

IBM InfoPrint Color 100



Introduction and Planning Guide

IBM InfoPrint Color 100



Introduction and Planning Guide

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First Edition (August 1998)

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Preface

This publication introduces the IBM InfoPrint Color 100 and provides a summary of its functions. This publication also contains information to help you prepare for installing and using the InfoPrint Color 100.

This publication is for executives who are considering purchasing the InfoPrint Color 100 and the planning team responsible for installing and preparing the printer for regular operation.

About this Publication

This publication contains the following topics:

- Printer description and information
- How to prepare the physical environment
- How to plan the physical layout
- Operator tasks and training
- Supply requirements
- Communicating with your printer
- System Assurance Checklist

Related Publications

The following additional InfoPrint Color 100 publications are available:

- *IBM InfoPrint Color 100 Operator's Guide*, S544-5611, which contains the procedures required to operate the printer. This book also describes the variable data feature and how to use it to produce customized documents.
- *IBM InfoPrint Color 100: Safety Information*, G544-5613, which contains a collection of English and translated safety statements that apply to the InfoPrint Color 100 printer.
- *IBM InfoPrint Color 100 Print Media Guide*, G544-5648, which contains information about forms and special-purpose media that can be used with the IBM InfoPrint Color 100 printer.
- *IBM InfoPrint Color 100 Maintenance Library* which contains installation and service information for the service representative.

Note: The above documents, with the exception of the *IBM InfoPrint Color 100 Maintenance Library*, are available at the following internet address:

- www.printers.ibm.com/manuals.html

Chapter 1. Printer Description

The IBM InfoPrint Color 100 Printer is designed for short-run, high-quality, full-color applications. The innovative, entirely digital, printing technology of the InfoPrint Color 100 brings the advantages of electronic publishing to color printing.

Key advantages of the InfoPrint Color 100 include the following:

- High reliability
- Integrated duplex printing
- Optimal registration with WebSync; new web edge detection and registration control maintains the image position relative to the edge of the web
- Competitive cost-effective full-color output on 50 cm wide paper
- Fast turnaround for electronically collated full-color documents
- Allows new printing applications with digital information, and provides the ability to customize documents, brochures, hand-outs, and other printed material that are now produced in black and white
- Prints multiple copies in collated order
- Prints multiple copies of books (up to 1000 pages) in collated sequence with variable data
- Allows 100% variable data per page
- Allows customized, collated, full-color documents, brochures, hand-outs, and other similar documents through electronic page-picking
- Reduces post-processing steps through collated printing
- Automates daily runs through book ticket files
- Produces output compatible with Specifications for Web Offset Publications (SWOP) and Euroscale standards
- Provides a ColorSync II profile for Macintosh workstations
- Prints directly from digital data to eliminate costly intermediate steps, such as film and plate making
- Gloss Enhancement Module provides a smoother, glossier finish to printed jobs
- Toner Saver provides the ability to reduce toner usage
- Provides automated density control and registration control using densitometer measurements
- A true "direct-to-paper" solution.

The InfoPrint Color 100 can be used for a wide range of print-on-demand (POD) applications, including targeted advertising and brochures, textbooks, custom classroom materials, and many other similar applications.

The InfoPrint Color 100 produces high-quality process color jobs at a speed of 105 letter-size impressions per minute when printing duplex, or 52 letter-size impressions per minute when printing in simplex. In either simplex or duplex, the print speed is 52 letter-size sheets per minute.

The InfoPrint Color 100 prints at 600 pel resolution with up to 4 gray levels per dot for each of the four basic colors. Proprietary screening allows images to be printed at a screen frequency of 170 lines per inch.

The printer is compatible with PostScript data streams from standard prepress platforms and attaches to a network with Ethernet or Token Ring.

The InfoPrint Color 100 requires a high degree of operator involvement in the processing of the short-run press jobs. The operator, among other tasks, is required to adjust print station registration and color balancing, take densitometer measurements, enter job data, add toner, and perform daily cleaning.

The InfoPrint Color 100 is not capable of printing on preprinted forms or pre-die-cut labels.

Printer Components

Following is a description of the major components of the printer.

Print Tower

The print tower is the largest component of the InfoPrint Color 100. It houses a web-fed continuous-form printing engine that contains a set of cyan, magenta, yellow, and black (CMYK) printing units for each side of the paper. This allows full-color duplex printing in a single pass. Each of the electrophotographic printing units is directly fed by digital data, and uses a light-emitting diode (LED) array as the imaging device.

The temperature and humidity within the print tower is controlled to assure a stable printing environment.

The printer fuses toner to the paper using a non-contacting radiant fusing station. After the paper exits the fuser, a set of gloss enhancement pressure rolls reheats the toner, smoothing it to a glossy finish. Finally, the printer cuts the paper to the specified job length before the paper exits the print tower.

Paper Supply

The paper supply unit attached to the input side of the print tower contains a paper supply roll and a manual splicing station. The paper supply unit preconditions the paper on both sides before it enters the print tower to ensure high-quality printing.

Output Jogger

Cut sheets exiting from the print tower are directed to the output jogger. The jogger vibration adjusts the output into a stack convenient for operator retrieval.

Cooling System

The print tower cooling unit supplies a mixture of water and coolant to the print tower for maintaining temperature and humidity control in the print tower.

A separate cooling system keeps the LED printheads cooled with temperature controlled water, thus maintaining consistent light output from the LED assemblies.

Operator Console

The Print Engine Supervisor (PES) control unit, collator, RIP controller, and software comprise the operator console. The RIP controller supplies the interface to the operator, the LAN, the PES control unit, and the various I/O devices that support the print operation. The following sections describe elements associated with the operator console.

Operator Interface and RIP Controller

The operator uses keyboard, mouse, and monitor to control the printer through a graphical user interface (GUI).

The Raster Image Processor (RIP) software accepts PostScript files as input and produces output to send to the InfoPrint Color 100. The operating system allows for asynchronous print data transfer and RIPing of incoming jobs. The RIP controller performs the processing functions when a job is RIPed for printing.

The RIP controller contains the operating system and controlling software for the primary graphical user interface. Printer operation, monitor, and control tools are presented to the operator through the RIP controller operating environment. The RIP controller contains prepress disk drive space to store jobs before they are RIPed and printed. The RIP controller also provides the network communication platform for downloading jobs from up to five prepress graphic workstations at one time.

The RIP controller has the following hard drives and hard drive options:

- Internal 2GB Iomega Jaz drive (standard)
- 9.1GB hard drive for data storage (standard)
- 9.1GB hard drive (optional)
- 18.2GB hard drive (optional)

LAN Attachment

The RIP controller attaches to a LAN through an Ethernet or Token Ring device. See “Network Protocols” on page 33 for information about supported protocols.

Collator

The electronic collator consists of a high-speed disk array that can store individual page images, which allows printing of large collated documents. Collated documents, with each page entirely different, can be printed at the high InfoPrint Color 100 print speeds. Multiple copies of a book can be printed so that the pages of each copy are printed in collated order. The first collated set is available before the second is started.

The collator provides the capability of storing up to 64GB of compressed, rasterized data. This is equivalent to about 1000 pages of a typical magazine with a data depth of 2 bits per spot (BPS). For pure text, the collator can store from 10 000 to 20 000 pages.

The collator provides virtually unlimited flexibility for variable data applications. It provides the capability to merge fixed and variable data onto pages as jobs are printed.

The collator allows electronic page-picking of non-variable jobs for custom book generation by selecting different page images for each book. Page images are stored on the collator, and printed as a customized book on demand. This provides a significant time savings because the page images do not have to be rasterized again.

In addition, the collator:

- Provides 2 bits per spot capability
- Provides failure monitoring and diagnostics

The collator stores rasterized image data for all colors on both sides of the page (8 sets total) on a 64GB disk array. Individual 8GB disk arrays are provided for each of the 8 image data sets, combining to form a 64GB array. Each of these arrays is controlled and managed by its own high performance RIP controller and DRAM image data buffers. Normally, large amounts of volatile DRAM are required to support the high sustained data rates that must be supplied to the LED printheads of the InfoPrint Color 100 print engine. However, the distributed 8GB disk array design, coupled with the high speed data paths of the RIP controller, enables the use of smaller DRAM buffers to maintain the necessary data bandwidth to the LED printheads.

The 64GB of the DASD (disk) storage allows virtually unlimited variable data, and also makes possible the retention of Rasterized Image Processor (RIP) images. The rasterized image data stored on the collator can be quickly directed to the print engine an unlimited number of times. RIPed images on the 64GB disk

array can be archived to an external storage device. A functional description of the collator system is shown in Figure 1.

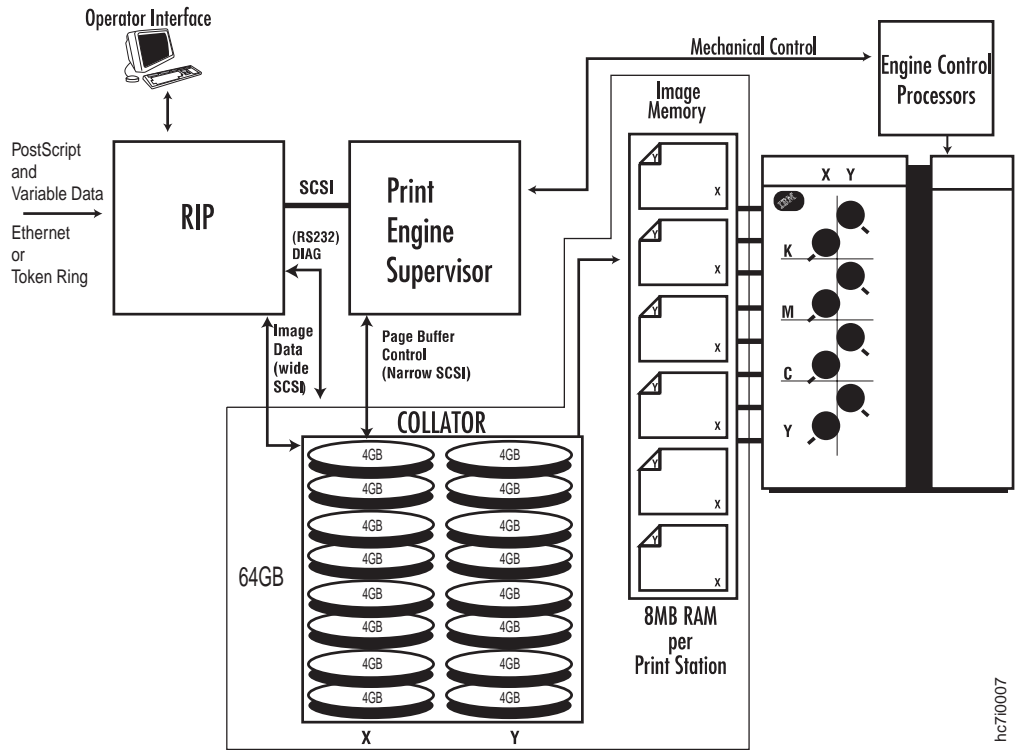


Figure 1. IBM InfoPrint Color 100 Printer Collator System

Table 1. Features of the InfoPrint Color 100

Feature	
Image Memory (ISMT)	8MB/printhead
Image DASD	64GB collator DASD
Variable Data	Standard
Color Depth	2 bits/dot

Software

The following sections provide information about IBM InfoPrint Color 100 software.

Windows NT Environment

The IBM InfoPrint Color 100 printer user interface runs on a Windows NT Operating System. The Windows NT license agreement limits shared network disk access to five Macintosh or PC workstations.

XPOSE

A GUI that allows the operator to control the printer registration and density, monitor engine status, adjust job settings, submit jobs to the print engine, and perform some service functions.

ThruPRINT

An IBM exclusive GUI which provides a user interface to manage job setup, RIPing and printing to and from the collator. The ThruPRINT interface allows you to:

- Define page setup

- RIP PostScript files
- RIP variable data files using MergeDoc (described below)
- Print PostScript files from the collator or book ticket file (BTF) for variable data jobs
- Manage collator space
- Rename PostScript files on the hard disk or RIPPed sections on the collator
- Delete PostScript files on the hard disk or RIPPed sections on the collator
- Backup complete sections on the collator to the computer hard disk and later store to any storage media; tape, disk, Jaz drive, etc.
- Restore from any storage media back to the collator without RIPPING the PostScript files again, especially when the collator files are deleted, or restore the files to the collator with a different name.

Variable Data

You can create documents with variable content at a desktop workstation and then merge the variable elements at the time of RIPPING. The following software allows you to create, merge, and print documents with variable information:

PageMaker Plugin:

IBM provides an Adobe PageMaker page layout program plugin for the Windows environment. The plugin, once installed, enables the user to define various text and picture areas as variable elements. When the PostScript file is generated, the plugin also generates additional files called document definition files (DDF). The DDF files are then transferred to the InfoPrint Color 100 printer along with the variable data file.

XTension for QuarkXpress

IBM provides an XTension page layout program for QuarkXpress to support QuarkXpress in both Windows and Macintosh environments. The XTension works in the same way as the PageMaker plugin described above and provides the same capabilities. In addition, the XTension provides the capability to generate rotated variable information and to print applications that require rotated variable data, such as a tent card.

MergDoc

The MergeDoc program is resident on the RIP controller. MergeDoc is used to generate variable data PostScript files by merging the files generated by the above mentioned XTension and plugin, and the data files. In addition, it generates a book ticket file (BTF) which describes how the job is to be printed, for example, the order of pages or sections in the book.

Screening Technology

Because screening enhances print quality, the following features are standard in the InfoPrint Color 100:

- Gray scales of 2 bits/dot
- Screen offset angle of 15, 45, 75, and 90 degrees (YMCK) (within 0.15 degrees)
- Screening for 170 line per inch ruling for cyan, magenta and black
 - Yellow ruling different to minimize pattern generation.
- Elimination of moire patterns between cyan, magenta and black
- Optimizing of rosette patterns

Local Area Network (LAN) Configuration

To ensure that the InfoPrint Color 100 is set up to meet your expectations, review the network configuration that will be used with the printer. Also, review printer controller hardware, network hardware, application software, and network software.

For details about LAN features and options, contact your IBM representative.

Note: The InfoPrint Color 100 printer is shipped with Ethernet or Token Ring. To help prevent installation delays, have someone familiar with your LAN configuration available to assist the systems engineer and service representative during the InfoPrint Color 100 installation.

See “Network Protocols” on page 33 for information about supported protocols.

The *IBM InfoPrint Color 100: Maintenance Library* contains configuration information.

Service Interface

The service representative uses the same GUI interface as the operator, to service the printer. The service representative also uses the interface to run several diagnostic aids.

The *IBM InfoPrint Color 100: Maintenance Library*, describes the diagnostics package and the operator console’s service mode capabilities.

