 by 420 mm.

Recommended weight and grade:

Use a good quality, xerographic-grade paper. For best results, use paper that is 20-pound or 80 gsm (grams per square meter) bond, xerographic grade. Xerox 4024 Dual Purpose Paper provides optimal performance in the printer. Refer to the consumable supplies table later in this appendix.

Use paper within these parameters:

- Lightest: 16-pound or 65 gsm bond
- Heaviest: 110-pound or 200-gsm index.



Note: It is recommended that you use 24-pound paper with MICR applications, or paper specified by your local banking regulatory authority.

Characteristics

The paper stock should have the following characteristics:

- Low moisture content (a paper-to-moisture ratio below 5.7 percent). Paper with higher moisture content may curl and jam.
- Smooth surface
- Moisture-resistant wrapping
- No defects (bent edges, uneven surfaces)
- Grain long (parallel with the long side of paper).

Paper is usually fed into the printer with the long side as the leading edge (except 11 by 17-inch or A3 paper). When you purchase paper, buy long-grain paper. Make sure the grain is parallel with the long side (long-grain) for the most reliable feeding and stacking.

Special stocks

Following are some guidelines for choosing and using special materials:

- **Labels** — Must be the type designed for high-speed printers and must meet the specifications described in the section above. Loading instructions are printed on all paper trays.

Use only the processor feeding trays (trays 1 and 2) for labels. Load labels in the tray with the label side up.

You can direct printed labels to any output tray. Be sure the printed labels are stacked *face up* in the output tray, to avoid ink offsetting and jams due to delamination.

- **Transparencies** — Must be the type designed for high-speed printers and must meet the specifications described in the section above. Loading instructions are printed on all paper trays.

Load transparencies with the opaque strip to the right. All printed transparencies are delivered to the sample tray.

As long as they meet your printer's paper specifications, you can also use:

- **Tinted paper** — Available in a variety of colors, it has many uses, including calling attention to certain printed material, separating special sections, or dividing chapters of a report.
- **Preprinted paper** — May be letterhead, forms, or logos.
- **Predrilled paper** — Has a varying number of holes for use in binders or binder rings. Before loading predrilled paper, fan it to remove loose plugs that could cause paper jams. Load predrilled paper in the printer with holes to the right.

- **Perforated paper**
- **Pre-cut or full tabs**
- **Carbonless paper.**



Note: The 96/4635/180 printer can print on precollated or ordered stocks, including ordered tabs. However, jam recovery is not supported with these stocks.

Paper width and printer performance

The width of the paper you use for your print job is directly related to the rate at which the 96, 4635, and 180 printer can print a job. The rate at which a job prints is the throughput speed and is measured in pages per minute (ppm). You will want to keep in mind the following information on the relationship of paper width to printer performance, when selecting paper for your applications.

The printer operates in different pitch modes. The pitch mode the printer uses for a specific print job is based on the paper size on which that job is printed. The following tables list the pitch mode boundary values, paper widths, and related printing speeds supported on the 96/4635/180 printer. These charts show that the shorter the paper width, the higher the pitch mode and the faster the throughput speed—higher pages per minute (ppm) rate. (“Pages per minute” is synonymous with “impressions per minute.”)

Table A-1. **Throughput data: 96 printer**

Pitch	Paper width	Speed
5	7.4 to 12.12 in. / 188 to 308 mm	96 ppm
4	12.12 to 15.31 in. / 308 to 389 mm	77 ppm
3	15.31 to 17 in. / 389 to 432 mm	58 ppm

Table A-2. **Throughput data: 4635 printer**

Pitch	Paper width	Speed
8	7 to 7.4 in. / 178 to 188 mm	154 ppm
7	7.4 to 9.01 in. / 188 to 229 mm	135 ppm
6	9.01 to 10.19 in. / 229 to 259 mm	116 ppm
5	10.19 to 12.12 in. / 259 to 308 mm	96 ppm
4	12.12 to 15.31 in. / 308 to 389 mm	77 ppm
3	15.31 to 17 in. / 389 to 432 mm	58 ppm

Table A-3. **Throughput data: 180 printer**

Pitch	Paper width	Speed
8	7 to 7.4 in. / 178 to 188 mm	206 ppm
7	7.4 to 9.01 in. / 188 to 229 mm	180 ppm
6	9.01 to 10.19 in. / 229 to 259 mm	154 ppm
5	10.19 to 12.12 in. / 259 to 308 mm	128 ppm
4	12.12 to 15.31 in. / 308 to 389 mm	103 ppm
3	15.31 to 17 in. / 389 to 432 mm	77 ppm

When the printing speed appears to degrade, you may be able to improve it by running the print job in a higher pitch mode.

Paper size/pitch mode minimum and maximum

The illustrations in this section show the pitch modes in which you can operate with the smallest and largest size papers supported by the 96/4635/180 printer.

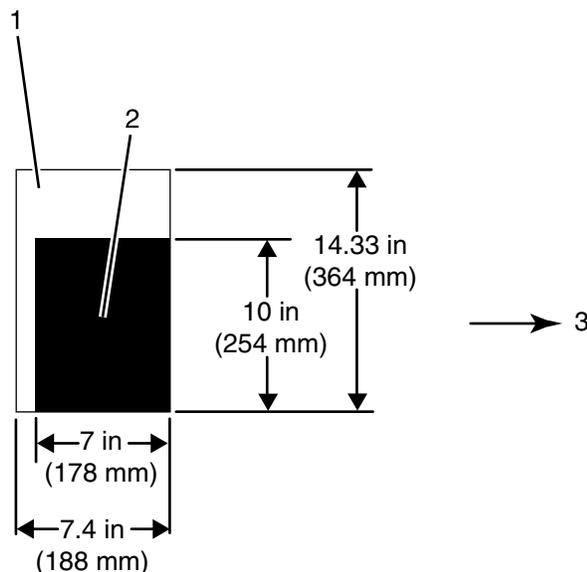
Using small paper sizes in 8-pitch mode:

Printing in 8-pitch mode provides the highest throughput speed available —up to 154 ppm for the 4635 printer and up to 206 ppm for the 180 printer. (The 96 printer does not support 8-pitch mode.) However, you should keep the following in mind when you select the paper you want to use for this mode:

- Paper sizes smaller than 8 inches / 203 mm are supported only when the optional 7-inch paper kit is installed on the printer.
- The leading edge of any paper used in the printer cannot be less than 10 inches / 254 mm long.

The following figure illustrates the maximum and minimum paper sizes supported in 8-pitch mode.

Figure A-1. **8-pitch mode paper sizes (4635 and 180 only)**



- 1 Maximum paper size for 8 pitch mode
- 2 Minimum paper size for 8 pitch mode
- 3 Travel direction of sheets out of paper tray

Using large paper sizes in 3-pitch mode:

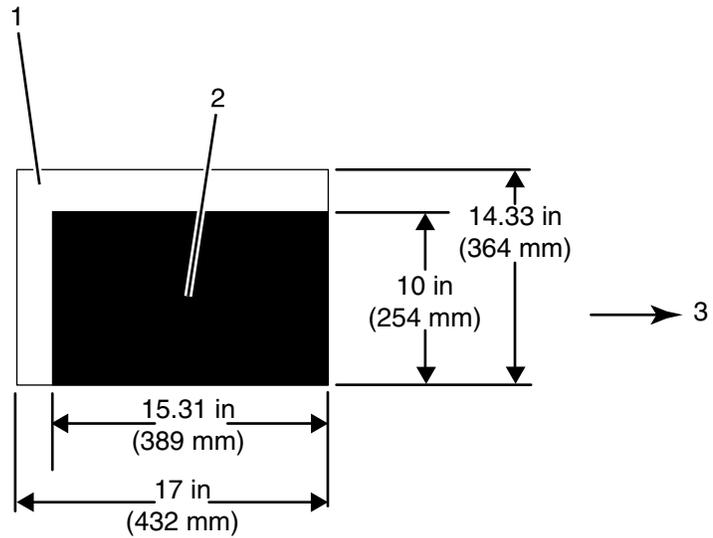
Large paper sizes—widths of 15.31 to 17 inches / 389 to 432 mm—are supported only in 3-pitch mode and must feed short edge first. These paper sizes slow down the throughput speed (as shown in tables above).



Note: The 96/4635/180 printer can support 14 by 17-inch / 356 by 432 mm, 20 pound or 80 gsm paper stock in 3-pitch mode. However, printing performance is not guaranteed for all types of paper of this size. Heavy (110-pound / 200 gsm) and light (16-pound / 60 gsm) large papers can cause jams throughout the system and are not recommended.

The following figure illustrates the maximum and minimum paper sizes supported in 3-pitch mode.

Figure A-2. **3-pitch mode paper sizes**



- 1 **Maximum paper size for 3 pitch mode**
- 2 **Minimum paper size for 3 pitch mode**
- 3 **Travel direction of sheets out of paper tray**

Feed direction for some standard paper sizes

Currently, 14 inches / 356 mm is the maximum paper length supported for long edge feeding (5 to 8 pitch mode). Any papers with long edges greater than this (such as 11 by 17 inch / 279 by 432 mm paper) must be loaded for short edge feeding (3 or 4 pitch mode).

The following figures illustrate how some of the supported standard paper sizes, in various pitch modes, feed through the printer.

European papers:

The following diagrams show how A4 and A3 paper sizes feed through the printer.

Figure A-3. **A4 (210 by 297 mm) paper feeding (long edge feed)**

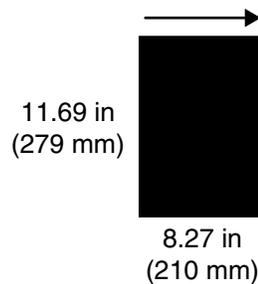
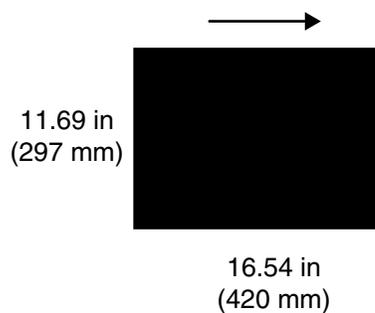


Figure A-4. **A3 (297 by 420 mm) paper feeding (short edge feed)**



US Papers

The following diagrams show how US Letter and US Ledger (or US Tabloid) paper sizes feed through the printer.

