Infoprint 4000

IBM

Operator's Guide

Infoprint 4000

Operator's Guide

Sixth Edition (December 1999)

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Safety

This publication contains safety notices that warn users of situations that could cause them harm.

Caution notices make users aware of hazards that can cause minor or moderate personal injuries, such as cuts or burns.

Danger notices make users aware of hazards that can cause serious injury or death.

CAUTION:

<70> The oiler belt, oiler wick roll, and their environments are *high-temperature* areas. Be very careful when working in these areas.

CAUT0100

CAUTION:

<72> As you load forms, be careful to avoid injuries:

The tractor covers are spring-loaded and can pinch if they snap shut unexpectedly.

Moving forms, especially between the transfer station and the fuser entry area, can cause severe paper cuts.

CAUT0102

DANGER

<5> High-voltage is present. Use care while working in this area.

DANG0104

DANGER

<9> Laser radiation is present. Do not remove this cover when printer power is on.

DANG0108

Electrical Safety

The printers are inspected and listed by recognized national testing laboratories: Underwriters Laboratories (UL) Inc. in the U.S.A., Canadian Standards Association (CSA) in Canada, and TUV Rheinland. Listing of a product by a national testing laboratory indicates that the product is designed and manufactured in accordance with national requirements intended to minimize safety hazards. Remember, however, that this product operates under conditions of high electrical potentials and heat generation, both of which are functionally necessary.

Note: In the U.S.A. and Canada, this product is equipped with a required, country approved plug for the user's safety. Use it in conjunction with a correctly grounded receptacle. In all other countries, the power cable is supplied without a plug. Provide the appropriate plug and compatible receptacle. Understand the electrical standards for your country, and use only an approved plug. Your IBM marketing representative has information on the voltage requirements in your country.

SAFE00ES

Fire Safety

Because the forms and toner used in the printer can burn, you should take normal precautions to prevent fire. These precautions include common-sense measures, such as keeping potentially combustible materials (for example, curtains and chemicals) away from the printer, providing adequate ventilation and cooling, limiting unattended operation, and having trained personnel available and assigned to the printer.

SAFE00FS

Lightning Safety

SAFE00LS

To avoid personal risk, do not install or reconfigure a communication port or a teleport during a lightning storm.

LASER SAFETY

The printers comply with the performance standards set by the U.S. Food and Drug Administration for a Class 1 Laser Product. This means that these printers belong to a class of laser products that does not produce hazardous laser radiation in customer access areas. This classification was accomplished by providing the necessary protective housings and scanning safeguards to ensure that laser radiation is inaccessible or within Class 1 limits.

There are various tool-operated machine covers that should be moved, removed, or replaced only by trained service personnel. There are no operator controls or adjustments associated with the laser.

DANGER

<23>	Using controls, making adjustments, or performing procedures other than those specified herein may result in hazardous radiation exposure.

No operator maintenance is required to keep the product in compliance as a Class 1 Laser Product. No adjustments that affect laser operation or power are accessible to the operator.

The following label is located within the front cover of the printer:

Caution!
Laser radiation when open.
Avoid exposure to beam.
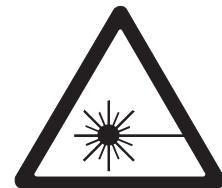
For World Trade printers, the following label is applied next to the above label:

| CLASS 1 LASER PRODUCT |
| LASER KLASSE 1 |
| LUOKAN 1 LASERLAITE |
| APPAREIL A LASER DE CLASSE1 |

SAFE0OLX

The laser used in the Infoprint 4000 complies with IEC 825-1 and EN 60825. The printer is a Class 1 Laser Product that contains five enclosed Class IIIb InGaAsP lasers with peak power of 10 milliwatts and a wavelength of 635 nanometers. Contained within the printhead, the lasers form scanning beams focused at the photoconductor.

ENVIRONMENTAL INFORMATION

IBM has established a procedure by which used photoconductor drums can be returned to IBM. Specific instructions and a mailing label appear in the box in which the photoconductor drum is shipped. Third-party servicing companies and customers who are not using IBM service are encouraged to use those procedures. Postage is paid by IBM. Customers using IBM service should have their drums returned by the service representative.

The photoconductor drum may be subject to special disposal requirements in your area. Customers should consult local disposal regulations if they elect not to use the return procedure offered by IBM.

SAFE0OEI

Preface

This publication explains how to operate and maintain the Infoprint 4000 printers, including the following models:
- IS1 (354 IPM Simplex)
- IS2 (501 IPM Simplex)
- ID1/ID2 (708 IPM Duplex)
- ID3/ID4 (1002 IPM Duplex)
- DR1/DR2 (464 IPM High Resolution Duplex)
- IR1/IR2 (464 IPM High Resolution Duplex)
- IR3/IR4 (708 IPM High Resolution Duplex)

About This Book

This publication contains the following sections:

- "Chapter 1. Introducing the Infoprint 4000" on page 1-1 contains an overview of the printer.
- "Chapter 2. Operator's Overview" on page 2-1 describes the operator's role in using and maintaining the printer.
- "Chapter 3. Using the Operator Console" on page 3-1 describes how to use the operator console and the pull-down menus.
- "Chapter 4. Operating the Printer" on page 4-1 describes how to operate the printer.
- "Chapter 5. Working With Forms" on page 5-1 describes loading, threading, and aligning forms.
- "Chapter 6. Taking Care of Problems" on page 6-1 describes correcting problems related to jams, print quality and intervention messages.
- "Chapter 7. Maintaining the Printer" on page 7-1 contains step-by-step instructions for maintaining the printer.
- "Chapter 8. Configuring the System" on page 8-1 contains information and instructions for configuring the printer, the host attachments, and the pre-processing and post-processing device interfaces; the chapter also describes how to define forms for the printer.
- "Appendix A. Automatic Forms-Based Printer Adjustments" on page A-1 describes defining and adjusting the printer when this feature is installed.
- "Appendix B. Physical System Layouts" on page B-1 illustrates the space requirements for each model of the Infoprint 4000.
- "Appendix C. Valid Form Lengths in Inches" on page C-1 lists the valid forms lengths.
- "Glossary" on page F-1 defines terms used in the Infoprint 4000 library.

How to Use This Book

Depending on your level of knowledge about the printers, you may need to use some chapters more than others:

- **New Operators**

  If you have little experience with the printers, begin with the following chapters:
  - "Chapter 2. Operator's Overview" on page 2-1, which describes the operator's role in using and maintaining the printers.
  - "Functional Areas" on page 1-11, which describes the parts of the printer, including its switches, controls, and operator panels.
  - "Chapter 3. Using the Operator Console" on page 3-1, which describes and how to use the operator console.
  - "Menu Summary" on page 3-4, which summarizes the functions available from the pull-down menus.

- **All Operators**

  If you are experienced with the printers, you probably will not need to refer to this guide for routine procedures. However, this guide may be helpful when you are handling unusual tasks or problems.

  The following chapters are organized for easy reference:
  - "Chapter 3. Using the Operator Console" on page 3-1
  - "Chapter 4. Operating the Printer" on page 4-1
  - "Print Quality Problems" on page 6-61
  - "Responding to Messages" on page 6-2

Terminology

For definitions of terms used in this publication, as well as other publications in the printer library, see the "Glossary" on page F-1.

Notation Conventions

The following notation conventions are used throughout this publication:

- Words that appear in messages on either an operator console window or the printer panel display are shown in `COMPUTER` print. For example:

  `CHECK TENSION ARM`

- The words **SELECT** and **SELECTING** (all capital, bold print) refer to the act of touching the touch sensitive operator console as though you were pressing a switch, choosing an option, or entering data.

- Words that identify switches, indicators, levers, and operator console window names that you will use are shown in **bold** print. For example:

  Press the **Ready** switch.
  SELECT the **Configure Printer** procedure window on the operator console.

- New terms are *italicized* where the term is first defined in the publication. For example:

  The term *forms path* refers to the entire route that the forms travel.

Pictorial Conventions

Most artwork in this publication shows a 3900 Model DR2 printer.

The InfoPrint 4000 printers are similar pictorially, but there are differences in the covers, monitors, and control units among the various models. Your printer may not exactly match the illustrations in this document.

Publications Guide

The following additional Infoprint 4000 publications are available:

- *Infoprint 4000 and 3900 Advanced Function Printers Introduction and Planning Guide*, G544-5427, summarizes the Infoprint 4000 and 3900 Advanced Function Printers functions and describes how to plan for a successful installation.
- *Forms Design Reference for Continuous Forms Advanced Function Printers*, G544-3921, describes the characteristics of forms and special-use media, and describes their effects on printer's performance
- *IPDS Handbook for Printers That Use the Advanced Function Common Control Unit* G544-3895, which contains technical information about the host-to-printer data stream, and exception reporting.

An extensive listing of available publications is included in *Advanced Function Presentation: Printer Information*, G544-3290. For more information about Advanced Function Presentation, refer to *Guide to Advanced Function Presentation*, G544-3876.

Contact your IBM marketing representative for information concerning either the printer, its manuals, or its associated licensed programs.

Summary of Changes

The following additions and changes were made to the sixth edition of this book:

- The book has been reorganized to more closely reflect the operator's responsibilities and information needs.
- A new physical system layout has been added.
- Procedures for automatic forms-based adjustments has been added.
- Miscellaneous other technical changes have been made.

Chapter 1. Introducing the Infoprint 4000

> **Chapter Overview**
>
> This chapter reviews the characteristics of the IBM Infoprint 4000, including the following models:
> - IS1
> - IS2
> - ID1 and ID2
> - ID3 and ID4
> - DR1 and DR2
> - IR1 and IR2
> - IR3 and IR4

Printer Characteristics

The Infoprint 4000 printers are nonimpact, all-points-addressable printers. They use a laser, electrophotographic print technology, and Advanced Function Presentation (AFP) licensed programs to create high-quality text and graphic printer output.

The printers use continuous-forms in a variety of sizes, styles, and weights, including preprinted forms and some adhesive labels. Most forms use an automatic assist for loading the forms. After printing, the forms may be stacked in the printer stacker or processed by an optional postprocessing device.

Note: Printing on adhesive labels is not supported in duplex mode.

Nonimpact printing, combined with all-points addressability, allows graphics and many different type sizes and styles to appear on a single page. The printers can be used for text, image, graphic, optical character recognition (OCR), and bar-code printing. Text, images, and electronic overlays can be placed at any defined point on the page areas on which the printers can print.

System Characteristics

Table 1-1 on page 1-2 summarizes the specifications for the various printers in the Infoprint 4000 family.

Table 1-1. Infoprint 4000 Printer Specification Summary

Model	Mode [1]	Resolution (PEL)	Print Speed (IPM) [2]	Basis Paper Weights		Forms Width		Forms Length	
				g/m²	lbs	Min. mm (in.)	Max. mm (in.)	Min. mm (in.)	Max. mm (in.)
DR1/DR2	Duplex	600	300/464	68-105	18-28	305 (12)	457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013) [3]
IS1	Simplex	240/300	229/354	60-160	16-42	204 (8)	457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013)
IS2	Simplex	240	310/480	60-160	16-42	204 (8)	457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013)
IS2 with Feature 9324	Simplex	240/300	324/501	60-160	16-42	204 (8)	457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013)
ID1/ID2	Duplex Dual Simplex	240/300 240/300	458/708 229/354	68-105 60-160	18-28 16-42	229 (9) 204 (8)	457 (18) 457 (18)	76.2 ± 0.3 (3.0± 0.013) [4]	356 ± 0.3 (14.0 ± 0.013)
ID3/ID4	Duplex Dual Simplex	240/300 240/300	648/1002 324/501	68-105 60-160	18-28 16-42	229 (9) 204 (8)	457 (18) 457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013) [4]
IR1/IR2	Duplex Dual Simplex	480/600 480/600	300/464 150/232	68-105 60-160	18-28 16-42	305 (12) 305 (12)	457 (18) 457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013) [3]
IR3/IR4	Duplex Dual Simplex	480/600 480/600	458/708 229/354	60-105 60-105	16-28 16-28	229 (9) 229 (9)	457 (18) 457 (18)	76.2 ± 0.3 (3.0± 0.013)	356 ± 0.3 (14.0 ± 0.013) [3]

Notes:

1. The Print speed for Duplex is the total system speed (2 printers). The Print speed for dual simplex lists individual printer speed (either Printer 1 or Printer 2).

2. Print Speed is stated in impressions per minute (IPM) for 1-up mode/2-up mode.

3. Maximum form length is 635 ± 0.3 mm (25 ± 0.013 in.) with preprocessing and postprocessing devices.

4. Maximum form length is 711 ± 0.3 mm (28 ± 0.013 in.) with preprocessing and postprocessing devices.

5. The Infoprint 4000 operates in simplex and duplex mode, depending on the model selected. (Models DR1/DR2 operate only in duplex mode.)

6. The Infoprint 4000 Models DR1/DR2 attach only to an IBM InfoPrint Multiple Printer Controller (MPC) using a token-ring TCP/IP attachment.

An Advanced Function Common Control Unit (AFCCU) controls the printing system and is attached to the second printer engine in the configuration. The AFCCU is based on IBM's RISC technology and includes an Extended Graphics Adaptor (XGA) touch-screen monitor used as an operator console.

Two preprocessing/postprocessing device interfaces (one in each printer), are provided on Models DR1/DR2, ID1/ID2, ID3/ID4, IR1/IR2, and IR3/IR4 that allow additional input and output capabilities beyond the standard forms input source and output stacker in the system printers. All other models are equipped with one preprocessing/postprocessing device interface as standard equipment. Additional interfaces can be purchased.

System Components

Models DR1, ID1, ID3, IR1, and IR3

These models include:

– Printer engine
– Printer Utility Module (PUM). This unit includes:
  - Operator alert assembly
  - Power control panel
  - System interconnection electronics
  - Preprocessing/postprocessing device interface

Models DR2, IS1, IS2, ID2, ID4, IR2, and IR4

These models include:

– Printer engine
– Advanced Function Common Control Unit (AFCCU), which includes:
  - Operator alert assembly
  - Power control panel
  - IBM's RISC technology processor
  - XGA touch-screen operator console
  - System interconnection electronics and cables
  - Preprocessing/postprocessing device interface

Models DR1/DR2, ID1/ID2, ID3/ID4, IR1/IR2, and IR3/IR4

These models include:

– Buffer/Flipper Unit.

  This unit guides the paper path from the first printer to the second printer in this dual printer configuration. The unit allows the forms to take the following paths from the first printer to the second printer:
  - Straight through path (inline) with 180° inversion
  - Left 90° path with 180° inversion

– Urge unit

  This power-driven roller assembly is on the floor in the forms input area of the second printer of the system; the continuous forms are threaded through it. It assists in feeding forms from the Buffer/Flipper Unit, under the printer into the tractor feed area of the printer.

Duplex Printing Applications

Duplex (double-sided) printing is supported by the following configurations.

Duplex printing is achieved by arranging a pair of similar models in series; for example, a Model ID1 and a Model ID2—or a Model IR3 and a Model IR4. The individual printers are separated by a Buffer/Flipper Unit. The first printer in the paper path prints one side of a form; then the forms exit the printer through a Buffer/Flipper Unit, which inverts them before threading them through the second printer. The second printer in the paper path prints the other side of the form.

In this publication the first printer is called Printer 1, and the second printer is called Printer 2. Allowable printer system configurations are:

- Inline (see "Inline Configuration for Duplex" on page 1-6)
- Left 90° angle (see "Left Angle Configuration for Duplex" on page 1-7)
- 'h' with both printers facing the same direction (see "'h' Configuration for Duplex" on page 1-8)

For the inline and left-angle configurations, only a Buffer/Flipper Unit may be between Printer 1 and Printer 2, no preprocessing or postprocessing devices.

The forms path can be from the forms input area of Printer 1 through to the output stacker of Printer 2 or to a postprocessing device at the output of Printer 2, or from a preprocessing device ahead of Printer 1 through to a postprocessing device at the output of Printer 2.

Both printers in the configuration attach to a host system through the AFCCU, which controls both printers simultaneously and is physically attached to Printer 2 in the configuration.

The operator may choose to print verification marks that allow electronic and visual confirmation that pages are printed properly back-to-back. See the table item "Verification Marks" on page 8-8 for more information.

When the Side 2 Verify feature is enabled, Models ID1/ID2, ID3/ID4, IR1/IR2, and IR3/IR4 automatically check to ensure that the duplex printing system is properly aligned and the printing on both sides of the forms is synchronized. If the data printed on Side 2 is not aligned or synchronized with the data printed on Side 1, printing stops and an error message appears on the operator console.

Inline Configuration for Duplex
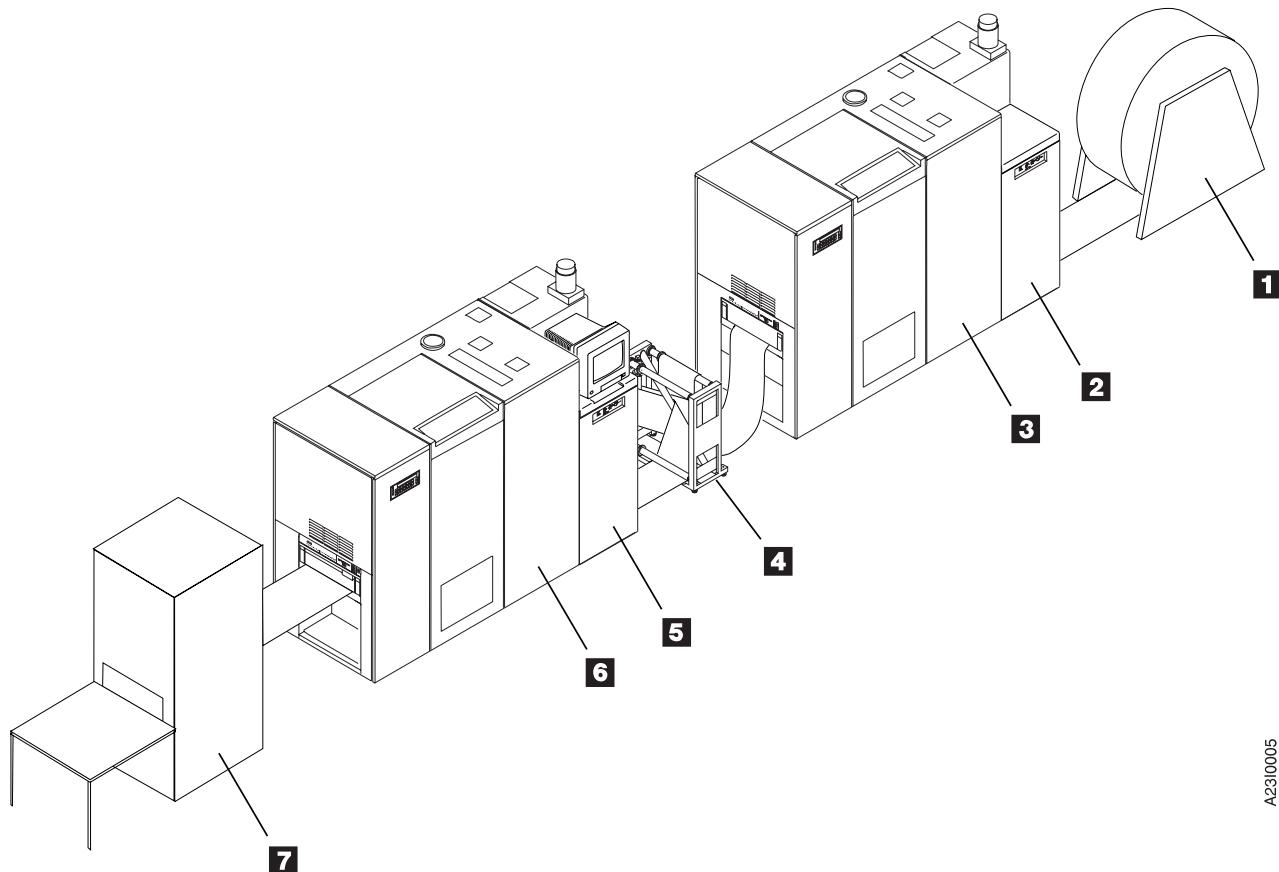
(**1**) – Optional preprocessing device

(**2**) – Printer Utility Module (PUM) attached to Printer 1

(**3**) – Printer 1

(**4**) – Buffer/Flipper Unit

(**5**) – AFCCU attached to Printer 2

(**6**) – Printer 2

(**7**) – Optional postprocessing device

Left Angle Configuration for Duplex
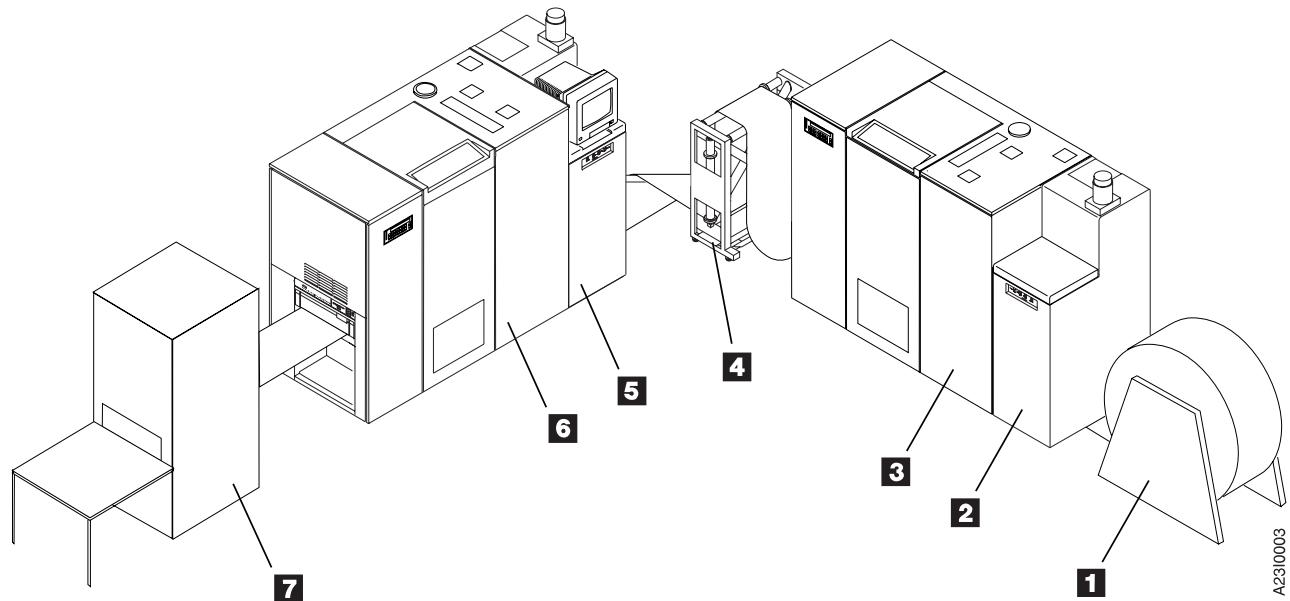
1 – Optional preprocessing device

2 – Printer Utility Module (PUM) attached to Printer 1

3 – Printer 1

4 – Buffer/Flipper Unit

5 – AFCCU attached to Printer 2

6 – Printer 2

7 – Optional postprocessing device

'h' Configuration for Duplex
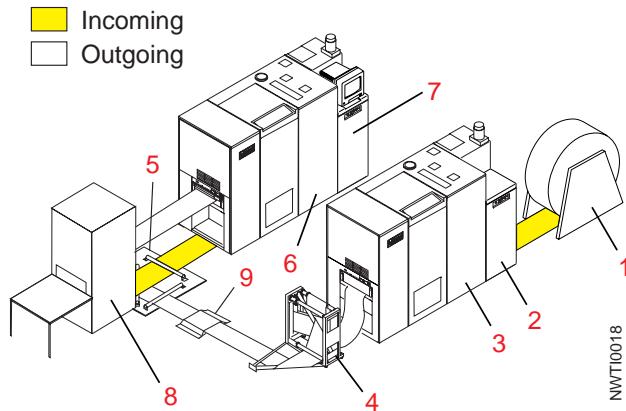
| Incoming |
| Outgoing |

1	Optional preprocessing device
2	Printer Utility Module (PUM) attached to Printer 1
3	Printer 1
4	Buffer/Flipper Unit (the short version is shown)
5	Turnbar/flipper device (or powered turnbar/flipper)
6	Printer 2
7	AFCCU attached to Printer 2
8	Optional postprocessing device
9	Optional walk-over

Simplex and Dual Simplex Printing Applications

The configuration shown in "Left Angle Configuration for Dual Simplex" on page 1-10 supports *simplex* (single-sided) printing in the Dual Simplex mode on selected models (see Table 1-1 on page 1-2). Both printers in the configuration can run independent simplex applications. The forms path would start at the forms input area or preprocessing device and proceed through to either the printer output stacker or to a postprocessing device.