General Performance Specifications

This section lists the general performance specifications of the InfoPrint Color 100.

Process speed	12.25 cm (4.82 in.) per second
Letter-size sheets per minute	52 simplex or duplex*
Letter-size impressions per minute	52 simplex or 105 duplex*
Dot density	600 x 600 dpi
Printed line width (maximum)	475 mm (18.70 in.) centered on paper**
Paper width (maximum)	508 mm (20.04 in.)
Paper width (minimum)	500 mm (19.96 in.)
Paper length as cut	150 - 11 097 mm (5.9 - 436.9 in.)
Paper roll diameter	500 mm (19.7 in.) maximum
Paper input capacity	264 lb roll (standard)
Jogger capacity	100 mm (3.9 in.) (maximum height) 50 kg (maximum weight)
Stacked paper sizes (length)	150 mm - 1 000 mm (5.91 - 39.37 in.)***
Manual splicing station	Standard feature

* Other throughputs can be calculated using the web speed.

** Maximum that printhead can print. See “Print Area” on page 7 for more information.

*** Longer lengths will require operator assistance.

Print Quality and Registration Specifications

The following print specifications apply when the operating environment is within optimum operating ranges. (See “Environmental Requirements” on page 9 and “Paper” on page 30.)

Job Setup

You may need to print 25 or more impressions to adjust registration and density.

Maximum Percentage of Coverage

It is expected that a typical job will have 17% toner coverage for each color. Print quality may degrade during long runs of over 100 impressions per side if the toner coverage exceeds 70% per color. It may be

necessary to limit the run-length of high-coverage jobs, and to run multiple batches separated by low coverage jobs. For example, to optimize print quality on a high-coverage job requiring 500 copies, it might be best to run 10 jobs at 50 copies per job.

The toner saver function allows for a toner savings of up to 35%. Two modes are available; gamut-protect and maximum savings. The maximum savings mode will produce the greatest toner savings, while the gamut-protect mode optimizes print quality by ensuring no change in color gamut occurs when the toner savings algorithms are used.

Paper

The IBM InfoPrint Color 100 accepts paper web widths of 19.7 to 20" (500 mm - 508 mm). Print quality specifications apply only when using the IBM-approved papers. See the *IBM InfoPrint Color 100 Print Media Guide* for the current list of approved media. This list is updated from time to time as IBM approves additional media. You can download the *IBM InfoPrint Color 100 Print Media Guide* from the following internet address:

www.printers.ibm.com/manuals.html

Upon request, an IBM customer engineer will install paper scripts.

Print Area

The InfoPrint Color 100 prints to within 3 mm (0.12 in.) of the edge of the paper roll, and provides a maximum image width of 475 mm (18.70 in.). Maintain at least 5 mm (0.2 in.) space between printed images. Signature space along the web can be within 0.1 mm if no cutting is required. If cutting is required, signature spacing should be at least 1.0 mm. Cutter accuracy is 0.5 mm.

Registration

Color Registration: Use the automated registration procedure (via the densitometer) to adjust the registration of the print unit stations. The *IBM InfoPrint Color 100 Operator's Guide* describes the procedure. Usually, registration is adjusted at the start of a new paper roll or after an idle period of more than two hours.

Image Registration: The InfoPrint Color 100 image registration is within ± 0.75 mm (0.03 in.) in the paper movement direction, and within ± 1 mm (0.04 in.) across the web. The operator can adjust alignment to within 1 pixel of the ideal location. Back to front image registration is within 0.2 mm (0.008 in.).

Skew

Image skew and distortion have an accuracy of $\pm 0.02^\circ$.

Sheet Cutting Accuracy

The accuracy of the cut length is ± 0.5 mm (0.02 in.). The cut is perpendicular to within 0.3° .

Optical Density

Hold optical density as close as possible to specifications to ensure full process color reproduction and consistency of color throughout any particular job. The *IBM InfoPrint Color 100: Operator's Guide* describes optical density adjustments. A densitometer is shipped with the printer to check optical density.

Chapter 2. Preparing the Physical Environment

This chapter describes the environmental, physical, and space requirements that are needed before installing the InfoPrint Color 100.

Environmental Requirements

For optimal print quality the environment must be closely controlled. See the following table for optimum environmental conditions.

Table 2. Environmental Requirements

Mode	Air Temperature	Relative Humidity
Shipment	-20°C to +35°C (-4°F to +95°F)	15 to 80%
Storage	-20°C to +35°C (-4°F to 95 °F)	15 to 80%
Nonoperating Minimum Maximum	10°C (50 F) 30°C (86 F)	15% to 80% 25% to 50%
Optimal Operating Range Minimum Maximum	20°C (68°F) 25°C (77°F)	27 to 62% 28 to 53%
Acceptable Operating Range Minimum Maximum	15°C (59°F) 30°C (86°F)	15 to 65% 25 to 50%

Notes:

1. The printer will maintain a relative internal humidity level below 35% when printing continuously and the optimum print quality will be produced. Additional warm-up time is expected if the humidity exceeds 35%.
2. Maximum temperatures listed in the table above apply also to the shipment and storage of toner and developer.
3. After exposure to cold temperatures, the shipping container should not be opened for at least 4 hours in order to allow sufficient time for the contents' temperature to stabilize.

Altitude

The following barometric pressure requirements apply:

- The printer must operate at pressures corresponding to elevations from sea level to 2135 M (7000 ft.).
- The printer operates satisfactorily with pressure variations of $\pm 2.6\%$ of the nominal pressure at the installation altitude.

Note: For exceptions, contact your IBM InfoPrint Color 100 representative.

Ventilation

Provide appropriate ventilation to conform to health, safety, and environment standards. The American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHREA) recommends a minimum of 34.2 cubic meters per hour (20 cubic feet per minute) per person of outdoor air make-up during human occupancy.

To comply with the most stringent state Office of Environmental Health Hazard Assessment (OEHHA) guidelines (California), ensure that the printer area meets the following ventilation requirements:

1. If the printer room has a volume greater than 1 000 m³ (35 315 f³) for each InfoPrint Color 100 installed, a minimum outdoor air exchange of 1 300 m³/h (765 f³/m) per printer is required. For room temperatures exceeding 26°C (79°F), the fresh air exchange rate must be increased.
2. If the printer room has a volume smaller than 1 000 m³ (35 315 f³) for each installed InfoPrint Color 100, or if the air exchange rate and temperature requirements cannot be met, you must install a ventilation system. The ventilation system must provide active local exhaust from the printer to the outside of the building.

IBM recommends that you locate and install a ventilation system with 6 inch (15.25 cm) tubing to connect to the exhaust air collector installed by the service representative. Refer to Figure 2 on page 12, or position 3 in Figure 10 on page 19. Exhaust air from three cooling fans at the top of the printer fixed tower and the fan on the paper supply cover is routed through hoses to an exhaust air collector. Your exhaust system will attach to this exhaust air collector at the top of the printer. A 6.3 inch (16 cm) diameter, 33 foot (10 m) length hose is supplied with the air collector to attach to your ventilation system. A fan or blower should be installed in the exhaust duct to assist in moving printer exhaust air to the outside air. Your exhaust system must provide a minimum air flow rate of 750 m³/h (441 f³/m) for each installed InfoPrint Color 100 printer.

Heat Dissipation and Cooling

Table 3. Heating and Cooling Specifications (Approximate)

Description	50–60Hz	
	Idle	Printing
Printer with PES Control Unit	19.5 kBTU/hr (5.72 kW)	30.0 kBTU/hr (8.79 kW)
Cooling Unit	4.1 kBTU/hr (1.20 kW)	7.8 kBTU/hr (2.29 kW)
Collator	3.4 kBTU/hr (1.00 kW)	3.4 kBTU/hr (1.00 kW)
RIP Controller	0.4 kBTU/hr (0.12 kW)	0.4 kBTU/hr (0.12 kW)
Monitor	0.55 kBTU/hr (0.16 kW)	0.55 kBTU/hr (0.16 kW)
Totals	27.95 kBTU/hr (8.20 kW)	42.15 kBTU/hr (12.4 kW)

Acoustic Levels

The InfoPrint Color 100 acoustic levels do not exceed 71 dB sound pressure and 7.1 bels sound power in either standby or operating modes.

Lighting

Avoid intensive ultraviolet (UV) sources such as direct sunlight. Fluorescent lighting at normal levels is permitted. Excessive amounts of UV may cause premature failure of the printer drums.

Planning your Physical Layout

This section presents physical planning information to ensure a smooth installation. Information includes:

- Space requirements
- Physical dimensions and weights of the shipping crates
- Weights and dimensions of the printer components
- Electrical requirements
- The best location for installing the printer

This book also contains a checklist to ensure a successful installation (see “Chapter 6. Checklist” on page 37).

Physical Layout

As you plan the physical layout, be sure to:

- Install the printer away from the main traffic pattern. Allow space for operators and service representatives to perform their tasks. This space should not extend into walkways.
- Install the printer in a location that is convenient for the operator. For example, consider whether the planned location is close to printer supply storage areas and to output distribution areas.
- Allow 2489 mm (98 in.) between the floor and the lowest permanently attached object above the printer, such as a light or a cable rail. This layout gives printer operators and service representative space in which to work. See Figure 3 on page 13.
- Ensure that doorways are at least 183 cm (72 in.) wide and 229 cm (90 in.) high.

Minimum Space Requirements

When planning the space for your printer, consider clearances for paper loading, servicing and normal cleaning and maintenance on all sides of the printer. Maintain at least 2 m (80 in.) for paper loading and servicing of the printer and at least 1.5 m (60 in.) for paper unloading.

Figure 2 on page 12 shows an example of a typical installation.

Minimum space requirements are shown in Figure 3 on page 13 and Figure 4 on page 13.

Additional dimensions for the printer, operator console, and cooling unit are shown in Figure 5 on page 14, Figure 6 on page 15, and Figure 7 on page 16.