Figure A-5. **US Letter (8.5 by 11 inch) paper feeding (long edge feed)**

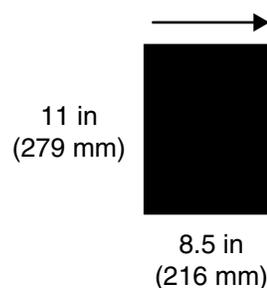
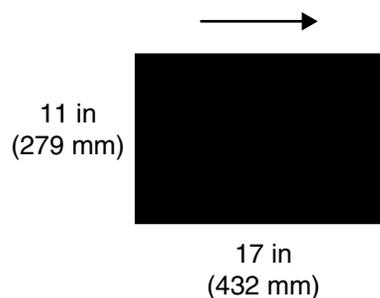


Figure A-6. **US Ledger or US Tabloid (11 by 17 inch) paper feeding (short edge feed)**



B4 Papers

There are two sizes of B4 paper—European or ISO (9.84 by 13.89 inches / 250 by 353 mm) and Japanese or JIS B4 (14.33 by 10.12 inches / 364 by 257 mm). European B4 feeds long edge first, while JIS B4 feeds *either* long edge or short edge first.

Figure A-7. **B4 (250 by 353 mm) paper feeding (long edge feed)**

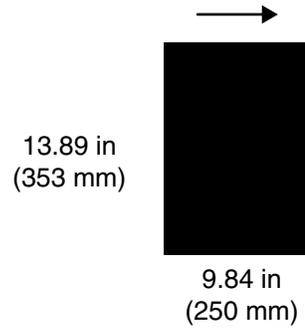
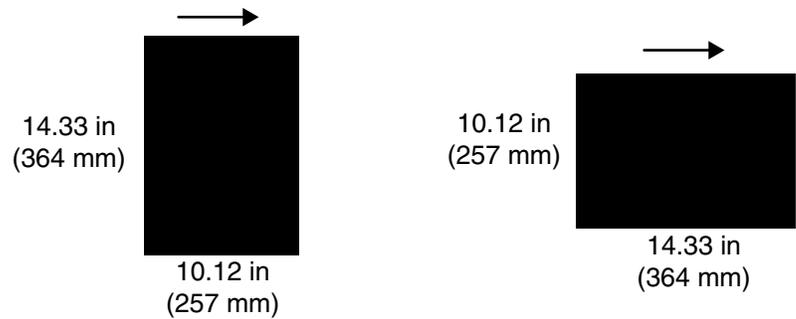


Figure A-8. **JIS B4 (257 by 364 mm) paper feeding (long edge feed and short edge feed)**



Paper care

Once you have purchased your paper, you must be sure it is stored and conditioned properly, so that it performs optimally in the printer with a minimum of jams.

Storing paper

Paper has a tendency to curl under the heat that is present inside xerographic equipment. To minimize the amount of curling, use paper with low moisture content. Paper with excessive moisture content has a tendency to jam because of the greater curl. The maximum recommended moisture content is 5.7 percent.

Keep these points in mind when preparing your paper storage area:

- Store paper in its own wrapper; do not leave it unwrapped or where it can be damaged by dampness or heat.
- Store paper on a flat surface and not on its side or edge.
- Store reams of paper in a closed cabinet.
- Always store paper in a cool, dry area. Store on pallets or shelves, not on the floor.
- Plan ahead and keep at least a day's supply of paper in the same area as the printer to allow environmental stabilization prior to printing.

For more detailed information on paper for Xerox printers, refer to *Helpful Facts about Paper*, provided with your printer.

Figure A-9. **Storing paper correctly**

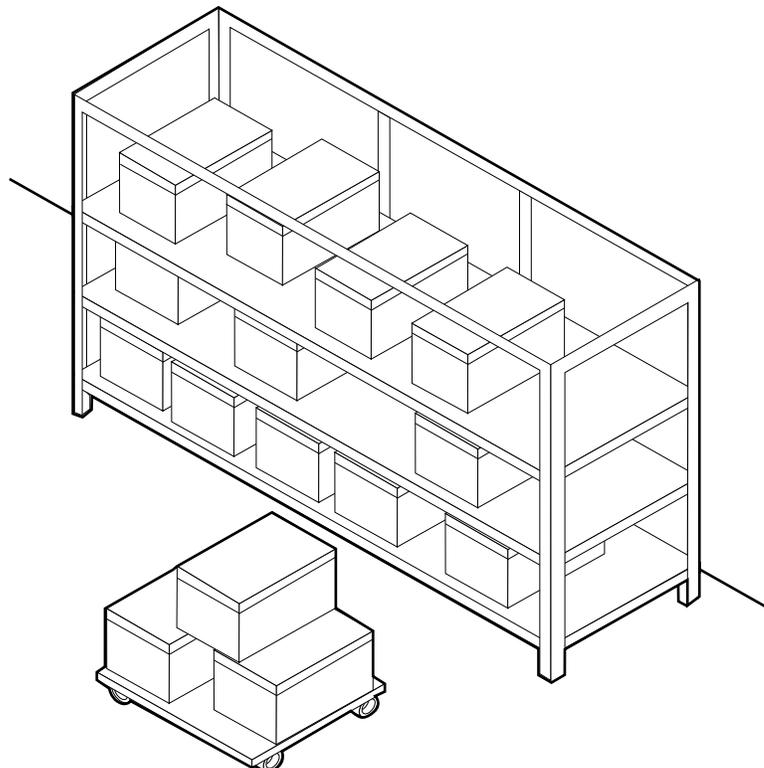
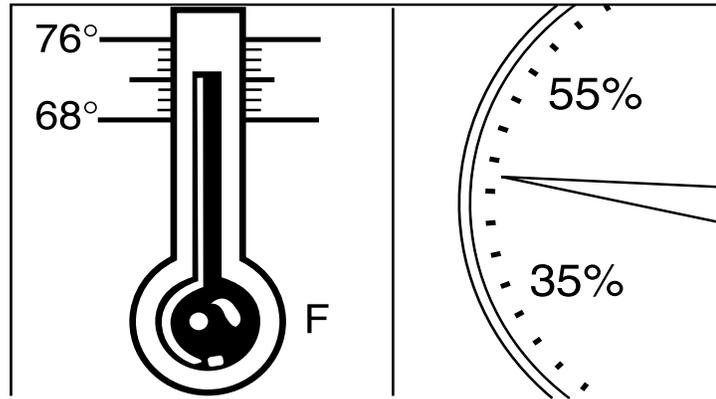


Figure A-10. Recommended temperature and humidity for paper storage



Conditioning paper

Because temperature and humidity affect paper performance in the printer, you need to condition paper before using it. To do this, store paper for a specified length of time in the same type of environment as your printer.

The length of time you should condition your paper depends on the amount of paper and the difference between the storage and operating temperatures.

Use the following chart to determine the length of time needed to condition stacked cartons of paper.



Note: The numbers in the top two rows indicate the temperature difference between the storage area and the operating environment, not actual room temperatures.

Table A-4. **Paper conditioning: Recommended temperature differences between storage and operating areas**

Temperature differences between storage and operating areas							
Fahrenheit							
10°	15°	20°	25°	30°	40°	50°	
Centigrade							
5.5°	8.5°	11°	13°	17°	22°	28°	
Cartons	Hours						
1	4	8	11	14	17	24	34
5	5	9	12	15	18	25	35
10	8	14	18	22	27	38	51
20	11	16	23	28	35	48	67
40	14	19	26	32	38	54	75

Example: (See the shaded rows in the table above.) If you want to move ten cartons of paper from a storage area with a temperature of 90 °F to an operating area with a temperature of 75 °F (a 15° difference), you should do so at least 14 hours before using the paper.

Other supplies

This section describes the supplies other than paper that are necessary for installation and afterward. Your sales representative will help you place your initial supply order.

Dry ink

Dry ink (also called toner) is the black powder which forms the image on the printed page. There are three cartridges of dry ink in each carton. You should keep at least one extra cartridge on hand at all times. The disposable cartridges are easily changed with no mess. The consumption rate of Xerox dry ink is approximately one cartridge per 60,000 pages. Use only dry ink that is specified for use in the 96, 4635, or 180 printer, as described in the consumable supplies table.

MICR dry ink

MICR dry ink is the magnetic black powder which forms the image on the printed MICR document. There are three cartridges of MICR dry ink in each carton. The consumption rate of Xerox MICR dry ink is approximately one cartridge per 60,000 pages. Use only MICR dry ink in your 96/4635/180 MICR printer.

The dry ink used with the 96/4635/180 MICR system is designed for MICR printing and does not function well when used in non-MICR systems. The same procedure used for non-MICR printing systems is used to add the dry ink to the 96/4635/180 MICR printer.



Note: Dry ink (toner) yields are based on 7% area coverage. Your yield may vary, depending on coverage.



Caution: Use only MICR dry ink in the 96/4635/180 MICR printer. Do not use standard dry ink. MICR dry ink cannot be reused. 

Fuser agent

Fuser agent (the lubricant for the printer fuser) is a consumable item required by the 96/4635/180 printers. You should keep at least two boxes (each box contains one bottle) on hand for installation by the service representative. The consumption rate of Xerox fuser agent is approximately one bottle per 250,000 pages. For product information, refer to the consumable supplies table in this appendix.

Developer

Developer is not consumed by the printer but does have an effective life of approximately 1,000,000 pages per carton (600,000 per carton for MICR developer). Both kinds of developer are guaranteed by Xerox for 600,000 pages per carton. Developer is a required item and must be kept on hand.

Use only the developer specified for use in your 96, 4635, or 180 printer.



Caution: The 96/4635/180 MICR printers require a different developer, with a different part number, from the developer used in the standard 96/4635/180 printer. Be sure you use only designated MICR developer in the 96/4635/180 MICR printers. 

The developer is changed by your service representative. For product information, refer to the consumable supplies table in this appendix.

Diskettes

Diskettes are optional items that provide loading and backup of fonts, forms, and user files to and from the printing system. The processor accepts 3.5-inch, 1.44 MB, double-sided, high density diskettes.

Cartridge tapes

The optional 4 mm cartridge tape drive uses 5 GB or 8 GB tapes. The optional quarter-inch cartridge (QIC) tape drive uses 150 MB QIC tapes.

Fonts

Data can be printed on DocuPrint printers in many sizes and type styles called fonts. A font is a character set which has unique characteristics, such as type style, size, weight, orientation (portrait, landscape, inverse portrait, and inverse landscape), character spacing (fixed and proportional), line spacing, and postures (Roman, italic, and so forth).

There are three classifications of fonts:

- Standard fonts
- Licensed fonts
- Custom fonts.

Standard fonts	A library of 51 fonts is provided with your printer's operating system software.
Licensed fonts	Additional fonts may be ordered from your local Xerox Font Center.
Custom fonts	Custom fonts and graphic images such as company logos and signatures can be digitized by the Xerox Font Center for use on your printer.
Receiving fonts	Fonts are received on a diskette from your local Xerox Font Center.