Note: Each printer can have its own set of preprocessing and postprocessing devices.

When the printing system is configured as dual simplex and one of the printers is inoperable, the remaining printer can run independently so long as power and connection to the control unit are maintained.

Alternatively, forms can remain threaded continuously through both printers in a duplex physical configuration, but with printing occurring in simplex mode. Printing occurs on only one printer, while the other printer processes blank pages.

Both printers in the configuration attach to a host system through the AFCCU, which controls both printers independently and is physically attached to Printer 2 in the configuration.

Left Angle Configuration for Dual Simplex
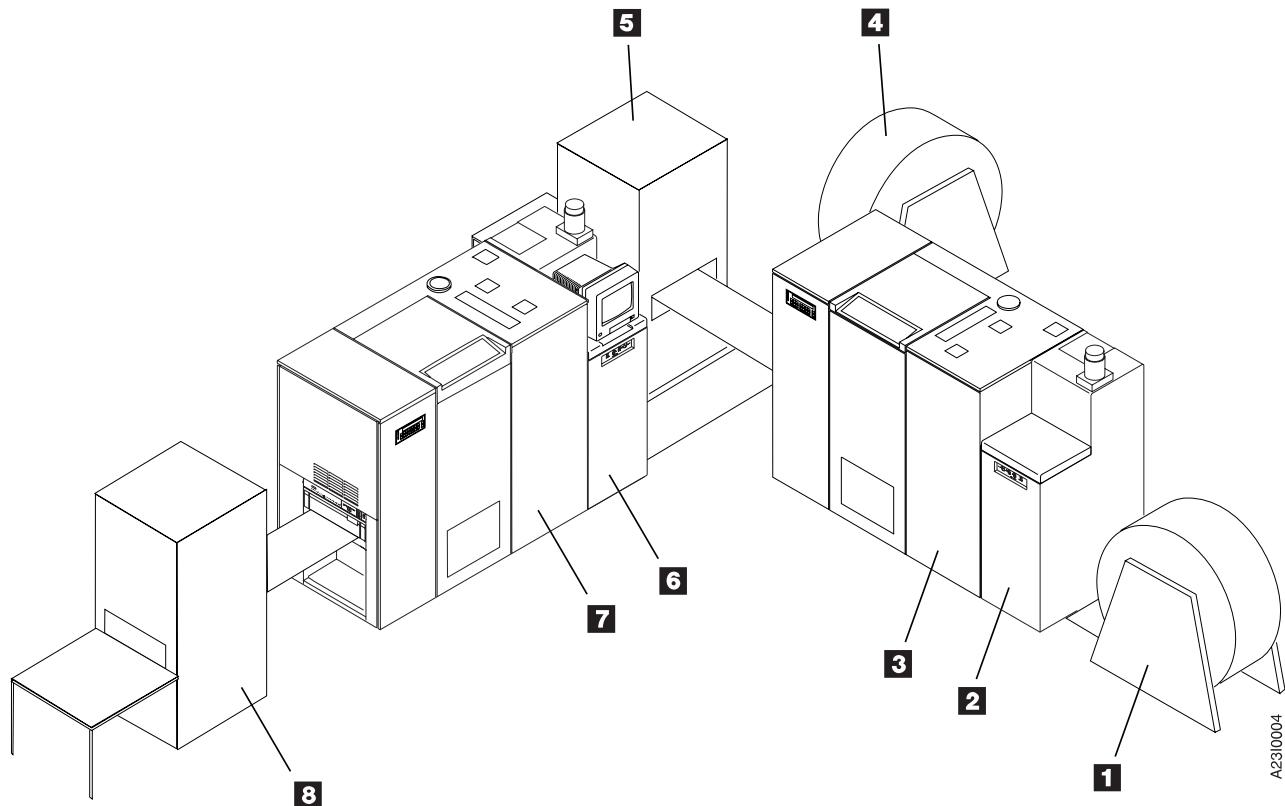
1 – Optional preprocessing device for Printer 1

2 – Printer Utility Module (PUM) attached to Printer 1

3 – Printer 1

4 – Optional preprocessing device for Printer 2

5 – Optional postprocessing device for Printer 1

6 – AFCCU attached to Printer 2

7 – Printer 2

8 – Optional postprocessing device for Printer 2

Functional Areas

This chapter describes the forms path of the printer. It also provides a graphic overview of the functional areas of the printer including:

- Advanced Function Common Control (AFCCU) area
  - Operator alert area
  - Power control panel
  - Operator console

  Keep In Mind:

  1. The AFCCU is physically attached to a simplex printer or Printer 2 in a duplex or dual simplex configuration.
  2. The Printer Utility Module (PUM) is physically attached to Printer 1 in a duplex or dual simplex configuration, and except for an operator console, is identical to a AFCCU frame from an operator's involvement.

- Printer operator panel
  - Display
  - Function keys
  - Indicators
- Developer area
- Forms input and transfer station area
- Printer control panel
- Splicing table
- Transfer station control lever and tractor control knob
- Vacuum, stacker height, preheat control, and puller controls
- Fuser entry area
- Stacker area and stacker control panel
- Rear service area.

Forms and Forms Path

Form refers to pages on which the printer can print. Forms can be blank paper, preprinted paper, adhesive labels, cards, or any other printable material, which meets the required specifications. *Paper* is a specific fiber-based material used for forms.

The term *forms path* refers to the entire route that forms travel while they are being processed. The forms path begins in the forms input area and ends in the stacker area. Figure 1-1 shows the forms path for a simplex printer and the major elements within the printer engine. Note that the path looks a bit different if you use preprocessing or postprocessing devices attached to your printer.
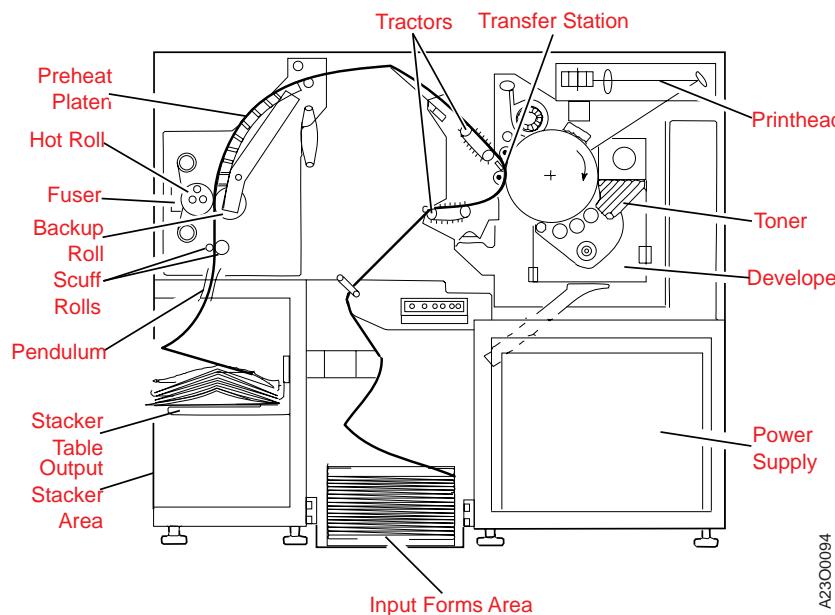
Figure 1-1. Forms Path Through a Printer Engine

For simplicity, Figure 1-1 shows a generalized forms path when a printer is being used for simplex printing and is using boxed fan-fold forms.
- Note the following differences when a printer runs in simplex mode, uses forms from a preprocessing device, and has a postprocessing device installed and enabled:
  - Forms enter from the right under the printer and then move up through the Forms Input area.
  - The stacker is disabled and forms exit the printer to the left directly to the postprocessing device.

- Note the following differences when you use a printer for duplex printing:
  - If the printer is Printer 1 in the configuration, the stacker is disabled and forms exit the printer to the left from the Stacker Output Area directly to the Buffer/Flipper Unit.

    If a preprocessing device is installed, the forms enter from the right under the printer and then move up through the Forms Input area.
  - If the printer is Printer 2 in the configuration, the forms enter from the right under the printer through an Urge Unit placed on the floor in the Forms Input area and then move up through the Forms Input area.

    If a postprocessing device is installed and enabled, the stacker is disabled and the forms exit the printer to the left directly to the postprocessing device.

Control Unit Area

The operator console, power control panel, and the operator alert assembly are located in the control unit area.

NWTO0002
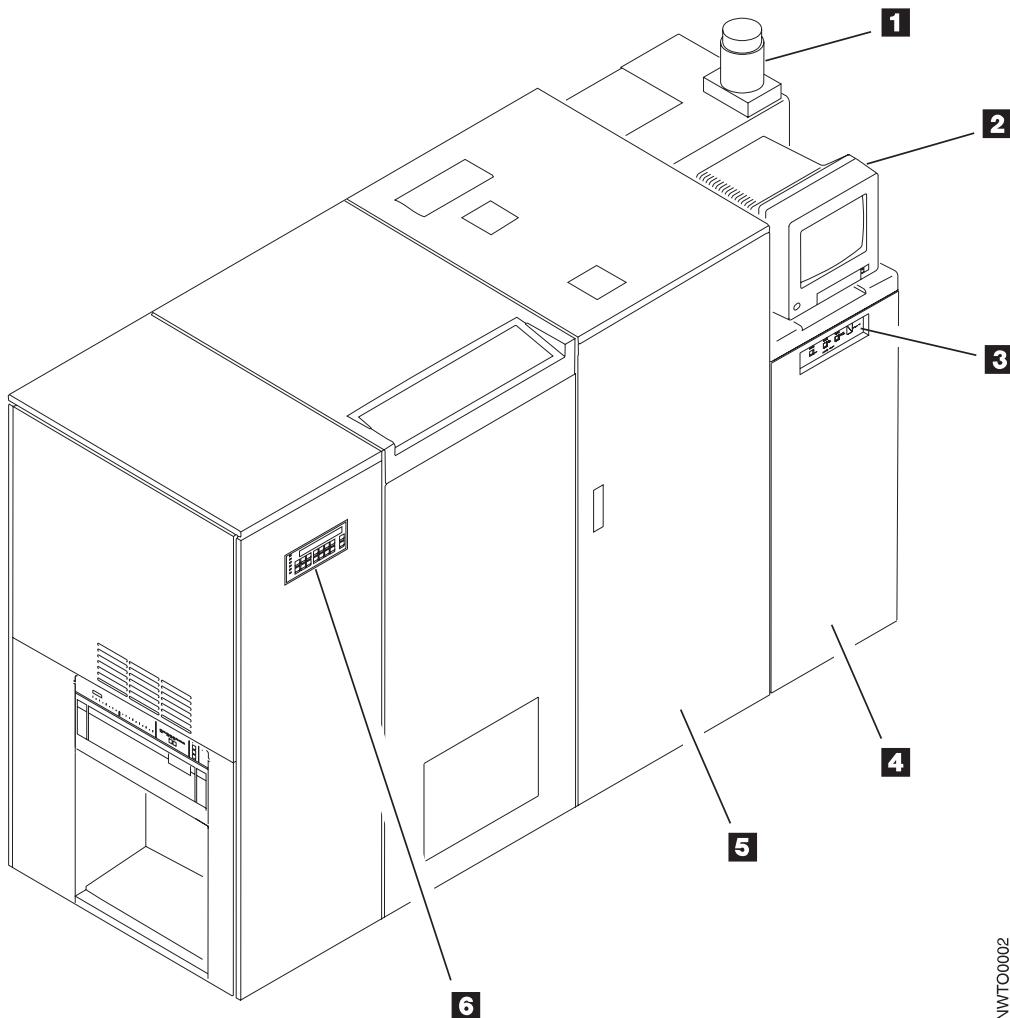
1 – Operator alert assembly

2 – Operator Console

3 – Power Control Panel

4 – AFCCU Frame in a simplex printer or in Printer 2 of a duplex configuration– Printer Utility Module (PUM) Frame in Printer 1

5 – Printer Engine Frame

6 – Printer operator panel

Operator Alert Area

The following figure shows the controls on the Operator Alert Area, which is located on the base of the Operator Alert light assembly.

Using This Control:	Does This:
Operator Alert Assembly Volume Control	Adjusts the volume of the operator alert assembly.

A10M0140
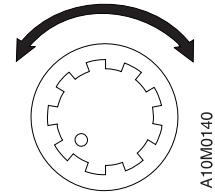
External Connections for Customers	Provides customers with a set of external contacts to allow the hook-up of an alert signal of the customer's choice.

A10M0141
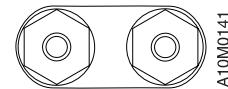
Operator Console

The operator console provides the operator with a touch-sensitive interface to the printer. "Chapter 3. Using the Operator Console" on page 3-1 describes it in detail.

Power Control Panel

On Printer 1 of a duplex system, the Power Control Panel provides power control for the Printer Utility Module (PUM) frame and the printer engine. On Printer 2 of a duplex system and simplex printers, the Power Control Panel provides *direct* power control for the AFCCU frame and the printer engine and *remote* power control for Printer 1.
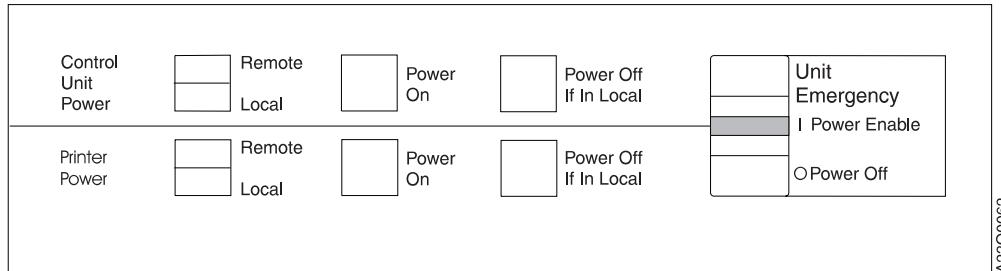
Note: Although the switches are labeled "Control Unit" on this panel installed in the PUM frame in Printer 1, these switches control the power in the PUM frame, not the AFCCU frame attached to Printer 2.

Using This Control:	Does This:
Control Unit Local/Remote Switch	Establishes where control unit power is controlled. **On Printer 1** - When this switch is in the Local position, the PUM is powered on and off by the **Control Unit Power On** and the **Control Unit Power Off if in Local** switches. In the Remote position, the PUM is powered on and off by Printer 2 control unit power controls. **On simplex printers and Printer 2 of a duplex configuration** - When this switch is in the Local position, the AFCCU is powered on and off by the **Control Unit Power On** and the **Control Unit Power Off if in Local** switches. In the Remote position, the AFCCU is powered on and off by the controlling computer system.
Printer Local/Remote Switch	Establishes where printer power is controlled. When this switch is in the Local position, the printer is powered on and off by the **Printer Power On** and the **Printer Power Off if in Local** switches. In the Remote position, the printer is powered on and off by the **Control Unit Power On** and **Control Unit Power Off If In Local** switches on this panel.
Control Unit Power On Switch	Powers on the AFCCU frame or the PUM frame when the **Control Unit Local/Remote** switch is set to Local.
Printer Power On Switch	Powers on the printer when the **Printer Local/Remote** switch is set to Local.
Control Unit Power Off If In Local Switch	Powers off the AFCCU when the **Control Unit Local/Remote** switch is set to Local.
Printer Power Off If In Local Switch	Powers off the printer when the **Printer Local/Remote** switch is set to Local.

Using This Control:	Does This:
Emergency Power Off Switch	**On Printer 1** - When set to Power Enable, the PUM and printer engine can be powered on by Local or Remote control. Power Off does an emergency shutdown. **On simplex printers and Printer 2 of a duplex configuration** - When set to Power Enable, the AFCCU and printer engine can be powered on by Local or Remote control. Power Off does an emergency shutdown. All power is removed from the system. ┌─ **Attention!** ───────────────────── Using the **Unit Emergency Power Off** switch can cause loss of data and hardware problems; therefore, you should use it **only in an emergency**.

Operator Panel

The operator panel is located on the left front cover of the printer. It serves as an auxiliary operator console. The operator panel is more convenient to use than the operator console windows for some tasks.
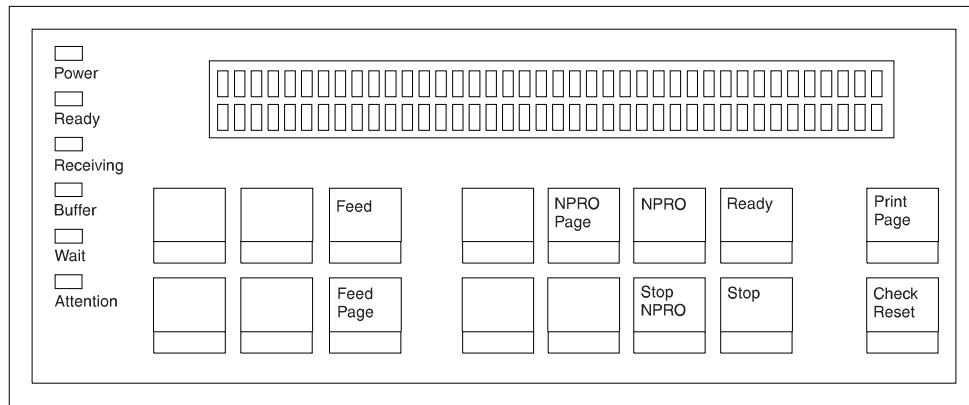
Display

The operator panel contains a 2-row area for displaying status, out of supplies, intervention required, and printer error messages.
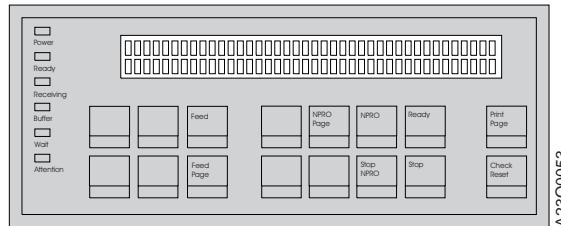
Function Keys

In simplex mode, the operator panel function keys let you control the printer on which the panel is mounted; in duplex mode the function keys let you control both printers. The keys also duplicate some system controls available on the operator console windows.

A23O0055

Using This Control:	Does This:
Notes:	
1. The **Feed Page** key is active only in duplex mode and affects only the printer on which it is mounted. The **Feed** key is active only in duplex mode and affects both printers in the system. All other keys affect only the printer on which they are mounted when the printer is in simplex mode, and affect both printers in the system in duplex mode.	
2. The **Feed** and **Feed Page** keys are not available on Models IS1 and IS2.	
Feed	Use this key during the **Thread/Align Forms** procedure. It is functionally identical to the **Feed Forms/Feed to Align** pushbutton on the **Thread/Align Forms** procedure window. See "Threading and Aligning Forms" on page 5-34.
Feed Page	Use this key during the **Thread/Align Forms** procedure. It is functionally identical to the **Printer 1 Feed Page** or **Printer 2 Feed Page** pushbutton in the **Thread/Align Forms** procedure window. See "Threading and Aligning Forms" on page 5-34.
NPRO Page	Use the NPRO (NonProcess RunOut) Page key to move forms forward to the next top-of-form position. For more detailed information, see "Using the NPRO and NPRO Page Functions to Advance Forms" on page 5-65.
NPRO	Use the NPRO key to move forms forward through the printer. The distance that forms move depends on how your printer is configured. For more detailed information, see "Using the NPRO and NPRO Page Functions to Advance Forms" on page 5-65.
Stop NPRO	Use this key to stop the NPRO forms movement started by the **NPRO** key.
Ready	Use this key to make the printer ready to print. When you press this key, all other keys except **Stop** are disabled.
Stop	Use this key to stop printing and to make the printer Not Ready. **Note:** When you use this button to stop printing, you must restart printing from the same operator panel.

Using This Control:	Does This:
Print Page	Use this key to print one page of a customer job and then make the printer Not Ready. Before you can use this key, host attachments must be enabled, a customer job must be queued, and the printer must be Not Ready.
Check Reset	Use this key to inform the control unit that the response to an operator intervention or failure condition is complete. This key does not put the printer into Ready status.

Indicators

The indicators on the operator panel communicate status from the printer.
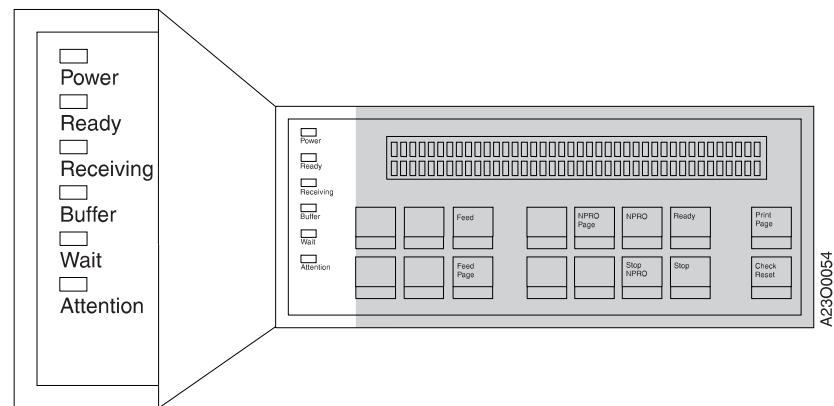
This Indicator On:	Means That:
Power	The printer has power.
Ready	The printer is ready to print.
Receiving	The printer is receiving data from the host system.
Buffer	Data is in the buffer and available for printing.
Wait	The printer is busy. See the display on this operator panel or the operator console window for a message.
Attention	The printer requires operator intervention. See the display on this operator panel or the operator console window for a message.

Developer Area

Toner and developer mix are added to the printer in the developer area. Table 1-2 on page 1-23 describes the controls.

Toner is added through the toner inlet **1** . Pressing the toner supply pushbutton **2** moves toner away from the inlet and into the toner hopper. This ensures that all of the toner added is available for the printing process.