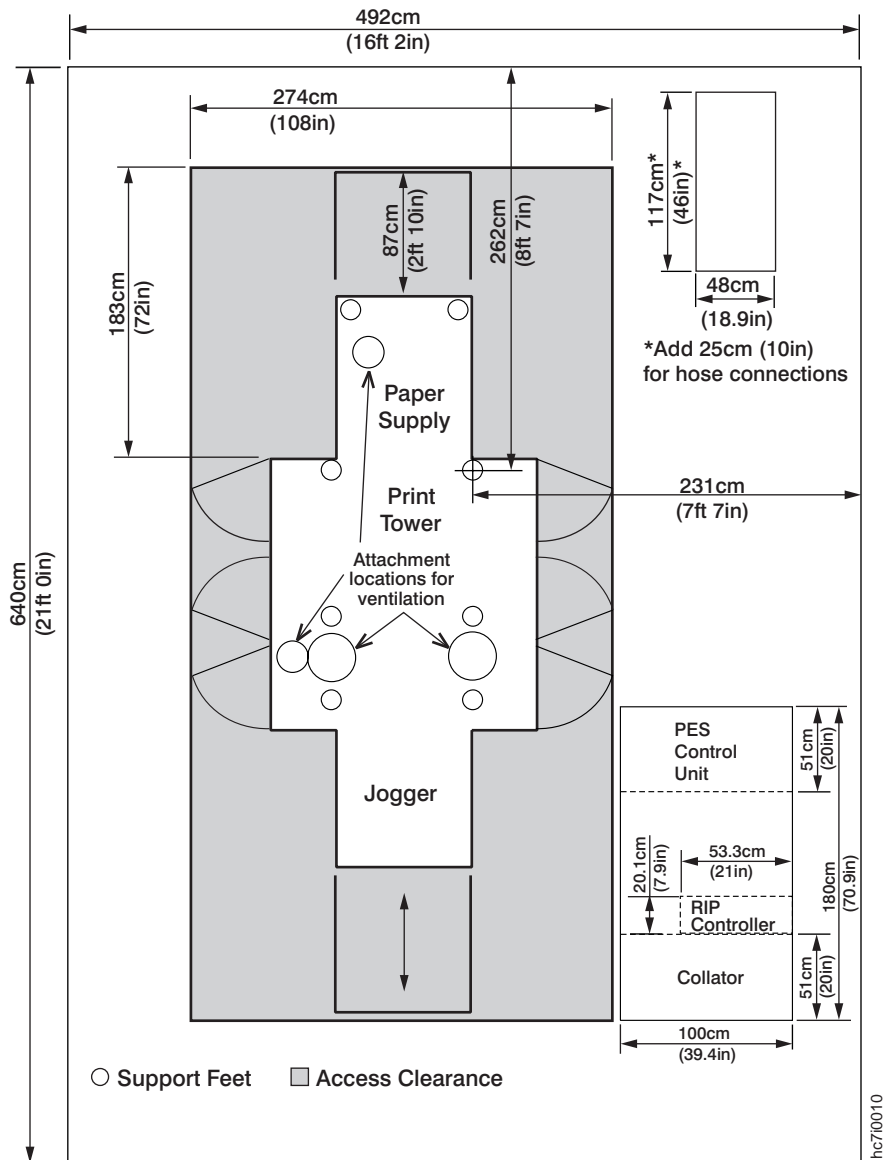


Figure 2. A Typical Space Installation

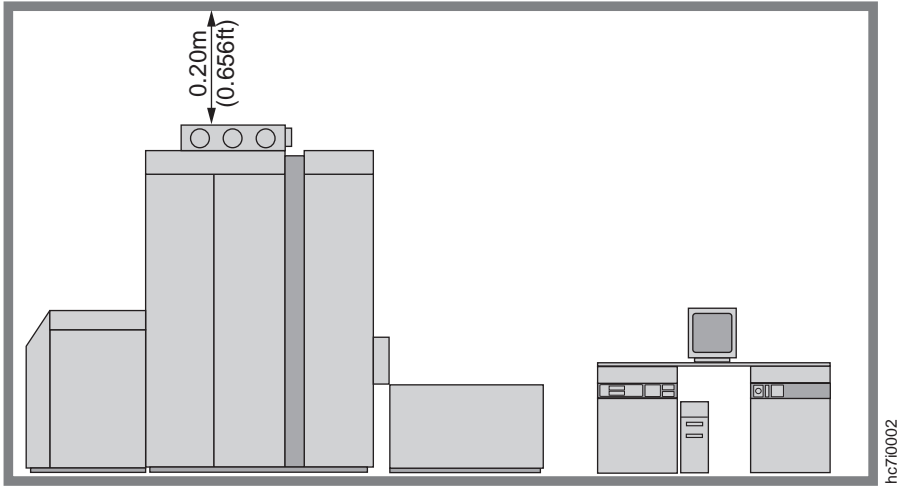


Figure 3. Minimum Space Above The Printer Tower

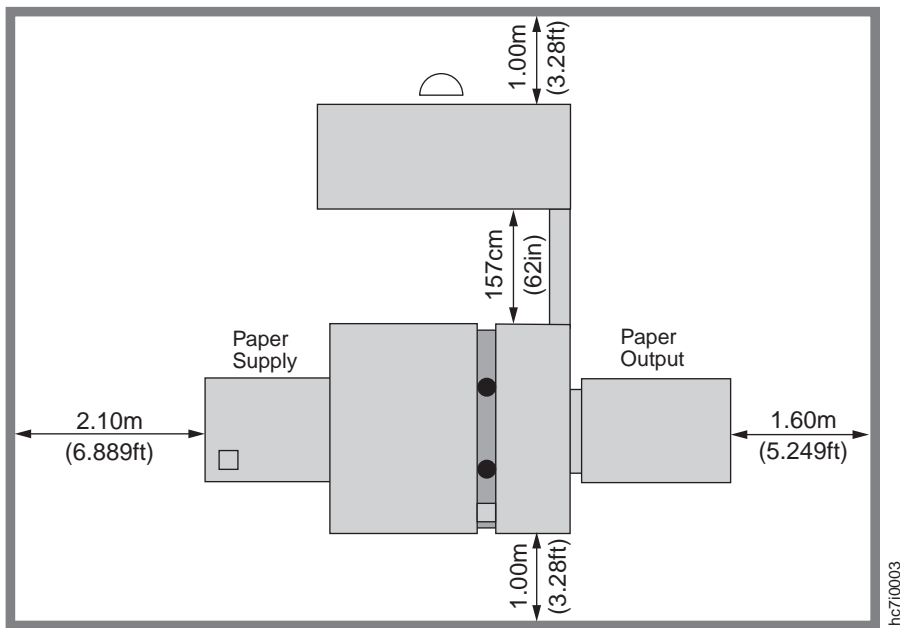


Figure 4. Minimum Area Around The Printer

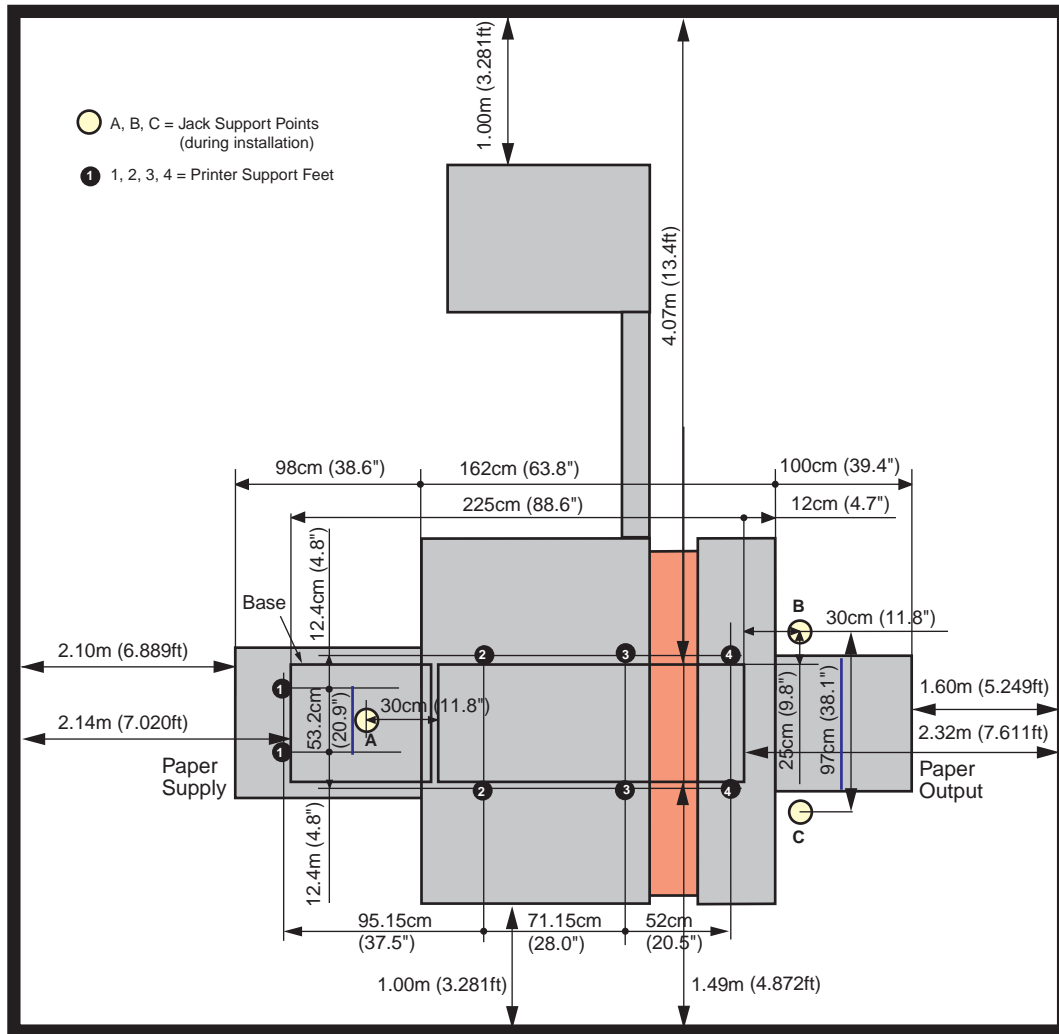


Figure 5. Minimum Flooring Requirements

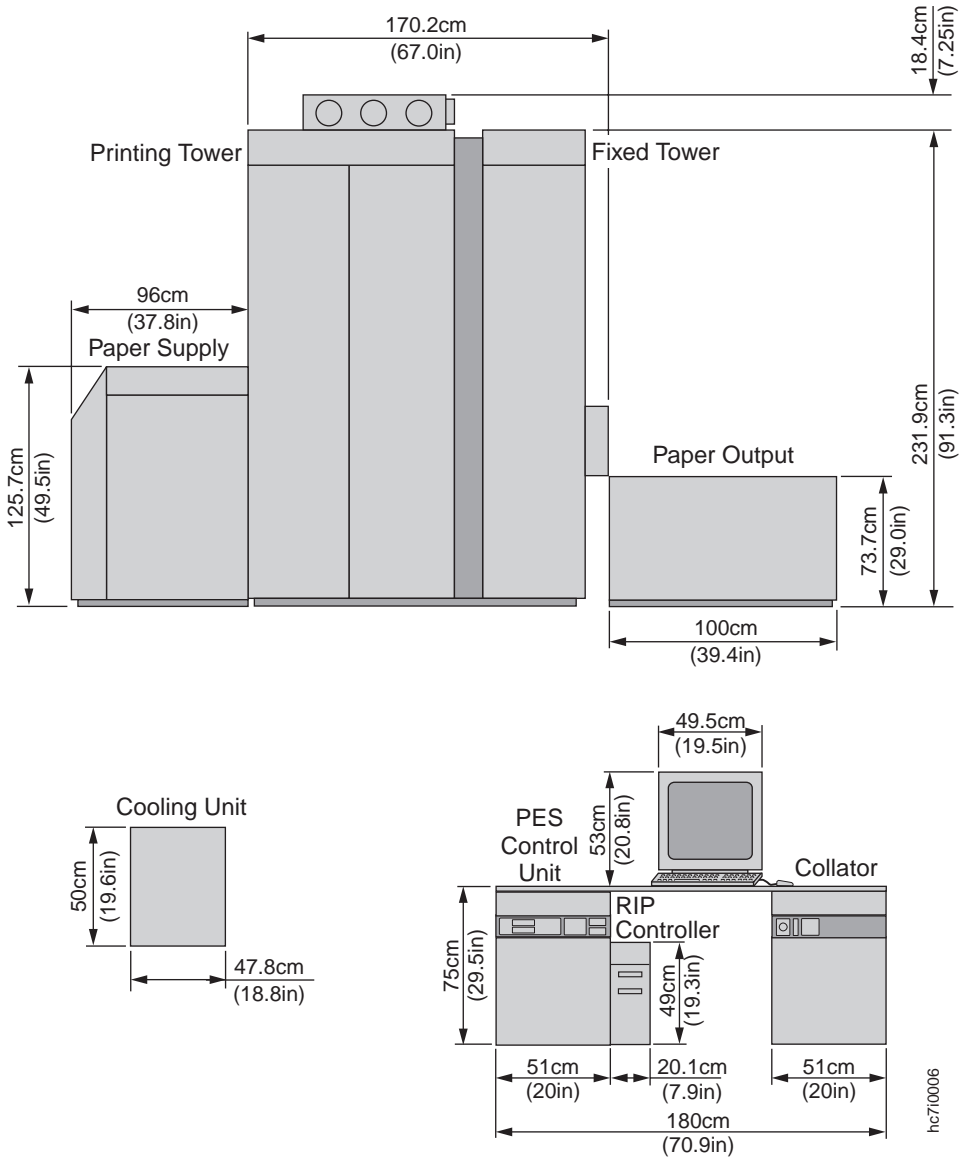


Figure 6. Front View Of The System

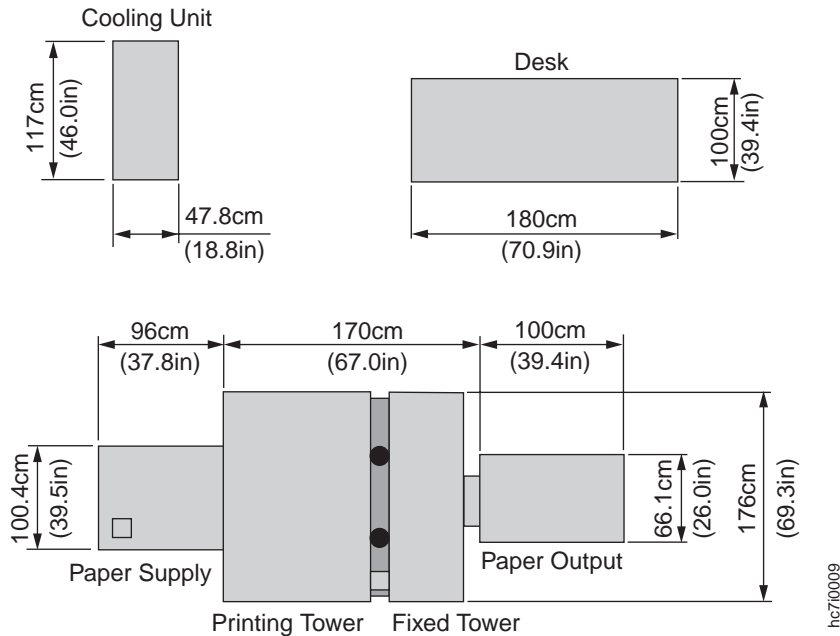


Figure 7. Top View Of The System

Printer Power and Operator Console Connections

The power receptacle on the InfoPrint Color 100 is located at position 1 of Figure 10 on page 19. The PES control unit connects to the printer fixed tower at position 2 of Figure 10 on page 19. The cable group from the InfoPrint Color 100 to the PES control unit contains the image data cables, several optical control lines, and the power cord for the PES control unit. The printer fixed tower provides power for the PES control unit, which supplies power for the collator and monitor. The RIP controller is plugged into a wall outlet. Power for the RIP controller and service modem is supplied by separate external power receptacles (wall outlets). The densitometer is battery operated, however, it will occasionally need to be charged using a wall outlet. The network connection is at the back of the RIP controller.

Positioning the Operator Console

The operator console (which includes the PES control unit, the RIP controller, the collator, and table top) can be placed in position as shown in Figure 8 on page 17. However, consider the following:

- The PES control unit must be closest to the fixed tower when the operator console is assembled and positioned.
- The collator cables are 300 cm long, and will restrict final placement of the operator console.
- Two cable walkovers are provided to protect cables from traffic. The walkovers are 1 m (39.3 in.) long.

Approximately 305 mm (12 in) of the cable between the tower and the control unit is used in internal routing in the control unit. The configuration shown in Figure 8 on page 17 shows the possible positions of the operator console, based on the radius of 157 cm (62 in.) as determined by the cable length limit. This configuration allows the operator console to face either direction along the radius, provided the PES control unit is placed closest to the fixed tower. Ensure that you can open and close the print tower doors when positioning the operator console. Also ensure that the final console position will not obstruct operator access to the paper output area or jogger movement.

Place the console in a position that will minimize traffic across the cable walkovers. Depending on the placement of the console, you may need to cut a walkover to make it fit between the operator console and the print tower.

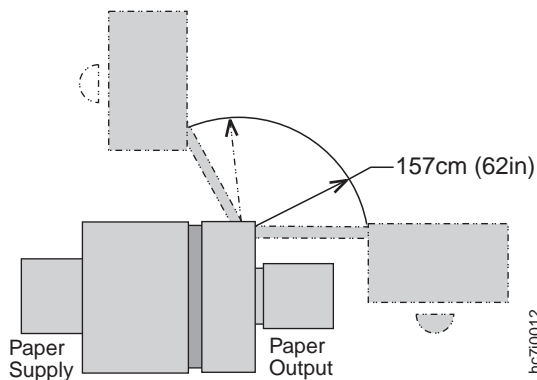


Figure 8. Operator Console Position

Positioning the Collator and Desktop

The collator is placed at one end of the operator console, with the PES control unit at the other end and enough space between them for the operator to sit and work at the InfoPrint Color 100 operator monitor and keyboard. The PES control unit cables connecting to the print tower are slightly shorter than the cables running from the collator to the print tower, so the PES control unit must be placed closest to the tower. The length of the collator cables, however, determines final placement of the operator console.

The desktop used with the collator and the PES control unit is approximately 180 cm (71 in.) wide; the control unit and collator are each approximately 51 cm (20 in.) wide. Using the control unit and collator as the "legs" of the table allows approximately 73 cm (31 in.) between them for the operator. The collator can be placed either to the right or the left of the PES control unit, provided the PES is closest to the print tower. See Figure 6 on page 15 for an illustration of the control unit and collator. The collator connects to the control unit with cables and a power cord. The printer fixed tower provides power for the collator through the PES control unit.

Positioning the RIP Controller and Monitor

The RIP controller can be placed on the floor near the PES control unit, or on the desktop. If placed on the desktop, it must be positioned near the PES control unit. The monitor is placed on the desktop. The power cord and video cable for the monitor are connected to the PES control unit.

Positioning the Cooling Unit

You may install the cooling unit on either side of the print tower. See Figure 9 on page 18. If possible, install the cooling unit in another room. This must be a non-condensing room with a minimum temperature of 10°C (50°F) and a maximum temperature of 35°C (95°F). Position the cooling unit level with or higher than the print tower, a maximum of 3 m (9.84 ft). Do not place it lower than the print tower. The maximum distance between the tower and the cooling unit is determined by the length of the cooling unit hoses. When configured to have the cooling hoses exiting from the right side of the tower, the maximum distance is 10 m (32.8 ft). When configured to have the cooling hoses exiting from the left side of the tower, the maximum distance is 7.2 m (23.8 ft).