MICR tools

You can use the following tools to determine whether the MICR output is printing within MICR specifications:

- MICR Positioning and Dimension Gauge.
- 8 Power (X) Comparator with MICR grid.



Note: You should use the Custom Transfer Assist Blade to ensure acceptable MICR line quality on all MICR printing systems that use nonstandard paper sizes.

MICR Positioning and Dimension Gauge

The MICR Positioning and Dimension Gauge (part number 600T80025) consists of a thin sheet of flexible plastic attached to the bottom of a piece of hard thick plastic. The gauge is provided in a kit that includes a small magnifying glass.

To use the gauge, place the printed output between the two pieces of plastic. This allows you to compare the MICR output elements against industry standard output. Using this process, you can verify the character spacing, check the horizontal and vertical alignment, and look for spots and voids.

MICR comparator

You use the eight power (X) comparator with MICR grid to compare the characters on the MICR output to industry standard output.

The comparator is an optical tool that magnifies each character eight times. It has a built-in scale that measures the size of the MICR characters and checks for spots and voids (deletions).

Keep the following in mind when using the 8 Power (X) Comparator with MICR grid:

- Patterned paper can cause viewing problems. You should use white paper when you perform quality evaluations.
- The quality of the MICR output may vary, depending on the type of paper you use.
- Handle the comparator with care. The grid is printed on the bottom and may be damaged or worn off in time.

You can use the comparator with transmitted or reflected light.

Consumable supplies tables

A number of supplies are available from Xerox for your DocuPrint printer. Use the following tables to help determine your supply needs.



Note: Customers in the U. S. may use the part numbers in these tables to order supplies. Customers outside the U. S. should contact their local service organization for part numbers.

Paper and special stocks tables

The following tables list all throughput stocks available for the 96/4635/180 printers, with size, order number, and a brief description for each.

Table A-5. **Stocks list for 96/4635/180 printers**

Item	Description	Part number
Paper	Xerox paper quantities are 10 reams (5,000 sheets) to a carton unless otherwise noted below.	
8.5 x 11 inch	4024 Dual Purpose Paper	3R721
A4	4024 Dual Purpose Paper	3R2594
8.5 x 14 inch	4024 Dual Purpose Paper	3R727
8.5 x 11 inch	4024 Dual Purpose Paper, 3-hole	3R723
8.5 x 11 inch	4024 Dual Purpose Paper, 3-hole*	3R2193
8.5 x 11 inch	4024 Dual Purpose Paper, 4-hole	3R1983
8.5 x 11 inch	4024 Dual Purpose Paper, 4-hole*	3R3008
8.5 x 11 inch	4024 Dual Purpose Paper, 7-hole	3R1984
8.5 x 11 inch	4024 Dual Purpose Paper, 7-hole*	3R3010
8.5 x 11 inch	4024 Smooth	3R2675
8.5 x 14 inch	4024 Smooth	3R2677
8.5 x 11 inch	4200 Dual Purpose Paper	3R2047
8.5 x 14 inch	4200 Dual Purpose Paper	3R2051
8.5 x 11 inch	4200 Dual Purpose Paper, 3-hole	3R2641
8.5 x 11 inch	4200 Dual Purpose Paper, 4-hole	3R3012
8.5 x 11 inch	4200 Dual Purpose Paper, 7-hole	3R3014
8.5 x 11 inch	Dual Purpose Colors—Blue	3R3052
8.5 x 11 inch	Dual Purpose Colors—Blue, 3-hole	3R3068
8.5 x 14 inch	Dual Purpose Colors—Blue, 3-hole	3R3084
*5/16-inch drilled holes		
** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.		

Table A-5. Stocks list for 96/4635/180 printers (continued)

Item	Description	Part number
8.5 x 11 inch	Dual Purpose Colors—Green	3R3056
8.5 x 11 inch	Dual Purpose Colors—Green, 3-hole	3R3072
8.5 x 14 inch	Dual Purpose Colors—Green	3R3088
8.5 x 11 inch	Dual Purpose Colors—Pink	3R3058
8.5 x 11 inch	Dual Purpose Colors—Pink, 3-hole	3R3074
8.5 x 14 inch	Dual Purpose Colors—Pink	3R3090
8.5 x 11 inch	Dual Purpose Colors—Yellow	3R3054
8.5 x 11 inch	Dual Purpose Colors—Yellow, 3-hole	3R3070
8.5 x 14 inch	Dual Purpose Colors—Yellow	3R3086
8.5 x 11 inch	Dual Purpose Colors—Buff	3R3060
8.5 x 11 inch	Dual Purpose Colors—Buff, 3-hole	3R3076
8.5 x 14 inch	Dual Purpose Colors—Buff	3R3092
8.5 x 11 inch	Dual Purpose Colors—Goldenrod	3R3062
8.5 x 11 inch	Dual Purpose Colors—Goldenrod, 3-hole	3R3078
8.5 x 14 inch	Dual Purpose Colors—Goldenrod	3R3094
8.5 x 11 inch	Dual Purpose Colors—Ivory	3R3064
8.5 x 11 inch	Dual Purpose Colors—Ivory, 3-hole	3R3080
8.5 x 14 inch	Dual Purpose Colors—Ivory	3R3096
8.5 x 11 inch	Dual Purpose Colors—Gray	3R3066
8.5 x 11 inch	Dual Purpose Colors—Gray, 3-hole	3R3802
8.5 x 14 inch	Dual Purpose Colors—Gray	3R3098
8.5 x 11 inch**	Dual Purpose Colors, Rainbow Pack—35,000 sheets per carton**	3R3107
8.5 x 11 inch	10 Series Dual Purpose Paper	3R2950
8.5 x 11 inch	10 Series Dual Purpose Paper, 3-hole	3R2952
8.5 x 11 inch	10 Series Dual Purpose Paper, 3-hole*	3R3016
8.5 x 14 inch	10 Series Dual Purpose Paper	3R2954
8.5 x 11 inch	10 Series Smooth	3R54
8.5 x 14 inch	10 Series Smooth	3R83
8.5 x 11 inch	4024 Dual Purpose, reinforced 3-hole*	3R2057
A3	4024 Dual Purpose paper	3R91721
A3	4024 Dual Purpose paper	3R2594
*5/16-inch drilled holes		
** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.		

Table A-5. **Stocks list for 96/4635/180 printers** (continued)

Item	Description	Part number
9.5 x 11 inch	65-pound divider white 2,500 sheets per carton	3R3428
11 x 17 inch	4024 Dual Purpose Paper 2500 sheets per cartons	3R729
11 x 17 inch	4024 Dual Purpose Paper, 7-hole* 2500 sheets per cartons	3R3074
*5/16-inch drilled holes ** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.		

Table A-5. **Stocks list for 96/4635/180 printers** (continued)

Item	Description	Part number
Transparencies	Xerox transparencies are packaged 100 sheets to a box.	
8.5 x 11 inch	Clear, with a white strip on the edge	3R2780
8.5 x 11 inch	Clear, with removable strip	3R3108
8.5 x 11 inch	Clear, high speed, with paper backing	3R3028
Labels (Gummed)	Xerox labels are packaged 100 sheets to a box.	
8.5 x 11 inch	33 labels per sheet	3R3139
8.5 x 11 inch	6 labels per sheet	3R3146
8.5 x 11 inch	Custom form (uncut)	Contact Xerox Supplies Order Service
8.5 x 11 inch	1-up label	3R4476
8.5 x 11 inch	1-up label	3R4475
8.5 x 11 inch	1-up label	3R4474
Tab stock	Xerox tab stock is packaged in 5-tab sets. 250 sheets per carton.	
	Straight collated singles (forward, top down): — Non-drilled 90-pound, Index white 3R4417 — Non-drilled 90-pound, blue 3R4425 — Three-hole 90-pound, Index white 3R4418 — Three-hole 90-pound, blue 3R4426	
	Reverse collated singles (bottom up): — Non-drilled 90-pound, Index white 3R4415 — Three-hole 90-pound, Index white 3R4416	
Cover stock	Xerox cover stock is packaged 2,500 sheets per carton.	
8.5" x 11"	65-pound, blue	3R3044
8.5" x 11"	65-pound, white	3R3041
*5/16-inch drilled holes ** Rainbow pack contains 750 sheets each of blue and yellow, 500 sheets each of green and pink, and 250 sheets each of buff, gray, goldenrod, and ivory.		

Table A-6. Carbonless stocks for 96/4635/180 printers

Size	Parts	Sequence	Sheets	Sheets per carton	Sets per carton	Cartons per pallet	Part number
8.5 in. x 11 in. *	2	Reverse/ Straight	Alternating CB-White CF-Canary	5000	2500	40	3R4225
	2	Straight/ Double	Alternating CB-White CB-White CF-Canary CF-Canary	5000	2500	40	3R4226
	2	Reverse/ Straight	Alternating CB-White CF-Pink	5000	2500	40	3R4227
	3	Straight	Alternating CB-White CFB-Canary	5010	1670	40	3R4230
	3	Straight/ Double	Alternating CB-White CB-White CFB-Canary CFB-Canary CF-Pink CF-Pink	5010	1670	40	3R4231
	4	Straight	Alternating CB-White CFB-Canary CFB-Pink CF-Goldenrod	5000	1250	40	3R4235
	N/A	N/A	CB-White	5000	N/A	40	3R4236
	N/A	N/A	CFB-White	5000	N/A	40	3R4238
	N/A	N/A	CFB-Canary	5000	N/A	40	3R4239
	N/A	N/A	CFB-Pink	5000	N/A	40	3R4240
	N/A	N/A	CF-White	5000	N/A	40	3R4242
	N/A	N/A	CF-Canary	5000	N/A	40	3R4243
	N/A	N/A	CF-Pink	5000	N/A	40	3R4244
N/A	N/A	CF-Goldenrod	5000	N/A	40	3R4245	

* All papers are packaged 500 sheets per ream, with 10 reams per carton. Each ream contains only complete carbonless sets (i.e., 501 sheets in a three-part ream for 167 sets).

