Xerox DocuPrint 92C IPS
System Overview Guide

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Changes are periodically made to this document. Changes, technical inaccuracies, and typographic errors will be corrected in subsequent editions.

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.**

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*.

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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.

Table of contents

Introduction

This *Xerox DocuPrint 92C IPS System Overview Guide* provides an overview of the individual components of the DocuPrint IPDS Printer System (IPS) and how they work together. This reference is designed to provide you with background information that can be used to make informed decisions regarding printer use and performance.

About this guide

The *Xerox DocuPrint 92C IPS System Overview Guide* provides information to help you quickly determine hardware, software, and connectivity requirements for printing from various clients to DocuPrint IPS.

This reference is useful for workstation users, printer operators, and system administrators who want to understand the overall DocuPrint IPS. Managers can use the reference information to assist them in making planning decisions.

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

Contents

This section lists the contents of this guide:

- Chapter 1, "System overview," identifies and describes the function of the major components of the DocuPrint 92C IPS.

- Chapter 2, "Printer Controller," provides the information on the Printer Controller components, software, and fonts.

- Chapter 3, "User interface," describes the features of the IPS graphical user interface.

- Chapter 4, "Printer," details the base printer components and optional printer components.

- Chapter 5, "Bypass transport," describes the bypass transport and the requirements for attaching third-party finishing devices.

- Chapter 6, "Highlight color," provides information about highlight color, and discusses how the DocuPrint 92C IPS uses an extraction color to determine how job-specified colors appear in print.

- Appendix A, "Paper and other supplies," provides information and specifications on paper and other media used with the IPS, as well as instructions for ordering supplies.

- Appendix B, "Extraction color samples," shows approximately how solid, shaded, and tinted areas in your jobs will print in each Xerox colored ink, for each possible extraction color selection.

An index is provided at the back of the guide.

Conventions

This guide uses the following conventions:

- All caps and angle brackets — Within procedures, the names of keys are shown in all caps within angle brackets (for example, press <RETURN>).

- *Italics* — Document and library names are shown in italics (for example, the *Xerox DocuPrint 92C IPS System Overview 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 could affect the safety of people.

Related publications

This document is part of the Xerox DocuPrint IPS publication set.

Xerox documents Following is a list of all Xerox DocuPrint IPS documents. For a complete list and description of available Xerox documentation, refer to the *Xerox Customer Documentation Catalog* (publication number 610P17517), or call your service representative.

Application Programmer/System Administrator Quick Reference Card

Customer Information Quick Reference Card

Generic MICR Fundamentals Guide

Glossary

Guide to Configuring and Managing the System

Guide to Performing Routine Maintenance

Helpful Facts About Paper

Installation Planning Guide

Master Index

Messages Guide

Solutions Guide

System Overview Guide

Troubleshooting Guide

Xerox Standard Font Library Font User Guide

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

IBM documents Following are related IBM documents. Contact your local IBM representative for ordering instructions for IBM AFP/PSF manuals that might be useful for your specific installation.

IBM 3825 Page Printer Product Description

IBM Intelligent Printer Data Stream Reference

IBM Advanced Function Presentation Printer Summary

IBM ITSC Distributing AFP Printing from a Host System

IBM Advanced Function Printing Data Stream Reference

IBM Data Stream and Object Architectures: Mixed Object Document Content Architecture Reference

Guide to Advanced Function Presentation

1. System overview

This chapter introduces the DocuPrint 92C IPS printing system. It describes the system's hardware and software components, features, functions, and modes of operation.

Functional overview of the DocuPrint IPS

The DocuPrint 92C IPS prints high quality documents in simplex or duplex mode in monochrome or in black plus one highlight color.

DocuPrint IPS printers support:

- Duplex printing

- Media of multiple weights, sizes, and types

- Optional modules for enhanced finishing and output to third-party finishing devices

- Optional high-capacity feeder for additional feeder trays.

- Printing in various shades and tints of a highlight color plus black.

The IPS emulates an IBM AFP Group 3 page printer with the Advanced Function Image and Graphics (AFIG) option. The IPS can print in all the following PSF environments:

- MVS
- VM (channel-attached only)
- VSE (channel-attached only)
- OS/2
- OS/400 (with TCP/IP only)
- AIX

Note: Although PSF/VSE does not support TCP/IP directly, a printing system with PSF/2, PSF/6000, or IBM InfoPrint Manager can attach to a PSF/VSE system and the PSF/2, PSF/6000, or IBM InfoPrint Manager can furnish the TCP/IP support for the IPS printer.

Major system components

The IPS has the following main components, each of which is described in greater detail in later chapters of this guide:

Printer Controller

The Printer Controller accepts IPDS data from the host, processes the data, and sends it to the printer using the IPS operating system for IPDS or the NPS operating system for PostScript or PCL.

The Printer Controller provides the printer with print data and commands and receives status information from the printer.

Host Channel Unit: On channel-attached systems, the Printer Controller has an additional component called the Host Channel Unit, or HCU. The HCU contains the channel communications board, and handles communication between PSF and the controller when data is received over a bus and tag connection.

Graphical user interface

The full-color graphical user interface (GUI) provides an easy-to-use, mouse-driven interface to the IPS. Using the windows on the GUI screen, you can configure your system; perform diagnostic and administrative tasks; and set up, change, and implement system options, and run print jobs.

The IPS main window displays the current system status, as well as the current printer settings, including the current input and output tray configurations. From the IPS main window you access the various menus and windows you use to configure and operate the system. Refer to the chapter "User interface" in this guide, for more detailed information on the IPS graphical user interface components.

Printer

The printer 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.

Throughput speed

The DocuPrint 92C IPS can print up to 92 impressions per minute, using stocks 8.5 by 11 inches / 216 by 279 mm to 8.5 by 14 inches / 216 by 356 mm.

Host connectivity options

The IPS can be set up to receive data from a host in one of two ways:

- Over a channel with bus and tag cable connection, via the Host Channel Unit (HCU)

- Through a Token Ring or Ethernet interface, using TCP/IP protocol (not available in a VM or VSE host environment)

Note: A transmission rate of at least 16 megabits per second should be used with a Token Ring interface on the IPS. (Overall performance depends on network traffic and job density.)

Channel-attached configuration Figure 1-1 illustrates the components of a channel-attached IPS. This configuration requires a Host Channel Unit (HCU) to interface between the host channel and the IPS controller.

Figure 1-1. **DocuPrint 92C IPS: channel-attached configuration**
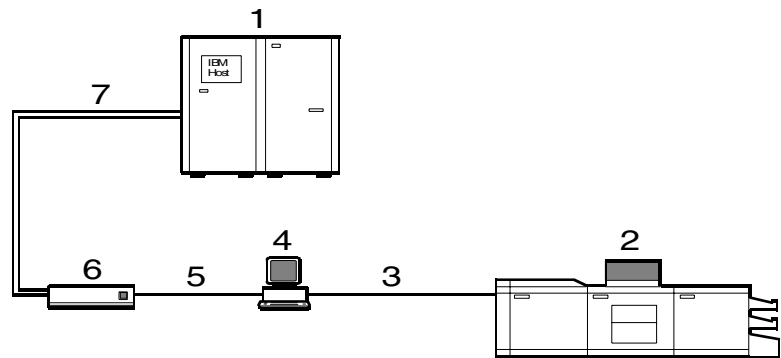
1 Host system (PC or mainframe)
2 DocuPrint 92C IPS printer
3 Printer interface cable
4 Printer Controller
5 SCSI interface
6 Host Channel Unit (HCU)
7 Bus and tag cables

TCP/IP configuration If you are using Token Ring or Ethernet with TCP/IP, as shown in figure 1-2, the bus and tag cables and the HCU are not required.

Figure 1-2. **92C IPS: TCP/IP configuration**
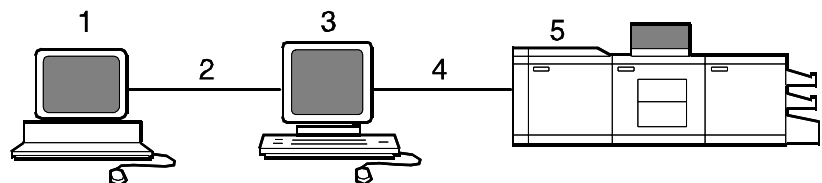
1 Host system (PC or mainframe)
2 Token Ring or Ethernet network connection
3 Printer Controller
4 Printer interface cable
5 92C IPS printer

IPDS data stream

All IPDS resources (print data sets, page definitions, form definitions, page segments, fonts, and overlays) supported by the IBM 3825 and 3827 printers are supported by the Xerox IPS software. Additionally, there are several data towers supported within the AFP environment which are fully supported by the IPS software, to a level supported by the IBM 3825 and IBM 3827 printer capabilities:

- **IM Image IMD1**

- **FOCA:** Font Object Content Architecture

- **MO:DCA-P:** Mixed Object Document Content Architecture for Presentation

- **PTOCA PT1, PT2, and PT3:** Presentation Text Object Content Architecture

- **IOCA:** Image Object Content Architecture

- **GOCA:** Graphics Object Content Architecture

- **BCOCA:** Bar code Object Content Architecture

- **OL1:** Overlay One

- **PS1:** Page Segment One

- **Line mode data streams**

Each of the data objects follow the same object rule of containing delimiting fields with structured fields describing each object.

Dual Mode

Xerox DocuPrint Dual Mode option enables both DocuPrint NPS and IPS 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.

Either of the following types of configurations may be used:

- The same Token Ring or Ethernet connection can be used for both IPDS (IPS) and Postscript/PCL (NPS).

- Both a Token Ring card and an Ethernet card can reside in the Sun workstation controller, with one being used for IPDS and the other for PostScript/PCL.

- Bus and tag attachment through the HCU can be used for IPDS, and Token Ring or Ethernet connection for the NPS.

When the DocuPrint system is in IPS mode, it can accept PostScript and PCL data streams in the background; however, it can print these jobs only after it is switched to NPS mode. However, when the system is in NPS mode, it cannot accept IPDS data streams in the background.

DocuPrint 92C IPS hardware features

The 92C IPS provides numerous features that can be enabled or configured using the graphical user interface on the printer controller.

Highlight color

The DocuPrint 92C IPS can print in one highlight color plus black. These inks are available for adding color to documents: red, green, blue, cyan, magenta, brown, cardinal, royal, ruby, and violet.

When a colored ink is installed in the IPS, you can combine black and the additional color under software control to:

- Create darker shades by mixing black and a color

- Create lighter tints by letting the white of the paper show through between the black or colored dots.

Multiple input trays

Two addressable input trays are standard with the printing system. Two additional feeder trays are available as options. These trays can be used to configure print jobs in the most effective manner. For example, the trays can be used to provide nonstop printing of a complex job that requires multiple paper stocks, or only a few paper stocks, but using the continuous loading capability of the input trays. A different tray can also be selected for each copy of a specific page in a print job; for example, to provide different paper colors for specific pages.

Feeder tray capacities, based on 20-pound or 80 gsm (grams per square meter) bond, are:

- **Tray 1:** 1000 sheets

- **Tray 2:** 500 sheets

- **High-capacity feeder trays (3 and 4):** 1000 sheets each.

Advanced paper handling

The DocuPrint 92C IPS can handle paper stocks ranging in size from 8 by 10 inches / 203 by 254 mm to 8.5 by 14 inches / 216 by 356 mm, including A4, and in weight from 20-pound or 80 gsm bond to 110-pound / 200 gsm index. Jobs can also be printed on special stocks such as labels and transparencies.

The printer engine monitors the print job so that, should a paper jam occur, the job resumes on the correct page, providing complete document integrity.

600 dpi resolution

The DocuPrint 92C IPS provides high print quality at 600 dpi resolution. It can receive data at 240, 300, or 600 dpi; The controller coverts 240 and 300 data to 600.

Caution: The DocuPrint 92C IPS must be configured to the same font resolution as the host input data stream (refer to your *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System* for instructions on configuring for the correct input resolution). Conflicts between the input font resolution and the IPS configuration could result in inability to print the job, or in missing variable data in the output.

Better print quality is usually achieved if you convert all 240 dpi and 300 dpi fonts and other resources to 300 dpi or 600 dpi before printing, rather than leaving the conversion for the controller to do. However, you should always run test prints to validate your particular application.

Multiple output trays/bins

Your DocuPrint 92C IPS is available with one of two stacker types: a dual stacker, with two output trays, or a stitcher/stacker, which can place a wire stitch in sets of up to 50 sheets.