Note: Ensure the warm air exhaust from the cooling unit is directed away from the operator console. The cooling unit exhausts air from the end opposite the hose connections.

Figure 9 shows possible positions for the cooling unit.

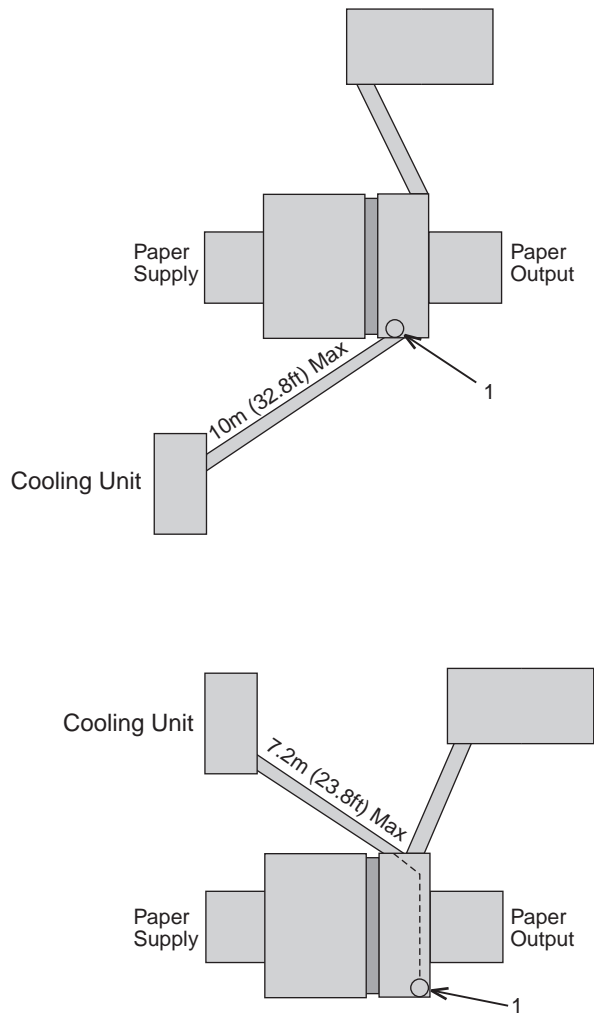


Figure 9. Possible Positions for the Cooling Unit

Cooling Unit Connections

Two insulated flexible hoses provide coolant to the print tower. The cooling hoses from the cooling unit connect to the print tower at position 1 in Figure 9. An externally grounded single phase connection (World Trade: 230 V 10 A; United States: 208–240 V 10 A) provides power to the cooling unit.

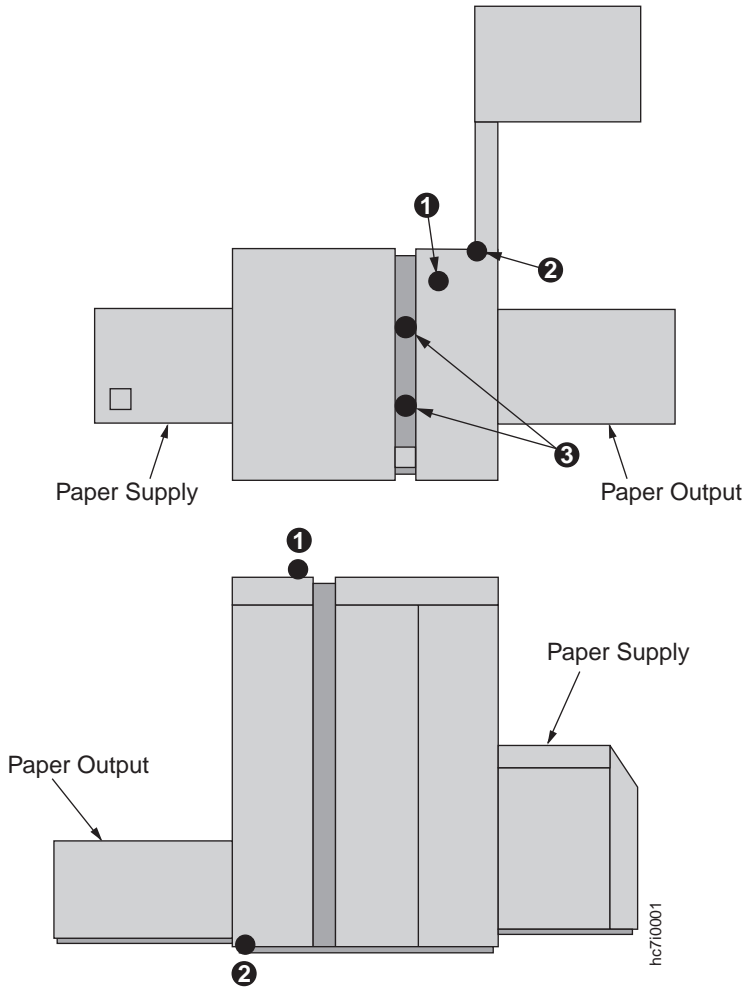


Figure 10. Locations for Power and Electrical

Positioning the Paper Supply and Fixed Tower Ventilation

The paper supply and printer tower ventilation extracts the vapors that the paper supply and the fuser produce when heating the paper. The ventilation consists of a set of four exhaust tubes and an exhaust air collector. The exhaust air collector outlet must be connected to the outside air or to a ventilation channel. This has to have a minimum flow of 700 m³/h. In any case where the air flow does not reach the 700 m³/h, install a ventilation system with an assist fan. In Figure 11 on page 20, Outlet 1 is the exhaust from the air collector to the customer's ventilation system and outlet 2 is the exhaust to the outside.

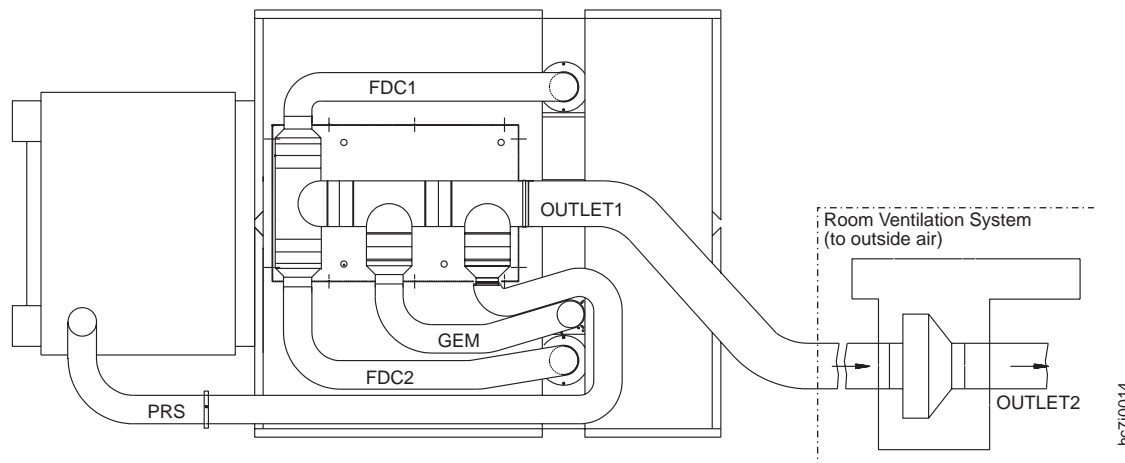


Figure 11. Paper Supply and Printer Tower Ventilation

Flooring Requirements

The flooring system at the site must be able to support the weight of the printing system, operators, additional support equipment and supplies:

The printing system weighs approximately: 1780 kg (3925 lb)

The floor should be free of static, and not subject to vibration from other sources. It must be within 12.7 mm (0.5 in.) of level for the entire length of the printer.

Note: IBM strongly recommends a level concrete floor with no carpeting under the printer. Contact your IBM representative for further information.

Eight feet support the print tower. Each foot is 51 mm² (2.0 in.²). At any time, six of the eight feet support the entire weight of the print tower. Each pair of feet is numbered in Table 4. The numbers for the feet correspond to numbers in Figure 5 on page 14.

Table 4. Weight Loading for Print Tower Feet

Feet	Maximum Weight	
	kg	lb
1	260	575
2	390	862
3	520	1149
4	520	1149

Shipping Crate Weights and Dimensions

The InfoPrint Color 100 is shipped in eleven crates. The approximate size and weight of each crate, including contents, are shown in Table 5 on page 21.

Note: The shipping containers must be returned to IBM for reuse.

1. In the U.S., contact the National Support Center at (919) 713-1714 or (800) 456-5329.
2. In Canada, contact the Canadian Distribution Center at (416) 490-5324.

3. In all other countries, contact your IBM representative for container return shipping instructions.

Table 5. Shipping Crate Specifications

Contents	Height	Width	Depth	Weight
Print tower	216 cm (84 in)	171 cm (67 in)	165 cm (64 in)	1380 kg (3036 lb)
Paper supply	151 cm (59 in)	107 cm (42 in)	110 cm (43 in)	360 kg (794 lb)
Cooling unit	72 cm (28.1 in)	52 cm (20.3 in)	121 cm (47.2 in)	124 kg (273.4 lb)
Cover set	127 cm (49.5 in)	174 cm (68 in)	233 cm (91 in)	760 kg (1676 lb)
Supplies #1	175 cm (68.3 in)	108 cm (42.2 in)	193 cm (75.3 in)	651 kg (1434 lb)
Supplies #2	97 cm (38 in)	74 cm (29 in)	125 cm (49 in)	130 kg (286 lb)
PES control unit	96 cm (37.5 in)	75 cm (29.3 in)	123 cm (48 in)	105 kg (232 lb)
Jogger	96 cm (37.5 in)	75 cm (29.3 in)	123 cm (48 in)	100 kg (221 lb)
Collator	165 cm (65 in)	79 cm (31 in)	127 cm (50 in)	114 kg (250 lb)
RIP controller and misc.	92 cm (36 in)	123 cm (48 in)	123 cm (48 in)	102 kg (225 lb)
Install tools*	—	—	—	—

Note: These weights are approximations and are subject to change.

*The install tools crate dimensions and weight can vary by location. The tools and crate must be returned to IBM when installation is complete.

Transportation Notes

Movers or riggers must be available during the printer installation to lift, move, and position crates and machine components as needed by the service representative. All crates must be moved in the upright position, as indicated on the crate.

Use forklifts or suitable pallet jacks capable of moving 1380 kg (3036 lb), the approximate weight of the heaviest crate, to transport the crates to the installation site.

Movers will locate the print tower crate (the tallest crate), to the exact spot and orient it for installation. During installation, the service representative will lift the printer from the pallet using special jacks, remove the pallet, and lower the printer to the floor.

Select a path free from inclinations or thresholds for moving the crates from the unloading dock to the site. Be sure that elevators are large enough and able to carry the combined weight of the print tower crates 1380 kg (3036 lb), plus the pallet jack and movers. On the entire path, the floor should be able to support 1380 kg (3036 lb), the weight of the heaviest crate, plus the pallet truck.

Movers or riggers will be required to remove the paper supply, jogger table, PES control unit, RIP controller, collator, and cooling unit from the shipping pallets and then place each item at or near its intended final location.

Printer Weights and Dimensions

Table 6. Printer Weight and Dimensions

Content	Height	Width	Depth	Weight
Paper Supply	120 cm (47.2 in)	98 cm (38.6 in)	100.4 cm (39.5 in)	285 kg (627 lb)

Table 6. Printer Weight and Dimensions (continued)

Content	Height	Width	Depth	Weight
Print Tower, fixed tower and base	228 cm (89.7 in)	162 cm (63.8 in)	176 cm (69.3 in)	1125 kg (2475 lb)
Jogger	59 cm (23 in)	98.5 cm (38.6 in)	61 cm (23.8 in)	45 kg (99 lb)
Operator Console (PES control unit, collator, and desktop)	75 cm (29.5 in)	180 cm (70.9 in)	100 cm (39.4 in)	193 kg (423 lb)
Cooling Unit	50 cm (19.6 in)	47.8 mm (1.88 in)	116 cm (45.6 in)	99 kg (218 lb)
RIP Controller	49.0 cm (19.4 in.)	20 cm (7.9 in.)	44.5 cm (17.5 in.) With cable connections: 53.3 cm (21 in.)	19.5 kg (45 lb)
Monitor	53 cm (21 in)	49.5 cm (19.5 in)	47 cm (18.5 in)	31.4 kg (69 lb)
Note: These weights are approximations and are subject to change.				

Site Power Connections and Consumption

The InfoPrint Color 100 printer tower requires 3-phase power. Always provide a dedicated power connection that has:

- The ability to isolate the InfoPrint Color 100 printer from the power source
- At least 3 mm (0.12 in.) of space between open switch contacts
- The ability to interrupt all phases when the switch is open

The print tower, cooling unit, and the RIP controller require separate electrical sources. An additional power receptacle should be made available for the service modem.

Power Consumption

Table 7 shows power consumption for the InfoPrint Color 100.

Table 7. Power Consumption

Description	Power (kVA)
Printer, PES control unit, collator, and monitor	16.0
Cooling unit	2.30
RIP controller	0.75
Total	19.05

Electrical Requirements

For each printer, provide separate electrical outlets with power supplies for the main printer power, the cooling unit power, and the RIP controller power. Each power supplies must support and meet all power requirements listed in this section and Table 7 on page 22. Supply the following:

- Compatible receptacles that are installed near each printer. See “Print Unit Cable”.
- A circuit breaker that breaks all poles for each printer. Ensure that this circuit breaker is dedicated to the printer and is within easy reach.

Dedicated Main Power Connection Requirements

Provide a dedicated main power connection within 3.5 m (11.5 ft) of the print unit.

The power cable attaches to the top of the printer. The preferred location for the power receptacle is above the printer, or on the wall at approximately the same height as the printer.

Location	Power	Requirements
Europe	380/400/415 V - 3 phase with neutral, 50 Hz, 40 ampere main	Direct connection or through wall outlet. Provide an insulated ground.
United States and Canada	208 - 240 V - 3 phase, 60 Hz, 50 ampere main	Direct connection or through wall outlet. Provide an insulated ground.
Japan	210 V - 3 phase, 60 Hz, 40 ampere main	Direct connection or through wall outlet. Provide an insulated ground.
	OR 200 V - 3 phase, 60 Hz, 63 ampere	Provide a special transformer to meet these specifications: 3 phase, double winding, galvanic separated rated at 12 kVA Primary: 3 x 200 V delta power system Secondary: 3 x 230 V delta with ground power system (see note below).
	OR 200 V - 3 phase, 50 Hz, 50 ampere main	Provide a special transformer with the following specifications: 3 phase, double winding, galvanic separated rated at 12 kVA Primary: 3 x 220 V delta power system Secondary: 400 V - 3 phase with neutral, star, with grounded star point (see note below).