Table A-6. Carbonless stocks for 96/4635/180 printers

Size	Parts	Sequence	Sheets	Sheets per carton	Sets per carton	Cartons per pallet	Part number
8.5 in. x 14 in.*	2	Reverse/ Straight	Alternating CB-White CF-Canary	5000	2500	30	3R4228
	3	Straight	Alternating CB-White CFB-Canary CF-Pink	5010	1670	30	3R4233
	N/A	N/A	CB-White	5000	N/A	30	3R4237
	N/A	N/A	CFB-Canary	5000	N/A	30	3R4241
	N/A	N/A	CF-Canary	5000	N/A	30	3R4246
	N/A	N/A	CF-Pink	5000	N/A	30	3R4247

* All papers are packaged 500 sheets per ream, with 10 reams per carton. Each ream contains only complete carbonless sets (i.e., 501 sheets in a three-part ream for 167 sets).

Complete supplies list—96/4635/180 printers

The following table lists the supplies in addition to paper that are available for your printer. Use this table to help you determine your supplies needs.

Table A-7. Complete supplies list for 96/4635/180

Item	Description	Part number	Items/ carton	Expected yield / carton
Dry ink	Consumption rate is approximately one cartridge per 60,000 pages.	6R206	3/carton	180,000 pages/carton Note: Dry ink (toner) yields are based on 7% area coverage. Your yield may vary, depending on coverage.
Dry ink, MICR	Packaged 3 cartridges per carton. Consumption rate is approximately one cartridge per 60,000 pages.	6R819	3/carton	180,000 pages/carton
Dry ink waste bottle		93K460		
Developer	Packaged 2 bottles per carton. Effective life is approximately one carton per 1,000,000 pages. (2 bottles required for replacement.)	5R161	2/carton	1,000,000 pages/ carton
Developer, MICR	Packaged 2 bottles per carton. Effective life is approximately one carton per 600,000 pages. (2 bottles required for replacement.)	5R573	2/carton	600,000 pages/carton
Fuser agent	Packaged 1 bottle per carton. Consumption rate is approximately one bottle per 250,000 pages.	8R2955	1/carton	250,000 pages/bottle
Cleaning supplies	Foam-tipped swabs	99P87256		
	Lint-free towels	35P2163		
	Magnetic head cleaning kit. Packaged 2 diskettes per box.	8R3811		
	1/4-inch cartridge head cleaning kit	9R88432		
	Hub and Transport Cleaner	99P87486		
	4 mm cartridge drive head cleaning kit	9R01189		
Diskettes	3.5-inch, 1.44 MB, double-sided, high density diskettes. Packaged 10 diskettes per box.	8R7683	10/box	
Cartridge tapes	1/4-inch (26-track) blank cartridge tape (QIC), 150MB	9R84168		
	4mm blank cartridge tape, 5GB	9R01190		
	4mm blank cartridge tape, 8GB	109R00314		

Ordering supplies

To avoid unnecessary downtime, always have an adequate amount of the necessary supplies. To do this, you need to establish a procedure for checking and ordering supplies. A supplies checklist is provided at the end of this chapter to help you with this task. It lists the supplies needed for the printer and contains a column for you to enter the date when you want to place the order and a column to record the date of the actual order. The consumable supplies table, above, contains a list of Xerox supplies available for the printer.

It is important that you check your supplies regularly and order before you run out. Plan on approximately five working days for delivery after placing the order. You can make arrangements to receive them sooner in emergency situations.

Your Xerox sales representative can help you submit the initial order of supplies needed for installation. These items include paper, dry ink, MICR dry ink, fuser agent, developer, and MICR developer.

Once your printer volume is established, planning ahead and buying Xerox supplies in quantity can save you money. Your Xerox supply specialists can help you. There are two centers available to assist you:

- To order Xerox paper, transparencies, labels, dry ink, MICR dry ink, developer, MICR developer, fuser agent, cartridge tapes, and diskettes, call the Xerox Supply Center at 1-800-822-2200, weekdays between 7:30 a.m. and 6:00 p.m., Pacific time.

If you prefer, you may mail orders to the following address:

Xerox Corporation
P. O. Box 25075
Santa Ana, CA 92799-5075

- To order cleaning supplies, call the Xerox Customer Parts and Product Support Center at 1-800-828-5881, weekdays between 5:30 a.m. and 5:00 p.m., Pacific time, (U.S. only).

You may also mail cleaning supply orders to the following address:

Xerox Corporation
Parts Marketing Center
Building 214-07S
P. O. Box 1020
Webster, NY 14580

Please provide the following information when placing orders:

- Your customer number (provided by your Xerox sales representative)
- Your printer model
- Your supply order, including the following information:
 - Item name
 - Part number
 - Quantity desired
 - If your company requires a purchase order for payment of an invoice, you need to provide the purchase order number to Xerox at the time you place the order.

The following table is a checklist you can use to keep track of the supplies you order.

Table A-8. Supplies checklist for 96/4635/180 printer

Checklist: Supplies

Use this checklist to help record the supplies you require, the date on which the order should be placed, and the actual date of the order.

Item	Description and part number	Quantity	Date to order	Date ordered
Paper				
Transparencies				
Labels				
Dry ink				
MICR dry ink				
Developer				
MICR developer				
Fuser agent				

Table A-8. **Supplies checklist for 96/4635/180 printer**

Checklist: Supplies Use this checklist to help record the supplies you require, the date on which the order should be placed, and the actual date of the order.				
Item	Description and part number	Quantity	Date to order	Date ordered
Floppy disks				
Cleaning supplies				

B. Xerox support services

Xerox provides many services in support of your laser printing system. This appendix contains information on the following services:

- Xerox Customer Service Support Center
- Xerox Printing Systems Customer Support Center
- *Xerox Customer Documentation Catalog*
- Xerox Documentation and Software Services (XDSS)
- Operator training
- Xerox Customer Education
- Xerox Font Center.

Prior to installation, your sales representative is available to answer your questions about products, services, or billing. In the U. S., however, if you need assistance in resolving application-related problems or questions, call the Xerox Printing Systems Customer Support Center (refer to the following section of this chapter). Your systems analyst is also available to assist you with applications development.



Note: For customers outside the United States, contact your local Xerox representative or operating company for information on available support service.

Xerox Customer Service Support Center

The Xerox Customer Service Support Center provides regular maintenance care for your printer as well as any necessary repairs. Call the Service Support Center if your printer has a hardware-related problem such as poor print quality, repeated paper jams, or connectivity problems.

Before calling your Customer Service Support Center, make sure you have tried the corrective actions described in your *Troubleshooting Guide*. If a problem persists, gather the necessary information and call your customer service support center.

In the United States, call the following number to report DocuPrint hardware or software problems:

1-800-821-2797



Note: This phone number is attached to your printer at installation time. □

Before contacting service, make note of the following:

- Status code numbers and messages which appear on the keyboard/display
- Status messages which appear on the printer control console
- Indicator lights that are lit.

Your call is answered by a representative, who asks you for the model number and the serial number for your printing system, and for the following:

- Serial number for your printing system
- Your name
- Company name
- System condition or status

Give this information to a customer service representative, who will call you back to help you resolve the problem over the phone, or to give you an estimated time of arrival.

Xerox support personnel may use the Sixth Sense feature to access IPS/NPS controller information via modem from a remote location. More information about Sixth Sense can be found in the *Xerox DocuPrint 96/4635/180 NPS Troubleshooting Guide*.



Note: For your convenience when reporting problems, you may want to consider installing a telephone near the printer. 

Xerox Printing Systems Customer Support Center

The Xerox Printing Systems Customer Support Center is available to address your application problems or to direct you to the appropriate documentation.

The key to effective use of the Xerox Printing Systems Customer Support Center is correct identification of the problem. Before calling the center, it is helpful to have the following information available:

- The correct name of your system, such as the Xerox DocuPrint 180 IPS or the Xerox DocuPrint 4635 IPS.
- A list of any error messages
- An explanation of how output is different from what was expected.
- An assessment of whether the symptoms follow a pattern or occur randomly.
- A list of special conditions that may have caused the problem:
 - New applications
 - Changes made to the software
 - Recent service performed
 - Previous conditions under which the application has printed properly.

To contact the Xerox Printing Systems Customer Support Center, call: **1-310-333-0501** (U. S. only), between the hours of 5:00 a.m. and 5:00 p.m., Pacific time.

Xerox Customer Documentation Catalog

Detailed information on documentation for DocuPrint printers and other Xerox products is contained in the *Xerox Customer Documentation Catalog*. The catalog includes a brief description of each item and its cost.

Once you are on the mailing list, updated catalogs are sent to you automatically. You may call Xerox Documentation and Software Services (XDSS) to request a catalog. Refer to the following section for further information.

Xerox Documentation and Software Services (XDSS)

XDSS offers a variety of services that can be customized to meet your documentation needs.

XDSS distributes the documents you need to facilitate the installation and use of the DocuPrint printer, other Xerox printers, and associated software.

XDSS will also send you a *Xerox Customer Documentation Catalog* free of charge upon request. To order documents or request a *Xerox Customer Documentation Catalog*, call XDSS at **1-800-327-9753**, between the hours of 6:00 a.m. and 5:00 p.m., Pacific time (U. S. only).

XDSS representatives will explain the services available, answer your questions, and take orders for documentation.

XDSS also has a web page from which you can order customer documentation and/or obtain a catalog. Its address is:

<http://www.XDSS.com>

Operator training

Operator training is conducted at your location by your Xerox system analyst or other identified representative, shortly after the printer is installed. Training takes two to four hours, depending on the system configuration. It includes hands-on practice running basic jobs, performing routine maintenance, and solving problems. Determine the number of operators you want to attend the initial training and schedule training dates and times through your Xerox sales representative.

Additional training classes, such as Advanced Customer Training (ACT) for operators, teach advanced service and maintenance skills. Your sales representative can give you information on availability of ACT training.

A variety of classes and workshops are available through Xerox Customer Education (refer to the following section).

Xerox Customer Education

Xerox offers classes and tutorial documents on various topics relating to printing systems and document production. For information about Xerox training courses, or to receive a catalog, call Xerox Customer Education at **1-800-445-5554** (U. S. only). Customer Education has a web page where you can obtain additional information. Its address is:

<http://xwww.dsss.world.xerox.com/CustomerEd>

Xerox Font Center

The Xerox Font Center can send you samples and catalogs of the fonts available for your printer.

To receive font samples, obtain price information, obtain technical support, or order licensed or custom fonts, call **1-800-445-FONT (-3668)** between 6:00 a.m and 5:00 p.m. Pacific time (U. S. only).

For technical support regarding fonts (such as installing fonts or solving font usage problems), call **1-800-521-8324**.