Output tray capacities, based on 20-pound or 80 gsm bond, are:

- Dual stacker trays 1 and 2: 750 sheets each
- Stitcher/stacker: 2000 sheets.

User interface

The IPS full-color graphical user interface provides an easy-to-use, mouse-driven interface to the IPS. Using the graphical screens, you can configure your system; perform diagnostic and administrative tasks; and set up, change, and implement system options.

The IPS main window displays the current system status, as well as the current printer settings, including the current input and output tray configurations. From the IPS main window you access the various menus and windows you use to change the system settings and perform diagnostic and administrative tasks. Refer the "User interface" chapter in this guide for further information on the IPS graphical user interface.

Figure 1-3.   **DocuPrint 92C IPS main window**
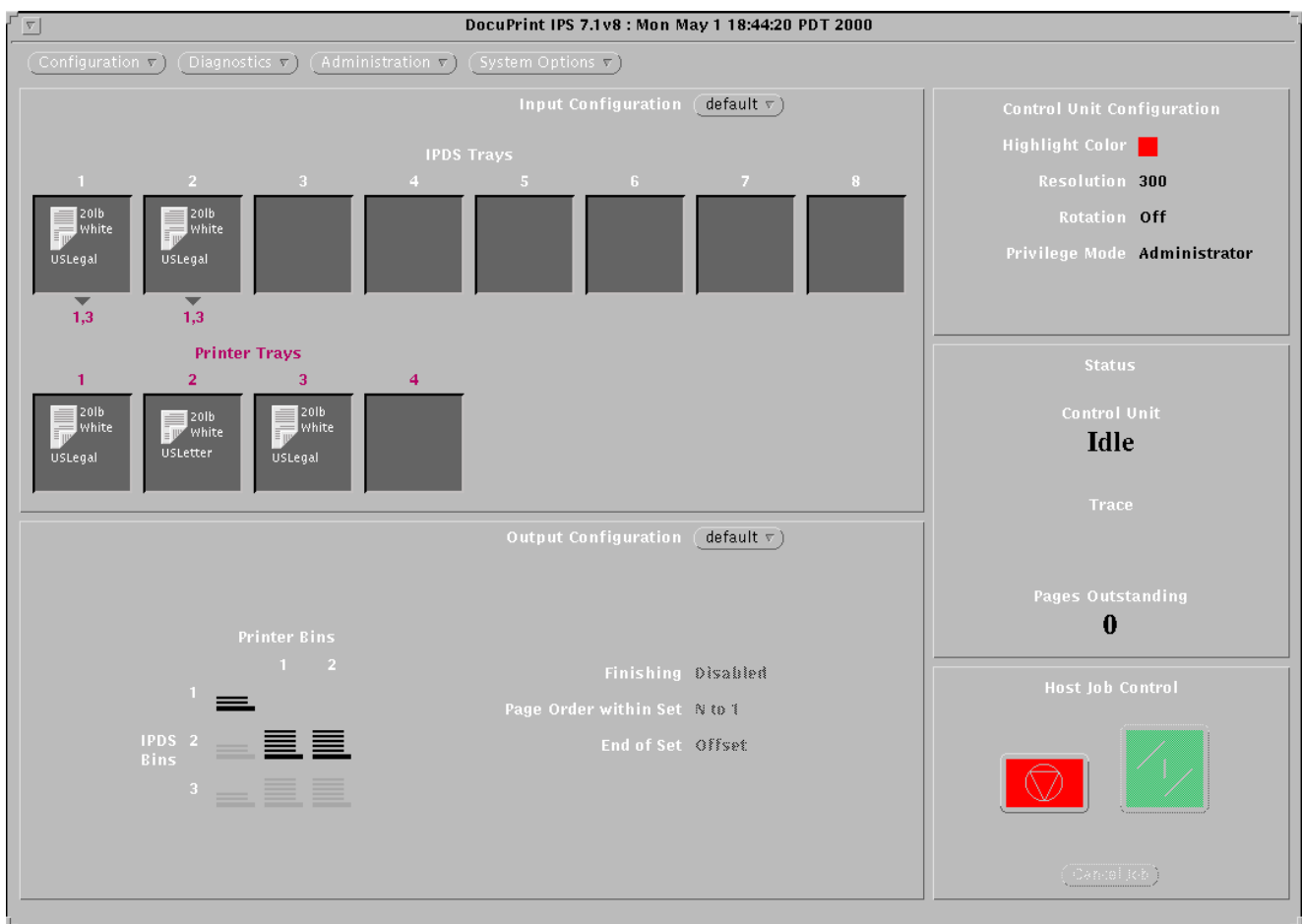
Software features

The following special IPS software features increase system flexibility.

Mixed paper sizes within a job

The IPS can print jobs that call for a mix of paper sizes, without needing to interrupt or slow down printing.

An example of such an application would be a multi-page billing statement consisting of:

- One or more 8 1/2 by 11-inch sheets itemizing charges, and

- A final 8 1/2 by 14-inch page containing the rest of the billing items, the total amount due, and a tear-off section to mail back with payment.

Note: When a print job calls for paper sizes that span over different pitch modes, the software will either cycle down or run at a lower pitch mode, based on the different pitch modes required, the paper sizes called for, the speed of the printer, and the time it takes to shut down the printer.

Note: Paper size and printer trays cannot be changed while the job is running.

Note: Mixed paper sizes are not supported for stitching. If your system has a stitcher/stacker, the printer cycles down if it detects any specification for stitching different sized papers.

Tray selection capabilities

You can select a different input tray or output bin for each job. You can also select a different input tray for each page of a job.

Input tray   With the input tray selection capability at the Copy Subgroup level, you can select a different input tray for each copy of a page of a job. You can use this capability to print each page of a multiple-part form on a different color paper stock, or to print the cover of a job on a card stock and to print specific pages within the job on a different color stock.

To specify a different input tray for each job, use the BIN command in the SUBGROUP level of the COPYGROUP in the FORMDEF.

Output tray   With the output bin selection capability you can select a different output bin group for each print job. This selection requires two steps:

1. At the host, set the JCL keyword OUTBIN in the OUTPUT statement to specify a bin number from 1 to 65535, or use the OUTBIN command in the FORMDEF to specify a bin number from 1 to 255.

2. At the graphical user interface, use the Output Configuration window to group the trays. You must also select Allow Host Control from the Bin Selection Mode pull-down menu.

IOCA Replicate and Trim

The IPS also supports Replicate and Trim, which improves the processing of IM and IO images that contain large areas of shaded graphics. (IM images are resolution-dependent images that cannot be compressed or scaled; IO images are resolution-independent.)

The IOCA Replicate and Trim capability allows for faster transmission to the printer of AFP applications with IM images that have large or widespread shaded areas. It also reduces the storage area required on the host and on the printer.

Mixed plex

The IPS allows switching between plex modes (simplex to duplex and vice versa) within and between jobs without shutting down the printer.

Switching of plex modes occurs as follows:

- **From simplex to duplex:** The switch is done without a printer shutdown or dead cycles.

- **From duplex to simplex:** The switch is done without a printer shutdown. However, the printer may, if necessary, dead cycle to clear the paper path of all duplex sheets before feeding the first simplex sheet.

Users can avoid switching from duplex to simplex mode (and thus, avoid the dead cycles) by using the Maximum Simplex GUI panel to perform simulated simplex. For more details, refer to the "Setting the system configuration" chapter in the *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*.

Note: When you print simplex pages in duplex mode, the throughput speed is halved. The blank back pages of the simulated simplex sheets are counted as billable pages by the system's meter.

Enhanced N-Up

Enhanced N-Up provides the following capabilities:

Sheets On a given sheet, users can place individual pages:

- At any position on either side of the sheet
- In any orientation
- In any size that fits on the sheet

Each side of the sheet of paper can have up to four pages.

Overlays Users can place overlays relative to any partition origin, with or without variable page data from the application program.

Users can specify different overlays for each page.

Offsets Users can specify different offsets for each page.

Rotations Users can specify different rotations for each page.

Form ejection Users can specify form ejection to a new partition or a new sheet.

Trace facility

To help diagnose problems, the system provides a trace mechanism. Trace files store system configuration information, maintain TCP/IP protocol headers, and time-stamp all records.

For detailed information on this feature, refer to the "Setting the system configuration" chapter in the *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*.

Overstrike, underscore, subscript, and superscript

Support for the PT2 Subset of PTOCA enables the IPS to print overstrikes, underscores, subscripts, and superscripts where specified in jobs.

Document Feeding and Finishing Architecture (DFA)

The Document Feeding and Finishing Architecture (DFA) on the DocuPrint 92C IPS supports all third-party finishing devices currently validated for the LCDS (J11) printers (third-party feeding devices are not supported on the DocuPrint 92C IPS). The bypass transport option is required for in-line finishing devices and support of ENDOFSET and ENDOFJOB (using the PSF MARKFORM or FORMDEF JOG command). DFA also supports personality profiles, which identify the unique characteristics of the attached finishing devices (for example, the sheet timing and the status feedback profiles).

Page origin rotation for continuous form jobs

The 90-degree page origin rotation feature enables the IPS to print jobs designed for continuous form printing, without the need to rework an existing application. At the user interface, you can set a job's page origin to be rotated 90° to accommodate printing continuous form jobs on cut-sheet paper.

Double-byte fonts

Double-byte fonts consist of characters that are larger and more complex than the single-byte characters making up the Roman alphabet. Therefore, each character of a double-byte font requires two bytes to represent it. Some languages requiring double-byte fonts include Chinese, Korean, and Japanese.

The IPS supports printing with certain double-byte fonts, which can be used in combination with single-byte fonts.

The following double-byte character sets are supported:

- Simplified Chinese
- Traditional Chinese
- Japanese
- Korean
- Thai.

Note: When using double-byte fonts, the font loading time will increase if a font change occurs between reports.

Outline font support

The IPS supports the use of IBM outline fonts for both single-byte and double-byte applications. These fonts may be downloaded during the jobs or may be loaded into the system and made resident through the use of a user interface option on the Configuration menu.

These outline fonts allow users to specify a single font that can be rasterized in a variety of point sizes by the IPS. The IBM outline fonts are based on Adobe type 1 and type 0 fonts that are in PostScript format.

Note: The IPS supports printer resident *outline* fonts. It does not support printer resident *raster* fonts.

Printer resident font support

The IPS stores both single-byte and double-byte fonts locally on the Printer Controller and does not require you to download the fonts from the host. This can lead to significant performance gains, especially when the printer is attached remotely.

Users can also set the default font for text or barcode Human Readable Interpretation (HRI) to one of the installed fonts to replace a font that is distributed with the system.

Fonts can be installed from an IBM supplied font CD or via FTP to the Controller workstation.

Note: The IPS supports printer resident *outline* fonts. It does not support printer resident *raster* fonts.

Processing options

The IPS allows users to specify processing options using the GUI. For example, changing the model number reported to the host. Refer to the *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System* for details on these options.

Message translation

The IPS provides some message translatability for the GUI and printer monitor. Users can select the language of their choice from a GUI menu option.

Configuration file processing

The IPS adds a version identifier to the configuration files. The identifier allows for migration of configuration data from one release to a subsequent release at upgrade time. The IPS allows users to save, upgrade, and restore configuration data such as input and output tray mappings and DFA configurations.

PCI Bus support

The IPS supports the SUN Peripheral Component Interconnect (PCI) Bus architecture, in addition to the S-Bus platform. PCI support provides the following advantages:

- Migration of Printer Controller components to newer technology
- Higher performance on the Printer Controller
- Wider selection of system peripherals
- Adherence to industry standards.

Access control by privilege mode

The IPS controls access to various functions based on four privilege modes:

1. User
2. Operator
3. Administrator
4. Service.

Depending on the privilege mode set by the Customer Service Engineer, users will have access to certain graphical user interface (GUI) functions, while other functions will be grayed out. Refer to the *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System* for details on this functionality.

Color image support

Some IM1 images (for example, logos) can be converted to IOCA for resolution correction. The bi-level IOCA feature enables such IM1 images to be printed in color on the DocuPrint 92C IPS. PSF does not strip the color information from the print job.

Background color for OCA colors

Users can specify COLOR on DRAWBOX (i.e., background color) as long as the color is restricted to colors defined with the OCA model.

Bi-level IOCA colors

The IPS accepts the new IOCA color spaces in the extended controls (referred to as the "4E" color triplets). These include the Highlight Color and Standard OCA Color.