Note: For Japan 200 V: The transformer output to the InfoPrint Color 100 requires a circuit breaker. The circuit breaker must be 50 A for 50 Hz and 63 A for 60 Hz. The circuit breaker must open all phases and neutral (if present).

Print Unit Cable

IBM supplies 427 cm (14 ft) AC power cables with all printers.

Note: IBM ships a 6 foot AC power cable for printers installed in Chicago, IL USA.

The power cable attaches to the top of the printer. The preferred location for the power receptacle is above the printer, or on the wall at approximately the same height as the printer.

Print Unit Cable Connector – U.S. and Canada (60 Hz): For the U.S. and Canada (60 Hz), the print tower cable comes with a plug. You must provide the appropriate compatible receptacle for the print tower plug. These printers require a Hubbell receptacle 460-R9V0 or equivalent:

- 460R9V0 or 460R9W wall-mounted receptacle
- 460C9V05 or 460C9W cord-mounted receptacle

The receptacle and plug conform to IEC 309 standards.

Print Unit Cable Connector – All Other Countries (50 Hz): The print tower power cable does not have a plug. Provide the appropriate plug and receptacle.

Understand the electrical standards for your country, and use only an approved plug. Your marketing representative has information on the voltage requirements in your country.

Cooling Unit Connection Requirements

The cooling unit assembly requires a 10 A circuit breaker for 50 Hz units and a 15 A circuit breaker for 60 Hz units. Ensure that the wall receptacle connector isolates the cooling unit from the power source.

Location	Cooling Unit Power
Europe	230 V ac, 50 Hz, single phase
United States, Canada	208-240 V ac, 60 Hz, single phase
Japan	50 Hz unit: may attach to 220 V, 50 Hz, single phase, 60 Hz unit: may attach to 220 V, 60 Hz, single phase - or may connect to secondary of transformer provided for the printer.

Cooling Unit Connector

The 60 Hz cooling units have a NEMA 6-15P plug. This plug fits 208–240 volt grounded wall outlets commonly available in the United States and Canada.

The 50 Hz cooling units have a standard CEE7 VII plug. This plug fits 230 volt grounded outlets commonly available in Europe. If these plugs do not match the available outlet, install the appropriate outlet. For power and phase requirements, refer to “Cooling Unit Connection Requirements”.

RIP Controller Connection Requirements

The RIP controller requires a separate power supply and receptacle with a 10 A circuit breaker. Ensure that the wall receptacle connector isolates the RIP controller from the power source. The RIP Controller requires the following electrical power connections:

Location	RIP Controller Power
Europe	220 V ac, 50 Hz, single phase
United States, Canada	120 V ac, 60 Hz, single phase
Japan	200/210 V ac, 50/60 Hz, single phase

The appropriate power cord will be supplied for your country.

Additional Connection Requirements

Densitometer Charger Cable – World Trade

The densitometer charger has a standard CEE7 XVI (2) Euro plug and fits 200–260 V, 400 mA outlets commonly available in Europe. If these plugs do not match the available outlet, then install the appropriate adapter.

Service Modem

The InfoPrint Color 100 comes with a modem which can be used to facilitate some service functions. (See “Service Modem” on page 32 for a complete description.) If you wish to have this capability, an analog

phone line, preferably direct to the public telephone network (some PBXs do not pass a ring signal which the modem recognizes for phone pickup) and a standard power outlet should be available for use during service. The modem will be plugged in only when service is being performed. An additional phone line for voice communication during modem use can assist in making service most efficient.

Prepress Environment

Figure 12 illustrates a typical network prepress environment connected through a 10/100BaseT network hub. A typical prepress system includes items such as:

- Scanner
- Desktop publishing PC or Macintosh workstations
- File archive and backup system, such as a DAT tape storage device
- Portable file media, such as a CD-ROM writer or removable disk drives

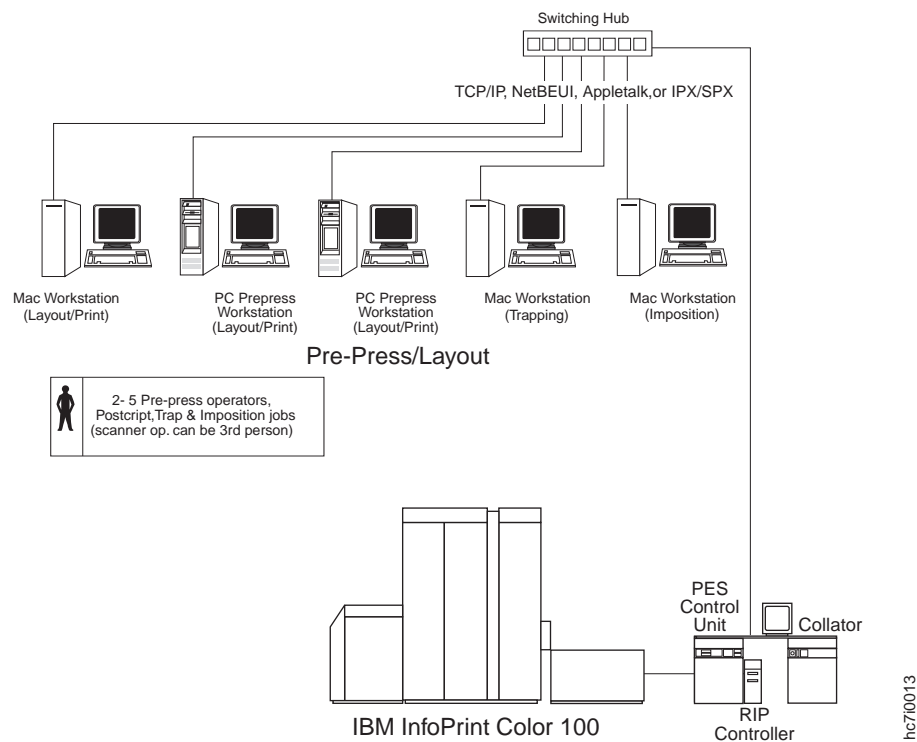


Figure 12. Typical 10/100BaseT System Configuration

Installation Planning Overview

Consider the following items for an easier installation.

- Ensure that the environmental, electrical, and space requirements have been met. Work with your marketing representative to ensure that a forklift and forklift operator are available at time of delivery to move the shipping crates to the installation site.
- Ensure that adequate space is available to unpack the crates at the installation site.

Note: IBM recommends that you move the crates to the area where the printer will be installed before unpacking the crates. This lessens the possibility of damage.

- Do not unpack the crates until the service representative is present.

- Inspect the receiving area and the areas through which the printer must be moved. Consider the following:
 - The forklift needs space in which to operate.
 - The printer is shipped in eleven separate crates, which have the dimensions shown in “Shipping Crate Weights and Dimensions” on page 20. Check the route that the printer will travel from the loading dock to the installation site to ensure that the:
 - Crates fit through all doorways and halls
 - Flooring along the moving route is capable of supporting the loads of the crates and the moving equipment
 - Hall corners and angles are large enough to permit the forklift and crate to negotiate turns safely
 - Elevators and elevator doorways are able to accommodate the size and weight of the printer, moving equipment, and the people who are moving it
 - Direct all moving questions to your IBM representative.
- Ensure that the installation site flooring is capable of supporting the loads of the crates and the moving equipment. IBM strongly recommends that the printer be installed on a concrete floor and that you avoid wooden floors, raised computer room floors, and carpeting.
- Ensure that approved electrical outlets with correct power are reserved for the printer and are within reach of the power cables. The power receptacle must be within 3.5 m (11.5 ft) of the print unit. The receptacle should be either above the printer location or, if it is mounted on the wall, it should be approximately the same height as the printer: 228 cm (90 in.).

Note: In Chicago, the power cable cannot be longer than 6 ft.

- Ensure that the service representative is aware of the LAN configuration and attachment protocol you intend to use for the InfoPrint Color 100. Also, ensure that someone familiar with the LAN configuration is assigned to assist the service representative during the installation process.

Installation Procedure Overview

When transporting crates for the InfoPrint Color 100, use material handling systems such as levers, slings, or lifts. When this is not possible, use specially trained personnel or services (for example, riggers or movers).

The accessibility of the site is of key importance during installation. The major phases of a normal installation are:

1. Moving the largest crate (the print tower) to the spot where the system is to be installed.
2. Removing the top and sides of the crate and lifting the system up with special jacks to remove the bottom of the crate. There should at least be 1.50 m (4.9 ft) of free space at one side. At this time, 3 bearing areas of 50 cm² (0.05 ft²) support the machine. (See Table 4 on page 20).
3. Unpacking the crate with the frame. Do this as close as possible to the installation site. For unpacking this crate, an area of at least 2.30 x 3.50 m (7.5 x 11.5 ft) is needed, because the panels are removed sideways.
4. Unpacking the crates with the paper supply, paper output, console, and cooling unit. Place the units in the proper locations.

Select a path free from inclinations or thresholds for moving the crates from the unloading dock to the site. Be sure that elevators are large enough and able to carry the combined weight of the print tower crates 1380 kg (3036 lb), plus the pallet jack and movers. On the entire path, the floor should be able to support 1380 kg (3036 lb), the weight of the heaviest crate, plus the pallet truck.

Chapter 3. Operator Tasks and Training Requirements

Operators of the InfoPrint Color 100 printer should have some digital prepress and/or press experience. One or a combination of both of these experience levels is an excellent background for operating the InfoPrint Color 100.

IBM provides complete operator training. Contact your IBM representative for scheduling. The operator should be trained the week before or the same week that the InfoPrint Color 100 is installed.

The training consists of hands-on instruction at Boulder, Colorado and follow-up training at your location. The system engineer will conduct training for upgrades at your location.

Operators are responsible for the quality of all printed material. This requires general knowledge of concepts such as: color density, trapping, and registration.

In addition, operators perform other tasks such as:

- Cleaning
 - coronas and scorotrons – daily
 - photoconductors
 - printheads
 - the paper transport and optical sensors– daily
- Replenishing supplies
 - adding toner
 - changing the paper roll and splicing new paper to the web
 - changing toner waste bottles
 - filling the humidifier with water
 - emptying the water condensate bottle
- Production operations
 - printing test masters and interpreting results
 - adjusting image position
 - aligning paper
 - setting registration
 - monitoring print quality
 - measuring and adjusting optical density
 - monitoring and adjusting paper surface potential
 - monitoring and adjusting print tower humidity and temperature
 - adjusting paper conditioning parameters
 - selecting jobs for printing
 - processing variable data files
 - building book ticket files
 - backing up customer-specific data
 - responding to error messages

Chapter 4. Supplies, Equipment, and Tools

Printer Supplies

The two rolls of paper and two containers of each color of toner that are shipped with the printer are used in installation and setup. Ensure that you have ordered supplies for your immediate production needs. The InfoPrint Color 100 uses Version 2 Toner and Mix.

Ordering Supplies

To order supplies for the InfoPrint Color 100 printer in the United States, use any of the following methods:

- Call Lexmark Order Management Center at (800) 292-5885 from 8 a.m. to 8 p.m. Eastern Standard Time.
- Write Lexmark Order Management Center at:

Lexmark International, Inc.
Order Management Center
P.O. Box 11427
Lexington, KY 40575-1427

- Fax a completed order form to (800) 232-9539.
- Outside the United States contact Lexmark International, Inc. directly. Lexmark dealers do not sell InfoPrint Color 100 supplies.

Toner

The InfoPrint Color 100 requires four toner colors for printing: cyan, magenta, yellow, and black (CMYK). Order more black toner because black is used more than any other color. Each carton contains six bottles with 800 grams per bottle (4 800 grams total for each carton).

An approximate average yield established for each toner supply based upon printing at a coverage of 17% per color is typically 13 700 letter-size or A4-size images per bottle; 82 200 letter or A4-size images per carton. You may get up to a maximum of 15 000 letter-size or A4-size images per bottle; 90 000 letter or A4-size images per carton.

These yields are not a guarantee of minimum life and are not covered under warranty, but are provided to assist in supplies planning. Actual usage should be used to establish the life of the toner. Many factors, such as print coverage per page, optical density adjustment, paper size and type, and environmental conditions, can affect toner life.

Two bottles of each color toner are shipped with the printer for installation and setup use. Be sure you order enough toner and toner waste bottles for your immediate production needs.

Note: The InfoPrint Color 100 requires Version 2 Toner.

Contact your Lexmark representative at (800) 438-2468 for ordering toner. Table 8 shows the toner part numbers.

Table 8. Toner Version 2 Part Numbers

Toner Color	Version 2 Part Number
Cyan	1402814
Magenta	1402815

Table 8. Toner Version 2 Part Numbers (continued)

Toner Color	Version 2 Part Number
Yellow	1402816
Black	1402813

Toner Waste Bottles

Toner waste bottles collect toner not consumed in the electrophotographic process. Replace the toner waste bottles as they become full; order them to fit your needs. Approximately one carton of toner waste bottles is used for every 8.5 to 9.0 cartons of toner. Contact your Lexmark representative for ordering information.

- Toner waste bottle (twelve waste bottles per carton): part number 1402761

Splicing Tape

Splicing tape is required when loading and changing paper rolls. A roll of splicing tape yields approximately 120 splices. One roll of splicing tape is shipped with the printer. Some of this roll may be consumed during printer installation and setup.

- Splicing tape (two rolls per carton): part number 1402721

Paper

The IBM InfoPrint Color 100 printer uses pinless roll-fed paper as input. It feeds through the printer as a web. Paper without pinfeed holes is less expensive and has less waste because less trimming is required.

See the *IBM InfoPrint Color 100 Print Media Guide* for the current list of approved media. This list is updated from time to time as IBM approves additional media. You can download the *IBM InfoPrint Color 100 Print Media Guide* from the following internet address:

www.printers.ibm.com/manuals.html

Before ordering large quantities of paper, ensure that one of the suggested papers works well for your applications.

Paper Roll Properties

Roll-fed paper for use on the InfoPrint Color 100 has the following properties:

Table 9. Paper Roll Properties

Parameter	Dimensions
Core inner diameter (two sizes)	150 ±0.5 mm (European) 6 ±0.02 in. (U.S.)
	75 ±0.5 mm (European) 3 ±0.02 in. (U.S.)
Roll outside diameter (maximum)	500 mm (19.68 in.)
Roll outside diameter (typical)	400 mm (15.75 in.)
Roll Weight (maximum)	85 kg (188 lb)
Roll width (minimum)	500 mm (19.68 in.)
Roll width (maximum)	508 mm (20 in.)