C. Related publications

The *Xerox DocuPrint Network Printer Series* includes the following documents, in addition to this guide:

Decomposition Service and Tools Guide

Guide to Configuring and Managing the System

Guide to Managing Print Jobs

Guide to Performing Routine Maintenance

Guide to Submitting Jobs from the Client

Guide to Using Page Description Language

Messages Guide

System Overview Guide

Troubleshooting Guide

Glossary

Master Index

Customer Information Quick Reference Card

Printer Controller Commands Quick Reference Card

Submitting your Jobs from Macintosh Quick Reference Card

Submitting your Jobs from UNIX & DOS Quick Reference Card

Submitting your Jobs from Windows NT 4.0 (QuickPrint) Quick Reference Card

Submitting your Jobs Using Windows NT 4.0 Drivers Quick Reference Card

The documentation set also includes an electronic version, the *DocuPrint NPS Interactive Customer Documentation CD*.

Refer to the "Xerox support services" appendix of this guide for information on how to order these and other publications.

D. DocuPrint NPS on a Novell network

This chapter provides a brief overview of Novell NetWare, and describes some of the considerations you must make before the service representative installs DocuPrint NPS on a Novell network.

Novell NetWare overview

In a Novell network, clients who connect to the file server, are authenticated, and maintain an open connection. Communication is through the file server and not client-to-device. Communications are typically on an Ethernet or Token Ring LAN.

Novell NetWare software receives and queues print jobs. It assigns priorities to incoming jobs and tracks information about each job. It sends print jobs to the printer, and contains a series of utilities and menus to set up, manage, and manipulate print queues.

DocuPrint NPS supports Novell NetWare versions 3.11 and 3.12.



Note: Customers using Novell 4.1 must set the Bindery Emulation Mode to be compatible with Novell 3.12.

Print queues

A print queue is a holding area on the file server where print jobs are stored until a printer is ready. A queue allows multiple users to send jobs to the same printer at the same time. The queue software accepts and tracks jobs to enable users to view, remove, and change values of jobs while they are in the queue.

Each queue has a directory on a hard disk. A print job sent to a queue is stored as a file within that directory. Once the job is printed, the file is removed from the queue directory.

The print queue software maintains a temporary record of information for every print job. The information includes such items as job number, job position in the queue, time the job entered the queue, print server designated to print the job, user ID of the person who submitted the job, and so on. The user can access this information or cancel a job, using PCONSOLE, for each queue.

Queue to printer relationships

Novell NetWare allows for flexibility in setting up different printing configurations. Multiple queues and printers can be associated in different ways to meet different needs, such as the following:

- One queue to one printer
- Multiple queues to one printer
- One queue to many printers
- Multiple queues to multiple printers.

PCONSOLE

PCONSOLE is the main Novell utility used for creating, viewing and managing print queues. When you create a queue with PCONSOLE, the Novell software sets up the queue directory and a bindery entry. The bindery is the database of all users, groups, and other defined entities on the NetWare file server.



Note: There is no PCONSOLE access at the DocuPrint NPS printer controller.

You can perform the following tasks using PCONSOLE:

- Add or remove the following:
 - definitions of file servers serviced by the print server
 - definitions of print queues serviced by the print server
 - definitions of printers for a print server
 - print servers
 - users
 - jobs to and from a queue
 - queues
- View or change job information
- Check or change queue status.

A user or operator can change job values or delete a job while it is still in the Novell queue, and before DocuPrint NPS starts to receive it. If the user has deleted the job after DocuPrint NPS begins to receive it, DocuPrint receives the delete action and attempts to cancel the job. Cancellation may fail and the job will partially or completely print.

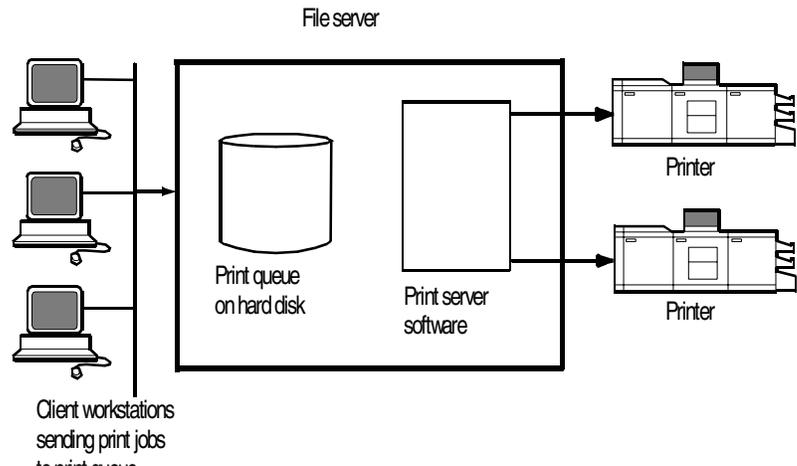
Print server (PSERVER)

A Novell print server (PSERVER) is a combination of hardware and software that takes ready-to-print jobs from the print queue and sends them to the printer. The print server software is the link between the print queue and the printer (either local or remote). Only one print server can be running on the file server. Each print server can service up to 16 printers. A print server can also run on a dedicated machine that is not running as a file server.



Note: Although Novell PSERVER can support multiple queues on multiple file servers, DocuPrint NPS PSERVER does not. It supports one queue on one file server only.

The print server software scans the print queues to which it is assigned looking for jobs that are ready to print. When it obtains a job from a queue, the print server sends the data to the DocuPrint NPS through an NCP/IPX connection. Once the job is sent to the printer, the job is deleted from the print queue, and the file removed from the queue directory.



Job parameters

The following job parameters are affected when the DocuPrint NPS is configured as a PSERVER:

- Job description is used as the document name
- Copies is used to set the number of copies
- Sender name is set from the user name
- Message is sent to the user when the job finishes printing or is canceled, if you set the Notify flag
- ElideHeaders is set to TRUE if you disable banner
- Form name is used to specify the virtual printer.

Using Novell forms to specify virtual printers

Novell allows the user to specify a form that has a name, number, length and width.

DocuPrint NPS uses Novell form names to specify virtual printers.

- If a Novell user wishes to access a given virtual printer, a form with the same name as the virtual printer must be defined by the NetWare administrator. The user must specify that form for the job.
- The Novell system administrator must create form names to match the names of DocuPrint NPS virtual printers.
- The form name can have a maximum of twelve characters, and the first character must be alphabetic.

If a form name is not used, a virtual printer with the same name as the queue is used.

Forms are defined on the Novell server using the Novell PRINTDEF program. (Use a prefix such as "DP" to distinguish them from other form names.)



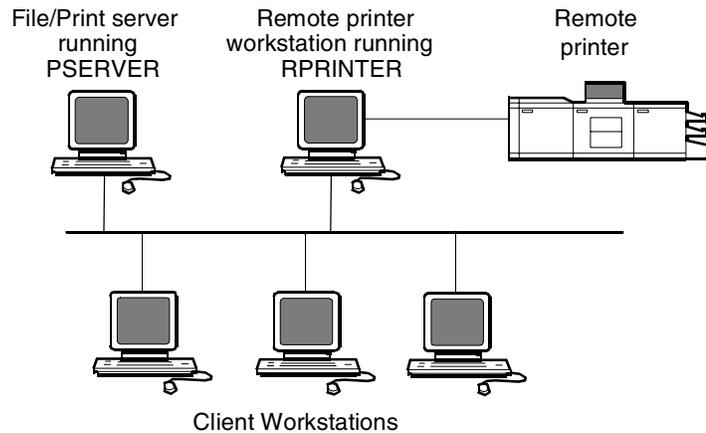
Note: DocuPrint NPS is not using a form in the Novell sense. It reads the name field of the form specified, and interprets it as a DocuPrint virtual printer. None of the form attributes other than *name* is read.

Remote printer (RPRINTER)

A Novell remote printer workstation (DocuPrint NPS printer controller) is a vehicle for the print server to move print data to a printer that is not directly connected to the print server. The remote printer software runs on a workstation that connects to a remote printer through a parallel or serial port.

The remote printer software communicates with a print server running print server software. The print server services jobs from the print queue and sends the data over the network through a SPX connection to the RPRINTER. The RPRINTERS are associated with DocuPrint NPS virtual printers. There can be up to sixteen RPRINTERS on the Novell file server.

The RPRINTER does not have access to the queue or the data for a job in the queue. The RPRINTER configuration allows for multiple queues to provide access to the attributes of the associated virtual printers.



DocuPrint NPS as a print server or as a remote printer

Before installing DocuPrint NPS on a Novell network, first determine whether you want the DocuPrint to function as a print server or a remote printer.

Choosing a Print Server or Remote Printer Configuration

The following contrasts the Print Server (PSERVER) configuration with the Remote Printer (RPRINTER) configuration for your DocuPrint NPS.

- The PSERVER configuration uses a licensed connection to a File Server. The RPRINTER configuration connects to a Print Server, and does not require a regular client connection.
- Using the PSERVER configuration, DocuPrint NPS can obtain job attributes from the Novell Queue.



Note: The RPRINTER configuration cannot do this, and this leads to some irregularities, such as no job and submitter names, as well as an inability to select duplex through the submission interface.

- The setting of the Novell banner pages switch operates successfully using PSERVER (this toggles the ElideHeader attribute).

If Banner Page is requested with RPRINTER, DocuPrint NPS prints a Novell-generated ASCII banner page as the first page of a job, and will print the entire job as an ASCII file (500 pages could be generated when requesting a banner page regardless of the actual file contents.)

- With PSERVER, multiple copies are requested as a job attribute; DocuPrint NPS receives only one copy and prints multiple copies.

With RPRINTER, since most remote printers cannot process a request for multiple copies, the Print Server will send the job multiple times to print multiple copies, tying up network and DocuPrint NPS resources as the file is processed.

- With PSERVER, a DocuPrint NPS can receive jobs from only one print queue on one File Server, but users can submit jobs to different DocuPrint NPS virtual printers using Novell forms. The administrator uses the PRINTDEF program to create forms with the same name as DocuPrint NPS virtual printers. Users then select a virtual printer by selecting a form with the same name using the User Tools program in the NetWare Tools folder of Windows, or the -F option in the DOS CAPTURE command.

With RPRINTER, the Print Server can direct jobs to different virtual printers, from multiple queues, possibly on multiple file servers.

- The PSERVER configuration allows the submitter to determine when printing is complete. Jobs are retained in the Novell queue until DocuPrint NPS completes printing them. This may fill up the queue in some environments.

The RPRINTER configuration informs the submitter only when the job has been submitted, even though it may print days later.

- PSERVER requires that unencrypted login is enabled on the Novell File Server, to which PSERVER connects. Regular Novell clients will still use encrypted passwords.

RPRINTER does not require that unencrypted logins be permitted.

Table 4-1 lists the differences between DocuPrint NPS as a print server or as a remote printer.