Highlight color samples

Color samples for each available highlight color are stored on the Printer Controller in the **/var/db** directory. You can print out these samples using the "Executing trace files" procedure described in your *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*. The following color samples are provided:

- Blue

- Brown

- Cardinal

- Cyan

- Green

- Magenta

- Red

- Royal (dark blue)

- Ruby

- Violet.

In addition, a set of printed color samples is provided (in a different form) in appendix A of the *Xerox DocuPrint 92C IPS System Overview Guide*.

Note: The printed colors in these samples may differ slightly from the actual color your IPS prints.

Software license

When an IPS is purchased, the owner needs a license to use the operating system software. After a user calls in with a host ID (Sun SPARC/Ultra host ID), the user will receive a license string.

The user license is enabled by entering the 20-character authorization text string at the Printer Controller keyboard. Your Xerox service representative can obtain the license text string for you and enter it when your IPS is installed, or when you receive your IPS software upgrade. For details on how to obtain the license string from Xerox, refer to the *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*, in the chapter "Setting up the printer controller."

Until the license string is entered, your IPS 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 IPS remains in Disabled mode and cannot print.

Although your service representative usually does this for you, you are able to enter your license string yourself from the IPS main window. The procedures are outlined in the chapter "Setting up the printer controller" in your *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*.

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

Remote service (Sixth Sense Technology)

Sixth Sense Technology is a user-friendly suite of tools that allow service personnel to connect with a customer system and evaluate its performance while the system is being used. The Customer Service Engineer (CSE) can troubleshoot problems remotely, transfer, apply, and remove patches remotely, and, if an on-site call is required, arrive with the solution to fix the problem.

Customer benefits of using this technology include:

- Diagnostic help and identification of required parts before the service visit

- Planned visits based on known problems and/or replacement of wear-out items

- Customer self-maintenance to provide faxed replacement change reminder to trained operators.

Using the Sixth Sense Technology, CSEs can access your system's diagnostic data remotely using a regular telephone line almost as if they were at the Printer Controller (SPARCstation).

For security reasons, the customer maintains control of the modem connection, and may leave the modem disconnected. Also, the customer provides a password for access to the Sixth Sense Technology via the modem.

For information on enabling and disabling of the Sixth Sense Technology, refer to the chapter "Calling for Service" in your *Xerox DocuPrint 92C IPS Troubleshooting Guide*.

2.   Printer Controller

This chapter describes the DocuPrint IPS Printer Controller (also called the system controller). It includes a list of component hardware, software, and fonts, and discusses the key elements of software operation.

Components of the Printer Controller

The Printer Controller enables you to use proprietary Xerox IPS hardware, firmware, and software to control the printer. It has the following major hardware components:

- **Sun UltraSPARC workstation.** The Sun workstation has a high-performance RISC processor chipset, based on the industry-standard Scalable Processor Architecture (SPARC) and a high-capacity hard disk drive. It contains the following components:

    — Processor

        – Hard disk

        – Diskette drive

        – CD-ROM drive

        – Connectivity boards for Ethernet and, optionally, Token Ring

    — Monitor

    — Keyboard

    — Mouse

- **Host Channel Unit (HCU)** (Channel-attached systems only). The HCU contains the channel communications board. This is used only when printing data received over a channel via a bus and tag connection.

Note: Some elements and components of the Printer Controller are accessible only by a service representative; for example, the diagnostics for the Sun workstation processor.

**Note:** Printer controller hardware configurations are subject to upgrade.

The Sun Ultra workstation consists of the processor, monitor, keyboard and mouse. Both Sun Ultra 2 and Sun Ultra 60 workstations are available.

Figure 2-1. **Components of the Sun Ultra 2**
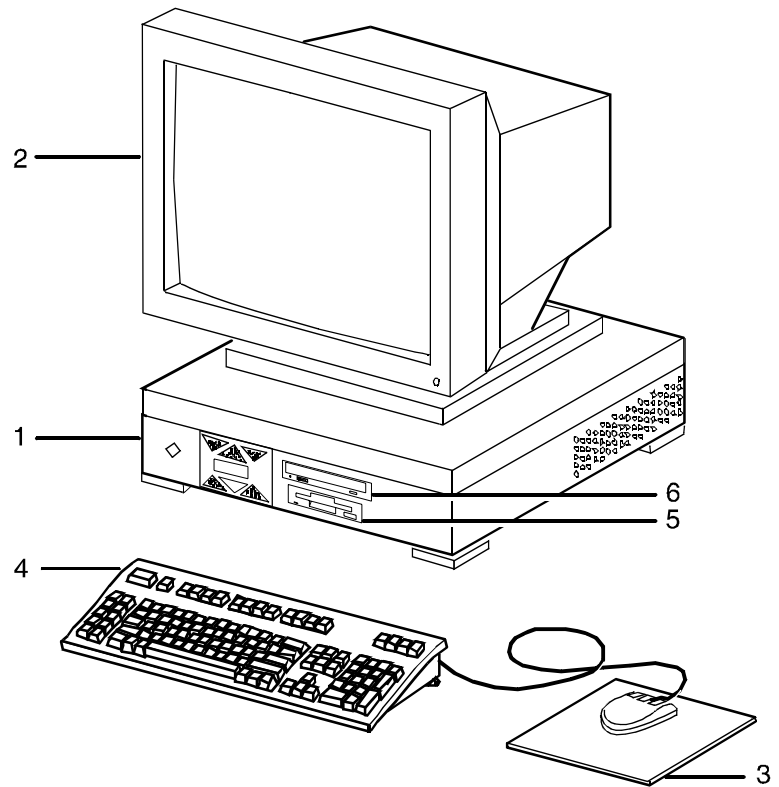
1   Processor
2   Monitor
3   Mouse and mouse pad
4   Keyboard
5   Diskette drive
6   CD-ROM drive

Figure 2-2.   **Components of the Sun Ultra 60**
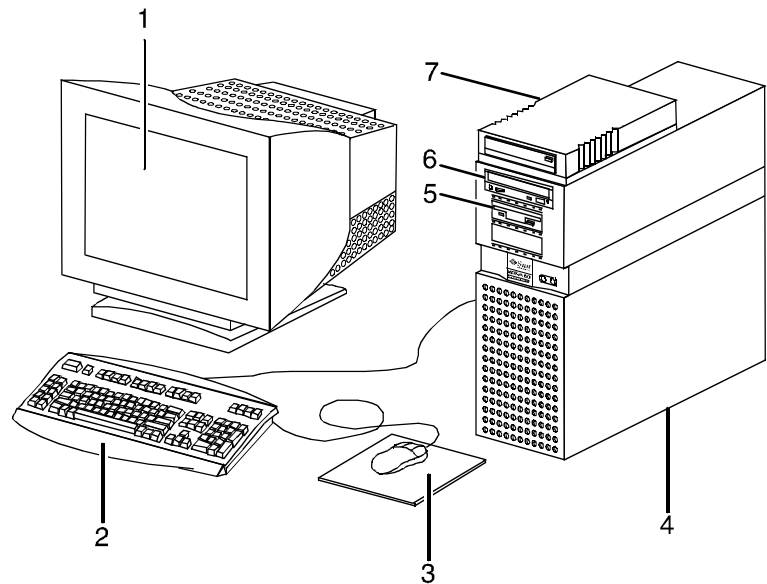
1   Monitor
2   Keyboard
3   Mouse
4   Processor
5   Diskette drive
6   CD-ROM drive
7   Cartridge tape drive

Processor

The processor is the central processing unit (CPU) of the Sun workstation. It contains a power switch, a hard drive, a diskette drive, a CD-ROM drive, a power receptacle and outlet, connectors, and ports.

A Data Control Interface Module (DCIM2) card for the Sun Ultra 2, or a PCIM2 card for the Sun Ultra 60 is installed in the processor, to which the printer cable is connected. In addition, the processor contains the connectivity boards for Ethernet and, optionally, Token Ring.

Hard disk

One addressable, high-speed, high-capacity hard disk is provided. The hard disk stores the operating system, the IPS application, and any buffered pages. Do not use the hard disk to store other applications or data except as directed by your service representative.

Diskette drive

The floppy disk drive is located in the processor, on the front section of the UltraSPARC. It uses industry standard 3.5 inch, 1.44-MB, double-sided, high-density floppy disks. This disk drive is not an input source for print jobs or for 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, located in the processor above the diskette drive, is a high-density, read-only, optical laser storage device used for loading the IPS operating system, online documentation, and other files.

Cartridge tape drive

An optional 8 GB, 4 mm external SCSI cartridge tape drive also is available for the IPS. 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.

Monitor

The monitor has a high-resolution color screen, which displays the IPS graphical user interface screen.

Keyboard

The type 4 or 5 keyboard has 107 alphanumeric keys, symbol and special character keys, an extended character set, and function keys.

Mouse

The mouse has three buttons. The left and right buttons are used to select IPS 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.

## Host Channel Unit (HCU) — channel-attached systems only

The HCU handles all of the IPDS communications and handshaking with PSF on the host when receiving data over a channel. (It is not used when the IPS is printing data using TCP/IP.)

- The front panel of the HCU has a single-digit LED display, which enables you to monitor power-up and offline status, and alerts you to error conditions. (Refer to your *IPS Messages Guide* for an explanation of the HCU codes displayed here.)

- The back panel of the HCU has a power switch and outlet, bus and tag cable input and bypass connectors, and a dual serial port. The standard switching power supply is capable of 10 amp on the 5-volt output.

Note: You are responsible for obtaining, stringing, and maintaining *fully-populated* bus and tag cables.

Figure 2-3. **Host channel unit (HCU)**
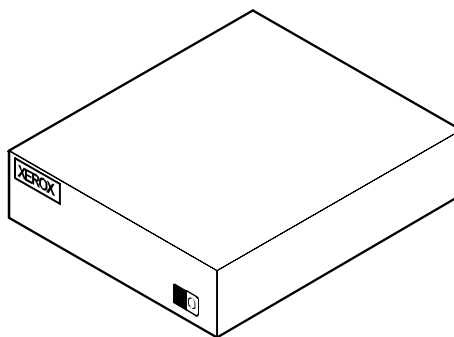
Placement of the processor

When you place your Printer Controller processor on a desktop, make sure to allow at least 6 inches / 152 mm 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.

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.

Caution: If you plan to move the Printer Controller, make sure to consult with your service representative.

3.   User interface

The IPS graphical user interface on the Printer Controller enables you to interact with the IPS. It contains windows and pull-down menus through which you can perform operator and system administrator tasks.

Graphical user interface screen

After you power on the HCU (if appropriate) and the Sun workstation, the Printer Controller monitor displays three windows:

- IPS main window
- IPS Console window
- IPS Print Engine Monitor window.

The **IPS main window** is the largest window on the screen. The main window displays the current system setup, the current system status, and any jobs that are running. This window also provides access to menus and subwindows from which you can configure and operate your system.

The **IPS Console window** displays messages that warn you of Printer Controller problems. (This window initially displays below the IPS main window on the left, but it can be moved where desired.)

Note: High frequency service indicator (HFSI) messages may appear occasionally in this window. These messages do not indicate any problem, merely that you should advise your service representative to check the indicated areas during the next service call.

The **IPS Print Engine Monitor window** shows printer error messages, indicates the printer status and displays printer and DFA messages. (This window initially displays below the IPS main window on the right, but it can be moved where desired.)

The following figure shows these windows on the screen of the Printer Controller monitor.