Developer mix is added through the developer mix inlet **5** . The developer drain lever **4** , marked with a **D** label, opens and closes the developer drain. The developer run pushbutton **3** , marked with an **R** label, causes new developer mix to move from the developer mix inlet into the developer.
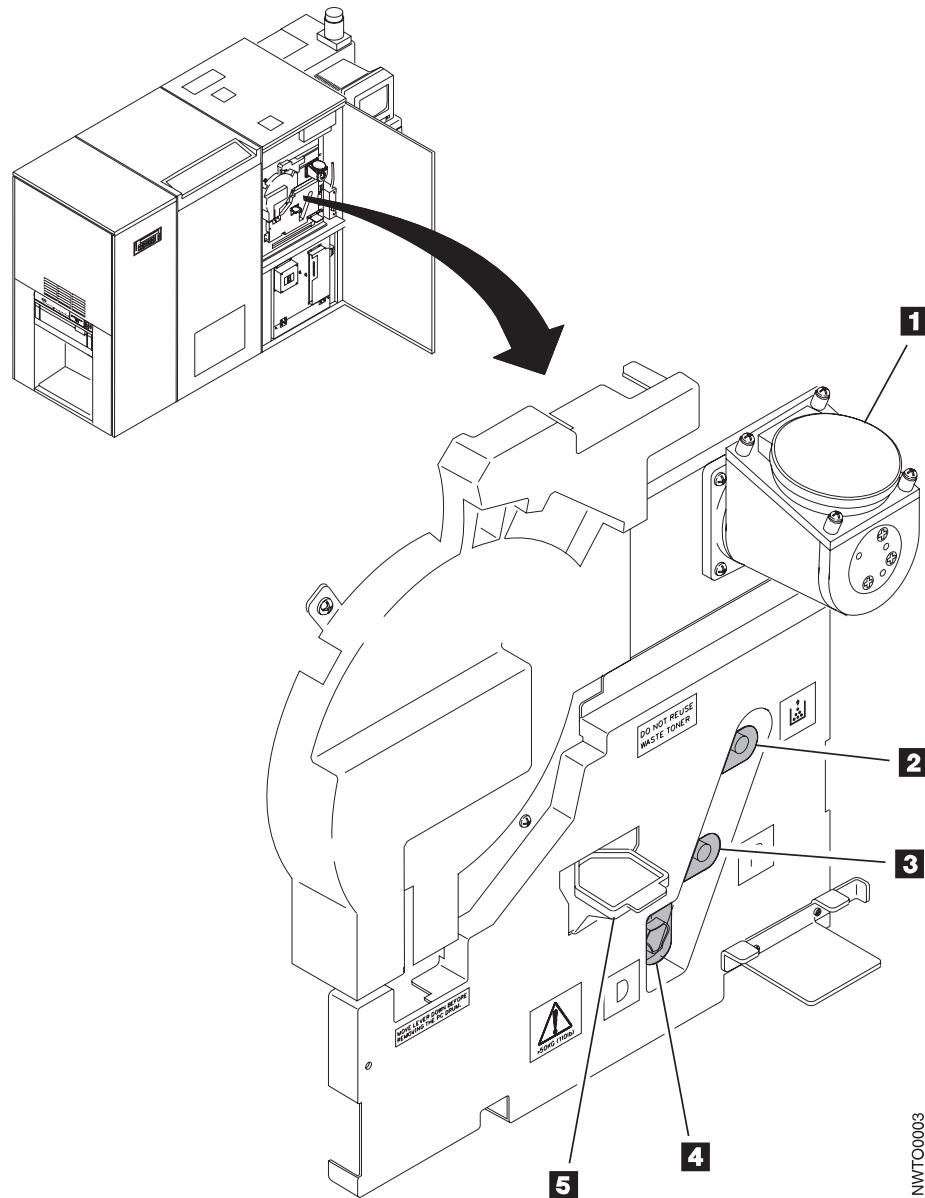
Table 1-2. Developer Area Controls

Using This Control:	Does This:
Toner Inlet `1`	Adds toner to the toner hopper.
Toner Supply Pushbutton `2` R4CO0115	Moves toner from the toner inlet into the toner hopper.
Developer Run Pushbutton `3` **R** R4CO0111	Starts the developer mix load process to move developer mix from the developer inlet into the developer.
Developer Drain Lever `4` **D** R4CO0110	Starts the developer mix drain process to move developer mix from the developer into an external container for disposal.
Developer Mix Inlet `5`	Adds developer mix to the developer.

Forms Input and Transfer Station Area

You load forms that are ready for processing into the printer at the forms input area. The developer mix drain hose is also located in the forms input area.

In the transfer station area, print images are transferred from the photoconductor drum to the forms that are traveling through the printer. "Printer Control Panel" on page 1-25 describes the printer control panel in detail.

Transfer Station

Tension Arm

Lower Tractor
Covers

Static Brush

Splicing Table

Transfer Station
Control Lever

Tractor Control
Knob

Printer Control
Panel

Forms Input
Area
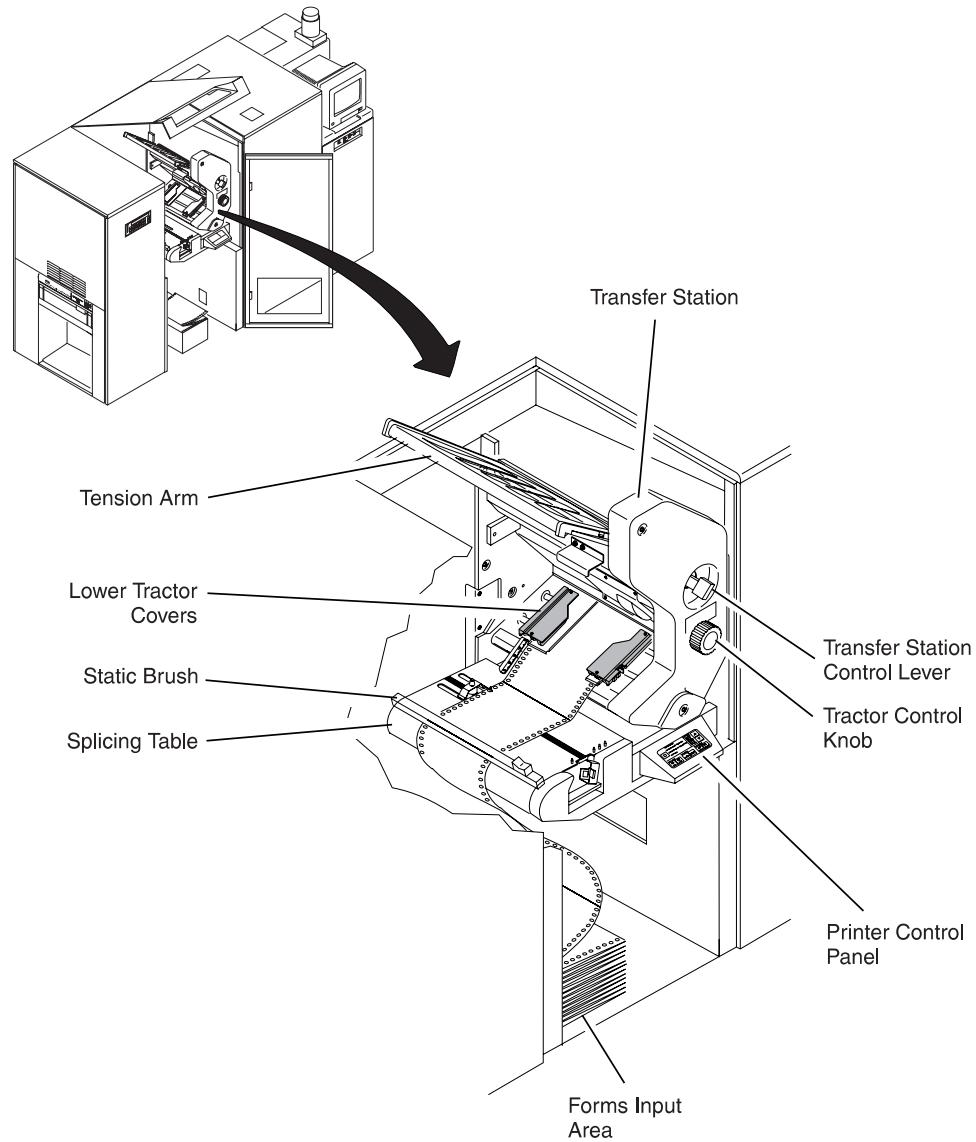
NWTO0004

Printer Control Panel

The printer control panel is located just below the transfer station. Table 1-3 describes its controls.

Table 1-3. Printer Control Panel

Using This Control:	Does This:
Forms Select Key	Sets the weight or kind of form to be used, as well as the fusing temperature and the amount of fuser oil used during printing. The current selection is indicated by an LED. Not setting **Forms Select** correctly can reduce print quality. • The **A** setting is for **16-22 lbs (60-82g/m²)** weight forms. It should not be used for heavier weight forms. • The **B** setting is for **23-42 lbs (83-157g/m²)** weight forms. It uses more fuser oil than setting **A** and should not be used for lighter weight forms. • The **C** setting lowers the fuser temperature and should be used when printing adhesive labels or other special composition forms. **Note:** If this printer uses automatic forms-based temperature adjustments, this button is inactive. Use "Appendix A. Automatic Forms-Based Printer Adjustments" on page A-1 to adjust the fusing temperature and the amount of fuser oil used during printing.
Darker Contrast Control Key	Adjusts print contrast from lighter (1) to darker (7). The current setting is marked by an LED.
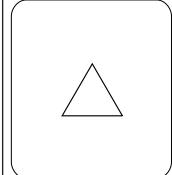
Table 1-3. Printer Control Panel (continued)

Using This Control:	Does This:
Lighter Contrast Control Key A23O0052	Adjusts print contrast from darker (7) to lighter (1). The current setting is marked by an LED.
Auto Load Key Load R4CO0107	Starts the automatic forms-loading process.
Auto Load Stop Stop R4CO0108	Stops the automatic forms-loading process.
Forms Set Up Fold R4CO0103	Indicates that the fold perforation on the alignment scale of the lower tractor is an up fold. If the indicator displays the opposite fold direction or no fold direction, press the appropriate key to change the setting. **Note:** Use this control only for fan-fold forms stacked at the printer stacker. If the control is not set correctly, the stacker jams.
Forms Set Down Fold R4CO0102	Indicates that the fold perforation on the alignment scale of the lower tractor is a down fold. If the indicator displays the opposite fold direction or no fold direction, press the appropriate key to change the setting. **Note:** This control is used only for fan-fold forms stacked at the printer stacker. If the control is not set correctly, the stacker jams.
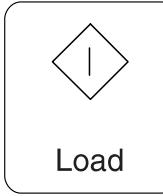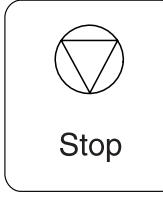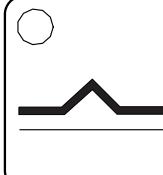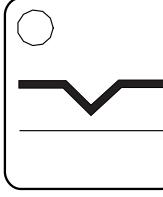
Table 1-3. Printer Control Panel (continued)

Using This Control:	Does This:
Forms Feed Forward Forward R4CO0100	Moves the forms toward the transfer station and stacker area. Unfused forms in the forms path between the transfer station and the fuser are not fused.
Forms Feed Reverse Reverse R4CO0101	Moves the forms away from the transfer station into the input bin. This control is active only when the Tension Arm is in the correct position.
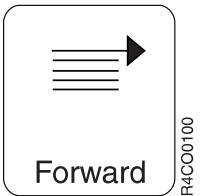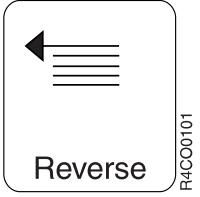
Splicing Table

The splice lever and the moveable rear guide pins are located on the splicing table in the input area. Splicing forms together allows a job to continue with a new supply of the same type forms without reloading any forms.

Tape Slot

Moveable Rear
Guide Pins

Static Brush

Splicing
Table

Splice
Lever

A23O0064
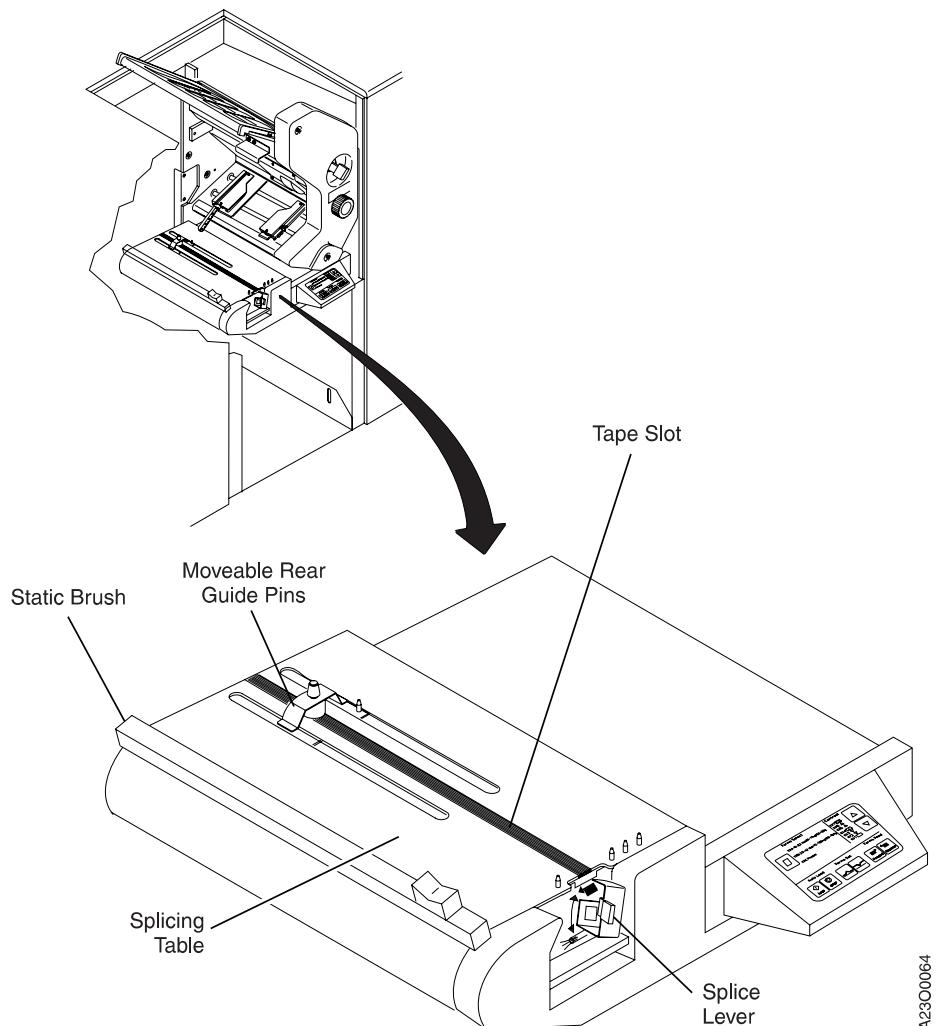
Using This Control:	Does This:
Splice Lever (Vacuum Control)	Activates the splicing table vacuum. When the splice lever is *down*, vacuum is present, which holds splicing tape and forms on the splicing table. When the splice lever is *up*, no vacuum is present on the splicing table.
Moveable Rear Guide Pins	Holds rear tractor holes of forms during splicing. You can change the position of these guide pins to match the form size, as indicated by the form-width measurements marked on the splicing table.
Tape Slot	Holds splicing tape in place during splicing. When the splice lever is *down*, the splicing table vacuum holds the splicing tape on the slot.

Transfer Station Control Lever and Tractor Control Knob

The transfer station control lever and the tractor control knob are located on the transfer station frame.

Transfer Station
Control Lever

Tractor
Control Knob

A23O0127

Using This Control:	Does This:
Transfer Station Control Lever	Releases the transfer station latch and opens the transfer station.
	To open the transfer station, move the lever to the *left*.
	To close the transfer station, move the transfer station to the *right* while moving the lever to the *left*, then move the lever to the *right* to latch the transfer station in the closed position.
	During printing, the transfer station should be firmly latched in the closed position.

Using This Control:	Does This:
Tractor Control Knob Narrower	Changes the distance between the front and rear tractors, both upper and lower pairs. When the knob is turned *counterclockwise*, the rear tractor moves *closer* to the front tractor for narrower forms.
Tractor Control Knob Wider	Changes the distance between both front and rear tractors, both upper and lower pairs. When the knob is turned *clockwise*, the rear tractor moves *away* from the front tractor for wider forms.
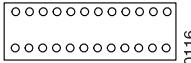
Vacuum, Stack Height, Preheat Control, and Puller Controls

The vacuum pushbutton, the vacuum-off warning indicator, the puller lever, the preheat control, and the stack height adjustment are located on the left side of the input area.

Using This Control:	Does This:
Vacuum Pushbutton	Turns the vacuum on or off in the fuser area.
	The vacuum holds the forms against the preheat platen, which partially fuses the toner to the forms. The **Vacuum-Off Warning Indicator** is to the right of the vacuum pushbutton. This indicator comes *on* to warn you that the forms-path vacuum is *off*.
Preheat Control Knob	Allows you to increase or decrease the preheat platen temperature for specialized forms.
	┌─ **Attention!** ─────────────────────────────────────┐ Do not use this control when the printer is in duplex mode and must be set to the lowest setting of "1".
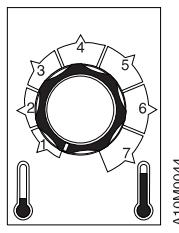
Using This Control:	Does This:
Puller Lever, Release	Releases pressure on the scuff and backup rollers inside the fuser area. To release these rollers, move and hold the puller lever to the release position.
Puller Lever, Printing	Applies pressure to the scuff and backup rollers inside the fuser area during the printing process. The lever is spring loaded in this position, so pressure is normally applied to the scuff and backup rollers.
Stack Height Adjustment	Adjusts the height of the printed forms. Note that as you reduce the stack height, you must empty the stacker more often. To adjust the stack height: 1. Loosen the knob by turning it *counterclockwise*. 2. Position the knob next to the desired stack height. 3. Tighten the knob by turning it *clockwise*. **Note:** Use this control only for fan-fold forms, not for roll-feed forms.
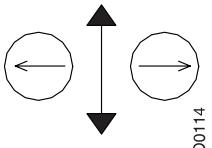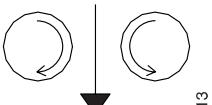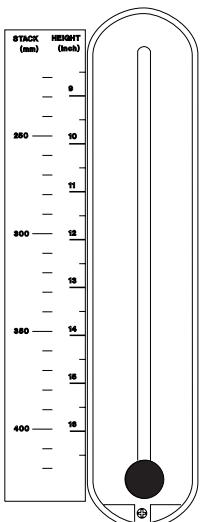
Fuser Entry Area

After receiving print images, forms pass through the fuser entry area toward the fuser.

In the fuser area, heat and pressure from the fuser heat-roll bond the print images onto the forms.

50 Hz Printer

Paper Cover
Forms Alignment Guide Line
Fuser Entry
Autoload Bridge
Preheat Control

60 Hz Printer

Fuser Entry
Autoload Bridge
Forms Alignment Guide Line
Preheat Control

A23O0005
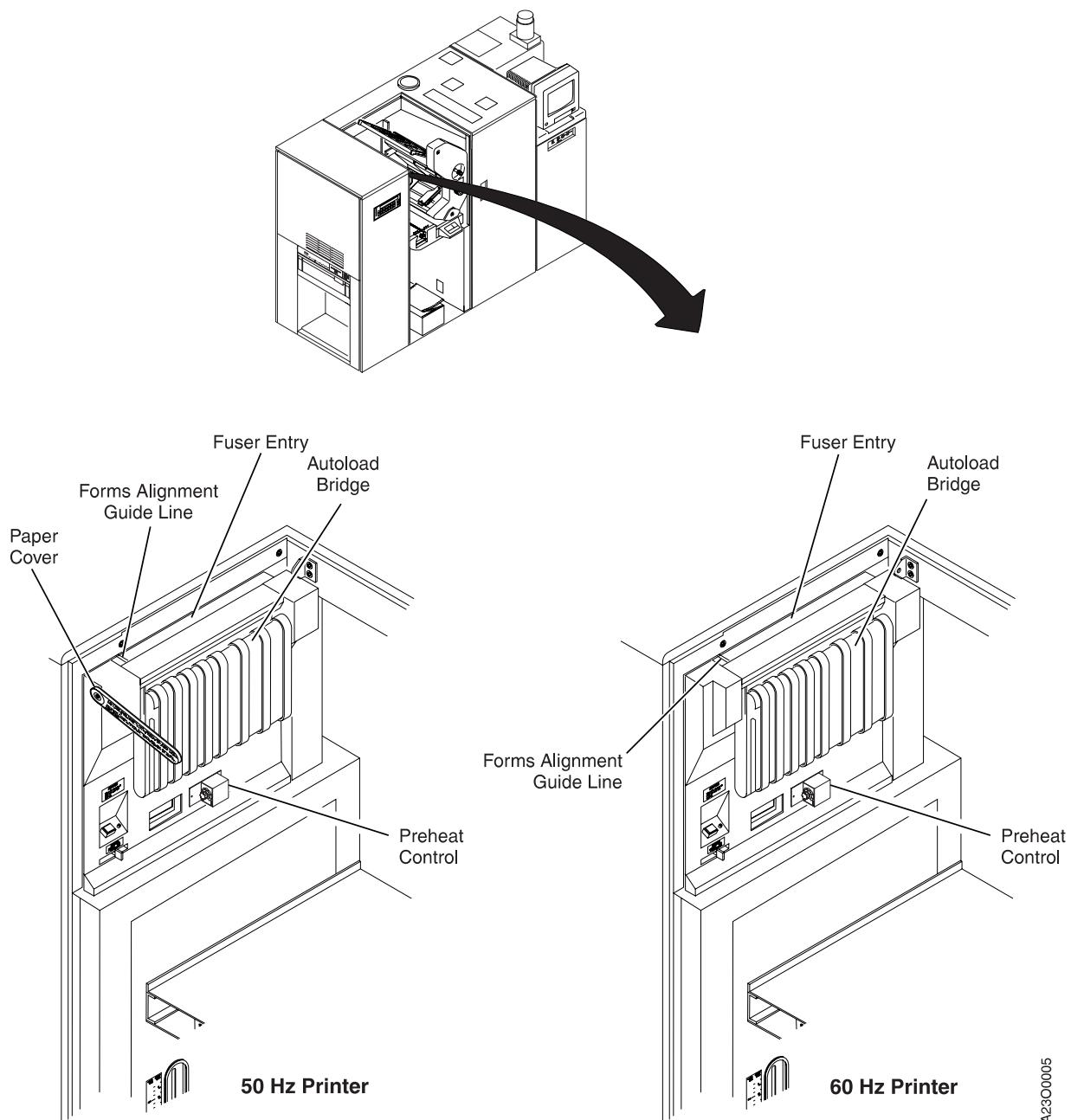
Stacker Area

The printed and fused forms leave the fuser area and are refolded in the stacker area. "Stacker Control Panel" on page 1-35 describes the stacker panel in detail.

The pendulum is located inside the stacker area, above the stacker table. The swinging of the pendulum helps forms to refold correctly.

The stacker control panel is located just above the stacker. It contains controls for setting form width, form length, and stacker table position.

Stacker Control Panel

Stacker End Cover

Stacker Gate (Open)

Finger Belts

Pendulum

Stacker Table

NWTO0006

Stacker Control Panel

Using This Control:	Does This:
FORMS WIDTH	Increases or decreases the stacker width setting. The FORMS WIDTH lever should be set to the position that corresponds to the forms width shown on the stacker LED display (12.0 in the above illustration).
FORMS LENGTH	Displays the current form length and lets you adjust it. The above illustration shows a forms length setting of $8^2/_3$. To use the stacker, set the FORMS LENGTH on the Stacker Control Panel between 7 and 14 inches. If you are not using the stacker, you must still set the forms length properly to allow Auto Load to function properly. See Loading Forms—Auto Load (Simplex Mode), step 27 on page 5-12 for more information.
	Moves the stacker table up.
	Stops the stacker table.
	Moves the stacker table down.

Rear Service Area

The toner collector, fine filter, usage meter, and fuser oil reservoir, are located in the rear service area. The preprocessing/postprocessing device interface cable connection area is located behind the rear cover of either the AFCCU frame or the PUM frame.

Note that the preprocessing/postprocessing device interface cable connection area is the same on the AFCCU frame on a simplex printer or Printer 2 of a duplex or dual simplex configuration and the PUM frame on Printer 1.