Table D-1. **Print server and remote printer differences**

DocuPrint NPS as a PSERVER	DocuPrint NPS as an RPRINTER
Functions like a Novell print server.	Functions like a Novell remote printer.
Connects to a Novell file server and consumes a licensed connection.	Connects to a Novell print server without consuming a licensed connection.
Reads the Novell print queue directly and obtains all the job parameters.	Cannot read the Novell print queue; receives only the job data, not the data from the queue entry.
Not necessary for the user to disable the print job banner.	User must disable the banner for each print job. If not disabled, the job prints incorrectly.
No unusual delays in output of print jobs.	May be delays in output of print jobs when jobs are not sent back-to-back. The system views the start of a print job as the end of a previous job.
Services only one queue on one file server.	May service multiple print queues through the Novell print server.
Supports user notification of the end of a print job (completion of printing).	Notifies user only when job submission completes (does not notify user of print completion).
Can send a job ticket that references one file on the Novell file server to which the DocuPrint NPS is connected.	Cannot reference files on a Novell file server.

Novell configuration

Once you decide to configure the DocuPrint NPS as an RPRINTER or as a PSERVER on your Novell network, there are a number of tasks you must perform.

Configuring DocuPrint as a PSERVER

The following is a summary of the tasks to perform if the DocuPrint NPS is configured as a PSERVER:

- Novell tasks include the following:
 - Sign on to the Novell workstation as a network administrator.
 - From PCONSOLE, create a Printer Queue (for example, Gazette) and a Print Server (for example, PGazette).



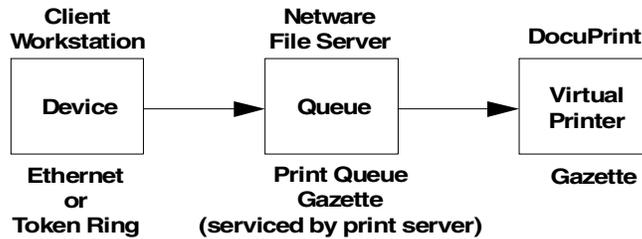
Caution: If you use Novell's Quick Setup feature, you must do the following after creating the queue and server:

- In the definition of the server, choose Printer Setup.

- Define the printer per the naming convention suggested by NPS.
- Select **DEFINED ELSEWHERE**.
- From the Print Server window, configure a printer for PSERVER using the Printer Configuration option.
- Type any name (for example, Gazette) for the printer. Select **Remote Other/Unknown type** for the printer and save the information.
- Define the printer in the Queue Service by highlighting the printer name (for example, Gazette) and pressing **Enter**.
- Press the **Insert** key to select the Print Queue (for example, Gazette) you want to bind with PSERVER (for example, PGazette).
- Save the information.
- When configuring NPS, answer the configuration questions as follows:
 - Remote Printer for Novell Netware -- **<N>**.
 - Use Print Server for Novell Netware -- **<Y>**.
 - Name of Novell Print Server -- **PGazette**.
 - IPX Internal Network Number [**000000##**] (assigned by network administrator).
 - IPX number of Connected LAN [**000000##**] (assigned by network administrator).
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**).
- After installation, change from PSERVER to RPRINTER as follows:
 - Sign on to privilege as an administrator.
 - Type **Configure** to specify the printer configuration.
 - Select **Option 3**, enter **<N>** to the **Review All Information** question, and type **Novell** to review Novell information.
 - Remote Printer for Novell Netware -- **<N>**.
 - Use Print Server for Novell Netware -- **<N>**.
 - Name of Novell Print Server -- **PGazette**.
 - IPX Internal Network Number [**000000##**] (assigned by network administrator).
 - IPX number of Connected LAN [**000000##**] (assigned by network administrator).
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**).
 - Save all of the options.
- Type **Start All**.
- Reboot the NPS.
- Provide all of the required installation parameters identified in the checklist provided in Chapter 2 of this guide to your service representative.

In the following illustration, the queue, virtual printer, and specified form are configured with the same name. The user sends a print job that specifies a print queue named Gazette through the Ethernet or Token Ring port to the Gazette queue that is served by the print server. This job is assigned to the Gazette virtual printer on NPS.

Figure D-1. DocuPrint NPS configured as a PSERVER



Configuring DocuPrint as an RPRINTER

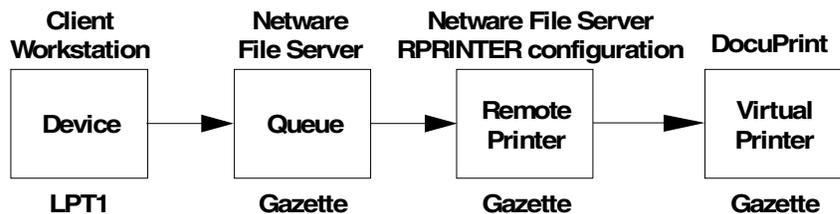
The following is a summary of the tasks to perform if you configure the DocuPrint NPS as an RPRINTER:

- Novell tasks include the following:
 - Sign on to the Novell workstation as a network administrator.
 - From PCONSOLE, create a Printer Queue (for example, Gazette) and a Print Server (for example, PGazette).
 - From the Print Server window, configure a printer for PSERVER using the Printer Configuration option.
 - Type any name (for example, Gazette) for the printer. Select **Remote Other/Unknown type** for the printer and save the information.
 - Define the printer in the Queue Service by highlighting the printer name (for example, Gazette) and pressing **Enter**.
 - Press the **Insert** key to select the Print Queue (for example, Gazette) you want to bind with PSERVER (for example, PGazette).
 - Save the information.
- When configuring NPS, answer the configuration questions as follows:
 - Remote Printer for Novell Netware -- <Y>.
 - Use Print Server for Novell Netware -- <Y>.
 - Name of Novell Print Server -- **PGazette**.
 - IPX Internal Network Number [**000000##**] (assigned by network administrator).
 - IPX number of Connected LAN [**000000##**] (assigned by network administrator).
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**).

- After installation, change from PSERVER to RPRINTER as follows:
 - Sign on to privilege as an administrator.
 - Type **Configure** to specify the printer configuration.
 - Select **Option 3**, enter **<N>** to the **Review All Information** question, and type **Novell** to review Novell information.
 - Remote Printer for Novell Netware -- **<Y>**.
 - Use Print Server for Novell Netware -- **<N>**.
 - Name of Novell Print Server -- **PGazette**.
 - IPX Internal Network Number [**000000##**] (assigned by network administrator).
 - IPX number of Connected LAN [**000000##**] (assigned by network administrator).
 - Token Ring Framing type -- **TOKENRING** (or **TOKENRING_SNAP**).
 - Save all of the options.
- Type **Create Virtual Printer Gazette** (must be the same name as the PSERVER printer name).
- Type **Start All**.
- Reboot the NPS.
- Perform the following tasks from the Novell server console:
 - Type **Load PSERVER PGazette**.
 - Make sure the PSERVER window displays and Gazette activates and is waiting for jobs.
- Provide all of the required installation parameters identified in the checklist provided in Chapter 2 of this guide to your service representative.

In the following illustration, the queue, remote printer, and virtual printer are configured with the same name, and the specified printer is set to print duplex. The user sends a print job through the LPT1 port to a queue named DPDuplex that is sent to the DPDuplex, and assigned to DPDuplex virtual printer.

Figure D-2. DocuPrint NPS configured as an RPRINTER



Supporting DocuPrint NPS on a file server

There are a number of tasks you perform on the file server to support the DocuPrint NPS as either a print server or a remote printer:

- With DocuPrint NPS as a PSERVER you must allow unencrypted password login on the file server. Enter the following command at the file server console prompt and in the AUTOEXEC.NCF file:

set allow unencrypted passwords=on



Note: Set this command even if you do not establish a print server password. Novell clients that use encrypted passwords are unaffected by this change and will continue to use encrypted passwords.

- Do not configure the file server to support IPX checksums or NCP packet signatures. Set these options to equal 0 or 1 so that the server performs these options only when the client requests them. The default value is 1.
- Do not set the watchdog interval to less than one minute. Longer intervals may cause the DocuPrint NPS to be logged out.
- If the print queue contains 250 jobs on a regular basis, set the Maximum File Locks Per Connection to a value greater than 250. The default value is 250.
- Define forms using PRINTDEF with names matching virtual printer names. Applies only if DocuPrint NPS is configured as an RPRINTER.)



Note: DocuPrint NPS supports native connection to Novell 3.12 file servers. However, to run DocuPrint NPS with Novell 4.X servers, the Novell server must be configured to run Bindery Emulation.

Glossary

This glossary contains a list of terms for working with the Xerox DocuPrint 96/4635/180 printing systems, and a definition of each.

- A3** Paper size measuring 297 by 420 mm.
- A4** Paper size measuring 210 by 297 mm.
- American Standard Code for Information Interchange (ASCII)** Standard 7-bit code which represents alphanumeric information. Each alphanumeric character and several nonprinting characters are assigned a binary number, covering 128 possible characters. It is used for information interchange among data processing systems, data communication systems, and associated equipment.
- AppleTalk** Network communication protocol inherent to the Apple Macintosh operating system and supported by the DocuPrint NPS.
- application software** Software resident on the host or client workstation used to create print documents.
- B4** Paper size measuring 250 by 353 mm (Europe) or 257 by 364 mm (Japanese—JIS B4).
- background job** Low-priority job, usually batched, which is executed automatically as system resources become available.
- batch** Method by which bodies of data are accumulated and grouped by kind before processing.
- batch processing** Allows for repetitive operations to be performed sequentially on batched data without much involvement of the computer operator.
- baud** Measurement of data rate in bits per second. This term is used to describe information flow between two devices. Unit of data transmitting/receiving speed is roughly equal to a single bit per second. Common baud rates are 110, 300, 1200, 2400, 4800, and 9600.
- binary** Numbering system based on 2 rather than 10 and containing only the symbols 0 and 1. Binary is especially well suited for use in computers and related devices since information can be represented with electric pulses (0=off, 1=on). Most computer calculations are binary.