Figure 3-1. **Printer Controller monitor with IPS main window, IPS Console window, and IPS Print Engine Monitor window**
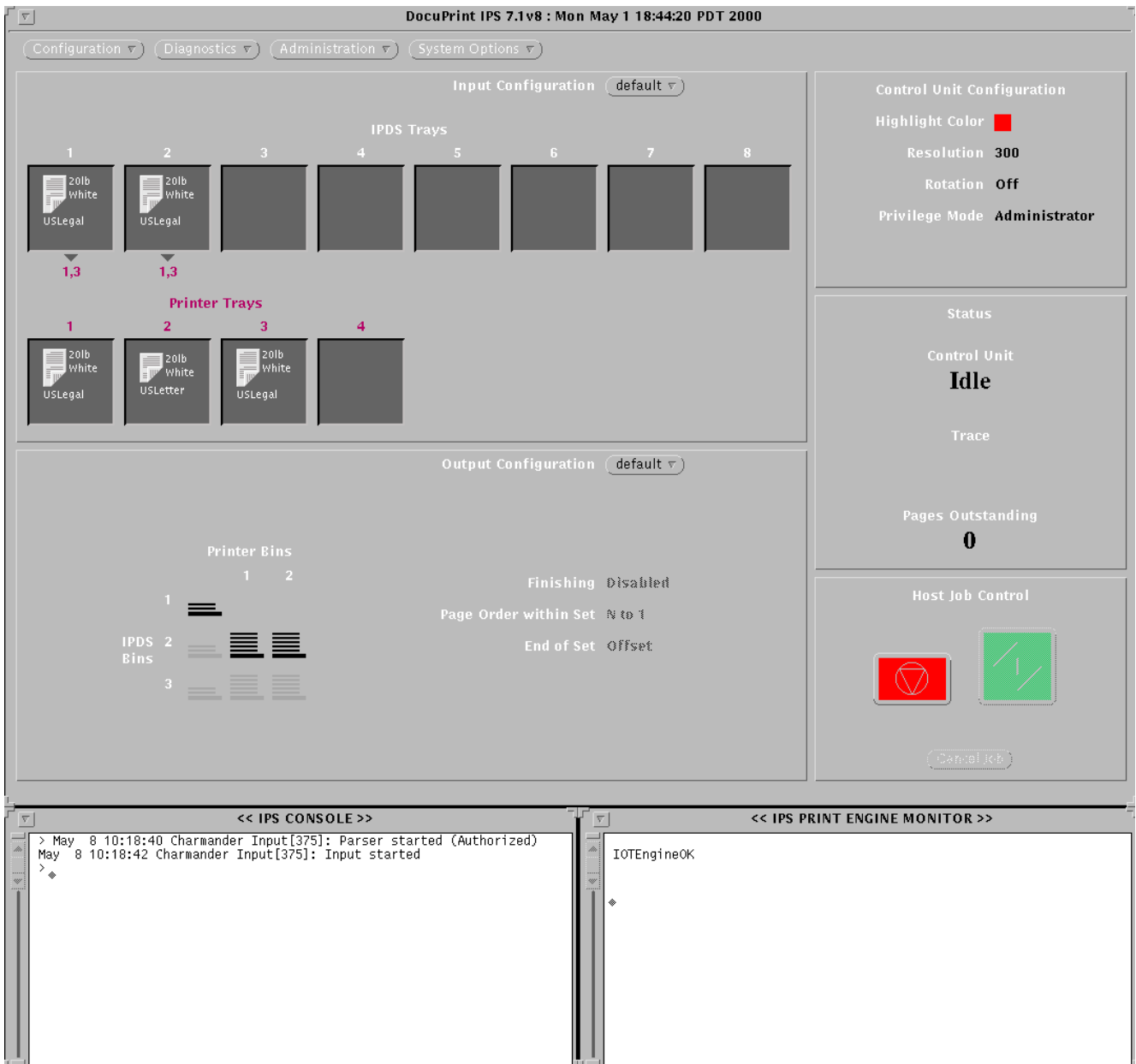
IPS main window

Use the IPS main window to access other windows for configuring, setting up, and operating the system, for monitoring the current setup and status of the system, for performing various administration tasks, and for interrupting and resuming printing.

Figure 3-2.   **IPS main window**

The IPS main window consists of the following:

- **Menus:**
    — Configuration
    — Diagnostics
    — Administration
    — System Options

- **Input Configuration** section, which provides access to the windows that enable you to configure input trays to feed required paper stocks, and to set up margin values. It also displays the current configuration of the feeder trays.

- **Output Configuration** section, which provides access to the direct windows that enable you to direct printed output to the desired output tray or bin. It also displays the current configuration of the stacker trays.

- **Setup and status information**, which consists of the following sections:

  — Control Unit Configuration section, which displays the current configuration of the system

  — Status section, which indicates what the printer is doing

  — Host Job Control section, which allows you to stop or continue job processing.

For detailed information on the main window and its various functions, refer to the chapter "Introduction to the graphical user interface" in the *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*.

4.   Printers

The printer (sometimes referred to as the image output terminal or IOT) is where the actual printing takes place. This chapter discusses the components of the DocuPrint 92C IPS printer.

Printer components

The DocuPrint IPS printers contain a xerographic engine, two standard feeder trays, a sample tray, the printer control console, and one of two output tray configurations: the dual stacker or the stitcher/stacker.

Components overview

The components of the base printer for the 92C IPS are shown in figure 4-1

Figure 4-1. **DocuPrint 92C IPS printer (shown with dual stacker)**
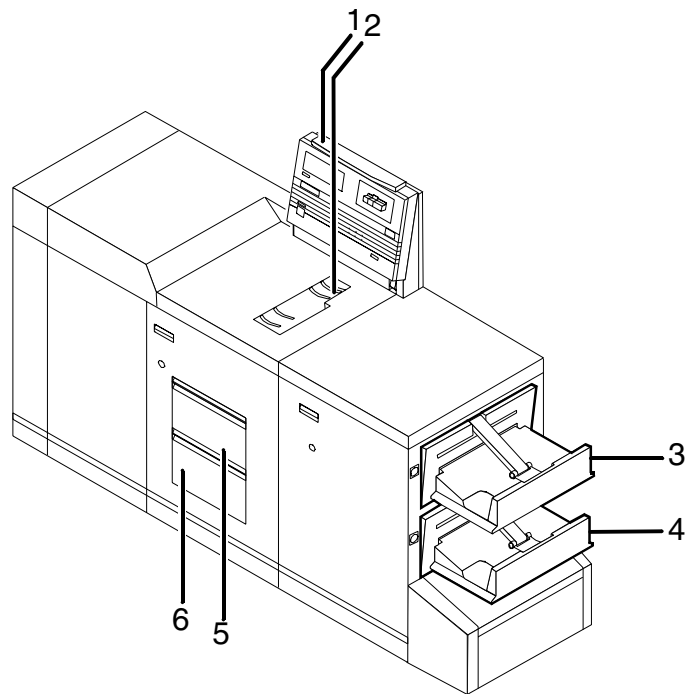
1   **Printer control console**
2   **Sample tray**
3   **Stacker tray 1**
4   **Stacker tray 2**
5   **Feeder tray 1**
6   **Feeder tray 2**

These components are described in more detail in the following sections.

Printer control console

The printer control console contains message and graphic displays, an Information button, Stop and Continue buttons, and a power switch (for the printer only). Indicator lights show which feeder tray is active and the paper size in use.

Note: The IPS does not provide sample prints while a job is running; therefore, the Sample Print button has no effect on operation.

Figure 4-2.   **DocuPrint 92C printer control console**
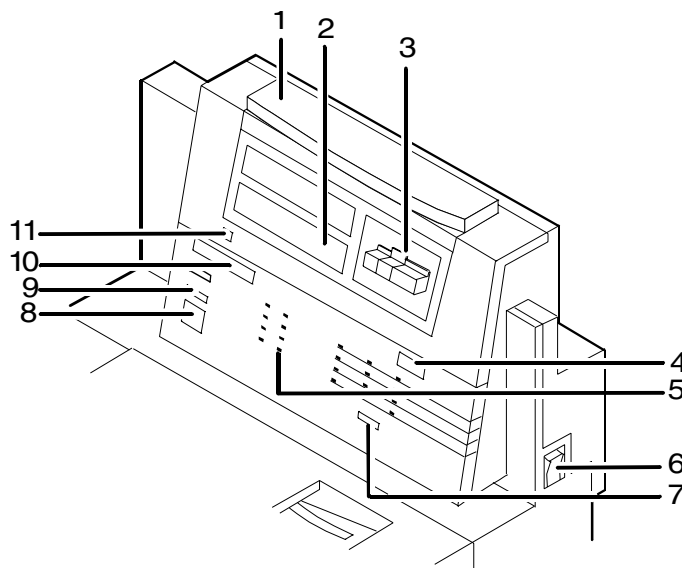
1   **Attention light**
2   **Message display**
3   **Graphic display**
4   **Wire percentage indicator**
5   **Feeder tray indicators**
6   **Power on/off switch**
7   **Sample button (disabled)**
8   **Continue button**
9   **Stop button**
10   **Fault code display**
11   **Information button**

Attention light   The yellow attention light glows whenever the system detects an actual or potential problem.

- When the light is flashing, you should act immediately to remedy situations that have caused the printer to stop. The flashing light can also indicate system problems. (Typical problems are a paper jam or a full waste container.)

- When the light glows steadily, act soon to avoid a cycle-down. A steady glow typically indicates that the paper or dry ink is low.

Note: When the attention light starts flashing, an explanatory message appears on the printer console display. A similar error or warning message appears on the Printer Controller screen in the Print Engine Monitor window.

Message display   Printer status and simple operating and maintenance instructions are shown in a two-line message.

Graphic display   The graphic display shows a specific area of the printer requiring attention. The graphics help you locate the problem.

Icon display   The icon displ.ay is located in a rectangle below the graphic display. The printer mode is indicated by the words that are lighted—Black or Highlight (color). The IPS indicates the color ink loaded in the printer by lighting one of the icons on the right (red, blue, green, or "other").

Black
Printer Mode
Highlight
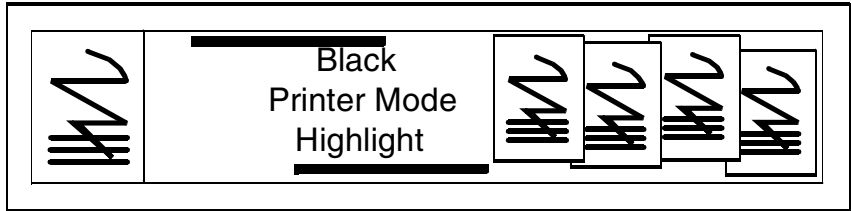
Wire percentage indicator   If your printer has the stitcher/stacker, this indicator displays the percentage of stitcher wire remaining on the spool.

Feeder tray indicators   These lights indicate the selected feeder tray or trays and the size of paper loaded in each tray.

Power on/off switch   This switch controls power to the printer and is used primarily by service representatives.

Sample button (disabled)   The IPS does not support printing sample pages while a job is running. Therefore, pressing the Sample button has no effect on system operation.

Continue button   The Continue button resumes printing when it is pressed.

While it is formatting a complex page, the Printer Controller may cycle down the printer if the page image is not available within a certain time frame. If this occurs, the following message appears:

```
Press <CONTINUE> to resume printing
```

You can ignore this message. As soon as the page image is available, the Printer Controller cycles up the printer and printing automatically resumes.

Stop button   Pressing the Stop button halts printing without interrupting input processing.

Fault code display   Shows the number of completed prints and printer fault codes. When a fault code displays here, the corresponding message appears in the message display.

Information button   When "i" appears on the message display, you can press this button for additional information on printer operation. You can press the button repeatedly for more information as long as "i" appears.

Sample tray

This output tray receives sample prints of system files, rejected prints, and transparencies. The capacity of the sample tray is 100 sheets of 20-pound or 80 gsm (grams per square meter) bond.

Dual stacker trays 1 and 2

Each output stacker tray has a capacity of 750 sheets of 20-pound or 80 gsm bond (1500 sheets total capacity). An alternative to the dual stacker configuration is the stitcher/stacker.

Feeder trays

The standard configuration contains two feeder trays with the following capacities (based on 20-pound or 80 gsm bond):

- **Tray 1:** 1000 sheets
- **Tray 2:** 500 sheets. (Except for capacity, this tray is identical to tray 1.)

High-capacity feeder: An additional feeder module containing two trays (trays 3 and 4) is available as an option. Each high-capacity feeder tray holds 1000 sheets of 20-pound or 80 gsm bond, for a total of 2000 additional sheets.

Printer configurations

The DocuPrint 92C IPS is available in several configurations of dual stacker, stitcher stacker, and high-capacity feeder.

In addition, the DocuPrint 92C IPS is available with the bypass transport option. For more information, refer to the "Bypass transport" chapter.

High-capacity feeder

The high-capacity feeder (HCF) provides two additional feeder trays. The extra trays work interchangeably with feeder trays 1 and 2 to allow automatic tray switching and uninterrupted printing time.