Fuser Oil
Reservoir

Usage Meter

Fine Filter

Pre/Post Device
Cable Connection Area
Behind Rear Cover

Toner Collector
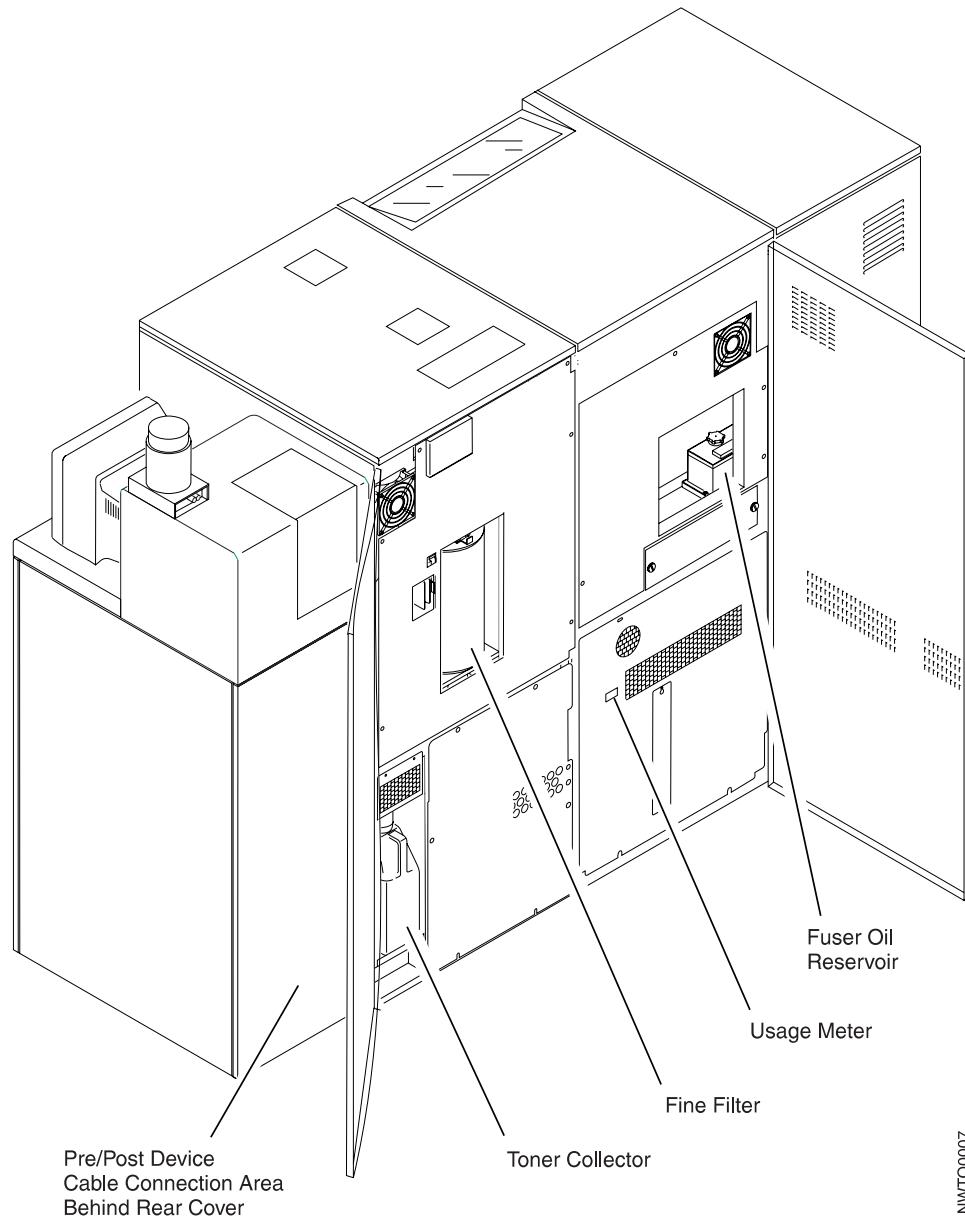
NWTO0007

Chapter 2. Operator's Overview

> **Chapter Overview**
>
> This chapter provides an overview of the operator tasks and of the general operation of the printer:
>

Operator Responsibilities

Table 2-1 summarizes the responsibilities of the operator.

Table 2-1. Operator Responsibilities

What to Do:	When to Do It:	Where to Find More Information:
Power on/off the printer and enable/disable attachments	As necessary	"Controlling the System Power" on page 4-2 "Enabling and Disabling Attachments" on page 4-11
Clean all functional areas of the printer	• At the beginning of every shift • Before and after printing adhesive labels	"Cleaning the Printer" on page 7-7
Define and load forms	As necessary	"Defining Forms" on page 8-46 "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20
Thread forms (duplex mode), ensure proper form alignment, and verify side 2 printing	When loading new forms, after a power on or restart, and after any machine-detected errors	"Threading and Aligning Forms" on page 5-34. Also see "Verification Marks" on page 8-8.
Change mode from duplex to dual simplex, or vice versa	As necessary	Change the "Printer Mode" using "Switching Printer Modes (Simplex/Duplex)" on page 4-22
Empty stacker	As necessary	"Unloading the Stacker" on page 5-74
Check print quality and print samples	• At the start of every day • Before and during any important jobs	"Checking Print Quality" on page 5-73
Replenish and check supplies	As indicated by messages on the affected printer's operator panel display	"Adding Fuser Oil" on page 7-18 "Adding Toner" on page 7-21 "Changing the Developer Mix" on page 7-37 "Checking the Fine Filter" on page 7-46 "Changing the Fine Filter" on page 7-47 "Checking the Toner Collector" on page 7-30 "Changing the Toner Collector" on page 7-32
Clear forms jams, errors	As indicated by messages on both the operator console and the affected printer's operator panel display	"Recovering from a Forms Jam (Simplex Operations)" on page 6-24 "Recovering from a Forms Jam (Duplex Operations)" on page 6-33. "Responding to Messages" on page 6-2 "Print Quality Problems" on page 6-61

Table 2-1. Operator Responsibilities (continued)

What to Do:	When to Do It:	Where to Find More Information:
Run traces	As requested by the system programmer or service representative	"Running Traces" on page 6-59
Change printer configuration	As requested by the system programmer or service representative	"Changing the Language of Messages" on page 8-2 "The Configuration Procedure" on page 8-3 "Configuring the Host Attachments" on page 8-16 "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28
Clean the oiler belt	Once each week	"Cleaning the Oiler Belt" on page 7-51
Check the absorbent pad in the oil pan, if you have an Infoprint 4000 Model ID1 or Model ID3	Once each week	"Checking the Absorbent Pad in the Oil Pan" on page 7-61
Order supplies	As necessary	"Supplies" on page 7-2
Report printer usage	End of every month	"Reporting Printer Usage" on page 4-20
Switch print resolution	As requested by system operator, depending on the type of job being submitted **Note:** Not all Infoprint 4000 models have this capability.	"Switching Print Resolution" on page 4-24
Switch Print On Demand (POD) mode	As requested by the system operator **Note:** Not all Infoprint 4000 models have this capability.	"Switching Print On Demand Mode" on page 4-24

Normal Operation (Ready Status)

Before the printer can begin printing, it must be in *Ready status*. The printer is in ready status when all of the following conditions have been met:

- The printer is powered on and ready.
- The fuser is warmed up.
- The initial microcode load (IML) sequence is complete on the system control unit.
- The Thread/Align procedure has been successfully completed for duplex mode operation.
- The transfer station and all gates are closed and latched.
- All supplies are loaded.
- No errors are present.
- Host attachments are enabled.
- All enabled preprocessing and postprocessing devices are powered on and ready.
- The **Ready** key on the printer operator panel or the **Ready** push button on the operator console main window has been selected.

When the printer is operating normally, the following happens:

- In simplex mode, forms move from the forms input area through the transfer station and fuser, and into the stacker or postprocessor area.
- In duplex mode, forms continue past the stacker area of Printer 1 through the buffer/flipper unit, into the forms input area of Printer 2, through the transfer station and fuser, and into the stacker or postprocessor area of Printer 2.
- If you are using the stacker, the stacker table slowly lowers as it fills.
- The **Receiving** indicator in the operator panel display turns on and off. When the indicator is on, data is being received from the controlling computer system.
- The operator panel display area and the operator console windows present messages.

Operator Intervention (Not Ready Status)

When normal operation is interrupted, the printer goes into a *Not Ready* status. Any of the following actions can cause a Not Ready status:

- **SELECTING** the **Stop** pushbutton on the operator console window.
- Pressing the **Stop** key on the printer operator panel.

In addition, whenever the printer detects an Out of Supplies, Intervention Required, or Printer Error condition, it places itself in Not Ready status and displays an error message on the operator console and printer operator panel display.

- **Out of Supplies** messages indicate that the printer needs basic supplies service. For some supplies, you can temporarily bypass this message and continue processing; other supplies require you to replace them immediately.
- **Intervention Required** messages indicate the printer needs basic service involving forms handling or checking on mechanical conditions, such as an open gate. You must handle all messages of this type immmediately.
- **Printer Error** messages indicate that the printer or the control unit has a hardware problem, such as a forms jam or a component failure. Processing stops so that you can attempt to correct the problem, or, if necessary, call for service. You can postpone action for some messages of this type; others you must handle immediately. Some printed pages may be lost or damaged because of printer errors.

See "Responding to Messages" on page 6-2 for more information about handling messages. See "Chapter 7. Maintaining the Printer" on page 7-1 and "Chapter 4. Operating the Printer" on page 4-1 for more information about specific recovery procedures.

Service Call Procedure

Use this procedure only when you have tried all of the operator actions described in the error message or listed in this book.

1. Collect information about the printer system, including the machine type, model number, and serial number. This information is located on a label behind the front right cover, beneath the developer, on the horizontal frame of the printer engine. You will be asked for this information when you place the service call.

Label ————
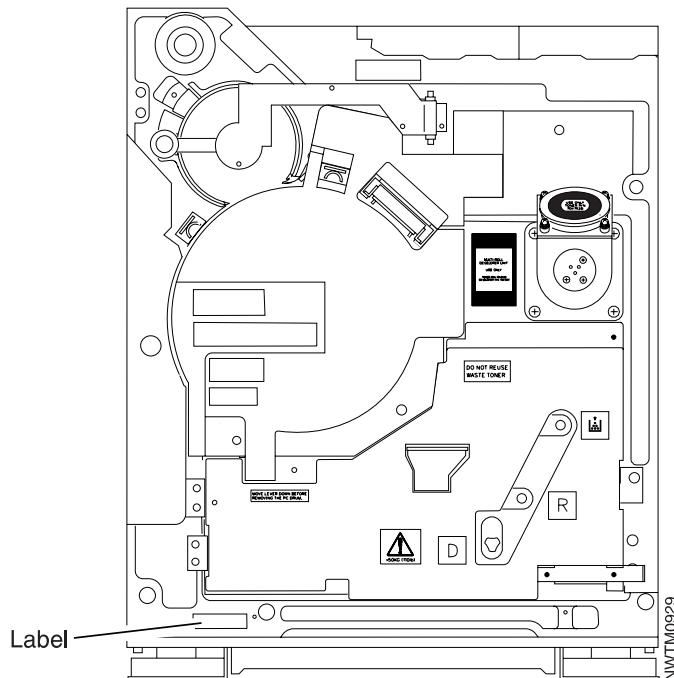
2. Collect information related to the problem. The service representative always needs the following information:
   - The message number and exact text in order of appearance of all messages that appear on the operator panel or the operator console.
   - A description of the forms being used (size, weight, adhesive labels, and preprinted forms).

   Also, the following optional information may be useful:
   - A description of the application that was running.
   - A description of the operating environment.
   - A summary of all the operator actions that were taken.
   - Print samples.

3. Follow your site procedures for reporting problems. For example, you may need to notify the shift supervisor or the system programmer before you request a service call.

Chapter 3. Using the Operator Console

> **Chapter Overview**
>
> This chapter describes the operator console display windows and their associated components. These windows are similar to those used in OS/2 and other graphical environments:
>
> - "Using the Operator Console Display Windows" on page 3-2
> - "Menu Summary" on page 3-4
> - "Keypad/Keyboard/Hexpad Windows" on page 3-13
> - "Symbols and Visual Cues" on page 3-15
> - "Selection Devices on the Console Windows" on page 3-17
> - "Control Procedures" on page 3-19
> - "Adjusting the Operator Console Monitor" on page 3-22

Using the Operator Console Display Windows

The operator console is a touch-sensitive screen. To interact with it, touch the screen as though you are pressing a pushbutton switch, making a selection from a list, or entering data on a keyboard.

The graphics in this book that depict the operator console do not match the actual screens in every detail. The screens on your operator console have a title bar at the top that is not shown in this book.

Figure 3-1 shows a sample operator console window and its components.
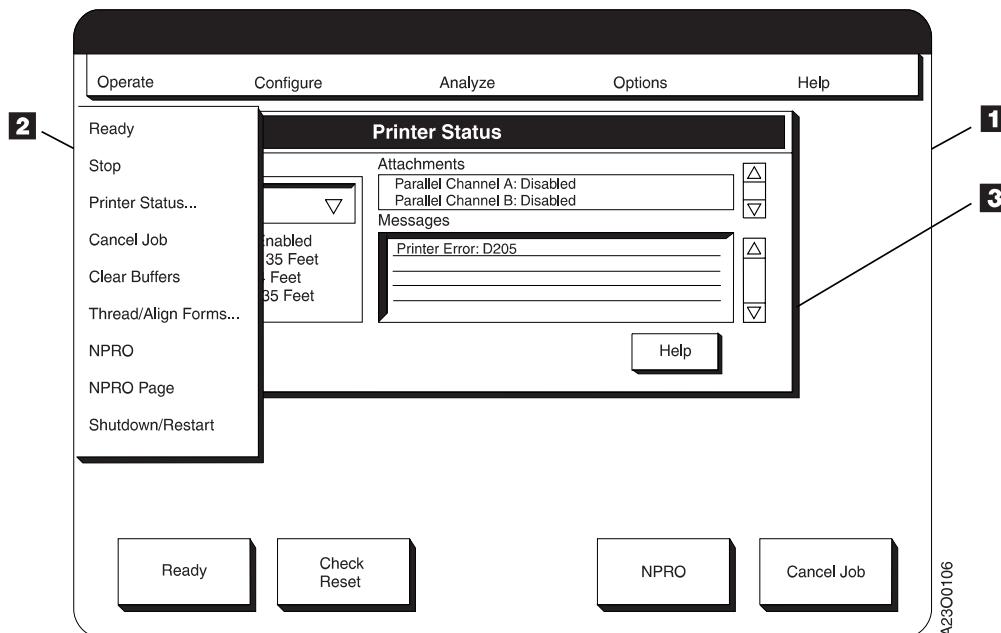
Figure 3-1. Operator Console Window Components

1 **Main Window**

The Main Window always appears on the operator console. All of the other pull-down menus, procedure windows, keyboard/keypad windows, and pop-up windows appear on top of it.

The Main Window contains:

– A Title Bar, which lists the name of the printer and the current authorization level if the current authorization level is Key Operator or Customer Engineer.

– A Menu Bar, which lists the five pull-down menus you can display (**Operate**, **Configure**, **Analyze**, **Options**, and **Help**).

– Pushbuttons, which let you access frequently-used procedures.

Ready Makes the complete system (both printers) Ready when in duplex mode, or the individual printer Ready when in dual simplex mode. If pages are waiting to be printed and the system or printer is online to the host, printing begins.

Stop Finishes the page currently printing and then makes the complete system (both printers) Not Ready in duplex mode, or the individual printer Not Ready in simplex mode.

Next Printer
> Switches from one simplex printer console to the other simplex printer console. This pushbutton is available only in dual simplex mode.

Cancel Job
> Lets you cancel the job currently being printed. In duplex mode, both system printers must be in a Not Ready state to cancel a job; in simplex mode only the individual printer must be in a Not Ready state. See "Canceling a Job" on page 4-15 for more information.

NPRO Moves forms forward through the forms path. See "Using the NPRO and NPRO Page Functions to Advance Forms" on page 5-65 for more information about the NPRO function.

2 **Pull-Down Menu**

A pull-down menu appears when you select a choice on the Main Window Menu Bar. The menu contains a list of functionally grouped procedures. Figure 3-1 on page 3-2 shows the pull-down menu you see if you **SELECT Operate** from the Main Window Menu Bar.

3 **Procedure Window**

A procedure window appears when you select a procedure from a pull-down menu. A procedure window provides you with all of the lists, options, and pushbuttons you need to accomplish a defined procedure.

Figure 3-1 on page 3-2 shows the procedure window you see when you select the **Printer Status...** procedure from the **Operate** pull-down menu.

Figure 3-2 on page 3-5 shows all pull-down menu procedures and shows which pull-down menu is used to access each procedure. The user authorization level required of each procedure is indicated by the shading. "Menu Summary" on page 3-4 summarizes all of the functions available from the pull-down menus.

Menu Summary

The following sections summarize the functions available from the printer pull-down menus.

Figure 3-2 on page 3-5 shows all pull-down menu procedures and shows which pull-down menu is used to access each procedure. The user authorization level required of each procedure is indicated by the shading.

Procedure Access Chart

Help
- General Help

Options
- Assign Form to Load
  - Print Adjust
  - Print Test
- Enable/Disable Attachments
- Password
  - Change Password
- Change Language
- Clean Screen
- Calibrate Touch Screen
- Front Face
- Special Features

Analyze
- Service Actions
- Traces
  - Configure Control Unit Trace
  - Print Traces
  - Save Traces
- Print Samples

Configure
- Define Forms
- Configure Printer
  - Print Printer Configuration
- Configure Attachments
  - Print Attachment Configuration
- Configure Pre/Post
- Adjust Print
  - Print Test
- Remote Access

Operate
- Ready
- Stop
- Printer Status
  - Attachments
- Messages (Interventions, Errors)
- Reset Counter
- Cancel Job
- Clear Buffers
- Thread/Align Forms *
- NPRO
- NPRO Page
- Shutdown/Restart

Authorization Level
- All operators
- Key operator
- Customer Engineer

* Available only in duplex mode.

Figure 3-2. Procedure Access Chart

Operate Pull-Down Menu

Figure 3-3 shows the selections available on the Operate pull-down menu.
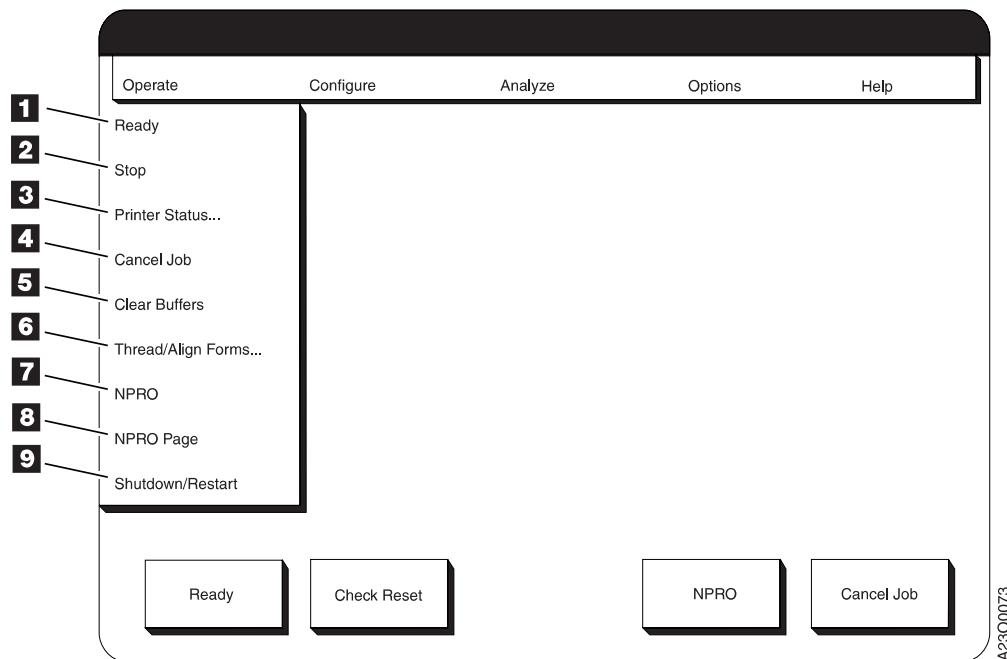
Figure 3-3. Operate Pull-Down Menu

- **Ready** ■1

  Makes the complete system (both printers) Ready when it is in duplex mode, or the individual printer Ready when it is in simplex mode. If pages are waiting to be printed and the system or printer is online to the host, printing begins.

- **Stop** ■2

  Finishes the page currently printing and then makes the complete system (both printers) Not Ready in duplex mode, or the individual printer Not Ready in simplex or dual simplex mode.

- **Printer Status...** ■3

  Displays status information about the system or printer. See "Status Messages" on page 6-9 for more information.

- **Cancel Job** ■4

  Lets you cancel the job currently being printed. In simplex or dual simplex mode only the individual printer must be in a Not Ready state. See "Canceling a Job" on page 4-15 for more information.

- **Clear Buffers** ■5

  Clears the print buffers. (The printer must be made Not Ready before you select Clear Buffers.) This procedure allows the host to use PSF Forward and Backward commands.

- **Thread/Align Forms...** ▌6▐

  Establishes the front-to-back synchronization in the two printer system. This procedure is available only in duplex mode. See "Threading and Aligning Forms" on page 5-34 for more information.

- **NPRO** ▌7▐

  NPRO moves forms forward through the forms path. See "Using the NPRO and NPRO Page Functions to Advance Forms" on page 5-65 for more information.

- **NPRO Page** ▌8▐

  Moves the forms forward to the next top-of-form position. See "Using the NPRO and NPRO Page Functions to Advance Forms" on page 5-65 for more information.

- **Shutdown/Restart** ▌9▐

  Lets you shutdown or restart the printers.

  - **Shutdown** closes all of the active procedures, disables host attachments and safely prepares the system so that the control unit may be powered off. In duplex mode, Shutdown affects the complete system. In simplex or dual simplex mode, Shutdown applies to just the printer under which the procedure was selected, the other printer can still be actively used.

  - **Restart** unloads and then reloads the control unit internal code, which resets pointers, counters, and other controls. In duplex mode, the complete system (both printers) undergoes a Restart. In simplex or dual simplex mode, the Restart applies only to the printer being restarted, the other printer can still be actively used.

  See "Shutting Down and Restarting the System" on page 4-9 for more information.

Configure Pull-Down Menu

Figure 3-4 shows the selections available on the Configure pull-down menu.

Note: If the printer is not stopped, some items are ″grayed out″.
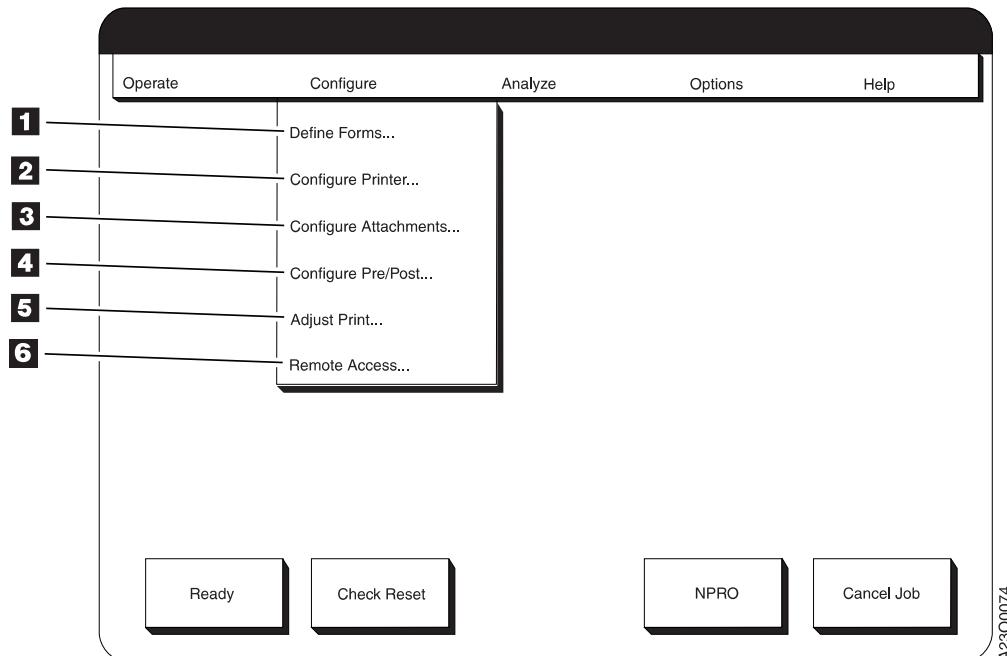
Figure 3-4. Configure Pull-Down Menu

- **Define Forms...** **1**

  Lets you change, add, and delete form definitions. A form must be defined before you can assign a from to load and load it on a printer. See "Defining Forms" on page 8-46 for more information.

- **Configure Printer...** **2**

  Lets you display, update, or print out a copy of the printer configuration. See "The Configuration Procedure" on page 8-3 for more information.

- **Configure Attachments...** **3**

  Lets you display, update, or print the configuration settings of all installed attachments. See "Configuring the Host Attachments" on page 8-16 for more information.