Storing Paper and Supplies

Store paper at the proper temperature and humidity as described in the *IBM InfoPrint Color 100 Print Media Guide*. You can download the *IBM InfoPrint Color 100 Print Media Guide* from the following internet site:

www.printers.ibm.com/manuals.html

Maintenance Parts and Supplies

Maintenance Parts

IBM supplies a special set of maintenance parts for proper maintenance of the InfoPrint Color 100. These parts are the property of IBM.

Second Set of Corona Wire Assemblies

A second set of corona wire assemblies allows you to use one set of corona wire assemblies while the second set is being cleaned.

Other Supplies and Equipment

Cleaning Supplies

Cleaning supplies used by the operator, such as cotton swabs, lint-free wipes, and soapy water are needed for cleaning the printer on a regular basis.

Water for the Cooling System, Humidifier

The cooling system may need additional cool water periodically. Supply the humidifier in the print tower with cool water daily.

Storage Locker

IBM recommends that you provide a storage locker for the various supplies and tools associated with the InfoPrint Color 100.

Plugs for the Printer–World Trade

The 50 Hz print tower power cable does not have a plug. Provide the appropriate plug and receptacle.

The cooling unit cable does not have a plug outside the United States and Canada. The customer must provide the appropriate plug and receptacle.

The RIP controller must be powered from the wall. Provide the appropriate plug and receptacle.

Tools

IBM-Supplied

Densitometer

A densitometer is required to optimize control of colors printed by the InfoPrint Color 100. The InfoPrint Color 100 uses a Gretag 19C densitometer, provided with the printer, to recommend and execute printer color station setpoint changes to optimize color density. This function is called semi-automatic density control. The densitometer measures optical density of printer output. This task can be accomplished either by using semi-automatic density control function or by manual adjustments to color station controls.

Service Modem

A 7858 or 7852 modem is supplied to enable Product Engineering support personnel to investigate printer controller problems remotely. The modem is attached only during use by service personnel. If you wish to permit this enhanced service capability, an analog phone line and a standard power outlet should be available during service. See "Service Modem" on page 24.

Installation Tools

Installers use a variety of special tools to set up the InfoPrint Color 100. These tools are the property of IBM.

Customer-Supplied

Vacuum Cleaner

Ensure that the vacuum cleaner used to clean the printer meets the following requirements:

- The vacuum cleaner motor cooling must be separate from the vacuum line. This prevents paper dust, toner, or developer mix that is drawn through the vacuum from contacting the electrical brushes of the vacuum cleaner motor. Filtering the vacuum line and allowing the filtered vacuum to cool the motor is not safe.
- All attachments or tools that are connected to the vacuum cleaner are nonconductive.
- The vacuum cleaner must filter particles 6 microns or smaller.

Stepladder

Use a stepladder for installation and maintenance. The ladder should be approximately 2 m (6 ft) tall. Because of the dangerous voltages present in the InfoPrint Color 100, IBM recommends a fiberglass ladder.

Loupe

A loupe must be available for viewing printed documents to perform registration adjustments.

Chapter 5. Communicating with the Printer

InfoPrint Color 100 Network Connectivity

Network connection to the printer is provided through the RIP controller. A 10/100BaseT ethernet adapter is built into the RIP controller and can be connected to the network using the category 5 twisted pair cables. The adapter senses the network speed automatically and depending on the speed will operate at either 10 Mb or 100 Mb per second.

There are two other options available to support other network cabling.

- If the network uses coaxial cables (10Base2 or 10Base5) for the Ethernet connection, you can order an optional Ethernet adapter which has both a coaxial (BNC) and an Attachment Unit Interface (AUI) connection port available to connect to the network wiring.
- If the network is a token ring, you can order an optional token ring adapter card which supports a ring speed of 4 and 16 Mbps and automatically senses and operates at the ring speed without any configuration.

Network Protocols

In order for a computer to exchange information with other machines on the network, a standard set of rules called communication protocols are needed. The InfoPrint Color 100 provides support for following protocols as part of the standard offering. These protocols are operational on both Ethernet and Token Ring attachments.

Note: A maximum of five (5) workstations may be connected (communicating) with the RIP controller for data transfer at any one time.

TCP/IP

Transmission Control Protocol/Internet Protocol (TCP/IP), commonly known as Internet protocol, is based on open systems interconnections (OSI). To configure the system to use this protocol, parameters are assigned depending on the network topology; a unique address is assigned to the machine, a default gateway address, a domain name server (DNS) address, and router information. You can then transfer file using utilities which are part of TCP/IP, such as File Transfer Protocol (FTP).

NetBEUI (NetBios Extended User Interface)

NetBEUI is commonly used in small LAN configurations and mostly in Windows and OS2 operating system environments. The disadvantage with this protocol is that is not routable. However, it is very easy to implement and you can transfer files using the GUI drag and drop in Windows 95, Windows 3.11, or Windows NT. The InfoPrint Color 100 will show up as a server in the Windows Network Neighborhood and either drive could be mapped on the local system or the files can be dropped to the appropriate folder in the InfoPrint Color 100.

Netware

The Netware IPX/SPX is a protocol developed by Novell Inc. and mostly used in local LAN configurations. You can use the same drag and drop function as in the NetBEUI protocol, but for this to work the network engineer needs to do some configuration, such as frame type.

AppleTalk

AppleTalk is a protocol developed by Apple Computers and is implemented using Services for Macintosh on the InfoPrint Color 100. A folder on the InfoPrint Color 100 is defined as a Macintosh Volume and write

permissions are assigned to the folder. InfoPrint Color 100 appears in the Macintosh Chooser, under Appleshare, as a file server. After connecting to it, the Macintosh Volume name, set up at the controller, appears as the available resource. More than one Macintosh Volume can be set up at InfoPrint Color 100. All of the setup Macintosh Volumes will appear once the connection has been made to the InfoPrint Color 100.

InfoPrint Color 100 also provides a software utility called Dispatcher which makes the InfoPrint Color 100 appear in the Macintosh Chooser as a printer under LaserWriter. This can be used to print directly to the InfoPrint Color 100 instead of transferring PostScript files. This software also provides the functionality to download fonts to the InfoPrint Color 100 using the standard LaserWriter font download utility or any other commercially available font downloader compatible with the LaserWriter driver.

TCP/IP Minimum Configuration and Startup Worksheet

Use this worksheet to assemble specific information about your network that will be needed during the installation and configuration of your InfoPrint Color 100.

System Name: _____ Date: _____

Network Administrator: _____

A. Network interface: _____
Standard Ethernet, IEEE 802.3 Ethernet, or Token Ring

B. Host name: IBM_Color_xxxx _____
Where xxxx are the last 4 digits of the print tower serial number (the XPS number)

C. Internet address: _____
Address on the Internet. Do not write in leading zeroes.
(For example, do not write 002.020.12.010; instead write 2.20.120.10.)
The **default address is 127.20.20.10.**

D. Network Mask: _____
Network mask if your network uses mask addresses.
The **default mask address is 255.255.255.0.**

E. Name server Internet address: _____
Required if your network uses a name server

F. Name server domain name: _____
Required if your network uses a name server

G. Default gateway Internet address: _____
Required if your network uses a gateway

H. AppleTalk local zone: _____
Required for connecting to Macintosh

I. AppleTalk default zone: _____
Required for connecting to Macintosh

J. Domain name: _____
Required for connecting to PC

K. Service name: _____
Required for connecting to PC. Alias for printer name; similar to host name.

L. All PC user IDs to be added to the configuration: _____
Required for PC connect to RIP controller

Fonts

Thirty-five Adobe Type Manager (ATM) Type-1 fonts are resident on the RIP controller. The PostScript Page Description Language (PDL) allows you to download fonts, such as Adobe Type-3 fonts. You can also purchase additional True Type and Adobe Type-1 fonts to install on your printer to RIP jobs. The printer also supports Adobe Type-0 composite fonts and Morisawa fonts.

The following table lists the resident fonts:

- Avant Garde – Book
- Avant Garde – Book Oblique
- Avant Garde – Demi
- Avant Garde – Demi Oblique
- Bookman – Demi
- Bookman – Demi Italic
- Bookman – Light
- Bookman – Light Italic
- Courier
- Courier – Bold
- Courier – Bold Oblique
- Courier – Oblique
- Helvetica
- Helvetica – Bold
- Helvetica – Bold Oblique
- Helvetica – Narrow
- Helvetica – Narrow – Bold
- Helvetica – Narrow – Bold Oblique
- Helvetica – Narrow – Oblique
- Helvetica Oblique
- NewCenturySchlbk – Bold
- NewCenturySchlbk – Bold Italic
- NewCenturySchlbk – Italic
- NewCenturySchlbk – Roman
- Palatino – Bold
- Palatino – Bold Italic
- Palatino – Italic
- Palatino – Roman
- Times – Bold
- Times – Bold Italic
- Times – Italic
- Times – Roman
- ZapfChancery – Medium Italic
- ZapfDingbats
- Symbol

Chapter 6. Checklist

Use the following checklist to plan for the installation of the InfoPrint Color 100. The checklist should be started when the printer is ordered. The first column of the checklist shows the number of weeks before installation to accomplish the tasks.

The checklist is intended for use by the customer and IBM.

Table 10. Systems Assurance Checklist

Weeks Before Install	Task	Task Owner	Yes/No	Due Date	Date Done
8-12	Have you reviewed with the customer, and covered the following points? <ul style="list-style-type: none"> • Temperature and humidity requirements • Ventilation • Heat dissipation and cooling • Acoustic levels 				
8-12	Check the flooring at the installation site. See "Flooring Requirements" on page 20.				
8-12	Have all spaces and clearances been verified for moving the crates between the loading dock and the printer installation site? See "Shipping Crate Weights and Dimensions" on page 20.				
8-12	Is training for service representative scheduled?				
8-12	Is operator training scheduled?				
4-6	Is a system engineer assigned for support?				
4-6	Is training for a system engineer scheduled?				
4-6	Have you reviewed supply requirements with the customer?				
4-6	Has the customer ordered and obtained supplies? <ol style="list-style-type: none"> 1. Paper <ul style="list-style-type: none"> • Correct paper size • IBM tested • Quantity 2. Toner See "Toner" on page 29 for approximate yields. 3. Toner waste bottles 4. Splicing tape <p>Two rolls of paper and two bottles of each color toner are shipped with the printer. One roll of splicing tape is shipped with the printer. Some of these supplies will be consumed during installation and setup.</p>				

Table 10. Systems Assurance Checklist (continued)

Weeks Before Install	Task	Task Owner	Yes/No	Due Date	Date Done
4-6	<p>Does the customer have an appropriate electrical supply and power receptacle?</p> <ul style="list-style-type: none"> • Print unit electrical supply • Print unit electrical connector (and plug if required), for print unit. (Hubbell receptacle 460-R9V0–United States only.) • Cooling unit electrical supply • Cooling unit electrical connector (and plug if required). • RIP controller electrical supply <p>Optional</p> <ul style="list-style-type: none"> • Service modem electrical supply • Service modem phone line • Additional phone line for voice communication during service modem use. 				
4-6	<p>Have all cables, connectors, and adapters required for this installation been ordered?</p> <p>Customer Supplied</p> <ul style="list-style-type: none"> • Hubbell receptacle 460-R9V0–United States only • LAN cabling if required • If necessary, adapter and/or outlet for CEE7 VII plug used with the cooling unit–World Trade only 				
4-6	Has Service ordered the onsite maintenance parts? The CE RETAIN system has this information.				
4-6	Has an vacuum cleaner been ordered?				
4-6	Has a stepladder been ordered? A 2 m (6 ft) fiberglass ladder is recommended.				
2-4	Complete the TCP/IP Configuration and Start-up worksheet with the customer, to be available at installation time.				
2-4	Verify that operator training has been scheduled.				
2-4	Have the service representatives been trained?				
2-4	Is there workspace and storage space for the service representative?				
2-4	Is the customer-ordered hardware on site? (Vacuum cleaner, loupe, ladder).				
2-4	Has the service representative arranged for the installation tools to be available?				
2-4	Have arrangements been made for movers or riggers to move the printer to the installation site?				

Table 10. Systems Assurance Checklist (continued)

Weeks Before Install	Task	Task Owner	Yes/No	Due Date	Date Done
2-4	Is the system ready for the printer? LAN, cabling, configuration?				
2-4	Is the prepress hardware and software, with appropriate levels of application software, available? See "Prepress Environment" on page 25.				
1-2	<p>Final walk through.</p> <ol style="list-style-type: none"> 1. Walk the path from the delivery point to the point of installation. Check that the crates will clear all doors, hanging signs, sprinkler heads, and other items. Ensure that there is adequate clearance to maneuver the crates around all corners. 2. Ensure that "Flooring Requirements" on page 20 are met. 3. Check for space to unpack crates when they are in place at the installation site. 4. Check that all electrical receptacles are in place and have the correct power. 5. Ensure all tools and supplies are on site: <ul style="list-style-type: none"> • Toner • Paper • Splicing Tape • Waste bottles 6. Check for all hardware items: <ul style="list-style-type: none"> • Vacuum cleaner • Stepladder • Installation tools • Onsite maintenance parts • Storage locker 7. Verify that the prepress hardware and software, with appropriate levels of application software, are available. 8. Use tape to define the location of the main print tower on the floor of the customers site. 				

Acronyms and Abbreviations

This list explains the acronyms and abbreviations used in this manual, and in the other manuals that are part of the printer documentation library.

Acronym	Description
ASHREA	American Society of Heating, Refrigeration and Air Conditioning Engineers.
ATM	Adobe Type Manager.
AUI	Attachment Unit Interface.
BNC	Bayonet Neil-Concelman Connector.
BPS	Bits Per Spot.
BTF	Book Ticket Files.
BTU	British Thermal Unit.
CE	Customer Engineer (IBM).
CEE	International Commission for Conformity Certification of Electrical Equipment.
CFM	Cubic Feet per Minute.
CMH	Cubic Meters per Hour.
CMYK	Cyan, Magenta, Yellow, and Black.
DASD	Direct Access Storage Device (hard disk drive).
dB	Decibel.
DDF	Document Definition Files.
DNS	Domain Name Server.
dpi	dots per inch.
DRAM	Dynamic Random Access Memory.
EC	European Community.
EPA	Environmental Protection Agency.
FCC	Federal Communications Commission.
FTP	File Transfer Protocol.
GB	Gigabyte (1GB = 1 073 741 824 bytes).
GUI	Graphical User Interface.
IEC	International Electrotechnical Commission.
IPX	Internet Packet Exchange.
KB	Kilobyte (1KB = 1 024 bytes).
kVA	Kilovolt Ampere.
LAN	Local Area Network.
LED	Light Emitting Diode.
MB	Megabyte (1MB = 1 048 576 bytes).
NEMA	National Electrical Manufacturers Association (USA).
NetBEUI	NetBios Extended User Interface.