Figure 4-3. **DocuPrint 92C IPS printer with high-capacity feeder**
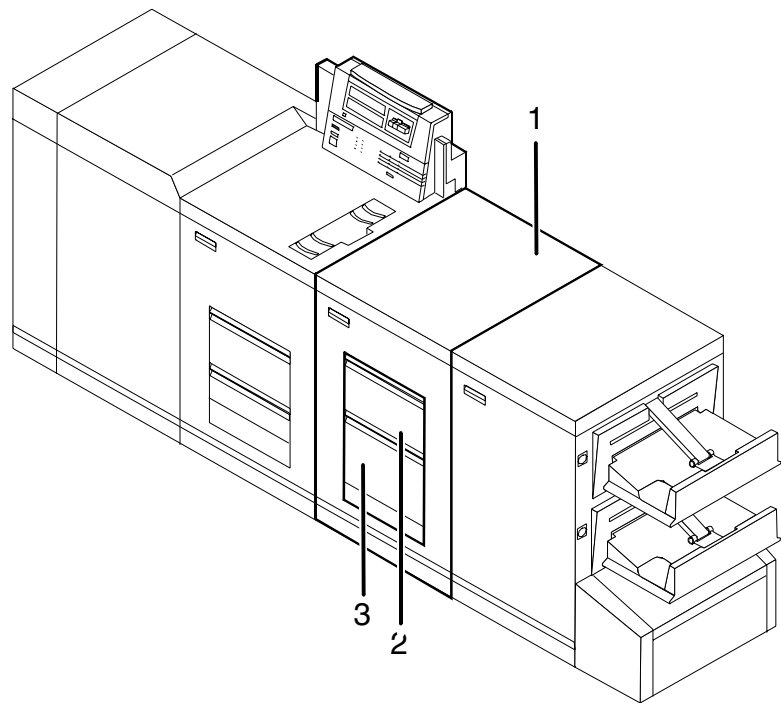
1   High-capacity feeder module
2   Feeder tray 3
3   Feeder tray 4

Tray capacities   Each high-capacity feeder tray holds 1000 sheets of 20-pound or 80 gsm bond.

Paper sizes   Both high-capacity feeder trays handle paper sizes from 8 by 10 inches / 203 by 254 mm to 8.5 by 14 inches / 216 by 352 mm. This range includes international paper size A4 (8.27 by 11.16 inches / 210 by 297 mm).

Printer stackers

The stacker, or output section, provides the capacity for stacking, offsetting, report collating, print sampling, or stitching. Your IPS has either a dual stacker or a stitcher/stacker.

Dual stacker

The dual stacker contains two identical output trays. Using the Output Configuration windows on the graphical user interface, you can send output to either or both of these trays in the desired order.

Figure 4-4.   **DocuPrint 92C IPS printer with dual stacker**
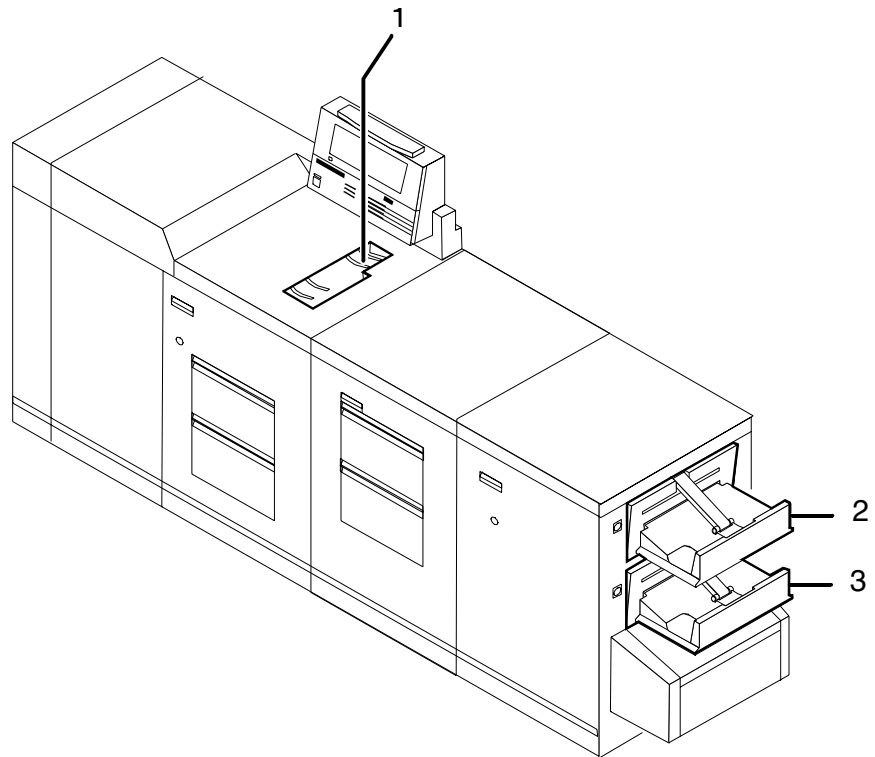
1   Sample tray
2   Stacker tray 1
3   Stacker tray 2

Sample tray   Used for sample prints, rejected prints, and transparencies. Holds up to 100 sheets of 20-pound or 80 gsm bond.

Stacker tray 1   Holds up to 750 sheets of 20-pound or 80 gsm bond.

Stacker tray 2   Holds up to 750 sheets of 20-pound or 80 gsm bond.

Stitcher/stacker

The optional stitcher/stacker places a wire stitch in stacks of up to 50 sheets. It can also offset jobs and reports.

Figure 4-5.   **DocuPrint 92C IPS printer with stitcher/stacker**
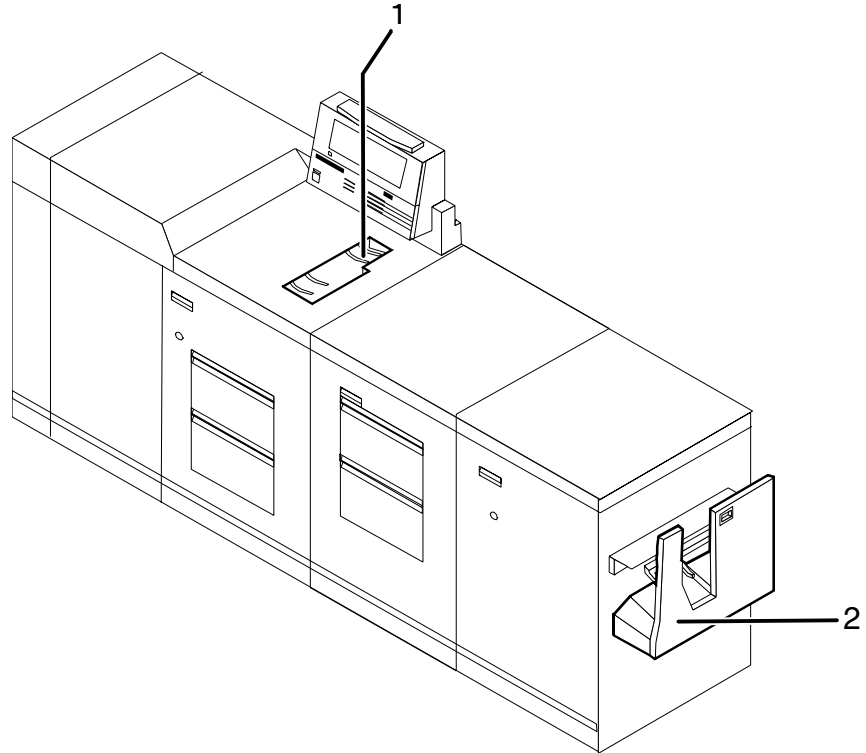
1   Sample tray
2   Stitcher/stacker tray

Sample tray   Used for sample prints, rejected prints, and transparencies. Holds up to 100 sheets of 20-pound or 80 gsm bond.

Stitcher/stacker tray   A single tray for output that is stitched (stapled) and/or offset. The tray holds up to 2000 sheets of unstitched 20-pound or 80 gsm bond, or an equally high stack of stitched sets (200 two-sheet sets). A stitched set consists of up to 50 sheets of 20-pound or 80 gsm bond. The wire supply provides up to 32000 staples.

Additional IPS printer features

Additional features of the DocuPrint 92C IPS printer include:

Instruction labels   Located throughout the printer to assist you with jam clearance and other tasks.

Audible tones   Alert you to certain printer error conditions. Volume may be adjusted by a service representative.

Power savers   To conserve energy, the printer has two power savers: one for the raster output scanner (ROS) and one for the fuser.

After a predetermined period, each of these parts times itself out and shuts down. The time-out period can be adjusted by a service representative to meet your needs. The Printer Controller automatically disables power saver mode when a document must be printed.

- The ROS power saver times itself out after about an hour of inactivity and requires about 30 seconds to warm back up.

- The fuser power saver times itself out after about four hours and requires four to seven minutes to warm up.

Language button   Systems with the dual language option have this button to select a different language, such as French instead of English, for the message display.

Figure 4-6.   **Language button on the printer control console**
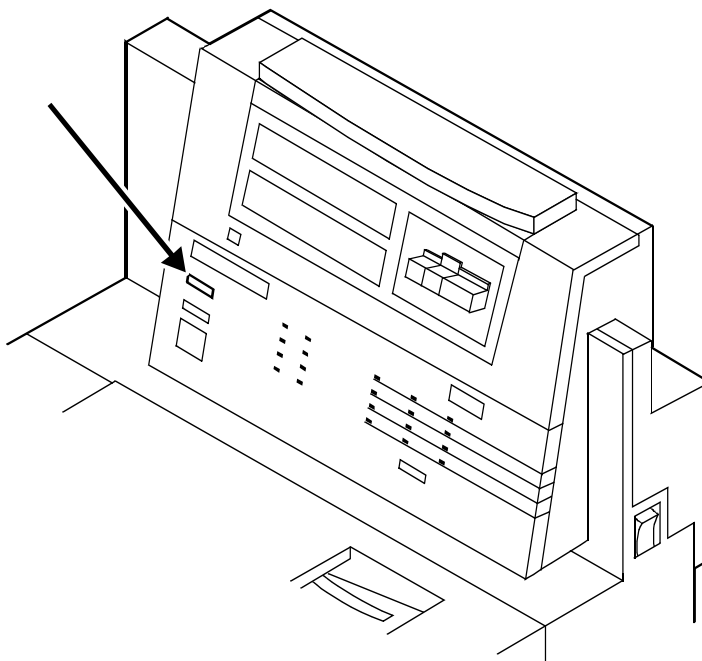
CCU changeout cart   The cart is used to remove and install the customer changeable unit (CCU). The CCU consists of the color developer housing and the dry ink bottle. Because the CCU is heavy, you will need the cart to make the changeout.

The carts also serve as storage devices for the CCUs that are not currently in use. For example, if you use both the red and blue dry inks in your operation, one CCU is always out of the machine in storage on the cart while the other CCU is installed.

Figure 4-7.   **Customer changeable unit (CCU) on cart**
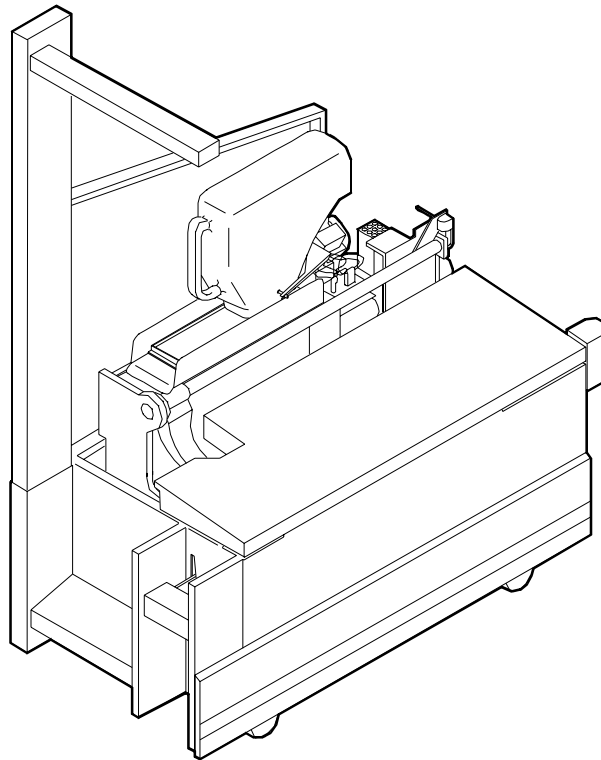
Note: You should have a cart for each CCU, so that one cart is always empty and available to remove the CCU that is installed in the system. However, if your printer will only be used to print one color (that is, the CCU will never be removed), or if there is more than one DocuPrint 92C IPS in operation at your site, it may not be necessary to have one cart per CCU. Consult your site representative for more details.