- **Configure Pre/Post...** **4**

  Lets you add, delete, or change the specifications of preprocessing or postprocessing device interfaces. See "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28 for more information.

- **Adjust Print...** **5**

  Shifts the logical page on a form when using preprinted forms, or other forms that require precise alignment. See "Adjusting the Print Position" on page 5-57 for more information.

- **Remote Access...** **6**

  Lets you enable and configure remote access to the printer via SNMP (Simple Network Management Protocol), RMI (Remote Management Interface), and Modem. See "Configuring Remote Access" on page 8-14 for more information.

Analyze Pull-Down Menu

Figure 3-5 shows the selections available on the Analyze pull-down menu.
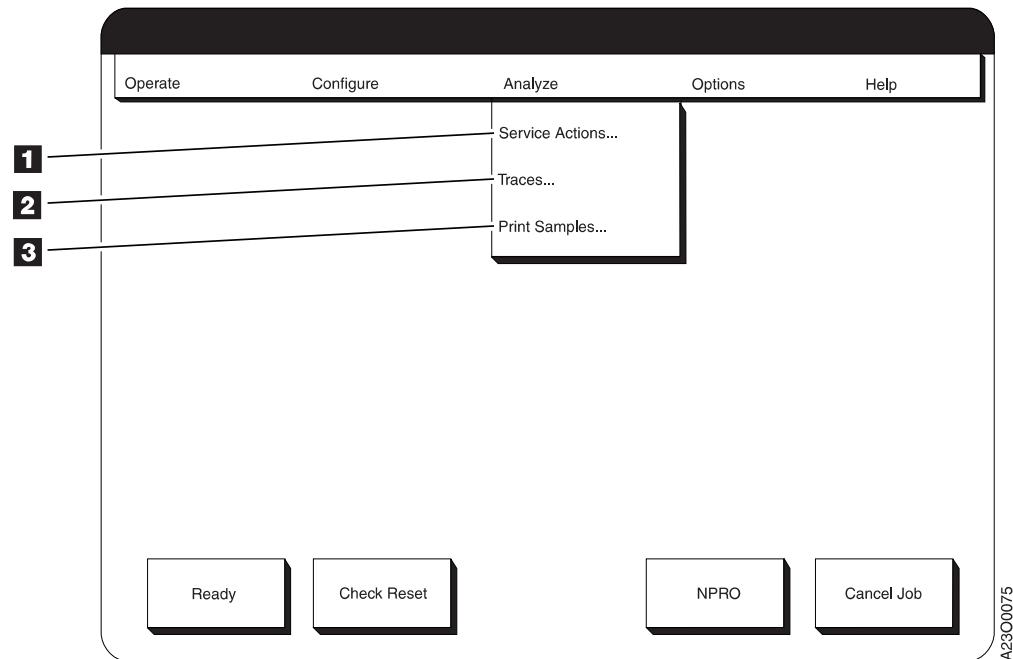
Figure 3-5. Analyze Pull-Down Menu

- **Service Actions...** 1

  Used only by a service representative and protected by a **Customer Engineer** user authorization level password.

- **Traces...** 2

  Lets you select a trace to run, start the trace, stop the trace, and print selected traces. See "Running Traces" on page 6-59 for more information.

- **Print Samples...** 3

  Lets you print a variety of sample pages. See "Checking Print Quality" on page 5-73 for more information.

Options Pull-Down Menu

Figure 3-6 shows the selections available on the Options pull-down menu.
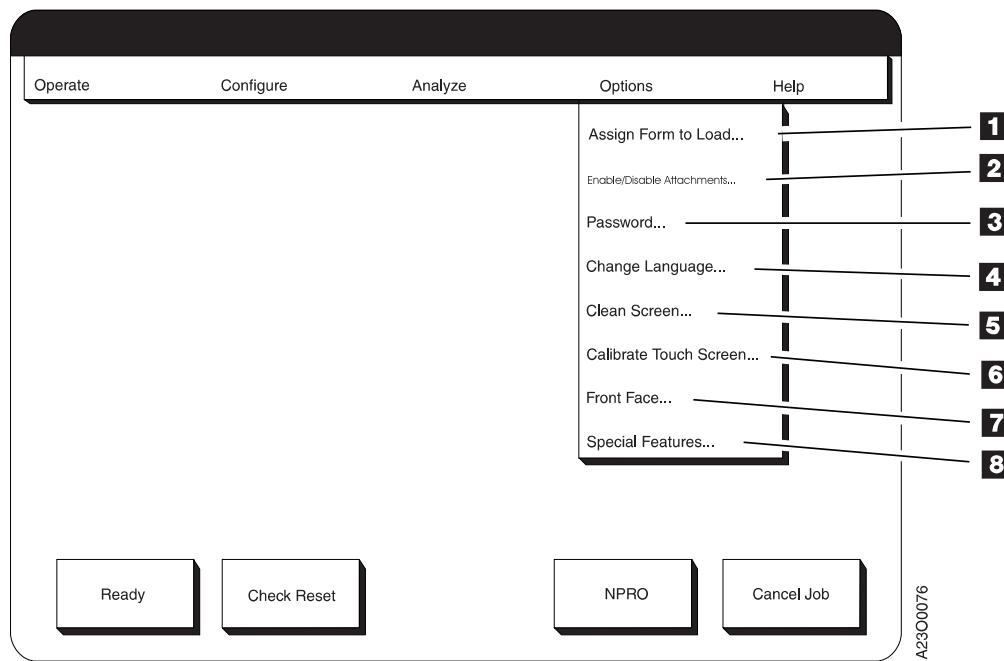
Figure 3-6. Options Pull-Down Menu

- **Assign Form to Load...** **1**

  Assigns the defined name of the form being loaded. (A form does not appear on the list until you define it.) From within this procedure, you can also invoke the **Adjust Print** and **Print Test** procedures. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 for more information.

- **Enable/Disable Attachments...** **2**

  Lets you enable and disable the host system attachments installed on the system. See "Enabling and Disabling Attachments" on page 4-11 for more information.

- **Password...** **3**

  Lets you set the authorization level of the person working on the printer and change the user authorization password. Access to higher user authorization levels is password protected. See "Changing the Password or Authorization Level" on page 4-16 for more information.

- **Change Language...** **4**

  Lets you change the language used for all text within operator console windows and displayed on the printer operator panel. See "Changing the Language of Messages" on page 8-2 for more information.

- **Clean Screen** **5**

  Gives you 30 seconds to clean the face of the monitor. If one 30 second interval is not long enough, you can repeat this procedure as many times as necessary.

- **Calibrate Touch Screen** ◼6

  Removes the displacement between where you touch the screen surface and the small (+) symbol that appears on the screen when you touch it.

- **Front Face** ◼7

  Lets you place a blank page between jobs that have an odd number of pages and ensure that jobs that require a certain folding pattern are printed correctly. See "Checking for a Front-Facing Page" on page 5-68 for more information.

- **Special Features** ◼8

  Lets you enable, disable, install, and uninstall special features (customer-requested features, also known as RPQs). You can install special features from a diskette or from the printer hard disk. You must both install and enable the feature before it becomes functional.

Help Pull-Down Menu

The **Help** pull-down menu has only one choice, **General Help**. **SELECTING General Help** displays general information about the operator console.
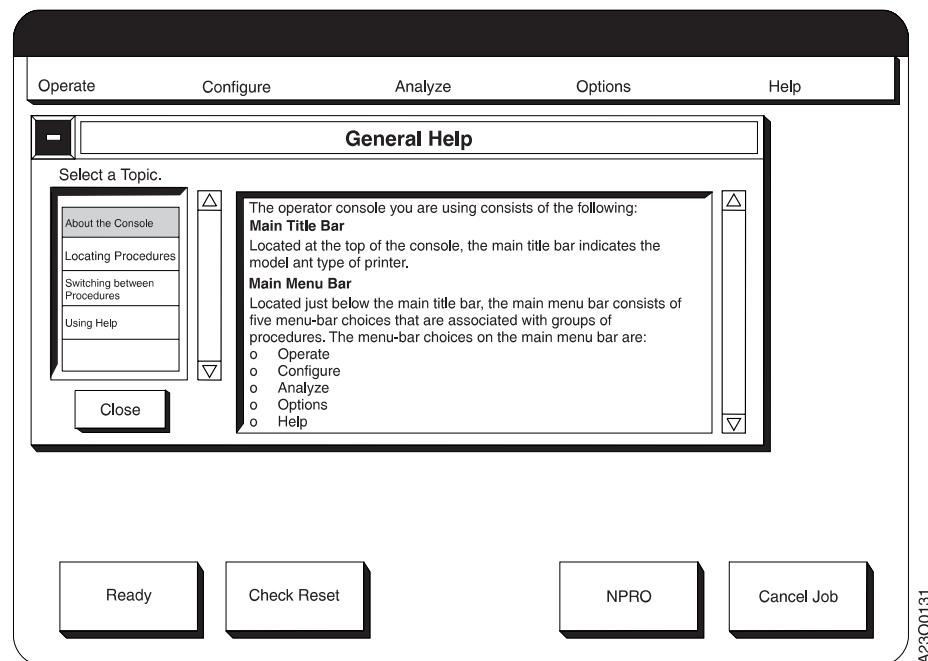
Figure 3-7. General Help Window

Additional Help

All procedure windows contain a **Help** pushbutton, which displays information about performing the procedure. This information usually includes a summary of the procedure, directions for performing the procedure, and an explanation of each pushbutton in the procedure window.

Keypad/Keyboard/Hexpad Windows

You see a keypad (Figure 3-8 on page 3-14), keyboard (Figure 3-9 on page 3-14), or hexpad window when a procedure requires you to enter numeric or alphanumeric data. The title bar on these windows contain the same title as the associated procedure window.

The following function and cursor control keys are contained in each type of keyboard/keypad:

OK   Removes the keyboard/keypad window and displays the new value you entered in the procedure window selectable field item that called it.

Clear   If you make a keying mistake, this key clears previous input from the entry field and you can start over.

Cancel
     Cancels any entries you have made and removes the window.

Help   Displays a help window which describes how the keyboard window works.

Insert   Acts as a toggle switch between *Insert* and *Overwrite* modes. Either the word "Insert", or "Overwrite" appears at the right side of the entry field.

     In Insert mode, characters you select are inserted at the cursor position, moving any existing characters to the right. In Overwrite mode, characters you select are "typed" at the cursor position directly over existing characters.

Delete   Erases an existing character at the cursor position.

Home   Moves the cursor to the beginning (left side) of the entry field.

End   Moves the cursor to the end (right side) of the entry field.

Left   Moves the cursor one character space to the left.

Right   Moves the cursor one character space to the right.

Backspace
     Erases an existing character to the left of the cursor.

Caps   (Alphanumeric Keyboard Only) Acts as a toggle switch to change keyboard entries from lowercase to uppercase, or uppercase to lowercase.

Shift   (Alphanumeric Keyboard Only) Affects only the next character you enter by changing the case (upper or lower) set by the "Caps" key to the opposite case.

Lock   (Alphanumeric Keyboard Only) Acts as a toggle switch between locked and unlocked mode for uppercase mode set by the "Caps" key.
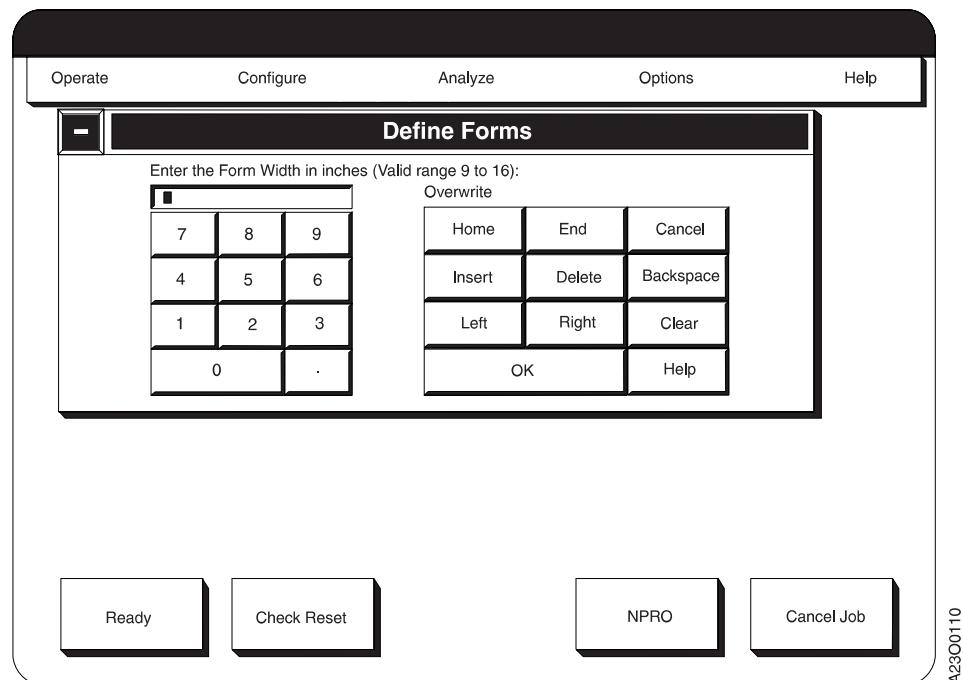
Figure 3-8. Numeric Keypad Window
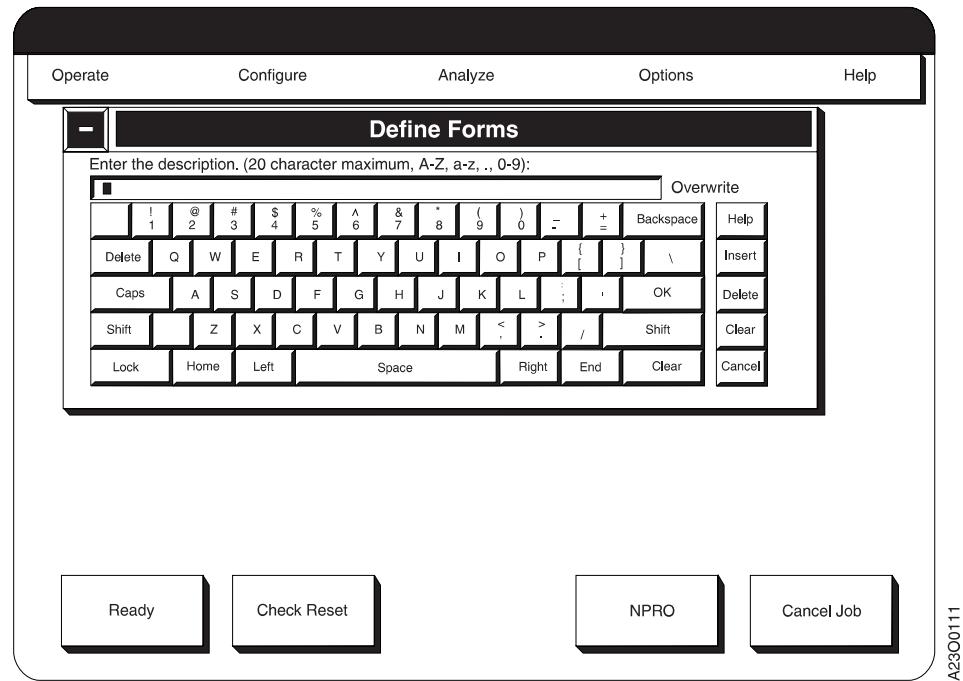
Figure 3-9. Alphanumeric Keyboard Window

Symbols and Visual Cues

The operator console windows contain several symbols that act as visual cues. These symbols represent conditions or actions and can help you understand and use the windows. The following table shows and explains symbols used on the windows.

Table 3-1. Symbols and Visual Cues

Visual Cue	Explanation
+	The plus sign appears under your finger when you touch the monitor screen surface and moves with your finger if you move your finger across the screen surface. The + sign is used to point to items to select them (by removing your finger from the screen surface).
A26O0023	This is the system-menu symbol. Every procedure window contains a system-menu symbol. When you select this symbol, a pull-down menu appears allowing you to close the window, print the screen, or switch to other active windows.
A26O0026	Information often appears on the procedure windows in boxed areas called fields. This three-dimensional outline signifies a selectable field. You can select any field with this three-dimensional outline. A pop-up window or a keyboard/keypad window appears when you select a selectable field.
A26O0027	This two-dimensional outline signifies a non-selectable field. You cannot select any field with this two-dimensional outline. Text in the two-dimensional box is for information only.
A26O0018	This is the scroll bar. It appears next to some selectable fields. Use the scroll bar to view additional information that cannot fit in a field. You can scroll up and down in the field by selecting the up and down arrows of the scroll bar.
A26O0019	This is the scroll box. The scroll box varies in size and location within the scroll bar. The size and location of the scroll box indicates how much more information is available in the corresponding field. If the scroll box fills the entire space between the scroll bar arrows, then all text is currently displayed and the scroll bar is not active. If not, then scrolling up or down reveals more information. The scroll box moves down within the scroll bar as you scroll down within the information.
Grayed out text	Signifies that the procedure or pushbutton is inactive. You cannot select a grayed out item.
A26O0020	Indicates that there are active procedure windows not displayed on the operator console. You must use the "Switch to" procedure in the system menu to access active procedure windows that are not displayed.
A26O0028	This symbol appears within some selectable field boxes. When you select a field containing this symbol, a keyboard, keypad, or hexpad window appears for you to make your field entry.
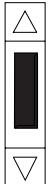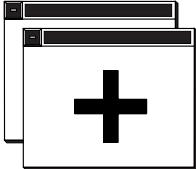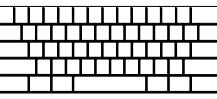
Table 3-1. Symbols and Visual Cues (continued)

Visual Cue	Explanation
A26O0021	This symbol appears within some selectable field boxes. It indicates that this field contains more choices than are currently displayed. When you select this field, a pop-up window, containing a selection list box, appears containing the additional choices.
••• A26O0022	Pushbutton or menu item text that is followed by an ellipsis indicates that when you select that item, another window appears, which requires you to make further selections.
A26O0024	Symbolizes the word *Caution* or *Warning*.
A26O0017	Indicates that the printer is processing your selection. Please wait.
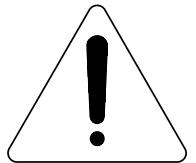
Selection Devices on the Console Windows

The following sections summarize the controls you can use to interact with the printers.

Fingertip Control

When you touch the surface of the monitor with your finger, a small plus symbol (+) appears directly under your finger tip. Moving your finger across the surface moves the (+) symbol. Removing your finger from the surface of the monitor selects the action or item on which the (+) symbol rests.

Pushbuttons

Pushbuttons look like three-dimensional pushbutton switches and allow you to select a particular action, which occurs immediately. An ellipsis (...) following a pushbutton name means that selecting the pushbutton causes a secondary procedure window or a pop-up window to appear.

Selectable Field

A selectable field on a procedure window or a pop-up window displays the current setting of a configuration-like item. To change the setting, select the field. A pop-up window appears containing one of the following:

- Two or more choices from which to select.
- A selection list box with many items from which to select. See **4** in Figure 3-11 on page 3-20 for an example of a pop-up window with a selection list box.
- A keypad or keyboard window in which to enter a new value.

The new value you select or enter appears in the selectable field on the procedure window.

Radio Buttons

A radio button consists of a diamond and some associated text. Radio buttons allow you to choose between two or more responses or actions. The diamond is highlighted for the active choice. Only one choice is allowed within any set of radio buttons.

Scroll Bar

Some procedure windows and pop-up windows contain a selection list box containing multiple selections. Most selection list boxes have a vertical scroll bar on the right side of the box, which you can use to display additional unseen information into view in the box.

Inactive Items

All pushbutton text, selection list items, and pull-down menu procedures appear regardless of whether they are currently selectable. Not all items are available on all Infoprint 4000 models. Items that you cannot select are "grayed out", that is, the text is faint but readable.

For example, when a printer is in the Ready state, the **Ready** pushbutton is grayed out, but the **Stop** pushbutton is bold. Conversely, when the printer is in the Not Ready state, the **Stop** pushbutton is grayed out, but the **Ready** pushbutton is bold.

Note: For clarity, none of the selection items, pull-down menu procedures, or pushbuttons that would normally be grayed out on initial display of a pull-down menu or procedure window are shown in that form in any of the window representation figures in this publication.

Control Procedures

System Menu

The System Menu Symbol **1** is a horizontal line within a pushbutton on the left side of the Title Bar of all procedure windows **2** . When you select this symbol, a pull-down menu **3** appears directly under the symbol.
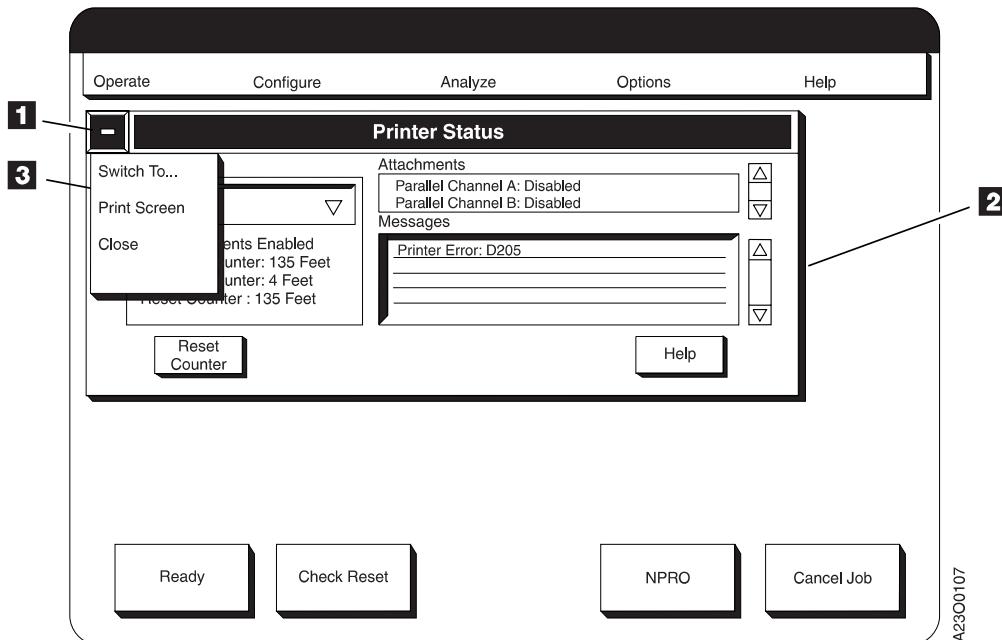
Figure 3-10. System Menu Symbol - Pull-Down Menu

There are three actions on the pull-down menu from which you can choose:

Switch to...
Displays a pop-up window that lists all of the procedures that are currently open (for example, see **4** on Figure 3-11 on page 3-20). Selecting any procedure name from the list moves the window for the procedure to the front.

Print Screen
Prints the screen if all installed host attachments are disabled.

Close Closes the procedure (the same as if you had selected the **Close** on the procedure window).

Multiple Procedures

You can have any number of procedures active at one time, however, only five procedures can appear at one time. To switch back and forth between the procedures on the operator console, select the title bar of the procedure you want. If there are more than five procedures active, you can access the procedures that have been pushed off the display by selecting the **Switch to...** option from the System Menu pull-down menu.

In duplex or simplex mode, multiple copies of the same procedure cannot be run at the same time. Once a procedure is started, the menu bar item that started that procedure will not start another of the same type, but will display the procedure window at the front of the cascade. However, in dual simplex mode the same named procedure can be open and active on both Printer 1 and Printer 2 operator consoles.

Figure 3-11 shows:

1 The Main Window
2 Four of the five maximum procedure windows
3 The System Menu pull-down menu
4 The **Switch to** pop-up window, which lists all open procedures
5 A symbol indicating that more than five procedures are open.