NT	New Technology.
OEHHA	Office of Environmental Health Hazard Assessment.
OSI	Open Systems Interconnections.
PBX	Private Branch Exchange.
PC	Open System Interconnection.
PES	Print Engine Supervisor.
PDL	Page Description Language.
POD	Print On Demand.
PRS	Paper Supply.
RIP	Raster Image Processing.
SWOP	Specifications for Web Offset Publications
TCP/IP	Transmission Control Protocol/Internet Protocol.
TLV	Threshold Limit Value.
UV	Ultraviolet light.
VDS	Variable Data System.

Glossary

The following terms are defined as they are used in the InfoPrint Color 100 documentation. If you do not find the term you need, refer to the index or to the *IBM Dictionary of Computing*, SC20-1699 or the *IBM Dictionary of Printing*, G544-3973.

A

A3-size paper. Paper that is 297 x 420 mm (11.69 x 16.54 in.).

A4-size paper. Paper that is 210 x 297 mm (8.27 x 11.69 in.).

Active Alarms. A window that opens automatically to display alarms or warnings.

active window. A window in which you can perform actions. The title bar of an active window is highlighted.

administrator logon. The logon used only during limited sessions for configuration changes or system maintenance.

Age Developer. The value, displayed in equivalent A3 sheets, used to determine the age of the developer for each of the eight print units. This value displays in the Toner Concentration Setpoint window.

alarm. A message in red text in the Active Alarms window, which indicates a severe problem that must be solved immediately. An example is a paper jam.

along-web registration. The accurate alignment of the four-color separations of an image on top of each other in the direction of the paper movement (along the web).

APIS (automated printer interface system). The interface protocol used to exchange image data, commands, and status information between the RIP/operator interface platform and the print engine supervisor.

application CD. Recovery CD for re-installing or updating the Raster Image Processor (RIP) code, ThruPRINT code, and other software unique to the IBM InfoPrint Color 100/IBM InfoPrint Color 100 printer.

archive diskettes. Diskettes that contain data files specific to the upgrade level of the printer. These diskettes are provided by IBM.

Automatic Control. A setting in the Paper and Engine Conditioning window used to specify that tower conditioning be controlled automatically. Automatic is the recommended setting.

Auto Print. A setting used in the Print Sequence window to cause all jobs in the print queue to print automatically without intervention by the operator, once the engine has reached Print Quality criteria.

Auto save settings. A Preference window checkbox used to have any settings changed in process control windows automatically saved.

B

background noise. A dirty background caused by toner that has adhered to non-image areas of the printed job.

backup diskettes. (1) Diskettes shipped with the printer to provide a backup of the software in case the hard drive crashes. (2) Diskettes prepared by the operator to provide a backup of data-file settings that the operator has modified.

backup roll pressure handle. Handle used to loosen the pressure against the paper roll so a paper jam can be cleared.

basis weight. The weight in pounds of a ream (500 sheets) of paper cut to a given size for that grade; for example, 25 x 38 in. for book papers, 17 x 22 in. for bond papers, and other sizes for other grades. The basis weight of continuous forms for computer output is based on the size for bond papers.

bearding. The appearance of blown-off toner at the leading edge of an image.

bias test patches. CMYK patches on control strips that are used to measure and control lower densities.

bitmap. An image formed by a rectangular grid of pixels. Each pixel is assigned a value to denote its color and the density of color.

black overprinting. A page-setup parameter that causes 100% black to overprint the other colors.

blank sheets. The white sheets that always precede and follow a printed job.

bleed. Extra printed area that extends off the final page trim size. Bleed ensures that no white gap is at the edge of pages. Bleed is also used as a design technique.

book ticket. A file created by MergDoc to map variable data files with master data files for printing.

bps (bits per spot). The number of bits with which each spot's gray level is described.

brake system. Keeps the paper web at a certain tension between the paper reel and the first web drive motor.

Busy pausing engine state. During this engine state, the print engine is pausing to wait for the Ok pushbutton to be clicked.

Busy printing engine state. During this engine state, the imaging process is taking place.

Busy starting engine state. During this engine state, the print engine is starting.

Busy stopping engine state. During this engine state, either the job has finished printing or the Halt pushbutton has been clicked.

Busy warming up engine state. During this engine state, the print engine is waiting for the fuser to warm to its required setpoint temperature.

Busy waiting engine state. During this engine state, the job has downloaded to bitmap and is waiting to be printed.

C

carrier. Solid elements that carry and disperse the toner when it is used in a dry powder form.

Change paper roll. A step in the Mount Paper Roll window that the operator must select to start the procedure for changing a paper roll.

cleaning station. Removes excess toner particles from the drum and directs these particles to a toner waste bottle.

CMYK (cyan magenta yellow black). The four basic colors used in offset printing, as opposed to the three basic colors of light: red, green, and blue.

Note: Magenta, yellow, and cyan are thought of as the 'subtractive' primaries. Black is added to give better density and to produce a true black.

Collator. A special purpose hard drive disk array used to store RIPed jobs and later transfer them to the LED printheads for imaging.

color balance. Relative levels of cyan, magenta, and yellow needed to produce a neutral or non-cast grey. Crucial for color scanning.

color correction. Adjustment of the balance of CMY channels in an image to produce accurate color rendition of an original image. Many color scanners, particularly low-end desktop models, produce only average color balance and images from these units must be adjusted using an image editor.

color registration. The accurate alignment of the four color separations of an image on top of each other at each side of the paper.

Compression. A page-setup parameter used to specify that the raster image of a RIPed job be compressed.

condensation water reservoir. The container, located in the fixed tower, that is used to collect condensation water.

Conditioned engine state. During this engine state, the print tower conditioning is turned on and the paper conditioning and fusing systems are turned off. The engine is idle and no printing is taking place.

conditioning circuit. A circuit that controls the temperature and humidity of the air in the print tower to ensure stable print quality and to filter ozone and dust.

console switch. The switch used to turn on the printer's two control computers.

control strip. (1) A strip of information that can be attached to a print job and be used to measure registration and density. (2) A page-setup parameter used to specify the name of the control strip to be appended to a print job. (3) A Properties window Imaging field used to view a list of all resident control strips and to select a control strip to add to a job or to override the control strip specified in the Page Setup window.

Cooling. When highlighted in the Paper and Engine Conditioning window, indicates either the air temperature and/or the relative humidity in the print tower is higher than its setpoint and the air is being cooled.

cooling unit. A closed-loop refrigeration unit, physically separated from the print tower, that provides cooled water for printer tower conditioning system.

Copy count. (1) A page-setup parameter used to specify the number of copies to be printed of each signature of a job. (2) A Properties window Imaging setting used to override the number of copies specified in the Page Setup window.

corona. (1) The effect of ionizing air with a high voltage, creating a charge that can be used to perform various functions during printing or copying. (2) In printers, a small diameter wire (or wires, depending on the function) to which a high voltage is applied, causing ionization of the air. The ionization creates an electrical charge to perform various functions during the printing process.

corona wire. A wire with high voltage that emits charged particles.

Corona current. A paper-conditioning parameter that displays the current of the first transfer corona. This current is adjusted automatically.

Counters. A window used to monitor the number of printed, wasted, and total sheets of paper. Do not use the values in this window to determine the age of the developer. See Age Developer.

crop. To remove unwanted areas of an image, usually indicated by crop marks on the original.

cross-web registration. The accurate alignment of the four-color separations of an image on top of each other in the cross direction of the paper movement (across the web).

Cut Sheets. A Properties window Finishing setting used to specify whether the sheets of a printed job will be cut or not cut.

cutter. Cuts the paper perpendicular to the paper movement before the paper leaves the print tower.

D

Data depth. (1) A page-setup parameter used to specify the number of bits with which each spot's gray level is described. 2 bps (bits per spot) means a spot can have 8 levels of gray. Gray levels determine the density of color printed (C,M,Y or K). (2) A Properties window Imaging setting used to override the data depth specified in the Page Setup window.

day conditioning. The electronic control of temperature, relative humidity, and air filtering in the print tower during the day.

DCS. Desktop color separation file.

default.ini file. A file included with the printer software that contains default page-setup-parameter values.

Delete. A function in the Image Disk, Queue Manager, and Image Memory windows used to delete a resident job from the lists of jobs in these windows.

densitometer. An instrument used for measuring color density on a printed page.

Density Control. The window used to monitor and sometimes adjust the parameters that affect the density of the printed image.

density test patches. CMYK patches on control strips that are used to measure and control the higher densities.

developer. A mixture of toner and carrier particles.

developer unit. Develops the image by depositing toner particles on the drum.

digital printing. Filmless and plateless printing process wherein digital data for each page is transferred directly to a light sensitive drum and then, via various methods, to paper for a final image.

DIS/RIP switch. The switch used to switch back and forth between the PES platform and the RIP platform.

Dmax. The density printed when the test patch has 100% dot screen.

dot gain. Increase in the size of a halftone dot during printing caused by ink spreading. Generally, this value is known to a fair precision and the scanning/film production process is calibrated to compensate for it. The Cromalin proofing system simulates this effect by overexposing slightly to increase dot percentage values an amount equal to the press dot gain percentage.

downloading. The first step in the printing process. The selected print job is downloaded to bitmaps.

dpi (dots per inch). Also known as pels, and sometimes referred to as spots per inch. A measure of data density per unit distance. Typical values for desktop publishing range from 200 to 300 dpi. The InfoPrint Color 100 prints at 600 dpi.

driftmargin. The signature is positioned too far to the right or left on the paper.

drum. A grounded aluminum core covered with a layer of photoconductor.

drum refurbishing. A process used to remove fused-on toner from a drum. Fused-on toner is toner that was not removed by the cleaning station.

DTP (desk top publishing). Generic term for printing-related activities on PC platforms; includes, but is not limited to layout and design, photo manipulation, font creation/editing, color separation, scanning, and animation.

E

emergency stop. Stops the print engine immediately when a serious error occurs. The print engine can be stopped manually by pushing down a red emergency button or clicking the emergency stop button.

emergency stop button. The stop-sign button located at the top right of the monitor screen. Click this button to stop the print engine during an emergency.

Engine State. A window used to monitor the status of the print engine at any one time. The print engine has eleven possible engine states.

EPS (encapsulated PostScript). Digital format for storing scanned images. A file format that the printer accepts for print jobs.

Executable. A Preferences window field that shows the path to the file that executes the RIP.

F

Face Down. (1) A page-setup parameter used to reverse the front and back pages in duplex jobs or to print simplex jobs on the back side of the paper. (2) A Properties window Finishing setting used to override the Face Down setting specified in the Page Setup window.

FastRIP window. A window that opens automatically to show the progress of the interpretation and rendering phases of the RIPing process.

File Manager. A window used to view files and directories, move and copy files, manage disks, and so on.

Finishing. A Properties window option used to look at and change finishing settings, such as the output bin.

fixed tower. The area of the tower where the toner is fused to the paper to produce the final image. The fixed tower is located at the end near the paper output.

FIX T element measured. A fusing system parameter that displays the actual measured temperature of the fuser elements.

FIX T element setpoint. The value to which the temperature of the fuser elements has to be adjusted.

FIX T paper measured. A fusing-system parameter that displays the actual measured temperature of the paper coming out of the fuser.

FIX T paper setpoint. The value to which the temperature of the paper coming out of the fuser has to be adjusted. For all IBM tested papers, this value is 140.C.

FOT (fused on toner). Toner left on the drum that has not been transferred to the paper.

front-to-back registration. The alignment of the signature position for front and back.

fuser. The non-contact element that affixes the eight toner layers to the paper.

fusing control system. A system that controls the temperature of the fuser element and the temperature of the paper coming out of the fuser.

G

gate. The metal door located in front of the electronic panel in each print tower.

GCR (grey component replacement). Equivalent to UCR (under color removal).

GB. Gigabyte or 1 073 741 824 bytes (1 000 MB) of data.

H

halftone. Printing method that simulates continuous-tone shading using dots of varying sizes laid out on a regular grid. Larger dots simulate darker tones and vice versa. Typical grid spacings are: 85 lpi newspaper, 133 lpi low end, 150 lpi midrange, 175 lpi+ high quality. LPI = lines (halftone dots) per inch.

Halt. A Print Sequence pushbutton used to stop printing when a problem that is not an emergency occurs.

hand truck. Device used to either mount the paper roll in the paper supply or remove the roll from the paper supply.

HCP (Host Control Panel). A window used primarily by the service representative to manage processes through the use of commands.

heated rolls. The rolls in the paper supply that dry the paper to a certain moisture content.

Heating. When highlighted in the Paper and Engine Conditioning window, indicates the air temperature in the print tower is below its setpoint and is being heated.

high-coverage job. A job in which the page has greater than 30% coverage.

High Priority. A Properties window Imaging setting used to control the printing sequence of jobs in the print queue.

Hold Printing. A Properties window Imaging setting used to put a print job on hold so the next job in the queue can print first.

Humidifier. (1) An engine-conditioning parameter that displays the duty cycle of the humidifier. (2) Part of the tower-conditioning system that adds humidity to the air in the print tower. The humidifier is located in the Y tower.

Humidifying. When highlighted in the Conditioning window, indicates the relative humidity is below its setpoint.

I

ICS (imaging control system). A system that controls the eight LED writing heads.

Imaging. A Properties window option used to change image settings, such as copy count and data depth.

imposition. The process of arranging pages on a press sheet to ensure proper order during final cutting/folding/binding. Electronic imposition builds press sheets automatically in the RIP and outputs film formatted for immediate use in platemaking. Electronic imposition is very machine-intensive and is used only when maximum speed and throughput are required. Also changes required rerunning an entire press sheet

INC (instrumentation control system). A system that controls the operation of all the electromechanical and electronic modules in the print engine.

ini file. A file in which page setup settings are stored.

Initialized engine state. During this engine state, the microcontrollers are being initialized prior to power-on state.

interpretation and rendering. The two phases of RIPping a job.

J

Job type. A page-setup parameter used to specify whether a job is a master, variable data file (VDF), or test job.

K

KB. Kilobyte or 1 024 bytes of data.

L

Layout. A Properties window option used to specify the sheet and signature layout settings for a job.

LDA (light emitting diode array). The imaging device for the electrophotographic print units.

LED (light emitting diode). The imaging device element for the electrophotographic print units.

Load paper settings. A step in the Mount Paper Roll window that highlights after a new paper roll is mounted and the Done pushbutton is clicked. When the Done pushbutton is clicked again, the Run Script window opens, where the correct setting for the newly mounted paper roll can be specified.

log file. A file in which operational errors and messages are automatically stored. These messages can help a service representative debug problems.

loupe. A small magnifier used to check printed documents for correct registration.

lpi (lines per inch). In computer graphics some screening algorithms use equally spaced lines to print images. This is the line spacing used.