Printer paper paths

The paper path is the route that materials (paper, transparencies, labels, and so on) follow through the printer from the feeder trays to the output bins or finisher receptacle.

Simplex paper path   The following figure illustrates the simplex (one-sided output) paper path of a printer with a dual stacker tray and a standard feeder tray.

The materials move from either feeder tray 1 or feeder tray 2 and are stacked in either stacker tray 1, stacker tray 2, or the sample tray, depending on your selection at the beginning of the job.

Figure 4-8.   **Simplex paper path (dual stacker configuration)**
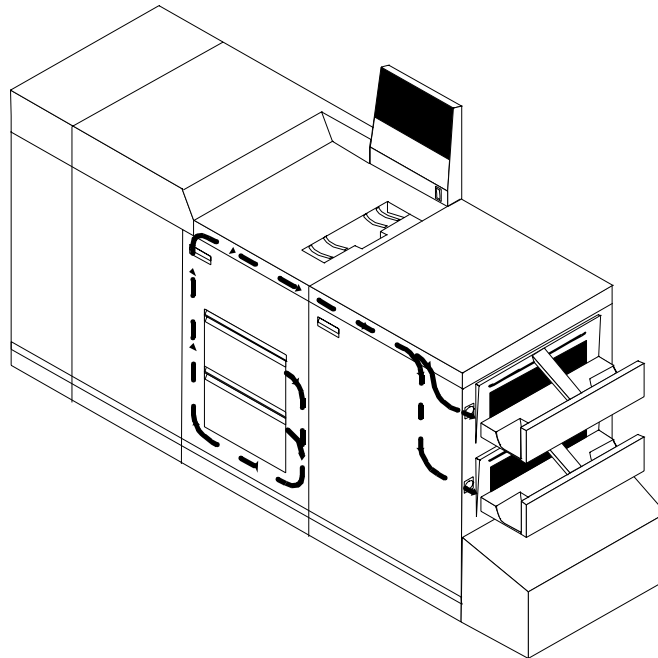
Duplex paper path   The following figure illustrates the duplex (two-sided output) paper path of a printer with a dual stacker and a standard feeder.

Materials may originate in either feeder tray 1 or feeder tray 2. The duplex paper tray receives the materials before they go through a second time to receive the second image. As the pages move through for the second image, they follow the simplex path. The pages are then stacked in either stacker tray 1 or stacker tray 2, depending on your selection at the beginning of the job.

Figure 4-9.   **Duplex paper path (dual stacker configuration)**
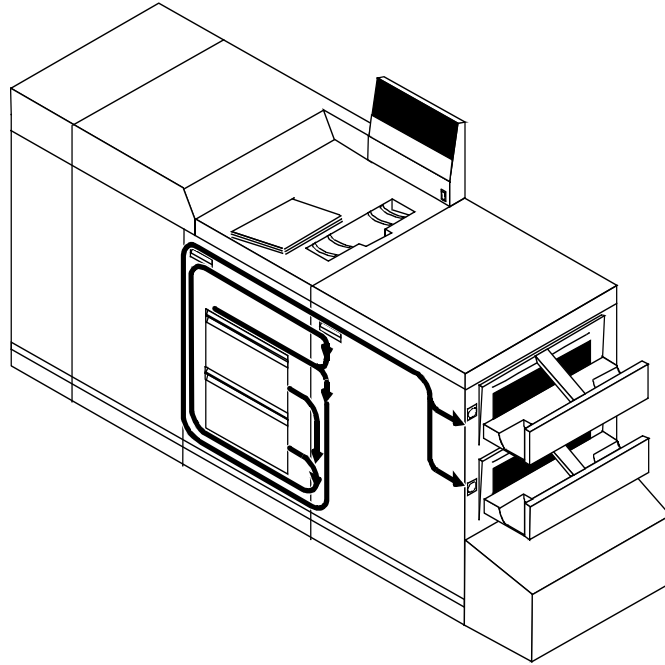
High-capacity feeder paper path   When you add a high-capacity feeder to your system, only the beginning of the paper path changes, which is the source of paper supply. (This is the same for both simplex and duplex paper paths.)

The following figure illustrates the simplex paper path of a printer with the high-capacity feeder.

Figure 4-10. **Simplex paper path on printer with high-capacity feeder**
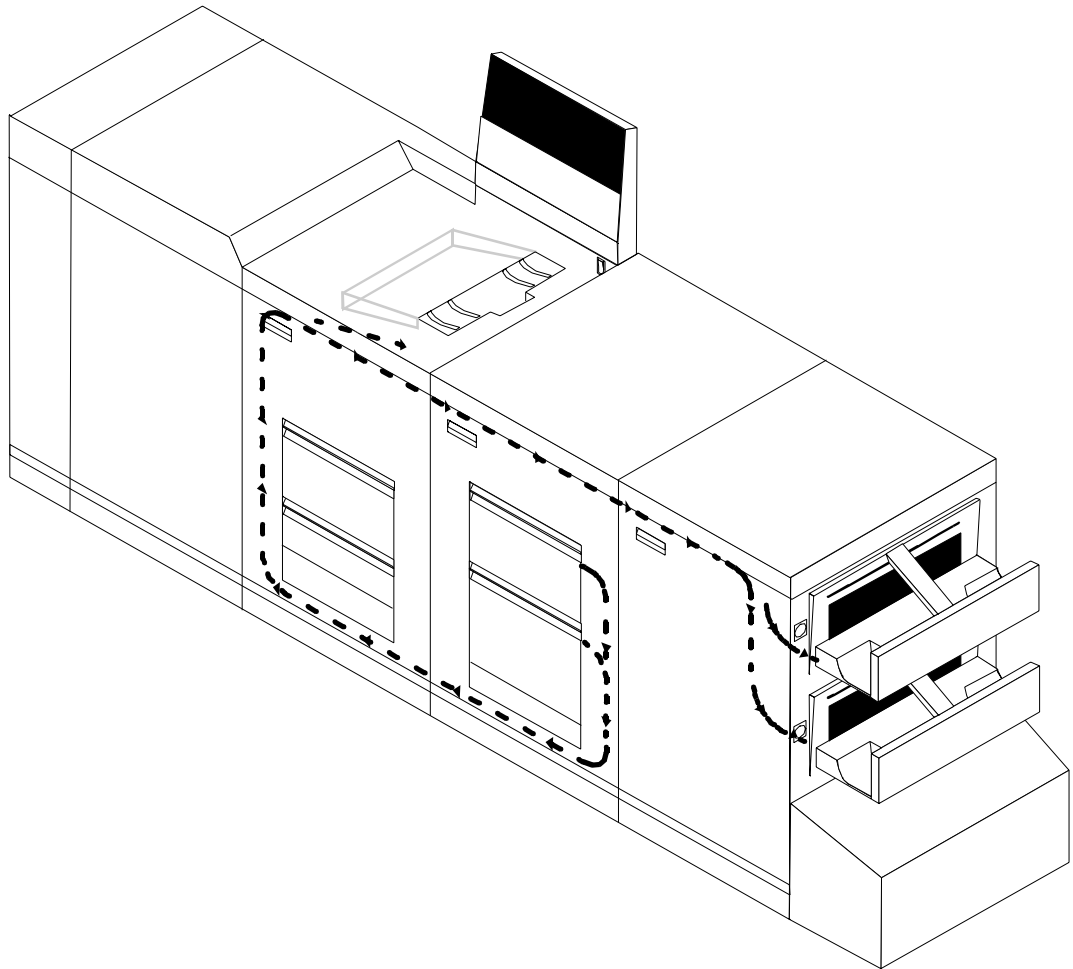
Stitcher/stacker paper path   If you have the stitcher/stacker option, the paper path is the same, except there is only one tray for the output (other than the sample tray).

5.   Bypass transport

The optional bypass transport enables individual printed sheets of paper to pass through the DocuPrint 92C IPS output tray to third-party finishing devices. These devices perform a variety of finishing tasks, such as saddle-stitching, binding, folding, stapling, trimming, and stacking.

Overview

The bypass transport fits into tray 1 of the DocuPrint 92C IPS dual stacker. Printed pages flow from left to right (when viewed from the front of the printer). The printed pages travel through the IPS output module and bypass transport, out of the paper exit slot, and into the finishing device. For paper up to 14 inches long, the maximum delivery rate is 92 sheets per minute.

Figure 5-1.   **Bypass transport**
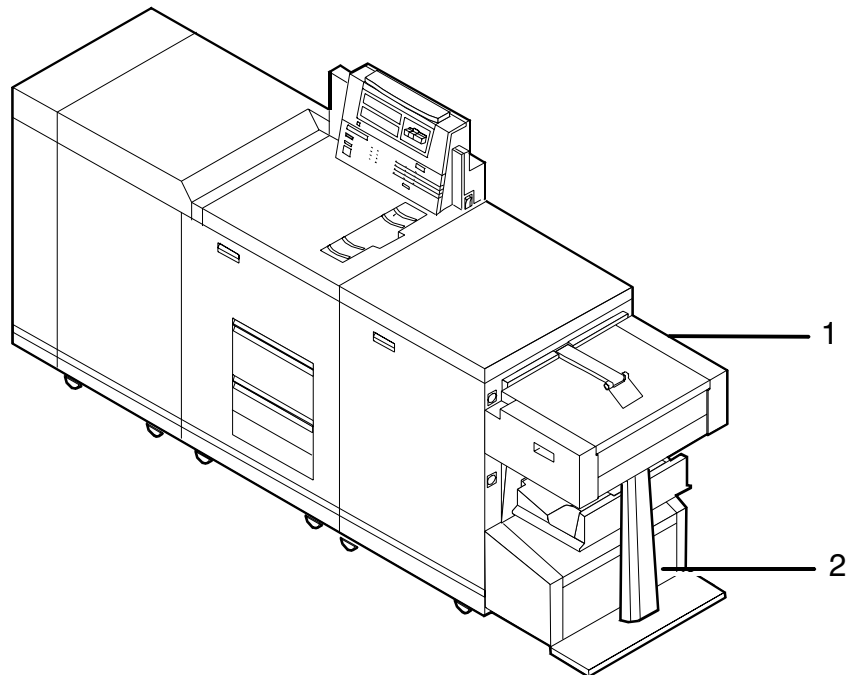
1   **Bypass transport**
2   **Bypass transport support**

Software, firmware, hardware, and paper requirements

The optional bypass transport requires the following:

- Document Feeding and Finishing Architecture (DFA) software loaded on the IPS, provided by Xerox or the local operating company. (Note that DFA runs on IPS software version 4.5 and higher.)

- Dual stacker output module

- Standard white, colored, predrilled, or preprinted paper. To minimize paper jams and misfeeds, use 20 pound or 80 gsm (grams per square meter) bond xerographic grade. Xerox 4024 Dual Purpose Paper and Xerox 10 Series Dual Purpose paper are optimal. Use paper with less than 6% moisture content so that the paper will not curl and jam.

Note: The time between sheets exiting the bypass transport for 8.5 by 11-inch / 216 by 279 mm paper, A4 paper, and 8.5 by 14-inch / 216 by 352 mm paper is 492 milliseconds in simplex mode and 1052 milliseconds in duplex mode. All times are measured between the trail edge of the exiting sheet and the lead edge of the next entering sheet.

Personality profiles for third-party finishing devices

Once a bypass transport is connected to the IPS, you can add any number of third-party finishing devices.

Figure 5-2.   **Third-party finishing device configuration**
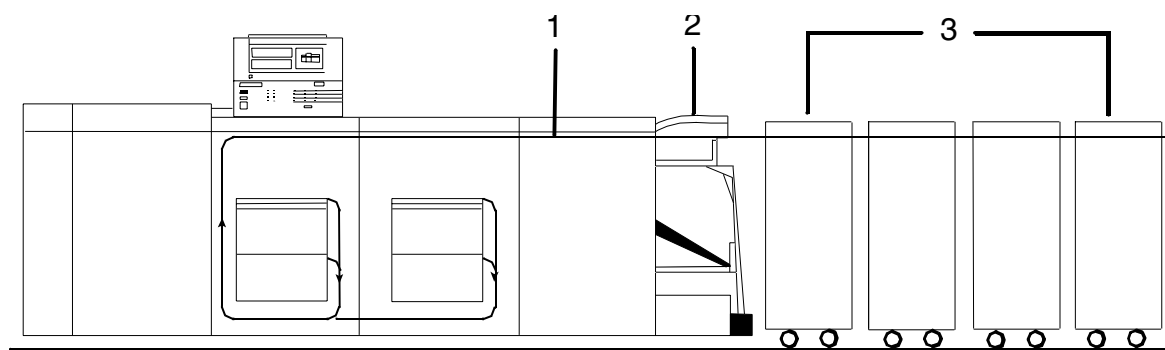
1   Paper path
2   Bypass transport
3   Third-party finishing devices

Each third-party device is identified by a specific personality profile. The personality profile contains information about the options available with the finishing device (for example, a booklet-making device that can produce both side-stitched and saddle-stitched booklets). It also specifies timing requirements, constraints, flags, and other parameters.