Use the scroll bar to the right of the **Switch to** pop-up window to display the names of additional open procedures. Selecting a procedure displays its procedure window at the front of the cascade.
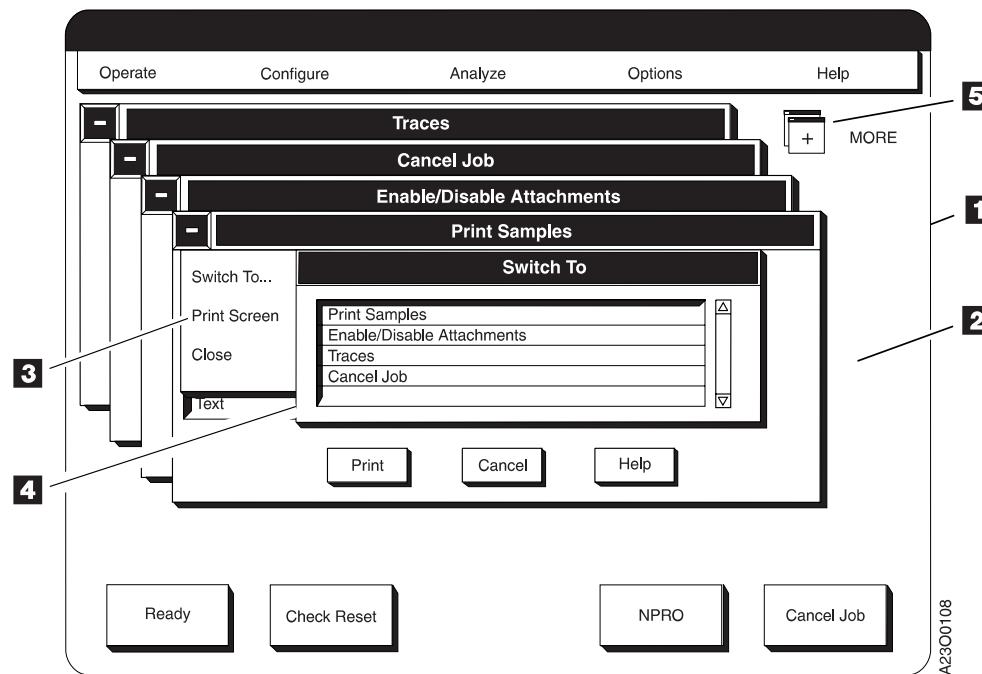
Figure 3-11. Procedure Windows in Cascade Format

Screen Saver Timeout

When there is no user interaction or error condition on the operator console for a period of time, the console goes blank. Only a "floating" logo (screen saver) appears.

To return to the normal display, simply touch the screen.

The screen saver timeout period (length of time without user interaction before the screen saver comes on) is set under the **Configure Printer** procedure and ranges from 0 to 60 minutes. You may set different timeout periods for duplex mode and for both Printer 1 simplex and Printer 2 simplex modes. In dual simplex mode, if you make different settings for Printer 1 and Printer 2, the shortest of the two settings is used by both printers.

Adjusting the Operator Console Monitor

From time to time you may decide that some physical aspect of the information image displayed on the face of the monitor needs to be adjusted. You can adjust the image with the user controls at the bottom of the monitor and the On-Screen-Display (OSD) icons.

User Controls
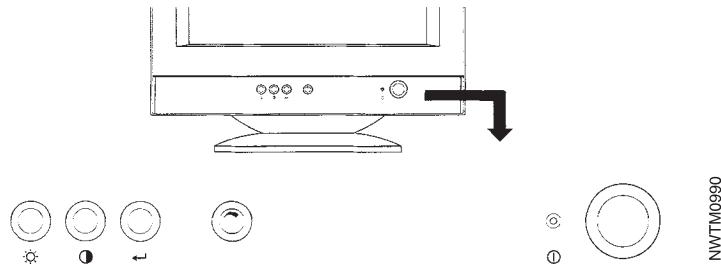
Figure 3-12. Operator Console User Controls

The controls at the bottom of the monitor are for switching the monitor on and off, adjusting contrast and brightness, and activating and adjusting the On-Screen-Display (OSD) control icons. Table 3-2 describes the controls and how to use them.

Table 3-2. User Controls on the Monitor

Using This Control:	Does This:
Power Switch ⏻	Switches the monitor on and off.
OSD/Select ↵	Activates the On-Screen-Display and selects a control icon.
Highlight/Adjust ◉	Pops out when pushed. Rotates to highlight OSD icons and adjusts setting after a icon has been selected.
Contrast ◑	Adjusts contrast between foreground and background.
Brightness ☀	Adjusts background brightness.

On-Screen-Display Controls

The On-Screen-Display (OSD) controls allow you to make further adjustments to the image on the monitor in addition to brightness and contrast. When you push in the **OSD/Select** button, the OSD main menu appears on the screen.

Figure 3-13. On-Screen-Display Main Menu

Note: If you do not make a selection within 6 seconds, the OSD menu disappears.

In Figure 3-13 the first row (brightness and contrast) is selected (highlighted). To select another row, use the **Highlight/Adjust** control to scroll through the rows to the one you want and then press the **OSD/Select** button. A submenu appears for the row you selected.

The image control rows are for the following:

Row/Submenu
> **Function**

1   Adjusts brightness and contrast, similar to the buttons on the bottom of the monitor.

2   Adjusts horizontal size and position and vertical size and position of the image.

3   Rotates and adjusts the shape of the image.

4   Adjusts the color of the color intensity of the image.

5   Degausses the monitor when selected. Do not use this feature more than once in any 30-minute period.

6   Recalls saved settings. Highlight the required group of functions and press the **OSD/Select** button.

Use the **Highlight/Adjust** button to scroll to the adjustment icon you want to use and then press the **OSD/Select** button. Use the **Highlight/Adjust** button to adjust the setting. When the setting is correct, press the **OSD/Select** button to accept the new setting.

Several icons appear on the submenus that allow you to save adjusted settings, exit the menu, or cancel the changes and return to the main menu.

Table 3-3 describes the icons you use after you have adjusted a setting.

Table 3-3. Submenu Icons

Using This Control:	Does This:
Save	Saves the adjustments you selected and returns to the main menu.
Cancel	Cancels any adjustments you made and returns to the main menu.
Exit OSD	Exits the OSD main menu after you press the **OSD/Select** button.

Chapter 4. Operating the Printer

> **Chapter Overview**
>
> This chapter describes the general operation of the printer:
>
> - "Controlling the System Power" on page 4-2
> - "Shutting Down and Restarting the System" on page 4-9
> - "Enabling and Disabling Attachments" on page 4-11
> - "Enabling/Disabling Pre/Post Interfaces" on page 4-14
> - "Canceling a Job" on page 4-15
> - "Changing the Password or Authorization Level" on page 4-16
> - "Adjusting the Volume of Operator Alert Assembly" on page 4-18
> - "Connecting an Accessory to the Operator Alert Contacts" on page 4-19
> - "Reporting Printer Usage" on page 4-20
> - "Switching Printer Modes (Simplex/Duplex)" on page 4-22
> - "Switching Print On Demand Mode" on page 4-24
> - "Switching Print Resolution" on page 4-24

Controlling the System Power

The following figure shows a Power Control Panel.
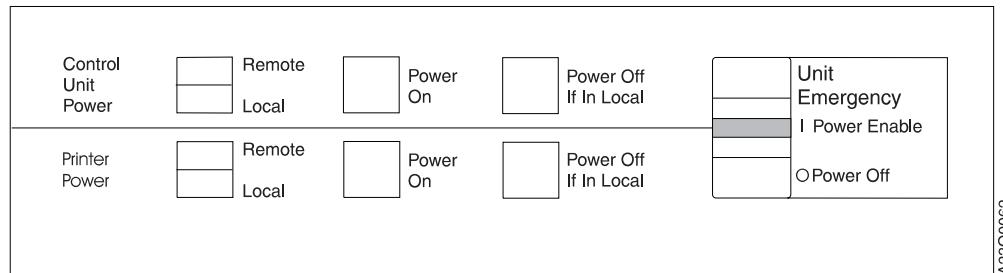
Printer 1 in the system has two sets of power controls; one for the Printer Utility Module (PUM) frame (labeled Control Unit on the Power Control Panel), and the other for the printer attached to the PUM frame.

Printer 2 in a duplex system and a simplex-only printer also has two sets of power controls; one for the Advanced Function Common Control Unit (AFCCU) frame (also labeled Control Unit on the Power Control Panel), and the other for the printer attached to the AFCCU frame. Each element in the system (Printer 1 frame, Printer 2 frame, the AFCCU frame, and the PUM frame) has: a **Local/Remote** switch, a **Power On** switch, and a **Power Off if in Local** switch. These switches allow many combinations of local/remote power control and power on/off control. Each Power Control Panel in the system also contains a **Unit Emergency** switch.

Attention!

The Power Control Panel also contains a **Unit Emergency** switch, which lets you turn off all power to the system in the case of an emergency.

Do not use Unit Emergency Power Off switch to power off the system unless you have an emergency, because doing so can cause loss of data and hardware problems in the AFCCU.

Local/Remote Power Control

You can press the **Remote** and **Local** switches on the Power Control Panel to change power control from local to remote at any time. Local power control means that you can turn power on and off using the switches on the Power Control Panel. Remote power control means that you turn power on and off from another source, as shown in Table 4-1.

Table 4-1. Remote Power Control

Element	Remote Power Controlled From:
Control Unit Power (AFCCU Frame)	Host System Console
Printer Power (Printer 1 and Simplex)	AFCCU Frame
Control Unit Power (PUM Frame)	AFCCU Frame
Printer Power (Printer 2)	AFCCU Frame

Powering On the System

You can switch power on for the complete system for duplex or simplex mode use, or you can switch power on for only one printer and its associated control units in simplex mode when one of the two system printers is not operable and needs repair. In either mode, and with the use of either printer, you must switch the AFCCU power on.

How you switch power on for the system depends on whether power control is set to **Local** or **Remote**.

Notes:

1. To switch power on for Printer 1 with Printer 2 powered-off, the AFCCU frame must still have power on.

2. The **Unit Emergency** switch in each printer must be in the **Power Enable** position before you can switch power on to that printer.

3. If a D208 error occurs after you switch power on for the system, do the following:

   a. Switch power off for the system.

   b. Wait two minutes.

   c. Switch power on for the system again.

If you are operating the system in dual simplex mode and leave one printer powered-off, the D208 error remains on the powered-off printer window.

In Host-Controlled Remote Mode

For duplex systems: When the system master power control is from the host system console, set the Local/Remote switches as shown in Table 4-2 for the various combinations of elements you want to be powered-on.

Table 4-2. Remote System Power Control - Duplex Models

Elements To Be Powered-On	Local/Remote Switch Setting			
	AFCCU Frame	Printer 2 Frame	PUM Frame	Printer 1 Frame
AFCCU, Printer 1, PUM, Printer 2	Remote	Remote	Remote	Remote
AFCCU, Printer 2	Remote	Remote	Local	Local
AFCCU, PUM, Printer 1	Remote	Local	Remote	Remote

For simplex systems: When the system master power is from the host system console, set the Local/Remote switches to Remote.

Then do the following:

1. Ensure that both printers in a duplex system are connected to a three-phase electrical outlet that is reserved for the printers.
2. Ensure that the printer in a simplex system is connected to a three-phase electrical outlet that is reserved for the printer.
3. Inform the host system console operator that the system is ready to be powered-on.
4. Respond to any error or intervention messages that appear on the operator console during the power-on sequence.

   At the completion of the power-on sequence the operator console displays a **Printer Status** window. In duplex mode, the **Printer Status** window is overlaid with a **Thread/Align Forms** procedure window.
5. Do the **Check Tension Arm** procedure. See "Checking the Tension Arm" on page 5-24 for details.
6. If you are printing in duplex mode, do the **Thread/Align Forms** procedure. See "Threading and Aligning Forms" on page 5-34 for details.
7. Enable host attachments, as required. See "Enabling and Disabling Attachments" on page 4-11 for details.
8. Load forms. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 or "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20 or "Loading Forms—Auto Load (Duplex Mode)" on page 5-18for details.
9. Make the system ready.
   - If you are printing in duplex mode, do one of the following:
     – On either printer operator panel, press **Ready**.   OR
     – On the main operator console window, **SELECT** the **Ready** pushbutton.
   - If you are printing in simplex or dual simplex mode, choose one of the following methods:
     – On one or both printer operator panels, press **Ready**.   OR
     – On the main operator console window for one or both printers, **SELECT** the **Ready** pushbutton.

In Local Controlled Mode

For duplex systems: When the system master power control is to be controlled locally, set the Local/Remote switches as shown in Table 4-3 for the various combination of elements for which you want power on.

Table 4-3. Local System Power Control - Duplex Models

Elements To Be Powered-On	Local/Remote Switch Setting			
	AFCCU Frame	**Printer 2 Frame**	**PUM Frame**	**Printer 1 Frame**
AFCCU, Printer 1, PUM, Printer 2	Local	Remote	Remote	Remote
AFCCU, Printer 2	Local	Remote	Local	Local
AFCCU, PUM, Printer 1	Local	Local	Remote	Remote

For simplex systems: When the system master power is to be controlled locally, set the Local/Remote switches to Local.

Then do the following:
1. Ensure that both printers in a duplex system are connected to a three-phase electrical outlet that is reserved for the printers.
2. Ensure that the printer in a simplex system is connected to a three-phase electrical outlet that is reserved for the printer.
3. Press the AFCCU frame **Control Unit Power On** switch for any of the preceding combinations of elements listed.
4. Respond to any error or intervention messages that appear on the operator console during the power-on sequence.
5. At the completion of the power-on sequence, the operator console displays a **Printer Status** window. In duplex mode, the **Printer Status** window is overlaid with a **Thread/Align Forms** procedure window.
6. Do the **Check Tension Arm** procedure. See "Checking the Tension Arm" on page 5-24 for details.
7. If you are printing in duplex mode, do the **Thread/Align Forms** procedure. See "Threading and Aligning Forms" on page 5-34 for details.
8. Enable host attachments, as required. See "Enabling and Disabling Attachments" on page 4-11 for details.
9. Load forms. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 or "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20 or "Loading Forms—Auto Load (Duplex Mode)" on page 5-18for details.
10. Make the system ready.
    - If you are printing in duplex mode, do one of the following:
      – On either printer operator panel press **Ready**.   OR
      – On the main operator console window, **SELECT** the **Ready** pushbutton.
    - If you are printing in simplex or dual simplex mode, choose one of the following methods:
      – On one or both printer operator panels, press **Ready**.   OR
      – On the main operator console window for one or both printers, **SELECT** the **Ready** pushbutton.

Powering Off the System

For duplex systems operating in duplex mode and for simplex systems, you must switch power off to the complete system whenever you want to switch power off to any single element. However, for duplex systems operating in dual simplex mode, you do not have to switch power off to the complete system to power off any single element.

In Host-Controlled Remote Mode

1. On the operator console, from the **Operate** pull-down menu **SELECT** the **Shutdown/Restart** procedure.

2. On the **Shutdown/Restart** window, **SELECT** the **Shutdown** pushbutton.

   (In dual simplex mode, on the **Shutdown/Restart** window **SELECT** the **Shutdown** pushbutton, for the other printer if desired.)

   Wait for a `Shutdown Complete` message to appear on the operator console. (In dual simplex mode, this message appears only if both printers are shutdown.)

3. Inform the host system console operator that you want to switch power off to the system.

4. The host console operator will inform you when both printers have been switched offline at the host.

5. The host system console operator switches power off to the system remotely.

In Local Controlled Mode

1. On the operator console from the **Operate** pull-down menu, **SELECT** the **Shutdown/Restart** procedure.

2. On the **Shutdown/Restart** window, **SELECT** the **Shutdown** pushbutton.

   (In dual simplex mode, on the **Shutdown/Restart** window **SELECT** the **Shutdown** pushbutton, for the other printer if desired.)

   Wait for a `Shutdown Complete` message to appear on the operator console. (In dual simplex mode, this message appears only if both printers are shutdown.)

3. Press the AFCCU **Power Off if in Local** switch for any combination of powered-on elements.

Emergency Power Off

In case of an emergency, you can set the **Unit Emergency** to **Power Off** to remove all power from the frame (PUM or AFCCU) in which the switch is installed and the attached printer engine. This action on one of the system printers will has no effect on the power on the other printer in the system, but causes the other printer to be functionally inoperable.

Attention!

Do not use Unit Emergency Power Off switch to switch power off to the system unless you have an emergency, because doing so can cause loss of data and hardware problems in the AFCCU.

Shutting Down and Restarting the System

Use this procedure when:

- A recovery action procedure instructs you to either **Shutdown** or **Restart** the system
- You are changing the Configure Printer **Printer Mode** item from dual simplex to duplex
- You want to do a general shutdown and power off the system.

You must use the **Shutdown** procedure to close all active procedures, disable all enabled host system attachments, and safely prepare the system so that the AFCCU may be powered-off.

Note: You should always do this procedure before you switch off power to the AFCCU, regardless of whether a recovery action procedure instructed you to switch power off to the system or you are doing it on your own.

Operate	Configure	Analyze	Options	Help

Shutdown/Restart

You are about to close all of the printer's communications attachments and close all of the printer's active procedures.

Select **Shutdown** to shut down the printer.

Select **Restart** to shut down and restart the printer.

Select **Cancel** to exit this window without shutting down or restarting.

Shutdown	Restart	Cancel	Help

Ready	Check Reset		NPRO	Cancel Job

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Shutting Down the System

Note: With a duplex configuration in duplex mode or with a simplex printer, this procedure shuts down the complete system (both printers in a duplex configuration). In dual simplex mode, this procedure shuts down only the target printer, the other printer remains active and usable. If you are shutting down the last active dual simplex printer, the complete system is shutdown.

Note that once a dual simplex printer has been shutdown using this procedure, the only way to get it back to active use is to shutdown the other dual simplex printer also.

1. From the **Operate** pull-down menu, **SELECT** the **Shutdown/Restart** procedure.
2. On the **Shutdown/Restart** procedure window, **SELECT** the **Shutdown** pushbutton.

   If you decide that you do not want to shutdown or restart the system, **SELECT** the **Cancel** pushbutton.

   If the printers are in duplex mode, or if the printers are in dual simplex mode and the final simplex printer is being shutdown, the following messages appear:

   - The operator console screen displays the message `Shutdown in Progress` after you select the **Shutdown** pushbutton, and
   - `Shutdown Complete` appears when the shutdown process is complete.
3. If necessary, switch power off to the system or the individual printer. See "Controlling the System Power" on page 4-2 for details.

   As required, correct the problem that caused you to initiate the procedure.

Restarting the System

Note: In duplex mode, this procedure applies to the complete system (both printers). In dual simplex mode, this procedure applies to the target printer only.

1. From the **Operate** pull-down menu, **SELECT Shutdown/Restart**.
2. On the **Shutdown/Restart** procedure window, **SELECT** the **Restart** pushbutton.
3. Enable the host attachments, if necessary. See "Enabling and Disabling Attachments" on page 4-11 for details.
4. Try the operation that was in progress when the **Restart** was requested again.

Enabling and Disabling Attachments

Do this task whenever you need to functionally connect (enable) or disconnect (disable) the printer from the controlling computer system channel. Note that enabling and disabling an attachment is not the same as physically attaching or detaching the attachment.

To accept commands and data from the system, a controlling computer system channel must be enabled, and the printer must be Ready.

You need to enable attachments whenever you switch power on to the system in duplex, dual simplex, or simplex mode without using Auto Start, or whenever you need to enable a disabled attachment.

The enable/disable status of installed host attachments may be set differently between duplex and dual simplex modes and between Printer 1 and Printer 2 in dual simplex.

Remote Channel Enable/Disable

If your installation uses two System/370 Parallel Channels, a "Remote Channel Enable/Disable" feature may be installed (contact your service representative if you are not sure). If the "Remote Channel Enable/Disable" feature is installed, you must notify the remote operator whenever you require the Parallel channels to be enabled or disabled.

Note: Although there is nothing to prohibit the use of the **Enable/Disable Attachments** procedure, you should **not** use it when the "Remote Channel Enable/Disable" feature is installed.

Local Channel Enable/Disable

Note: Do not use this procedure if the "Remote Channel Enable/Disable" feature is installed.

The enable/disable status of host attachments cannot be changed for an individual printer or for the complete two-printer system unless the printers are in the Not Ready state.

You may make the printers Not Ready at either the printer operator panel or at the main operator console window. You must use that same panel/window to make the printers Ready.

- In duplex mode, do one of the following:
  - On either the Printer 1 or Printer 2 operator panel, press the **Stop** key. OR
  - On the operator console main window, **SELECT** the **Stop** pushbutton.
- In dual simplex mode, do one of the following:
  - On the target printer operator panel, press the **Stop** key. OR
  - On the operator console window for the target printer, **SELECT** the **Stop** pushbutton.
- In simplex mode, do one of the following:
  - On the printer operator panel, press the **Stop** key. OR
  - On the operator console window for the printer, **SELECT** the **Stop** pushbutton.

| Operate | Configure | Analyze | Options | Help |

Enable/Disable Attachments

Select an Installed Attachment

Parallel Channel: Enabled
ESCON Channel: Disabled

| Close | Enable | Disable | Help |

| Ready | Check Reset | | NPRO | Cancel Job |
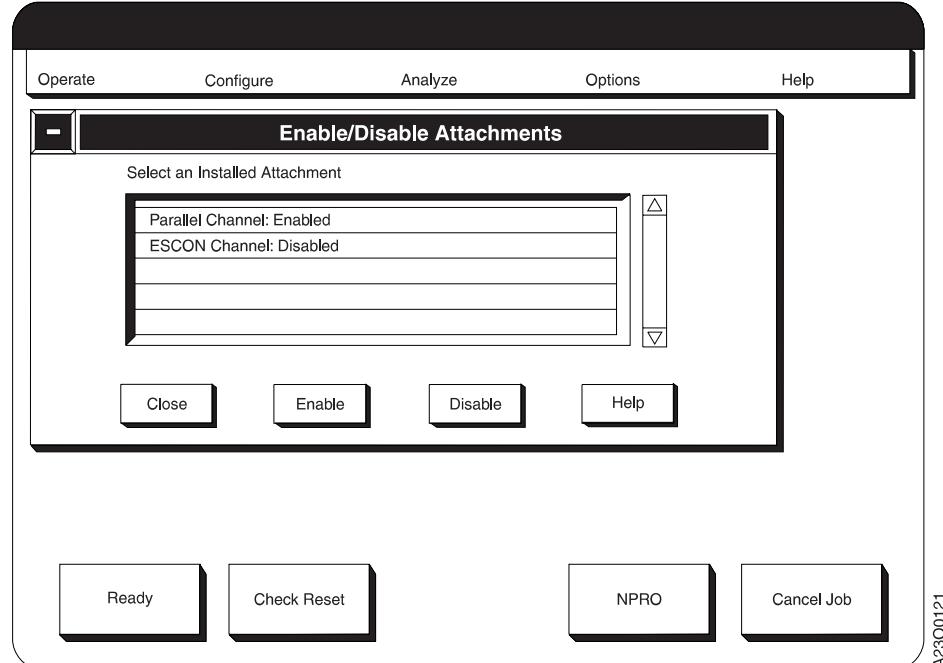
A23O0121

Enabling a Host Attachment

1. From the **Options** pull-down menu, **SELECT** the **Enable/Disable Attachments** procedure.
2. From the list of currently installed attachments, **SELECT** the attachment you want to enable, then **SELECT** the **Enable** pushbutton.
3. Make the printers Ready.
   - In duplex mode do one of the following:
     - On either the Printer 1 or Printer 2 operator panel, press the **Ready** key. OR
     - On the operator console main window, **SELECT** the **Ready** pushbutton.
   - In dual simplex mode do one of the following:
     - On the operator panel of the target printer, press the **Ready** key. OR
     - On the target printer operator console, **SELECT** the **Ready** pushbutton.
   - In simplex mode do one of the following:
     - On the printer operator panel, press the **Ready** key. OR
     - On the operator console, **SELECT** the **Ready** pushbutton.

Disabling a Host Attachment

1. From the **Options** pull-down menu, **SELECT** the **Enable/Disable Attachments** procedure.
2. From the list of currently installed attachments, **SELECT** the attachment you want to disable, then **SELECT** the **Disable** pushbutton.
3. If you want the printer active for attachments that are not disabled, choose one of the following methods:
   - In duplex mode do one of the following:
     - On either the Printer 1 or Printer 2 operator panel, press the **Ready** key. OR
     - On the operator console main window, **SELECT** the **Ready** pushbutton.
   - In dual simplex mode do one of the following:
     - On the operator panel of the target printer, press the **Ready** key. OR
     - On the target printer operator console, **SELECT** the **Ready** pushbutton.
   - In simplex mode do one of the following:
     - On the operator panel, press the **Ready** key. OR
     - On the operator console, **SELECT** the **Ready** pushbutton.