binary digit (bit)	<p>In the binary numbering system, either of the characters 0 or 1. The bit is the basic unit of information with which a computer works. It can take the form of a magnetized spot, an electric pulse, a positive or negative charge, etc. A number of bits strung together represents a character to a computer.</p> <p>Multipliers are:</p> <p>1 byte = 8 bits</p> <p>1 kilobyte (KB) or 1,024 bytes = 8,192 bits</p> <p>1 megabyte (MB) or 1,048,576 bytes = 8,388,608 bits.</p> <p>Computer space equivalents are:</p> <p>1.5 KB = about 1 single-spaced typed page</p> <p>30 KB = about 20 typed pages</p> <p>150 KB = about 100 typed pages</p>
bitmap	<p>Electronic definition of an image, comprised of a matrix of picture elements (pixels or dots), where a bit value of one means that the picture element is imaged, and a bit value of zero means that the picture element is not imaged. The number of picture elements in a square area is a function of the display device resolution.</p>
bit mapped	<p>Display image generated bit by bit for each point or dot. A software-driven scanner is used to create characters and/or graphics.</p>
bits per second (bps)	<p>In serial communication, the instantaneous bit speed with which a device or channel transmits a character.</p>
blocking	<p>Process of combining two or more records into a single block of data which can then be moved, operated upon, stored, etc., as a single unit by the computer.</p>
block length	<p>Number of characters or bytes contained in a block of data (the block is treated as a unit within the computer). Block length is usually invariable within a system and may be specified in units such as records, words, computer words, or characters.</p>
boot	<p>To load a program's initial instructions of a program into the computer's memory. These instructions then direct the loading of the rest of the program. Booting may require entry of a few commands at the keyboard or the flip of a switch to begin the process.</p>
break page	<p>See header page</p>
buffer	<p>Compartment of memory in which data is stored during transfer from one device to another. Useful for (1) accumulating data into blocks before storage or processing, and (2) for adjusting differences of speed between devices, or between a device and a communicating facility.</p>
bypass transport	<p>Optional module that moves paper from the printer to a finishing device.</p>

byte	Fixed number of bits (in data processing, usually 8) operated upon as a unit. A byte may represent a character, a machine instruction, or some other logical unit of information.
carriage return	Control character that (unless set to be interpreted as a line end) causes the printing system to start printing at the left margin of the current line.
case-sensitive	Treating lowercase and uppercase characters differently.
central processing unit (CPU)	Interprets and executes instructions, performs all operations and calculations, and controls input and output units and auxiliary attachments.
channel	1. In data communications, a path or line that enables two or more devices to communicate (sometimes called a circuit, facility, or link). 2. In computers, a path for communication between the central processing unit (CPU) and input/output units, or between the CPU and peripheral devices.
character	Single printable letter (A-Z), numeral (0-9), symbol (& % #), or punctuation mark (, . ! ?) used to represent data. Characters can also be nonprinting, such as space, tab, or carriage return.
character cell	Digitized space containing a single character within a font set.
character code	Code representing alphanumeric information, for example, ASCII.
character set	Number of different characters used by a particular device, including alphabetic, numeric, and special characters such as symbols.
characters per inch (dpi)	Designates the number of characters per inch for a particular typeface. Refer to pitch.
client software	Software that manages the submission of print jobs to the Printer Controller.
client workstation	Workstation connected to the network used to create print jobs (documents) and submit them to the Printer Controller.
command	Statement entered that instructs the system to perform an operation.
communication line	Telecommunication line connecting devices at one location with devices at other locations in order to transmit and receive information.
communication link	Physical means (i.e., data link) connecting one location to another to transmit and receive information.

compatibility	Characteristic of computer equipment permitting one device to use the same information or programs as another device without conversion or code modification.
compile	To translate instructions written in high-level language into machine language for execution by a system.
concatenate	To connect or link in a series, as when files are grouped together for faster processing. Refer to job concatenation mode.
console	Functional unit containing devices used by an operator to communicate with an IOT. It may consist of a display, keyboard, and certain switches or other controls.
control program	An operating system program that manages job flow, input/output processing, and other overall system functions and resources.
daemon	A task that runs continually in conjunction with the UNIX operating system that periodically checks for specific conditions or logical events and performs some action if the conditions are met. The task can be used to display and notify the operator of such conditions.
database	Information to meet specific processing and retrieval needs. Generally applies to integrated file of data, arranged for access by many subsystems.
data communications	Transmission and reception of encoded information over telecommunication lines.
data file	Collection of related data records organized in a specific manner so that each record is similarly structured, e.g., a payroll file set up with one record for each employee, last name first, indicating the rate of pay and all deductions.
data link	Physical means of connecting one location with another for communication, i.e., the communications lines, modems, and controls which transmit information between two or more stations.
data rate	In data communications, the rate at which a channel carries data, measured in bps (bits per second).
data storage	Preservation of data on various media (e.g., tape, disks, magnetic bubble memory, etc.).
data stream	Format of data passed from one device to another.
data transmission	Transmission of coded data over telephone or other telecommunication lines.
DCIM	Data Control Interface Module. The video interface hardware which resides in the SUN workstation (the DCIM replaces the XEPI board).

decomposer	Printer Controller task that translates print data from the PDL command file into a bitmap image of the page to be printed.
default	Predefined value the system uses when another value is not provided.
device	Any piece of hardware other than the CPU (Central Processing Unit).
DFA	Document Feeding and Finishing Architecture. Software that enables third-party feeding and finishing devices to be attached to a Xerox printer to perform pre- and post-processing functions (such as roll-feeding, saddle-stitching, booklet-making, etc.)
diagnostics	Programs used to diagnose problems within the system or to help service personnel pinpoint the source of such problems.
digitize	To express or represent data in digital (binary) form so that it can be processed electronically.
directory	Logical grouping of files and subdirectories that are identified by name. The directory helps organize data on large storage media.
dithering	The process in laser printing which uses dot patterns to simulate shades of gray or tones of a color.
DOS	Disk Operating System. Operating system commonly used on personal computers. <i>See also</i> operating system.
dot	Unit of measurement representing a fraction of an inch, for example, 300 dots per inch (dpi). May also be referred to as a picture element (pixel) or spot.
dry ink	Minute particles of resin and carbon toner deposited and fused onto the page to create images. Toner is combined with developer to form the dry ink.
duplex	Ability to send and receive information simultaneously.
duplex printing	Printing on both sides (front and back) of a page. <i>See also</i> simplex printing.
electronic publishing	The integrated production of documents on demand, using digitally stored documents, computerized composition, and electronic printing systems.
enabler	Hardware devices or software packages that allow the printer to perform as specified.

Ethernet	Network standard consisting of a coaxial cable or twisted pair and associated components for connecting workstations to each other, to file servers, and to peripherals. This communication system enables workstation users to share information and services.
EtherTalk	Hardware interface and network software for Apple Macintosh computers that provides connection to an Ethernet network.
Extended Binary Coded Decimal Interchange Code (EBCDIC)	Coded character set consisting of 8-bit coded characters. It can accommodate 256 characters.
extension	Portion of a filename that follows a period. In some instances it identifies the file type. For example, .ps specifies a PostScript file.
fault	Condition which prevents proper processing of a print job and requires the intervention of an operator. For example, a paper jam is a fault.
FDL	forms description language. LPS-resident source language used for designing electronic forms. See also FSL; form.
field	Preset place for entering information.
file	Set of records or text that can be stored and retrieved. Organized, named collection of records treated as a unit. For offline, it is the data between the two tape marks. For online, it is the data between banner pages.
file maintenance	Keeping a file up to date by regularly adding, changing, or deleting data.
filename	Name of a file or directory in a command line.
finisher	Any optional output finishing solution, for example, the stitcher/stacker.
firmware	Permanent programs stored in read-only memory (ROM).
fixed disk	Disk drive that is mounted within a computer and is not removable.
fixed font	Font containing characters with fixed spacing.
fixed pitch	Font set in which every character cell has the same width. In reference to character sets, this term describes typefaces in which all character cells are of equal width. Monospaced as opposed to proportional spaced.
fixed spacing	Arrangement of characters on a line so that all characters occupy the same amount of horizontal space.

flag	Small indicator marking the occurrence of an event or the existence of a certain condition while the program is executing.
font	A complete set of alphanumeric characters and punctuation marks, having common characteristics such as style, width, height, and weight.
form	1. Compiled forms source library (.FSL) file. 2. Printed or typed document with blank spaces for inserting information. Specific arrangement of lines, text, and graphics stored in a computer under an identifying name. Page of data that, when preceded by proper commands, is stored on the system disk as a permanent file. It may be merged with variable data by a form start command. See also FDL; FSL.
format	1. Layout of a document, including margins, page length, line spacing, typeface, etc. 2. In data storage, the way the surface of a disk is organized to store data. 3. To prepare the surface of a disk for acceptance of data.
form feed	Keyboard/printer control character that causes the printer to skip the top of the next page.
FSL	forms source library. Uncompiled collection of user-created files containing FDL commands. Refer to FDL; form.
fuse	To affix dry ink to paper by heat or pressure or a combination of both.
hard disk	See fixed disk.
hardware	Physical components (mechanical, magnetic, electronic, etc.) of a system, as opposed to programs, procedures, rules, and associated documentation. The hardware is operated by software and firmware.
HCF	High capacity feeder. An optional feeder module containing two feeder trays that work independently with the standard feeder trays 1 and 2. The HCF increases the feeder capacity by approximately 2,000 sheets and allows automatic tray switching and increased uninterrupted printing time.
HCU	Host channel unit. A component of the channel-attached IPS, which provides the interface between the host channel and the IPS controller.
header page	Page printed at the beginning of a job that provides information about the print job, such as the name of the document and the job sender.
hexadecimal	Numbering system with a base of 16. In this system, 10 through 15 represented by A through F, respectively.
hierarchy	Relative priority assigned to arithmetic or logical operations that must be performed.

high-level language	Programming language consisting of words and symbols that are close to normal English and, therefore, readily understandable by the user. High-level source languages are used for most commercial programs.
host	Computer accessed by users which serves as a source of high-speed data processing for workstations with less computer power. Commonly referred to as mainframe.
host interface	Connection between network and host computer.
HSB	A printing industry standard color definition model in which all colors are defined in terms of values for hue, saturation, and brightness. Refer to color definition model.
identifier (id)	Characters used to identify or name data and possibly to indicate certain properties of that data.
image area	Area on a physical page that may contain text or graphics.
implementation	Process of installing system hardware and software. Also the process of converting a design into an actual working system.
impressions per minute (ipm)	The number of pages (one side) a printer can print during the space of one minute. Used interchangeably with <i>pages per minute (ppm)</i> .
in-front page	A term that refers to the top page of a double-sided sheet.
initialize	1. To prepare the magnetic surface of a blank diskette so that it can accept data. 2. To set all information in a computer system to its starting values (usually the first step is accomplished when a program is booted).
interface	Hardware that provides physical connection and electronic communication between two hardware devices.
Internet Protocol (IP) address	Refers to an address of any host that uses TCP/IP network protocol.
IOT	Image Output Terminal. See printer.
IPDS	Intelligent Printer Data Stream.
IPS	IPDS Printing System.
JDE	job descriptor entry. Collection of job descriptions. See also job; JSL.
JDL	job descriptor library. Collection of compiled job descriptions. See also JSL.