M

main-charge scorotron. A type of corona that contains a grid. Charges the surface of the drum to a negative uniform potential. Each print unit has a main-charge scorotron.

main power. The power that runs the printer when the switch, located in the fixed tower, is turned to the ON position.

main switch. The switch, located in the fixed tower, that is used to turn on the printer.

Manual Control. A setting in the Paper and Engine Conditioning window used to specify that tower conditioning be controlled manually by the operator. Automatic control, rather than manual control, is the recommended setting.

MSDS (Material Safety Data Sheet). International standards describing how to handle and dispose of chemical substances.

MB. Megabyte or 1 048 576 bytes (1 000 KB) of data.

menu bar. Contains several menu items used to access the functions needed to operate the printer.

Mount Paper Roll window. The window used to progress through the steps to change a roll of paper.

N

night conditioning. The electronic control of the temperature in the print tower during the night or during idle time. Relative humidity is not controlled during night conditioning.

O

Open at startup. A Preferences window selection that opens the APIS connection with the PES automatically when the operator interface is started.

operating system CD. Recovery CD for re-installing the RIP controller operating system and system utilities. This CD is specially licensed and configured for this purpose only.

organic photoconductor. The light sensitive coating that holds the latent image drawn by the LED array; essentially the 'emulsion' of the printing plate.

Orientation. A page-setup parameter used to rotate output. Output can be rotated 0, 90, 180, or 270 degrees. The pages rotate counterclockwise relative to their orientation when the job was created.

P

page-setup parameters. Parameters, such as page size, that describe a job for output to the printer. These parameters are specified in the Page Setup window.

Page size. A page-setup parameter that specifies the signature size to use when the pages of a job are RIPed.

Conditioning. The window used to monitor and adjust parameters that affect paper conditioning, tower conditioning, and the fusing system.

paper conditioning system. Part of the Paper Supply that uses a heated roll and a cooling unit to dry the paper to a certain moisture content.

paper cooling circuit. A circuit located in the paper supply that first dries the paper with a heated roll and then blows air on the paper to lower its temperature.

paper roll. See web.

paper roll axle. The device inserted through the core of a paper roll to support the paper roll in the printer. A paper roll axle can be adjusted to support six different paper widths.

paper setting. A setting the operator changes when a different type of paper is loaded. Paper settings are changed by running script files.

paper supply. Holds the paper roll, maintains web tension, heats the paper, and checks paper moisture content. Splicing of paper rolls occurs here.

paper-supply alignment. Moving the paper supply perpendicular to the web movement to correct the alignment of the paper supply to the print tower.

PDF (printer description file). Defined by Quark for use only with QuarkXpress. This file contains information, such as page size, that is specific for a given output device.

Performance Monitor. A window used to monitor CPU usage and memory used during the RIPing process.

PES (print engine supervisor) platform. One of two platforms in the printer controller module. This platform controls the operation of the print engine.

pixel. (1) Picture element. (2) In architecture, the smallest printable or displayable unit on a physical medium. In computer graphics, the smallest element of a physical medium that can be independently assigned color and intensity. Picture elements per inch is often used as a measurement of presentation granularity. Synonymous with pel, picture element.

Position. A page-setup parameter used to specify the position of the job on the physical sheet of paper.

PostScript. Adobe's page-description language that has become a standard for graphic design and layout software. PostScript files can contain both vector and raster data. Fonts are described using PostScript coding. Many desktop publishing systems output PostScript.

Power-off engine state. During this engine state, the main power to the print engine is turned off.

Power-on engine state. During this engine state, the main power of the print engine is turned on and the temperature and humidity in the print tower are adjusted to their setpoints.

PPD (PostScript printer description file).. Defined by Adobe to streamline the process of generating PostScript. This file contains information, such as page size, that is specific for a given output device.

pre-charge scorotron. Preconditions the surface of the drum and any remaining toner particles for cleaning.

Preferences. A window used to change some of the printer default settings, such as saving your workspace.

print engine supervisor (PES). A unit that controls the operation of the print engine.

print queue. The queue that contains RIPed jobs that are ready to print. The printing of jobs from the queue is normally on a first-in, first-out basis.

Print Sequence. A window that opens automatically to let you observe the progress of printing a job and to perform other tasks, such as halting a print job.

print tower. The module of the printer that contains the drums, coronas, dosing and developing units. Toner deposition occurs here. Conditioning controls this area. Paper exits this area and enters the fixed tower.

print unit. One of four units in each print tower that prints one of the four CMYK process colors.

print unit drives. The electric motors that drive the clean station, developer unit, and toner dosing unit.

process color. Made up of CMYK inks simulating a specified color. Accepted traditional method for reproducing continuous-tone color images (color separations). Due to the nature of color inks, certain Pantone spot colors will not reproduce well.

Progress. An option in the Queue Manager Properties window used to view the progress of a queued job.

Properties. A selection used from the Queue Manager window to change the layout, imaging, or finishing properties of a job. When selected from Queue Manager, you can monitor the progress of a queued job.

PRS T. A paper-conditioning parameter that displays the measured standby temperature of the pre-heating roll. The setpoint depends on the type of paper loaded in the printer.

pushbuttons. Buttons located in most operator-interface windows that, when clicked, either perform actions or provide access to additional functions.

PRS U1. A paper-conditioning parameter that displays the potential measured by the first charge meter. The setpoint must be 500V.

PRS U2. A paper-conditioning parameter that displays the potential measured by the second charge meter. A setpoint based on the specific paper humidity that will result in the best print quality has been established for each type of certified paper.

Q

Queue Manager. A window that lets you view and manage all jobs currently in the print queue. As soon as a job prints, it disappears from the list of jobs in the queue.

Quit PES at exit. A Preferences window checkbox used to have the PES quit automatically when you quit the operator interface.

R

raster. A pattern of dots comprised of varying data depths. Images with only black and white values are 1 bit (on/off), while greyscale images are 8 bit (256 levels). RGB images are 24 bit (three channels, 8 bits each). CMYK images are 32 bit (four channels.) Raster images are also called bitmapped images.

raster image processor (RIP). Converts the job from PostScript into high resolution (600 dpi) bitmaps to be fed to the LED arrays. Images are screened and converted to halftone data here.

Refill Toner Containers window. The window used to progress through the steps for refilling the toner containers.

Register Control. The window used to adjust registration.

registration. (1) The accuracy of printing on paper relative to the edges of the paper. (2) the accuracy of printing a single color (cyan, magenta or yellow), relative to black. (3) The accuracy of printing on one side of a page relative to printing on the reverse side of the same page.

relative humidity measured. The actual measured relative humidity of the print tower.

relative humidity setpoint. The value to which the relative humidity in the print tower should be adjusted.

Rename. A function in the Queue Manager window used to change the name of a listed resident job.

RIP (raster image processing). The process of converting PostScript jobs into four simplex or 8 duplex separate color bitmaps (CMYK) which can be transferred to the final print medium.

RIP controller. Intel-based computer system which performs the RIP processing and provides the operator interface to engine control.

RIP (raster image processor). Computer processor that renders PostScript instructions into dot patterns that are transferred to the final print medium.

Run paper-conditioning state. The print engine is printing, which means the paper humidity is okay.

RunID. A unique number between 0 and 655535 assigned to each job in the print queue.

Run Script. A window used to activate script files. The operator uses script files to prevent paper scorching, specify type of paper, and align the paper supply to the print tower.

S

Save workspace. A Preferences window checkbox used to save the position of non-Explore open windows in the workspace.

scripts. Files that contain predefined control sequences used by the instrumentation system. The operator will use some of these files for specific tasks.

Separations. A Properties window setting used to separate a printed image into the four CYMK colors.

sequential-action functions. Operator-interface functions that involve a sequence of actions that are performed partly by the operator and partly by the interface. Mount Paper Roll, Refurbish Drums, and Refill Toner Containers are examples.

service intervention. (1) A function that allows you to open the print tower doors to do maintenance and solve problems without turning off the main power to the printer. (2) The window used to perform service-intervention steps.

service key. The key that must be inserted and turned clockwise before service intervention is used.

setpoint-adjustment processes. Processes that include parameters to monitor and setpoints to adjust to control or to optimize print quality. Density Control and Web Tension are examples of setpoint-adjustment processes.

Sheet size. A page-setup parameter that defines the size of the physical sheet on which the job will be printed.

Sheffield unit. The Sheffield unit is a measure of the smoothness of the surface of the paper. The smaller the Sheffield value, the smoother the paper.

signature. Group of pages that will print, fold, cut and bind together. Placement of pages on the signature is determined using a folding dummy.

signature position. The position of the image with respect to the edge of the paper and the leading cut.

Size. A Properties window Imaging field that shows the compressed size of the selected resident job.

skew. In printers, the position of paper going through the paper path at a slight angle. Skew is a measure of how well printed lines are aligned to the edges of the paper.

spindle. A paper mounting axle or auger in the toner dosing unit.

splicing. Attaching the leading edge of a new paper roll to the trailing edge of the old paper roll.

splicing tape. The adhesive-backed tape used to splice (attach) a new paper roll to the old paper roll.

spot color. Made up of individual colored inks formulated to exactly match a specified color. Used when CMYK process color is unable to produce a reasonable facsimile of the color or when very vivid color is needed. Also used when fluorescent or metallic colors are used.

standard test page. A PostScript file that is printed to check overall print quality on both the X and the Y side of the page. The test-page file is provided with the printer software.

Standby engine state. During this engine state, the paper conditioning and fusing systems are turned on and the print engine is ready to print.

Start paper-conditioning state. The required setpoints for the first and second charge meters have been reached, and you can proceed with printing.

Start web drive. The step highlighted in the Mount Paper Roll window after the correct paper setting has been specified for the new paper roll.

status bar. The area at the bottom of the monitor screen that provides informational items.

Stop paper-conditioning state. The job has printed, and the temperature of the heated roll is saved automatically to be used as the setpoint temperature for the next print job.

T

TC measured. A density-control parameter that displays the actual measured toner concentration (TC).

TC d setpoint. A density-control parameter used to manually adjust the toner concentration (TC) setpoint of toner in the developer mix.

TC setpoint. A density-control value to which the actual toner concentration (TC) has to be adjusted.

TED (transfer erase duplex). The assembly that holds the transfer, erase and duplex corona wires.

temperature control system. A system that regulates the temperature inside the print tower to 30°C when the print engine is turned off.

temperature measured. The actual measured temperature of the print tower.

temperature setpoint. The target value to which the temperature inside the print tower is being controlled.

tested papers. Papers that have been tested and approved by IBM for use in the printer.

Test frequency. A Properties window Imaging setting used to specify how often a test sheet should be printed during the printing of one or more jobs in the print queue.

test sheet. A single sheet inserted at specified intervals to check overall print quality during the uninterrupted printing of one or several jobs.

ThruPRINT. An IBM exclusive graphical user interface which provides the collator interface and facilitates operator control of RIPping, printing, and variable data merge.

TIFF (tagged image file format). Digital format for storing scanned images. Also referred to as raster format, as opposed to vector format. TIFF files, when used in DTP work, place only a low-resolution FPO image; the high-resolution data remains on the hard drive.

Toner Concentration Setpoint window. The window used to monitor the age of the developer.

Toner Containers window. Window used to monitor the level of toner in each toner container and the level of toner waste in the toner waste bottles.

toner dosing system. A system that automatically adds toner back to the development unit.

toner waste. Toner that is removed from a drum by the cleaning station and deposited in a toner waste bottle.

toner waste bottle. Collector for toner that is automatically removed from the drum.

tool bar. Contains icons you can click on to quickly access the most frequently used operator interface functions.

top roller. Roller located at the top of the fixed tower. Directs the paper toward the fuser.

tower-conditioning system. The automatic conditioning of the relative humidity and temperature of the air in the print tower to enhance print quality.

transfer corona. Wire that imparts charge to paper to cause toner to move from the OPC drum surface to paper surface.

transfer test patches. Two patches each of CMYK on control strips that are used to measure and control transfer efficiency (saturation).

Transient paper-conditioning state. The paper is being wound around the heated roll, and the power of the heating lamp is reduced to keep the temperature stable.

trapping. The amount an overprinting color overlaps to prevent white paper showing through gaps caused by normal misregistration. On sheet-fed presses this is typically 0.25pt.

Trial Print. A Properties window Imaging setting used to fine tune and adjust print quality from a trial print before the entire job is printed.

tumble. A page-setup parameter used to rotate the back page 180°. Rotation is cumulative with any rotation specified for orientation.

TWR RH measured. The actual measured relative humidity inside the print tower. The minimum can be 25%, and the maximum can be 37%.

TWR RH setpoint. The target value to which the relative humidity in the print tower is being controlled. The typical setpoint is 32%.

TWR T measured. The actual measured temperature in the print tower. The minimum temperature can be 25°C.

TWR T setpoint. The target value to which the temperature in the print tower is being controlled. This value is 27–30°C.

U

UCR (under color removal). Conversion of neutral color areas into black ink. Reduces the use of CMY inks, improves trapping, and reduces setup time. Generally, UCR is performed during image scanning, but some RIPs perform UCR during processing. Also known as GCR.

W

Warmup paper-conditioning state. Pre-heating is on and the engine is in Standby state. When the temperature of the heated roll is at its required setpoint, the paper web can be started.

warning. A message in black text in the Active Alarms window, which indicates a situation that could eventually cause a problem. An example is a full toner waste bottle.

water-cooling circuit. A circuit that keeps the writing heads at a constant temperature to ensure stable performance.

web. Roll of paper used in web or rotary printing.

web-direction markers. Markers located on a control strip to show the moving direction of the paper web.

web-drive speed roll. A roll at the bottom of the Y tower.

web-drive torque roll. A roll in the fixed tower below the fuser cooling unit.

web tension. (1) The tension of the paper web between the brake system and the speed motor and between the speed motor and the torque motor. (2) The window used to monitor web tension and to adjust the torque of the torque motor.

workspace. The area of the monitor's operator interface screen in which you will work in various windows to perform tasks.

writing-head cleaning tool. A felt-tipped edge tool used to clean the lens of the writing heads.

X

X tower. The area of the print tower that contains the four print stations for printing the X (front) side of a page. The X tower is located at the end near the paper supply. The side printed by the X tower is face up exiting the printer.

xerography. Dry printing process using corona-charged photoconductive surfaces to hold latent images that are developed with a dry toner, which is then transferred to paper and fused with heat.

XPOSE. Graphical user interface for various operator functions in the printer. Control of printer registration and density, monitoring of engine status, job settings and submission to print engine, and some service functions are all performed through this GUI.

Y

Y tower. The area of the print tower that contains the four print stations for printing the Y (back) side of a page. The Y tower is located between the X tower and the fixed tower. The side printed by the Y tower is face down exiting the printer.

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Part Number: 24L4197

Printed in U.S.A.

G544-5612-00



24L4197