Enabling/Disabling Pre/Post Interfaces

The service representative configures attached preprocessing and postprocessing devices at time of their installation and sets the state of each device to Enabled or Disabled. As configurations change from time to time, you may have to change the pre/postprocessing device interface configurations and to enable or disable the devices. Make these changes from the operator console windows.

If a burster/trimmer/stacker (BTS) or an offsetter postprocessing device is to have its enabled status changed, you have to make configuration changes in both the **Configure Printer** procedure (see "The Configuration Procedure" on page 8-3) and in the **Configure Pre/Postprocessor** procedure (see "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28).

For all other types of postprocessing devices and for all preprocessing devices, you have to make enabled status changes in only the **Configure Pre/Post** procedure.

Canceling a Job

Do this task when you need to stop a print job and delete the print data.
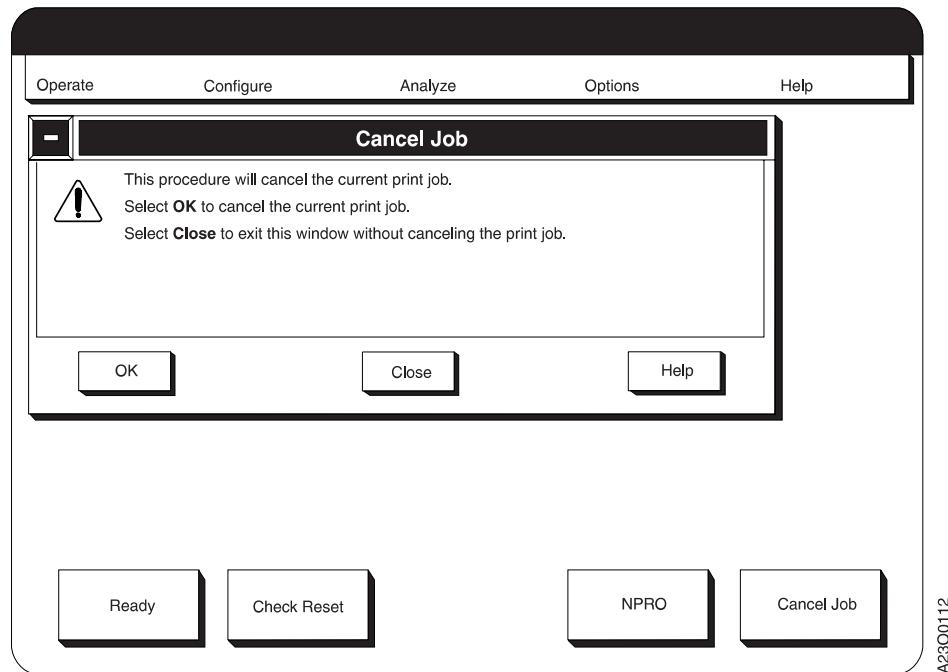
1. Stop the printers.
   - In duplex mode, you must stop both printers; to do this, choose one of the following methods:
     - On the main operator console window, **SELECT** the **Stop** pushbutton. OR
     - On either the Printer 1 or Printer 2 operator panel, press the **Stop** key.
   - With a simplex printer or a duplex configuration in simplex mode, you must stop only the printer running the job you want to cancel. To do this, do one of the following:
     - On the main operator console window of a simplex printer, **SELECT** the **Stop** push button. OR
     - On the operator panel of the target printer in dual simplex mode, press the **Stop** key.
2. Do one of the following:
   - From the **Operate** pull-down menu, **SELECT** the **Cancel Job** procedure and then, on the **Cancel Job** procedure window, **SELECT** the **OK** pushbutton. OR
   - On the operator console main window **SELECT** the **Cancel Job** pushbutton, and then on the **Cancel Job** procedure window, **SELECT** the **OK** pushbutton.
3. Notify the host system console operator whenever you cancel a print job. If necessary, request that the job be resubmitted.

Changing the Password or Authorization Level

This procedure lets you set the authorization level of the person working on the printer and change the user authorization password. Access to higher user authorization levels is password protected. If the current password is not known, access to the requested user authorization level is denied.

The different levels of authorization are:

- **Operator:** No password is required for access to Operator procedures.
- **Key Operator:** The Key Operator has access to all functions except those related to the service and repair of the printer. The following tasks require at least a Key Operator level of authorization:
    - **Configure Printer**
    - **Configure Attachments**
    - **Configure Pre/Postprocessors**
    - **Traces**
    - **Calibrate Touch Sensitive Screen**
    - **Front Face**
- **Customer Engineer:** The service representative has access to all functions of the printer. The following tasks require Customer Engineer authorization:
    - **Service Actions**
    - **Configure Control Unit Trace** within **Traces**

Initial Operation

When the printers are shipped from the factory, they are set for the **Key Operator** user authorization level, which makes all procedures except service-related activities available. The factory-set password is "all blanks", that is, if you change the user level to the **Operator** level and then want to go back to the **Key Operator** level, simply **SELECT** the **OK** pushbutton on the keyboard window when it appears without entering any data.

If you want to maintain a **Key Operator** authorization level, it is recommended that you establish a new password for the **Key Operator** when the installation of the system is complete. If you treat all operators as key operators, then leave the current "all blanks" password as it is.

If the current **Key Operator** password is forgotten or lost, the system accepts a fixed, alternate password for that level. Obtain this alternate password from your system administrator.

To Change the Password or Authorization Level

1. From the **Options** pull-down menu, **SELECT Password.**
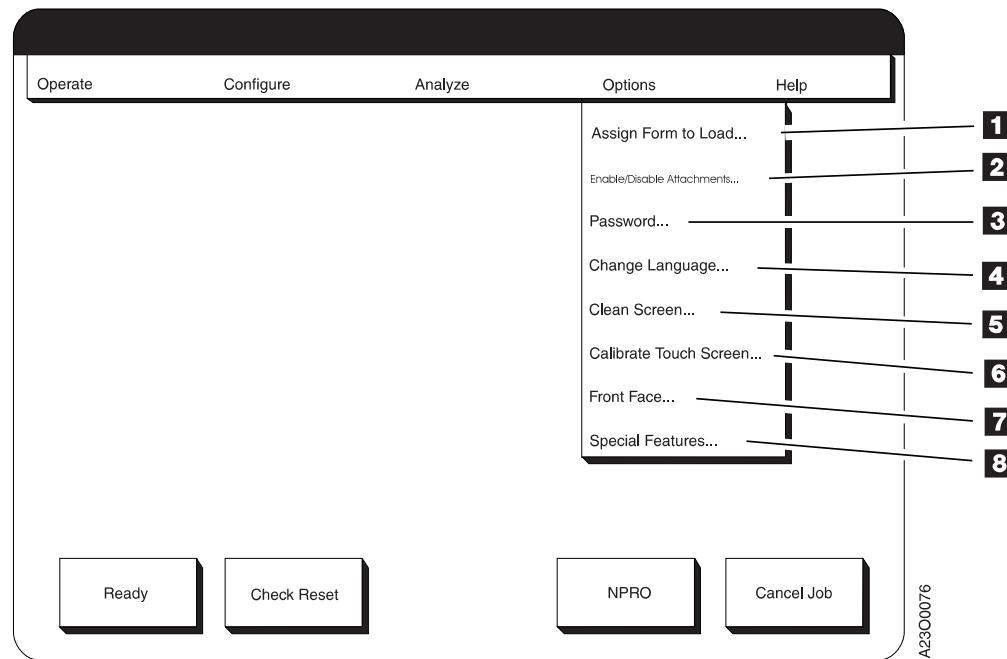
Figure 4-1. Options Pull-Down Menu

The menu shown includes: Operate, Configure, Analyze, Options, Help. The Options pull-down menu shows:

1. Assign Form to Load...
2. Enable/Disable Attachments...
3. Password...
4. Change Language...
5. Clean Screen...
6. Calibrate Touch Screen...
7. Front Face...
8. Special Features...

Pushbuttons: Ready, Check Reset, NPRO, Cancel Job

2. To change the Authorization Level, **SELECT** the Authorization Level you wish to change to.

   If you are not changing to the **Operator** level, then the **Password Keypad** window appears. Enter the password, and **SELECT** the **OK** pushbutton.

3. To change a password, first **SELECT** the Authorization Level you wish to change. Then do the following:

   a. If you select a level that the system is not currently in, the **Password Keypad** window appears. Enter the password, and **SELECT** the **OK** pushbutton.

   b. When the **Password** window returns, **SELECT** the **Change** pushbutton. The **Password Keypad** window appears.

   c. Enter the new password and **SELECT** the **OK** pushbutton to change the password.

      If you decide not to change the password, **SELECT** the **Cancel** pushbutton.

Adjusting the Volume of Operator Alert Assembly

The operator alert assembly has the following three main parts:

- Built-in operator alert light and buzzer
- Volume control
- External contacts that allow you to connect an alert signal of your choice. See "Connecting an Accessory to the Operator Alert Contacts" on page 4-19 for details.
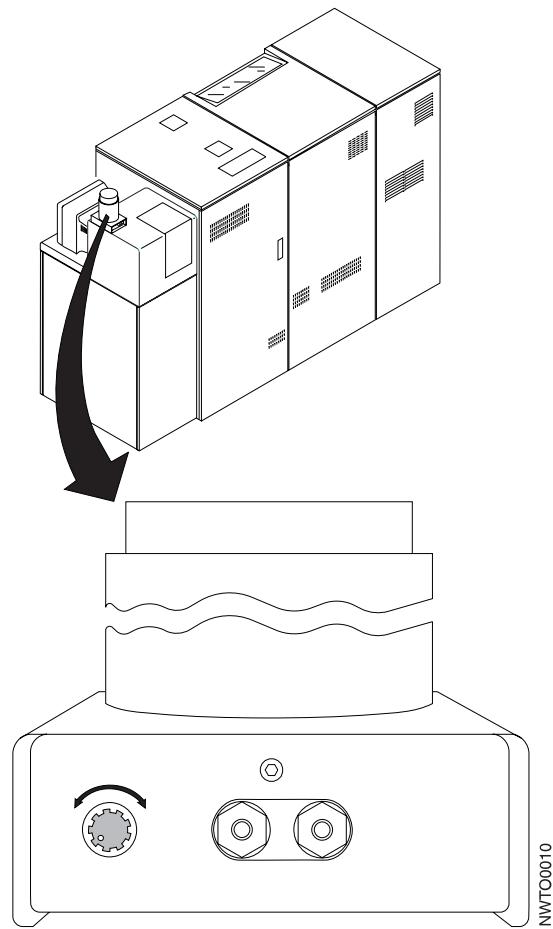
To change the volume on the printer operator alert assembly, do the following:

1. Locate the knob at the base of the operator alert assembly.
2. To *increase* the volume, turn the knob *clockwise.*
3. To *decrease* the volume, turn the knob *counterclockwise.*
4. Test the alarm volume by raising and then lowering the **splice vacuum lever** on the splicing table.
5. Repeat steps 2 and 3 until the volume is adjusted to the desired level.

Connecting an Accessory to the Operator Alert Contacts
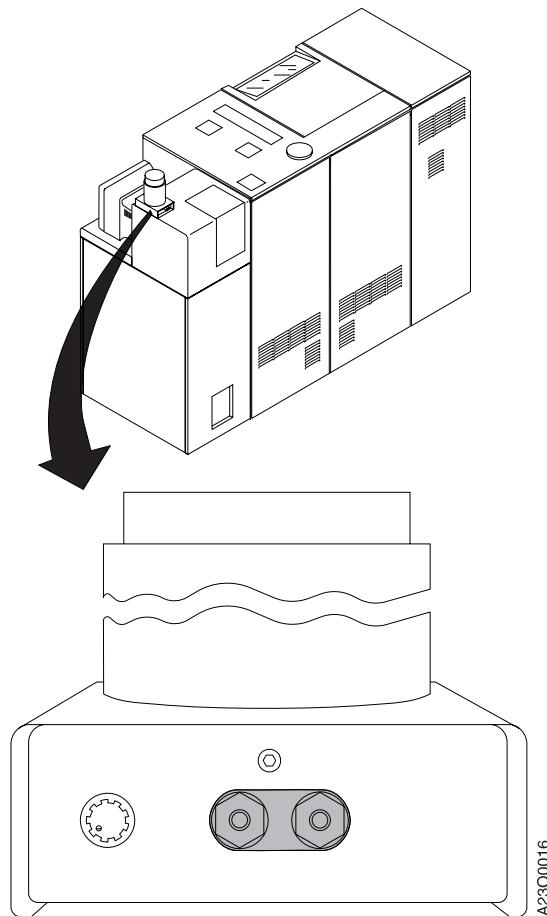
This function provides you with a set of external contacts to allow the hook-up of an alert signal of your choice.

The post accepts standard dual or single banana plugs, leads terminated with spade lugs, or stripped, bare wire leads.

The recommended voltage for the posts is 12 V dc, at a maximum current of 5 amps.

Note: There is an internal 5-amp fuse.

Voltage is not present at the binding post. You are responsible for supplying power to run any external device. The two contacts of the binding post are connected together with the closing of a relay contact. The relay is turned on only when the operator alert lamp is operating during an error condition. To reset or turn off the relay, press the **Check Reset** switch on the operator panel of the affected printer.

Reporting Printer Usage

Each printer has a usage meter:

- **In simplex mode**
  - With the InfoPrint Hi-Lite Color Post-Processor attached, the usage meter counts the feet of forms anytime paper is moving through the printer.
  - Without the InfoPrint Hi-Lite Color Post-Processor attached, the usage meter counts only the feet of forms processed while actually printing.
- **In duplex mode** – The usage meter in each printer counts feet of forms anytime paper is moved through the printers.

The meter advances one position for every 30.48 meters (100 feet) of forms processed through the transfer station. The meter reading is used for customer billing.

Note: The counts shown on these printer usage meters may not match the counts shown in "Printer 1 Counter" and "Printer 2 Counter" areas on the **Printer Status** window on the operator console.
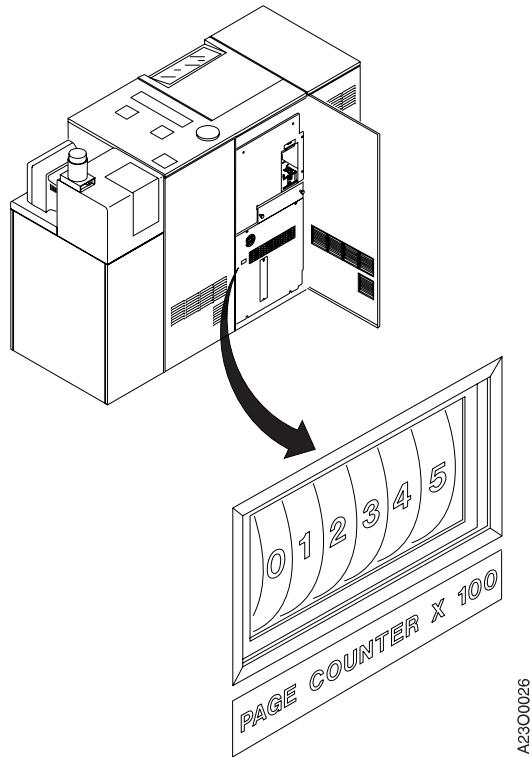
Do this task on the last working day of each month.

You need an IBM Printer Usage Sheet to report printer usage. See Figure 4-2 on page 4-21.

A new Printer Usage Sheet is sent to every customer every month.

1. Open the left rear and center rear covers.
2. Locate the label **Page Counter X 100**.
3. Write the numbers on the Printer Usage Sheet *exactly* as they appear in the printer usage meter:

- Right-justify the numbers
- Do not add leading or trailing zeros
- Write one number in each box
- Keep each number inside its box
- Use large, simple shapes
- Close loops and connect lines
- Do not use fancy loops or curls.

4. Fill in the printer serial number, which is on a label below the developer at the front of the machine. This label also has the printer model number.

5. Fill in the machine type and the date.

6. Sign the card.

7. Mail the completed sheet to IBM.

IBM **METER READING REMINDER**

REFERENCE:
PLEASE RETURN BY:

PLEASE RETURN TO:

ALL INQUIRIES SHOULD BE DIRECTED TO IBM AT:

IBM CORPORATION

TYPE/SERIAL   PRIOR METER READING   METER READING DATE   CURRENT METER READING   REMARKS

SIGNATURE   DATE

Z125-4383-01

R4CO1111

Figure 4-2. Printer Usage Sheet

Switching Printer Modes (Simplex/Duplex)

Use these procedures to switch between duplex and dual simplex modes on a duplex printing system.

Note: Do not change the print mode in combination with any other configuration changes. It must be done separately. Make other configuration changes *after* the printer is in the correct print mode.

Switching from Duplex to Dual Simplex Mode

Note: This function is not supported on Models DR1/DR2.

1. **SELECT** the **Stop** pushbutton on the operator console to stop the printer.
2. **SELECT** the **Configure** pull-down menu on the main operator console window.
3. **SELECT** the **Configure Printer** procedure. The **Configure Printer** window appears.
4. Find and **SELECT** the **Printer Mode** item.
5. **SELECT** the **Simplex** item.
6. **SELECT** the **OK** pushbutton.
7. **SELECT Restart** when this prompt is offered.
8. A window appears that informs you that an automatic **Shutdown** procedure has started, followed by a window stating that the system is being "rebooted" (reloading AFCCU microcode). At the completion of the microcode reload, the Printer Mode change is in effect (one of the simplex printer main operator console windows appears).

   Note: No system power off and power on is required.
9. To remove any forms still in the printer, see "Clearing the Forms Path" on page 6-53.
10. Load paper and assign forms in both printers for dual simplex operation (see "Loading Forms—Auto Load (Simplex Mode)" on page 5-2).
11. **SELECT** the **Ready** pushbutton.

For additional information, see "Chapter 8. Configuring the System" on page 8-1.

Switching from Dual Simplex to Duplex Mode

Note: This function is not supported on Models DR1/DR2.

1. **SELECT** the **Stop** pushbutton on the operator console to stop the printer.
2. **SELECT** the **Configure** pull-down menu on the operator console window.
3. **SELECT** the **Configure Printer** procedure. The **Configure Printer** window appears.
4. Find and **SELECT** the **Printer Mode** item.
5. **SELECT** the **Duplex** item.
6. **SELECT** the **OK** pushbutton.
7. **SELECT Restart** when this prompt is offered.
8. The operator console screen goes blank while an internal Shutdown procedure is executed on the printer you are working on (there is no visual indication that a Shutdown is in progress), followed by the display of the operator console window for the other printer. You must select the **Shutdown/Restart** procedure from the **Operate** pull-down menu on that operator console, and then execute the **Shutdown** routine. A window appears stating that the system is being "rebooted". At the completion of the reboot, the Printer Mode change is in effect (the Duplex main operator console window appears).

   Note: No system power off and power on is required.
9. To remove any forms still in the printer, see "Clearing the Forms Path" on page 6-53.
10. Load paper and assign the form for duplex operation (see "Loading Forms—Auto Load (Duplex Mode)" on page 5-18).
11. Perform the Threading and Aligning Forms procedure (see page 5-34).
12. **SELECT** the **Ready** pushbutton.

For additional information, see "Chapter 8. Configuring the System" on page 8-1.

Switching Print On Demand Mode

Note: **This function is not supported on Models DR1/DR2.**

When you change the Print On Demand (POD) mode, ensure that the values for all printer modes are correct.

Note: Do not change the POD mode in combination with any other configuration changes. It must be done separately. Make other configuration changes *after* the printer is in the correct POD mode.

Switching Print Resolution

Note: **This function is not supported on Models DR1/DR2.**

Use this procedure to select the print resolution for a print job when it requires a different print resolution than is currently in use.

Note: Do not change the print resolution in combination with any other configuration changes. It must be done separately.

1. **SELECT** the **Configure** pull-down menu on the operator console window.
2. **SELECT** the **Configure Printer** procedure. The **Configure Printer** window appears.
3. **SELECT** the **Printhead Resolution: XXX** item, where XXX is the current print resolution configuration. The **Printhead Resolution** window appears listing the valid dots-per-inch (DPI) resolution numbers.
4. **SELECT** the appropriate resolution number.

   If the printer is using IPDS and you select 600 DPI, another window appears. This window shows the current IPDS resolution. **Select** the desired IPDS resolution.
5. If the printer is using IPDS and you select 480 DPI (or 600 DPI in combination with 240, 300, or Auto IPDS resolution), the **Enhanced Fonts** window appears. You must select Yes or No for Single-byte and Double-byte Font Enhancements.
6. **SELECT** the **OK** pushbutton on the **Configure Printer** window. The print resolution is now at the number you selected.

Chapter 5. Working With Forms

Chapter Overview

This chapter describes loading, unloading, aligning, adjusting and checking the forms for the best print quality:

Loading Forms—Auto Load (Simplex Mode)

Do this task when you need to add or change forms, when you are prompted by a forms jam recovery procedure step, or when you see the following message:

> END OF FORMS 078A

Operator Tip

If you are unfamiliar with forms, see "Forms and Forms Path" on page 1-12.

The printers are designed to have forms loaded automatically using the *Auto Load* function.

This section provides step-by-step instructions for auto load in simplex printing mode. "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20 contains instructions for loading forms manually in simplex printing mode. "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 contains instructions for auto load in duplex printing mode.

When you use either the "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 or the "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20 procedure, you are instructed to follow some or all of the steps detailed here.

All messages that you respond to while accomplishing this task appear on both the operator console windows and on the printer operator panel display. Most of the controls that you need to use are available on both the operator console windows and the printer operator panel, but some are available only on the operator console windows.

This procedure describes using boxed continuous forms that are loaded at the input area of the printer and processed through to the output stacker of the printer. If you are using preprocessing and/or postprocessing devices with the printer, the procedure steps involving the continuous forms source and final destination change. Specific instructions for the initial loading steps and forms leaving the stacker area are supplied by the preprocessing/postprocessing device supplier. Also, if you are using roll-feed forms, you bypass several steps of this procedure involving up or down fan-fold forms fold directions.

 CAUTION:

<72> As you load forms, be careful to avoid injuries:

The tractor covers are spring-loaded and can pinch if they snap shut unexpectedly.

Moving forms, especially between the transfer station and the fuser entry area, can cause severe paper cuts.

CAUT0102

To complete this task you must inform the control unit of the defined name of the form that you are loading. If the form you are loading has never been defined before, you should define the form before you start this task. However, if you do not define the form before starting, you can interrupt the loading process to enter the definition.

Note: Once you have informed the control unit of the name of the defined form you are loading, you set the **Forms Width** at the stacker control panel according to the value appearing on the stacker control panel LED.

However, you must know the form *length* and the Forms Select value; the control unit does not supply you with either of these values.

Note: If you are using the same form, splice a new supply of forms to the trailing edge of the old supply at the splicing table. You do not need to use this procedure, even though you may have allowed the supply of forms to become exhausted and produce an END OF FORMS 078A message.

To load forms into the printer using the **Auto Load** function, follow these steps:

AT THE OPERATOR CONSOLE OR PRINTER OPERATOR PANEL

1. If forms *are* loaded in the printer, you must remove them:

   a. Separate the forms at a perforation near the splicing table.

   b. Raise the static brush at the splicing table so that the forms fall back into the input area. Ensure that the end-of-forms sensor is not covered by forms in the input area.

   c. In duplex mode, **SELECT** the **NPRO** pushbutton on the operator console main window, or press the **NPRO** key on the operator panel of either printer.

      Note: **NPRO** is not operable if the **Thread/Align Forms** procedure window is being displayed.

      In simplex mode, **SELECT** the **NPRO** pushbutton on the operator console main window, or press the **NPRO** key on the operator panel of the affected printer.

      An END OF FORMS 078A message is displayed on the operator console.

   d. **SELECT** or press the **NPRO** pushbutton or key again.

      In duplex mode, the forms move through both Printer 1 and Printer 2 to either the stacker on Printer 2 or to a postprocessing device behind Printer 2.