With your IPS finishing enhancements, you can make any necessary hardware modifications to the third-party finishing device.

You can create several personality profiles that correspond to different configurations of the finishing device. Refer to your *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System* for information on creating personality profiles at the IPS graphical user interface.

Operator tasks

To use the bypass transport and third-party finishing device, you must perform several tasks:

- Install and remove the bypass transport

- Set up DFA personality profiles to provide the IPS with information about the finishing device

- Prepare the finishing device hardware necessary to finish the printed output and inform the IPS of device names and parameters

- Enter appropriate commands at the Printer Controller to initiate finisher jobs

- Clear paper jams.

You learn how to install and remove the bypass transport and clear jams in the Xerox-provided operator training that follows installation of the bypass transport. In addition, you must know how to prepare the third-party finishing device to process printed output.

Mechanical interface

To connect a third-party finishing device to the IPS bypass transport, you align the finishing device with the paper exit slot of the bypass transport, dock the finishing device, and establish an electrical interface between the two.

The mechanical interface of the bypass transport with third-party finishing devices involves the following:

- **Alignment** — You must consider the feature locations and the vertical alignment. Your finishing device must be capable of aligning at the correct height without interference from protruding features.

- **Paper exit** — Printed sheets travel through the IPS output module and bypass transport, out of the paper exit, and into the finishing device. The paper exit slot is 16.75 inches (425.45 mm) wide. The finishing device must align with this exit slot.

- **Module mobility** — Your finishing device must be easy to move so that you can align it precisely.

The following figure illustrates the alignment and docking locations for the bypass transport on the printer (the bypass transport support is not shown).

Figure 5-3.   **Alignment and docking locations (in millimeters)**

LEFT SIDE VIEW   RIGHT SIDE VIEW

1   **Sheet registration edge**
2   **Sheet edge**
3   **Vertical slot to accept 13 mm**
4   **Floor**
5   **22 mm diameter docking zone**
6   **Center line of docking features**
7   **Sheet path**
8   **Finishing device left edge**
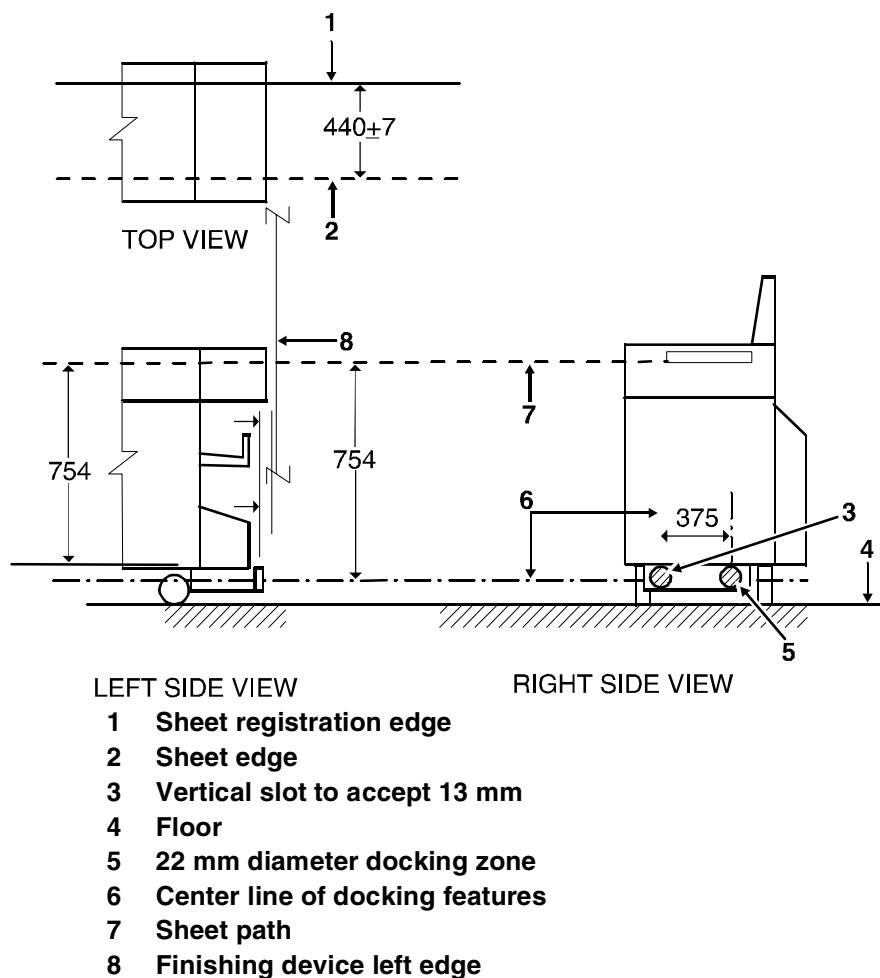
Electrical connection

The printer automatically detects the presence of the bypass transport and third-party finishing devices when it is powered up. The system also begins monitoring the interlocks (physical links) between the bypass transport and the finishing device and starts finishing device interface communications.

After a sheet of paper passes through the bypass transport to the external finishing device, the printer loses all record of it. Communications between the IPS with bypass transport and the finishing device consist of command and status signals.

Command signals

The IPS can send three command signals to third-party finishing devices:

- **Cycle up** — The printer is powered up and signals the finishing device to power up
- **Sheet exit** — A sheet of paper has entered the finishing device
- **End of set** — The last sheet of a print job set has been sent

Status signals

The third-party finishing device can send five status signals to the IPS:

- **Sheet delivered** — A sheet of paper has been successfully delivered to the finishing device
- **Set delivered** — A print job set has been successfully delivered to the finishing device
- **Offline** — The finishing device has no power or is not connected to the IPS
- **Full** — The finishing device is full and cannot accept more sheets
- **Faulted** — The finishing device is jammed or faulted and is not ready to accept sheets of paper

6. Highlight color

This chapter explains the concept of highlight color and discusses the process by which the IPS uses extraction color to add the desired colors to a document.

How highlight color is created

A document with highlight color contains one color plus black. The color may be printed either as a solid color or combined with black. To create tints and shades, the DocuPrint 92C prints dots of black and dots of color very close together. Our eyes mix the dots visually to produce a wide range of color. DocuPrint prints the black and color dots in a single pass, ensuring near-perfect registration.

- Tints of black or the highlight color are created by printing dots of black or color with white space between them, producing a percentage value of the color, for example, gray or pink.

- Shades are created by printing black dots next to dots of the highlight color, producing, for example, a dark red.

- Tones are created by printing a combination of black dots, color dots, and blank space. The result is a percentage value of black and the highlight color such as a dark red made by mixing dots of red and black, or a gray-pink made by mixing dots of red and black dots with some blank space as well.

These patterns of dots are known as screens. Screens are defined in the Printer Controller software as a matrix of bits, which correspond to printed dots. The screen defines which dots in the matrix are black, which are highlight color, and which are not printed.

How highlight color is specified

You specify color in application software. The DocuPrint provides a selection of ten colors and black.

If you specify a color in your document that DocuPrint cannot print, it is printed either as a shade of gray or as an equivalent tone of the highlight color installed in the printer at the time.

Extraction color

The **"extraction color"** is the color you select from the Extraction Color window on the IPS user interface. This selection determines how the solid-color, shaded, and tinted areas specified in the job sent from the host will actually appear when printed by the IPS.

Figure 6-1.   **Extraction Color window**

Exact Color Only: If you click this option to enable it, the job is printed in solid black and one solid highlight color—the extraction color identified on this screen. No shades or tints are printed. Colors other than the extraction color are printed in solid black.

The IPDS data stream allows eight colors to be specified in a job:

1. Red

2. Green

3. Blue

4. Cyan

5. Magenta

6. Yellow

7. Brown

8. Black.

However, the DocuPrint 92C IPS has available a different set of ten colored inks that can be selected for loading in the printer, plus black:

1. Red

2. Green

3. Blue

4. Cyan

5. Magenta

6. Cardinal (red)

7. Royal (blue)

8. Ruby

9. Violet

10. Brown.

Therefore, a job may specify a color for which the DocuPrint 92C IPS does not have corresponding ink; or you may wish to print the job in an ink different from what is specified.

When the DocuPrint 92C IPS receives a highlight color job, it prints in whatever color of ink is loaded in the printer, using one solid color and a variety of shades and tints. The Extraction Color window enables you to specify how the IPDS color(s) specified in the job will map to the shades, tints, and solid of the ink in the printer.

Note: Solid black is not affected by the extraction color selection; if specified in the job, it always prints as solid black.

Extraction color menu   On the Extraction Color window, you can access the color pull-down menu to select an IPDS color. The selected color represents the predetermined print job areas that are to be printed in a solid color. This selected color is the extraction color.

Figure 6-2.   **Extraction color menu**
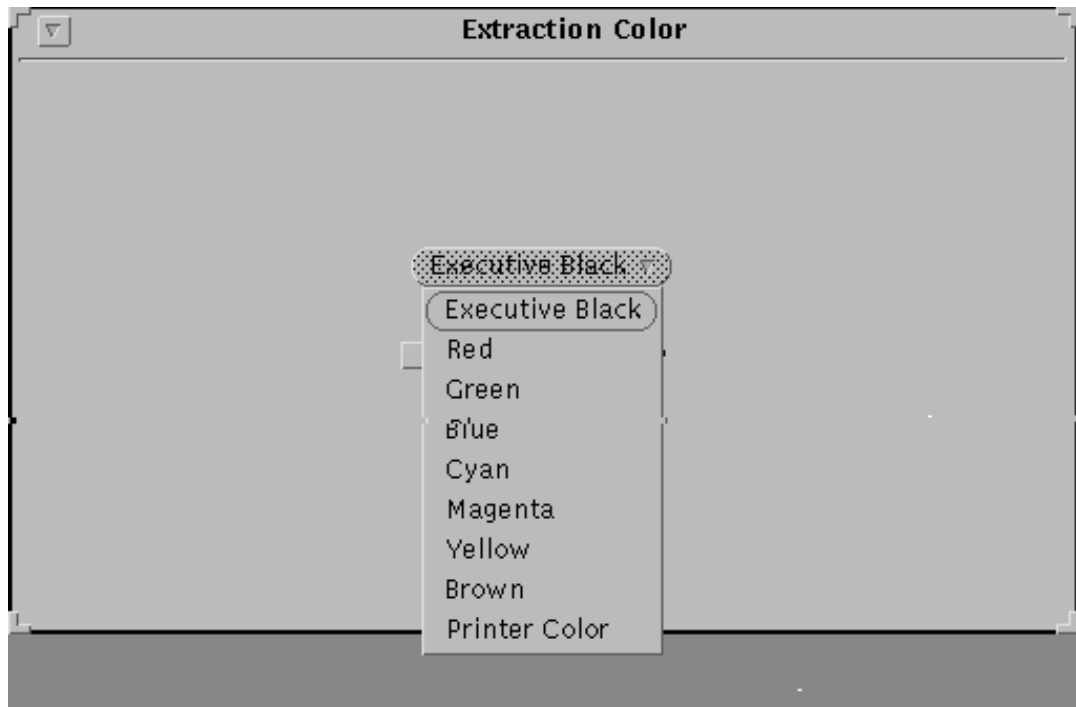
In addition to the eight IPDS colors, you have the following two options on this menu:

- **Executive Black:** The entire job is printed in black, with no highlight color.

- **Printer Color:** The color of the ink currently loaded in the printer will be the extraction color.

If the incoming IPDS data requires other colors in addition to the chosen extraction highlight color, the DocuPrint 92C IPS translates these other colors into variations of the installed printer housing color.

Guidelines for selecting the extraction color

Consider the following guidelines for printing highlight color and selecting an extraction color.