JIS B4	A paper size measuring 257 by 364 mm used in Japan.
job	Print data and attributes required for processing and printing a document.
job size	Size of the print master data file measured in bytes.
JSL	job source library. Collection of uncompiled job descriptions. See also job; JDE; and JDL.
label	1. In data storage, a reference to a file saved on tape or disk, a record indicating the file name or date created, and/or other control information. 2. To set all information in a computer system to its starting values (usually the first step is accomplished when a program is booted). 3. In programming, a name assigned to a particular instruction or portion of a program as a locational reference (the computer translates the label into an address).
landscape page orientation	Orientation of print lines or top of an illustration parallel to the long edge of the paper.
language	Defined set of characters and symbols combined together by specific rules. Refer to high-level language and low-level language.
laser printing	Technology that uses a laser to transfer character forms to a page by direct or indirect means.
library	In data storage, a collection of related files or programs.
light emitting diode (LED)	Solid substance that glows when a current is passed through it. Often used for indicator lights on disk drives or modems, as well as for displays on other electronic equipment.
line feed	Control character that (unless set to be interpreted as a line end) causes the printing system to begin printing in the current character position of the next line.
load	To enter data into storage or working registers.
Local Area Network (LAN)	Network connecting computer and peripheral devices through cables.
log	Collection of messages or message segments placed on an auxiliary storage device for accounting or data collection purposes.
logical page	A logical page is defined by an origin location, thus allowing more than one logical page to be placed on a physical page.

long-edge feed (LEF)	The movement of paper through the printer in the direction of the paper length (the longer side of a sheet of paper). <i>See also</i> short-edge feed.
low-level language	Language that is close to machine language so that each written instruction in a program can be converted to machine language on a one-to-one basis.
mainframe	Central processing unit (CPU) and memory of a large computer. More often used to denote any large computer of the type that might be used to control a group of smaller computers, terminals, or other devices. Refer to host.
markform	A parameter name for an end-of-job marker in the IPDS data stream.
megabyte (MB)	A unit of approximately one million bytes.
megahertz (MHz)	1. Unit of cycling speed (one million cycles per second) for an electromagnetic wave (in particular, a radio wave). 2. The sending and receiving stations of a radio wave transmission must be tuned in to the same unit of megahertz.
message	Information passed to the user or to a task within the system. The information is usually associated with an error, fault, or system condition.
MICR	Functionality that produces a Magnetic Ink Character Recognition (MICR) line on negotiable and turnaround documents such as checks and bills. The MICR printing system prints documents using magnetic ink and special fonts to create machine readable information that allows for quick document processing. In general, MICR is used to print accounting and routing information on blank checks and other negotiable documents.
mixed environment	Group of different printing systems at the same location.
modem	Device that converts digital information into an analog signal suitable for sending over analog telecommunication lines. Also converts an analog signal from telecommunication lines into digital information.
module	Cohesive unit within a program. It is consistent in its level and identifiable in terms of loading or with other units.
network	1. System of geographically separate computers, linked to one another over transmission lines. 2. Communication lines connecting a computer to its remote terminals.
node	Station, terminal, or computer that performs some control operation and influences the operation of the network as a whole.
Novell	Commonly used network communications protocol supported by the DocuPrint NPS.

NPS	Network Printing System
object file	Source file converted into machine language (binary code).
offline	Devices not under the active control of a central processing unit. For example, a computer makes output to a magnetic tape. The tape is then used by an offline printing system to produce printed data. Offline operations are much slower than online operations. Refer to online.
offset	To place pages currently being printed in slightly different positions from previous pages.
offset printing	A widely-used method of commercial and corporate printing, where ink is picked up by a metal or paper plate, passed to an offset drum, and then passed to the paper.
online	Devices under the direct control of a central processing unit, e.g., a printing system in interactive communication with a mainframe. Refer to offline.
operating system	Basic host- controlling program that governs the operations of a computer, such as job entry, input/output, and data management. The operating system is always running when the computer is active. Unlike other types of programs, it does not run to an end point and stop.
orientation	1. In reference to image area, orientation describes whether the printed lines are parallel to the long edge of the paper or the short edge of the paper. 2. Choice of printing portrait (vertically) or landscape (horizontally).
page orientation	Direction in which data is printed on a report. Refer to landscape page orientation and portrait page orientation.
parsing	To read or interpret a command; build up a parameter list from information within a command.
PC	Personal computer. Family of computers that most commonly run a version of DOS.
Page Description Language (PDL)	Page description language used to describe the printing of jobs to a laser printing system. PDL describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options) of a print job.
peripheral	Device used with a computer or workstation, usually for input or output. Printers, modems, and the IPS/NPS cartridge tape drives are examples of peripherals.
platform	Combination of hardware and operating system software.

portrait page orientation	Orientation of print lines or the top of an illustration parallel to the short edge of the paper.
PostScript	Page description language developed by Adobe Systems, Incorporated. PostScript describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options) of a print job.
ppm	Pages per minute.
print attribute	Set of attributes available for controlling the processing of a print job. Print attributes include simplex or duplex printing, media selection, collating, stitching, and so on. Print attributes can be sent to the Printer Controller as part of the job, providing automatic job processing.
printer	Component of the DocuPrint Printing System that accepts data from the Printer Controller and prints the document according to the print attributes specified by the user. The printer also provides paper stacking, collating, and optional finishing. "DocuPrint printer" or "printer" refers to the base printer engine (IOT) only, without the Printer Controller and interface.
Printer Controller	Component of the DocuPrint printing system that manages the spooling and processing of print jobs.
Printer Control Language (PCL)	Printer description language defined by Hewlett-Packard Company. PCL describes the input (type, format, characteristics), performs the processing functions (logical processing), and describes the output (type, format, font selection, accounting options) of a print job.
print quality adjustment (PQA)	The process by which the IPS maintains the electrostatic state of the xerographic subsystem to ensure optimal print quality.
protocol	Formal set of conventions governing the format of data and the control of information exchange between two communication devices.
query	Request for data or other information, entered by an operator while the system is processing.
queue	List of documents waiting to be processed.
Random Access Memory (RAM)	Volatile memory used for temporary storage of data and software commands, used by programs for immediate task processing.
raster data	Binary data, usually consisting of dots arranged in scan lines, according to the print order.
rasterization	The creation of a bitmap image of a page for printing.

raster output scanner (ROS)	Raster output scanner. A motor-driven laser scanning system.
Read-Only Memory (ROM)	Solid-state memory for programs. It cannot be rewritten.
read/write head	A small electromagnet that reads, writes, and erases data in the form of magnetic dots on the surface of an external storage medium, such as a magnetic disk.
real time	To process transactions as they are entered into a system. User and system interchange allow transactions to be processed and the results returned to the user.
resolution	The number of dots per unit. An imaging system converts a character from digitized data into a printed image composed of these tiny dots. The greater the number of dots per inch (i.e., higher the resolution), the clearer the image is produced.
sequencing	Method of ordering messages, records within a file, or statements in a program according to rank or time of entry.
sequential	In numeric sequence, usually in ascending order. As applied to a file organization, describes files in which records are written one after another and cannot be randomly accessed. For example, the first 99 records in a sequential file-access file have to be read before the 100th record is accessible.
short-edge feed (SEF)	The movement of paper through the printer in the direction of the paper width (the shorter side of a sheet of paper).
simplex printing	Printing on one side of the page. <i>See also</i> duplex printing.
small computer system interface (SCSI)	An accepted standard for connecting devices to computers.
software	Programs, including operating systems, procedures, utilities, applications programs, etc., written for a system.
software application	<i>See</i> application software.
spooling	Process of releasing data from main memory and storing it temporarily until a peripheral device is ready to accept it, e.g., storing text before sending it to a printer.
string	Connected sequence of alphanumeric characters treated as one unit of data by a program.
SunOS	Operating system developed primarily by Sun Microsystems for use on Sun computers and workstations. SunOS provides inherent support for UNIX and for TCP/IP.

syntax	Rules governing the structure of expressions in a programming language.
syntax error	System response to a mistake in the entry of a command.
sysgen	Abbreviated form of system generation.
system administrator	Person responsible for configuring, operating, and maintaining the DocuPrint system, and also for installing client software on network workstations.
system generation	Process whereby the system is made ready to operate. Typically involves selecting the operative parameters and activating the relevant software.
System Network Architecture (SNA)	Total description of logical structure, formats, and protocols of operation sequences for transmitting an information unit through the communication system. Developed by IBM for distributed processing networks.
TCP/IP	Transmission Control Protocol/Internet Protocol Commonly used network communications protocol supported by the DocuPrint NPS.
telecommunications	The transfer of data via telephone lines.
teleprocessing	Data transfer via telecommunication lines for processing among various remote terminals and the central processing unit (CPU).
throughput	In data processing systems, the amount of data that can be processed, transmitted, printed, etc., in a specified unit of time.
Token Ring	Network topology in which a control packet or token is passed from station to station in sequential order. Stations needing access must wait for the token before transmitting data. In a Token Ring, the next logical station receiving the token is also the next physical station.
transaction processing	Method of data processing in which files are updated and results are generated immediately after data entry.
translation	1. In data communications, the conversion of one code to another on a character-by-character basis. 2. In programming, the function of a language processor which converts a source program from one programming language to another.
transmission speed	In data communications, the rate at which data is passed through communication lines, usually measured in bits per inch (bpi).
two-up	Application that prints two logical pages on one side of a physical page.

ULTRIX	Operating system that runs on DECStations. It consists of a hierarchical system of commands, shells, files, and directories. <i>See also</i> operating system.
UNIX	Operating system for computers, usually working in a network environment. UNIX consists of a hierarchical system of commands, shells, files, and directories. <i>See also</i> operating system.
user interface (UI)	System for gathering input from a user and presenting data to the user.
virtual page	Page area selected by a forms designer for printing.
virtual printers	Alternate names for the printer which allow different sets of default attributes to be applied to submitted jobs. The operator and system administrator define virtual printer names and the associated set of attributes and values.
workstation	Computer able to process data but designed specifically for interaction with a network.
write	To record data in memory or an external storage medium.
write protection	Data protection feature implemented on magnetic media (e.g., floppy disk) to prevent stored data from being modified, written over, or erased.
xerographic mode	There are two xerographic modes: black mode or highlight mode. Black mode allows printing with black dry ink only, while the highlight mode enables highlight color printing.

Numerics

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