- If multiple colors are specified in the incoming job, you must decide which of those colors you want to print in the solid color areas. Select this as the extraction color. The IPS can print only one solid color; therefore, all saturated areas containing colors other than the one you picked as your extraction color will print in shades and tints of the ink in the printer.

  Example: Your document contains solid areas of red, green, and yellow. You have green ink in the printer. You decide you want all the solid yellow areas in the job to print in solid color. You must specify yellow on the Extraction Color window. When the document prints, all yellow areas will appear as solid green. All other colored areas—red and green—will appear as shades and tints of green.

- If the job contains only one highlight color and you want to print the colored areas exactly as the job specifies, make sure the job color, the Extraction Color window selection, and the ink in the printer are the same.

  Example: Your job specifies certain areas to print in solid blue. To print those areas in solid blue, you must select blue from the Extraction Color window, and the ink loaded in the printer must be blue.

- If the job specifies only one highlight color and you want to ensure that the solid color areas specified in the job remain as solid color of whatever color ink is loaded in the printer, select the same extraction color from the Extraction Color window as is specified in the job.

  Example: You have red ink loaded in the printer. The job calls for green. You must select green from the Extraction Color menu. When your job prints, all solid-colored areas appear as solid red (all shaded or tinted areas appear as different shades or tints of red).

- If your extraction color selection does not match the job-specified solid color, the areas specified as solid color in the job print as shades or tints of the ink in the printer. Refer to appendix A in this guide to see approximately how these shades and tints will appear in your printed document.

Color samples   Appendix A of this guide contains samples (palettes) showing how all the possible combinations of printer ink, job-specified color, and selected extraction color will appear when printed in all the inks available for the DocuPrint 92C IPS.

Caution: The illustrations in appendix A are approximations of how these colors will print. Printed output can vary in color from printer to printer, and the colors in your printed documents may appear slightly different from those shown in this guide. To ensure results that are satisfactory to you, print some test pages from your job with the desired extraction color selected.

A. Paper and other supplies

This appendix provides information and specifications for the media you use with your Xerox DocuPrint Model 92C 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 DocuPrint Model 92C printer accepts the following standard size cut-sheet papers:

- 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

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: 20-pound or 80 gsm bond
- Heaviest: 110-pound or 200 gsm index.

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. 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.

    Load labels with the label side up. You can direct them to any output tray.

- **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**

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-1.   **Storing paper correctly**
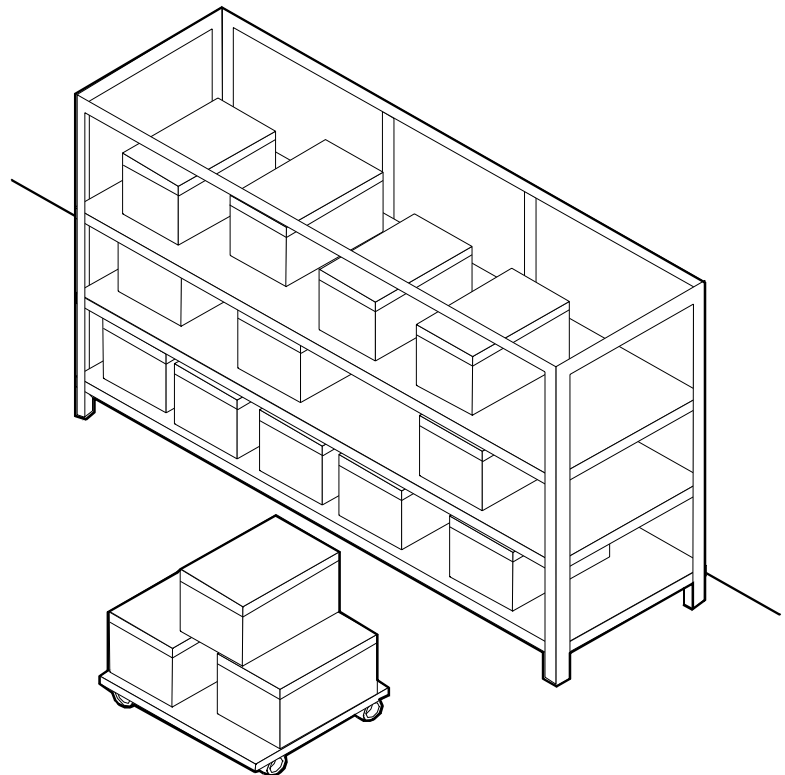
Figure A-2. **Recommended temperature and humidity for paper storage**
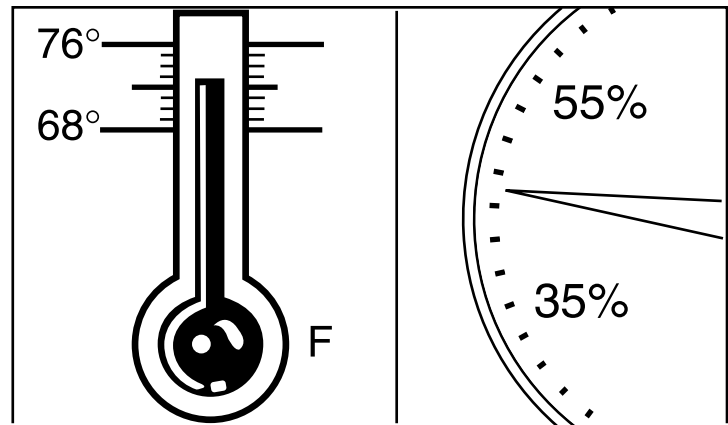
Conditioning paper   Because temperature and humidity affect paper performance in the printer, you need to condition paper before using it. To do this, store paper for a specified length of time in the same type of environment as your printer.

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-1. **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 powder which forms the image on the printed page. There are six cartridges of black dry ink or three cartridges of colored 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 30,000 pages for black dry ink and 86,500 pages for colored dry ink. Use only dry ink that is specified for use in the DocuPrint Model 92C printer, as described in the consumable supplies table.

Note: Dry ink (toner) yields are based on 5% area coverage for black dry ink and 1.5% area coverage for colored dry ink. Your yield may vary, depending on coverage.

Fuser lubricant

Fuser lubricant is a consumable item required by the printer. You should keep at least two boxes (each box contains two tubes) on hand for installation by the service representative. The consumption rate of Xerox fuser lubricant is approximately one tube per 120,000 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 300,000 pages per bottle, guaranteed by Xerox. Developer is a required item and must be kept on hand.

Use only the developer specified for use in your DocuPrint Model 92C printer.

For colored inks, use the color developer specified for each color in the table below:

Table A-2.   **Developers for use with colored inks**

Ink color	Use developer	Part number
Black	Black	502S63250
Blue	Blue	502S63252
Brown	Consult your Xerox representative.	
Cardinal	Red	502S63251
Cyan	Cyan	502S63992
Green	Green	502S63253

Table A-2. **Developers for use with colored inks**

Ink color	Use developer	Part number
Magenta	Magenta	502S63993
Red	Red	502S6325
Royal	Blue	502S63252
Ruby	Magenta	502S63993
Violet	Magenta	502S63993

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

Stitcher wire

Stitcher wire is a consumable item for a printer equipped with the stitcher/stacker option. You need to order stitcher wire reels and keep them on hand. They are installed by the service representative or operators who have completed the Advanced Customer Training (ACT) or eXcellerate courses offered by Xerox.

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.

Tapes

The optional 4 mm cartridge tape drive uses 5 GB or 8 GB tapes.

The 1/4-inch QIC tape drive uses quarter-inch stream cartridge tapes. The tape data capacity should be 320/525 MB. Tape density is critical. The QIC drive can read low density tapes, but to write reliably requires tape with 21,000 Flux Transitions Per Inch (FTPI). The FTPI figure is usually listed on the cartridge.

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.

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 DocuPrint Model 92C printer, with size, order number, and a brief description for each.

Table A-3. **Stocks list for DocuPrint Model 92C printer**

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	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
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

*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-3. **Stocks list for DocuPrint Model 92C printer**
(continued)

Item	Description	Part number
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 inches	4200 Primary Image	3R5802
8.5 x 14 inches	4200 Primary Image	3R5804
8.5 x 11 inches	4200 Primary Image, 3-hole	3R5803
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

*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-3. **Stocks list for DocuPrint Model 92C printer**
(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, 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
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.		

Complete supplies list—Model 92C printer

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-4.   **Complete supplies list for DocuPrint Model 92C**

Item	Description	Part number	Items/ carton	Expected yield
Developer material	Packaged one container per carton. (Needs replacement only if current supply becomes contaminated.)			
	Black developer	502S63250	1/carton	
	Red developer (also for cardinal ink)	502S63251	1/carton	
	Blue developer (also for royal ink)	502S63252	1/carton	
	Green developer	502S63253	1/carton	
	Cyan developer	502S63992	1/carton	
	Magenta developer (also for ruby and violet inks)	502S63993	1/carton	
	For brown ink, ask your Xerox representative about the correct developer to use.			
Diskettes	3.5-inch, 1.44 MB, double-sided, high density diskettes. Packaged 10 diskettes per box.	8R7683	10/box	
Dry ink	Colored dry ink is packaged three bottles per carton; black, six bottles per carton.			
	Black dry ink	6R296	6/carton	180,000 prints/carton
	Red dry ink	6R297	3/carton	260,000 prints/carton
	Blue dry ink	6R754	3/carton	260,000 prints/carton
	Green dry ink	6R299	3/carton	260,000 prints/carton
	Cyan dry ink	6R755	3/carton	260,000 prints/carton
	Magenta dry ink	6R816	3/carton	260,000 prints/carton
	Royal blue dry ink	6R826	3/carton	260,000 prints/carton
	Cardinal dry ink	6R825	3/carton	260,000 prints/carton
	Violet dry ink	6R828	3/carton	260,000 prints/carton
	Ruby dry ink	6R827	3/carton	260,000 prints/carton
	Brown dry ink	6R842	3/carton	260,000 prints/carton
Fuser lubricant	Packaged two tubes per carton.	8R983	2/carton	240,000 prints/carton
Cartridge tapes	4mm blank cartridge tape, 5GB	9R01190		
	4mm blank cartridge tape, 8GB	109R00314		
Cartridge tape supplies	QIC blank (26-track) cartridge	9R84168		
	QIC tape drive head cleaning kit	9R88432		
Cleaning supplies	4mm cartridge tape head cleaning kit	9R01189		
	Foam-tipped swabs	99P87256		
	Lint-free towels	35P2163		

Table A-4. **Complete supplies list for DocuPrint Model 92C**

Item	Description	Part number	Items/ carton	Expected yield
Waste containers	Dry ink waste container (Model 92C) Developer waste container (Model 92C)	93K1403 93K850		400,000/carton 100,000/carton
Stitcher wire	Packaged one reel per box.	8R1174	One reel	32,000 staples

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 appendix 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, fuser lubricant, and 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, developer, fuser lubricant, stitcher wire, 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-5.   **Supplies checklist for DocuPrint Model 92C printer**

Supplies checklist
Use this checklist to help record the supplies and accessories you need, the date you plan to place the order, and the actual date of the order.

Item	Description and part number	Quantity	Date to order	Date ordered
Paper				
Transparencies, labels, and special stocks				
Dry ink				
Fuser lubricant				
Diskettes				
Stitcher wire				
Cartridge tapes				
Cleaning supplies				

B. Extraction color samples

This appendix contains sample pages for each of the colored inks available for printing on your DocuPrint 92C IPS: red, green, blue, cyan, magenta, brown, cardinal, royal, ruby, and violet.

Each of these pages shows approximately how one of the colored inks will print with each of the eight IPDS colors:

1. Black

2. Red

3. Green

4. Blue

5. Cyan

6. Magenta

7. Yellow

8. Brown.

Note: The illustrations in appendix A are approximations of how these colors will print. Printed output can vary in color from printer to printer, and the colors in your printed documents may appear slightly different from those shown in this guide. To ensure results that are satisfactory to you, print some test pages from your job with the desired extraction color selected.

Additional information   For an explanation of highlight color printing on the IPS and the selection of extraction colors, refer to the "Highlight color" chapter in this guide, and to "Selecting the extraction color" section in your *Xerox DocuPrint 92C IPS Guide to Configuring and Managing the System*, provided with your IPS.

For guidelines for selecting, adding, and using highlight color in your applications, refer to *Designing for Highlight Color*, also provided with your IPS.

Index

U

V

W

X