      In simplex mode, the forms move through the printer to the stacker or to a postprocessing device behind the printer.

      Note: With a duplex configuration in dual simplex mode, if forms are separated any place in the forms path beyond Printer 1, **NPRO** flushes forms only out of Printer 1; you must manually remove forms from Printer 2.

AT THE PRINTER FORMS INPUT AREA
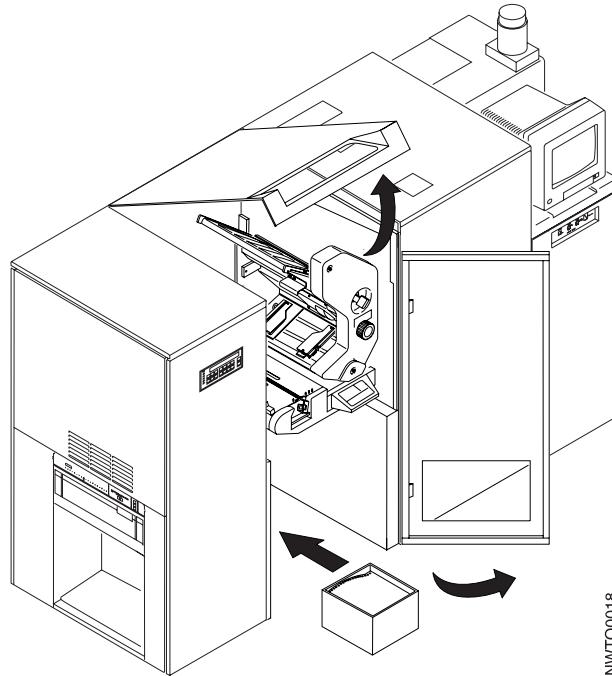
NWTO0018

2. Open the center front and center top covers of the printer.

   Use steps 3 through 9 only if you are loading fan-fold forms. If you are loading roll-feed forms loaded, go to step 10 on page 5-8.

3. Open a box of forms.
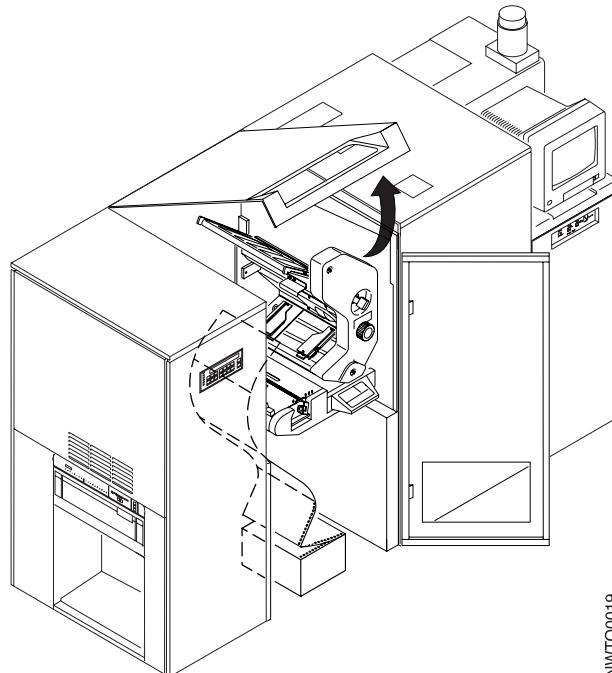
NWTO0019

4. Put the forms on the floor of the forms input area. The print surface must be toward your right (as you face the printer) as you lift forms from the stack.

5. Position the form stack so that the forms do not twist or tear when they travel around the input guide and splicing table.
6. Move the form stack forward until the front edge lines up with the lip on the forms tray.
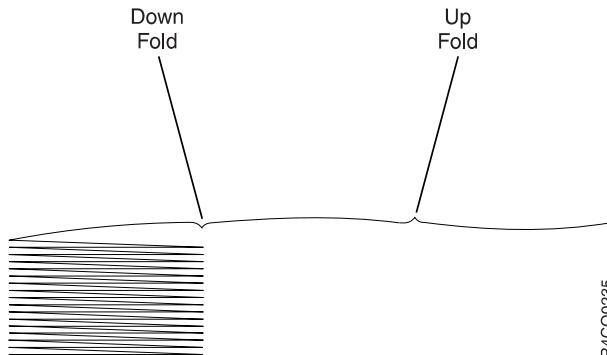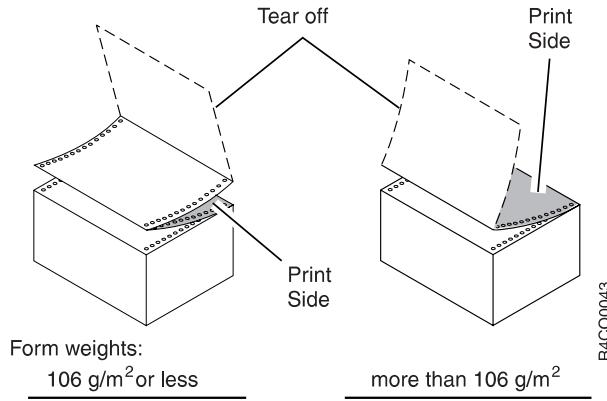
Tear off   Print Side

Print Side

Form weights:
106 g/m^2 or less   more than 106 g/m^2

R4CO0043

Down Fold   Up Fold

R4CO0235

7. **If the form weight is more than 106 g/m² (28 lb):** Ensure that the first fold perforation is a down fold. If necessary, tear off and discard the first form. Go to step 9.

8. **If the form weight is 106 g/m² (28 lb) or less:**

   a. Ensure that the first fold perforation is an up fold. If necessary, tear off and discard the first form.

   b. You *must* fold the first form so that it is *under* the second form.

Operator Tips

• To prevent jams:
   – Ensure that there is not a downward curl of the first form to be loaded. If so, roll the form in the opposite direction to remove the curl.
   – Ensure that the folded or leading edge is not wrinkled or torn.
   – If necessary, turn the box of forms around (180°) and reload the forms.

R4CO0236
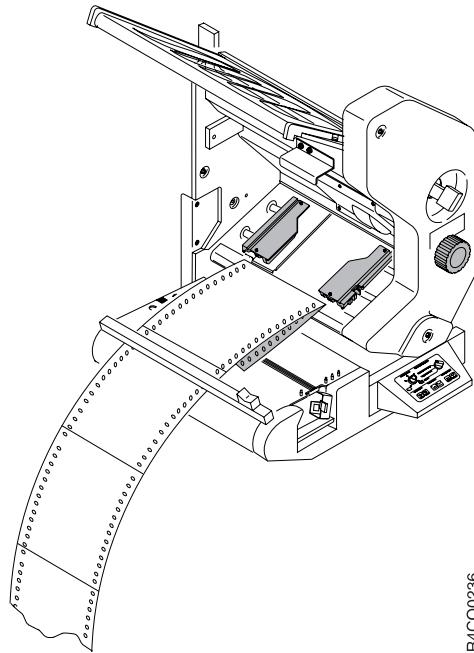
9. Ensure that the fold between the transfer station lower tractors and the static discharge brush is a *down* fold.

R4CO0210
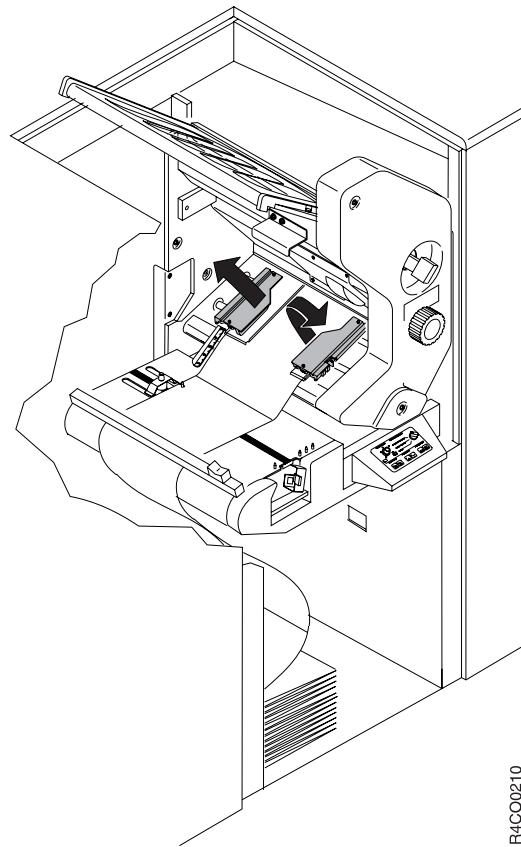
10. Ensure that the transfer station is closed and latched.
11. If you are loading a different width form, use the **Tractor Control Knob** to adjust the tractors close to the correct width by using the scale just to the left of the tractor covers.
12. Bring the forms up from the input stack, over the forms guide, under the static brush, and across the splicing table.
13. Open the covers of the transfer station lower tractors.
14. Locate the red line on the lower tractors.
15. Place the forms on the tractor pins so that the form edge is as close as possible to the red line without covering it.
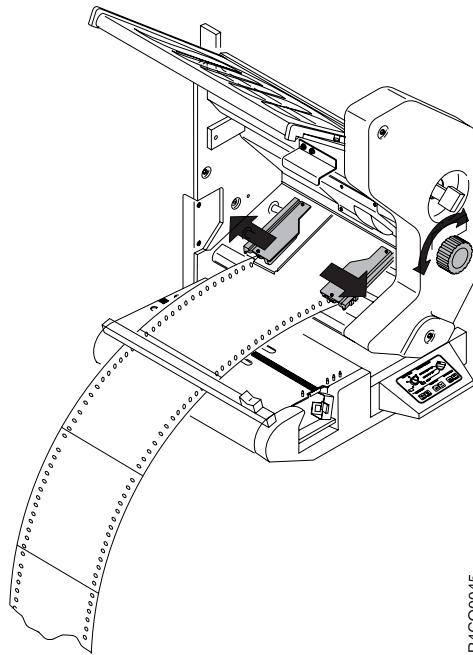
R4CO0045

16. If necessary, use the **Tractor Control Knob** to adjust the distance between the front and rear tractors:

- To *increase* the distance, turn the **Tractor Control Knob** *clockwise*.
- To *decrease* the distance, turn the **Tractor Control Knob** *counterclockwise*.

When the tractors are adjusted correctly, a sheet of forms should drop easily onto the tractor pins and lay flat. The pins should be centered in the tractor holes, without binding.

17. Ensure that the forms are aligned correctly on the tractor pins. The first tractor hole on the front edge of the form should be on the tractor pin *directly* across from the pin holding the first tractor hole on the rear edge of the form.

R4CO0147

Feed Hole ○
Tractor Pin ⬤
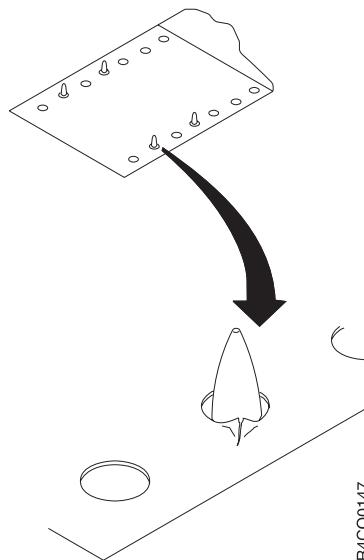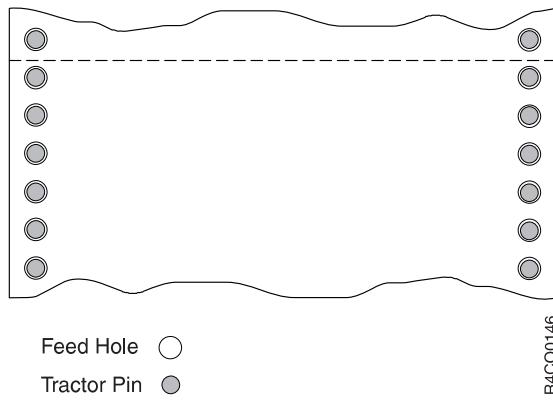
R4CO0146

18. Check the position of the tractor pins in the tractor holes. If the tractor pins are pulling toward the outer edges of the form, and if you can see space between the pins and the inner edge of the tractor holes, the tractors are too far apart.

19. Check the position of the form suspended between the tractors. If the middle of the form is slack, the tractors are too close together.

20. Close the lower tractor covers.

AT THE OPERATOR CONSOLE
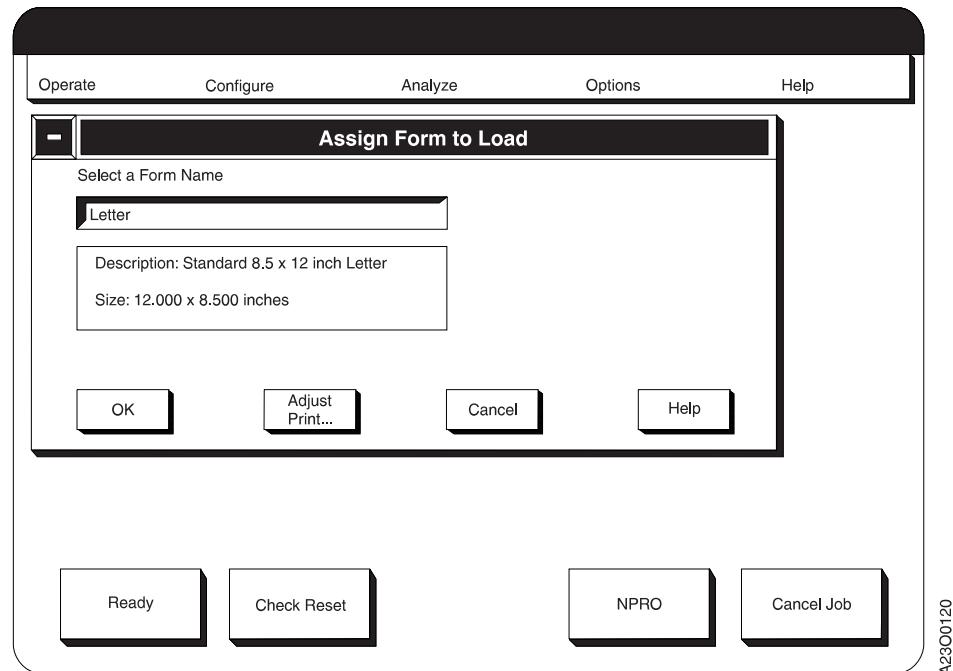
21. If you are using this procedure in either simplex mode or loading Printer 1 in duplex mode, continue at step 22.

    If you are using this procedure to load Printer 2 in duplex mode, go to step 25 on page 5-12.

22. If you are changing to a different-size form, **SELECT** the **Assign Form to Load** procedure from the **Options** pull-down menu.

23. If the form name in the **Select a Form Name** box is the form you want to load, **SELECT** the **Cancel** pushbutton.

    If you are using this procedure in simplex mode, go to step 25 on page 5-12.

    If you are using this procedure in duplex mode, the **Thread/Align Forms** procedure window appears. Continue at step 25 on page 5-12.

24. If the form name in the **Select a Form Name** box is *not* the form you want to load, do the following:

    a. **SELECT** the **Select a Form Name** box. You see a list of the currently defined forms names.

    b. If you are loading a form that has been previously defined, do the following:

        1) **SELECT** the form from the list.

        2) **SELECT** the **OK** pushbutton on the **Assign Form to Load** window.

        3) You see a verification window. **SELECT** the **OK** pushbutton on that window.

        4) If you are using this procedure in simplex mode, go to step 25 on page 5-12.

            If you are using this procedure in duplex mode, the **Thread/Align Forms** procedure window appears.

    c. If the form is not defined, go to "Defining Forms" on page 8-46.

AT THE STACKER CONTROL PANEL
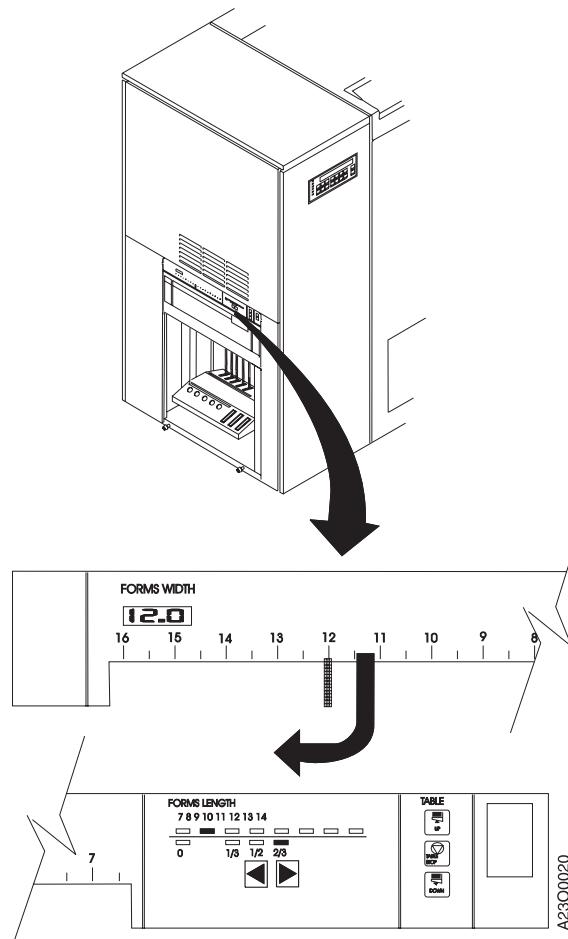
25. If you are loading forms that are the *same* as the forms that were last used on the printer, no action is required on this panel.

    Go to step 29 on page 5-14.

26. If you are loading forms that are *different* from the forms that were last used on the printer, set the stacker form width to match the value displayed on the Forms Width LED.

    To set the form width:

    a. Press down on the **Forms Width** lever and move it left or right to the position that corresponds to the forms width displayed on the LED.

    b. Release the lever, and ensure that it locks into the correct position.

    For example, if you have 12-inch-wide forms, move the form-width lever to 12 inches exactly (as shown in the illustration).

27. For the **Auto Load** procedure to execute properly, you need to set the stacker form length to match the folding length of the forms you are loading.

    a. Whether you use the stacker or not and the form length is:

       - 7 inches or greater – Set the Stacker Length at the form length.
       - $3^{1}/_{2}$ to $6^{2}/_{3}$ inches – Set the Stacker Length at two times the form length.
       - 3 or $3^{1}/_{3}$ inches – Set the Stacker Length at three times the form length (at the perforation to perforation distance) as folded before printing.

b. Press the **Forms Length** key to increase or decrease the form length (see "Stacker Control Panel" on page 1-35).

> **Important**
>
> The form-length value entered here is the form length *as measured from fold perforation to fold perforation before printing*. For example, if a form has page perforations that are 3½ inches apart, and fold perforations that are 7 inches apart, use 7 as the stacker form-length value. See "Appendix C. Valid Form Lengths in Inches" on page C-1 for help in deciding the correct length to specify at the stacker panel.
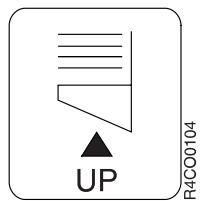
28. **Simplex Mode** – If a postprocessing device is not installed and enabled, ensure that the stacker table is in the *up* position to allow the **Auto Load** sequence to occur. If necessary, raise the stacker by pressing the stacker table **UP** key on the stacker panel. If a postprocessing device is installed and enabled, the stacker is disabled in the down position.

    Duplex Mode – The stacker in Printer 1 is disabled and is in the down position. If a postprocessing device is not installed and enabled, ensure that the stacker table in Printer 2 is in the *up* position to allow the **Auto Load** to occur. If a postprocessing device is installed and enabled, the stacker is disabled in the down position.

AT THE PRINTER CONTROL PANEL
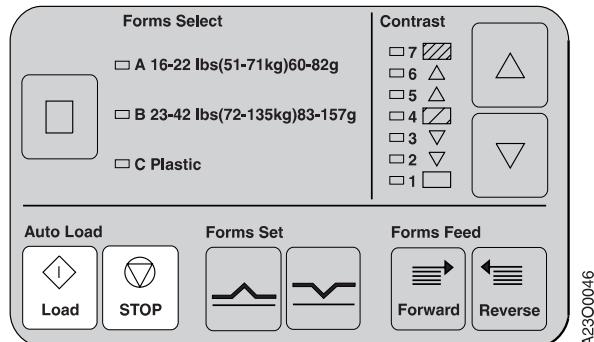
29. Press the **Auto Load - Load** key on the printer control panel to start the automatic loading process.

    The automatic loading process does the following:
    - Raises the auto load bridge
    - Lowers the tension arm
    - Passes the forms through the transfer station, across the tension arm and bridge, and into the fuser entry area
    - Moves the forms into the stacker.

    After a slight pause, the automatic loading process:
    - Adjusts the tension-arm position
    - Lowers the auto load bridge.

Operator Tip

If forms jam during auto load, see "Recovering from a Forms Jam (Simplex Operations)" on page 6-24 or "Recovering from a Forms Jam (Duplex Operations)" on page 6-33.

---
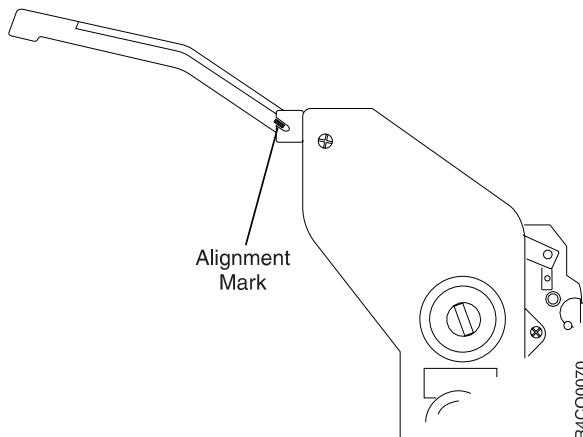
30. Ensure that the tension arm is aligned correctly. The blue mark on the tension arm should be visible in the notch in the transfer station frame. See "Checking the Tension Arm" on page 5-24.
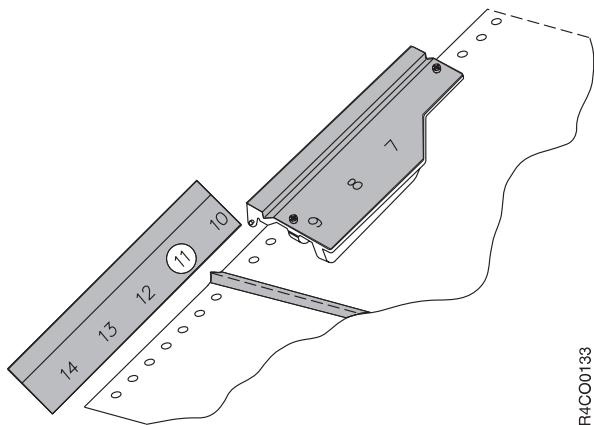
31. At the transfer station, ensure that the perforation is aligned with the correct forms length (stacker length setting). For example, forms that are 11 inches long should be aligned so that the perforation is at the 11-inch mark.

    If the perforation is not aligned correctly, do the following:

    Important
    Hold down the Tension Arm while you do the following steps. Otherwise, the CHECK TENSION ARM 079A message appears when you turn on the forms path vacuum, and you must do the **Check Tension Arm** procedure.
    ---

    a. Press the **Vacuum Pushbutton**. The **Vacuum-Off Warning Indicator** flashes and then stays lit.
    b. Use the **Forms Feed Forward** key on the printer control panel to adjust the position of the perforation (see "Printer Control Panel" on page 1-25). Only the Forward key works with the tension arm held down, so adjust the perforation forward as far as necessary.
    c. Press the **Vacuum Pushbutton**. The **Vacuum-Off Warning Indicator** flashes and then stays off.

Forms Select

☐ A 16-22 lbs(51-71kg)60-82g

☐ B 23-42 lbs(72-135kg)83-157g

☐ C Plastic

Contrast

☐ 7
☐ 6
☐ 5
☐ 4
☐ 3
☐ 2
☐ 1

Auto Load — Load — STOP — Forms Set — Forms Feed — Forward — Reverse

A23O0047
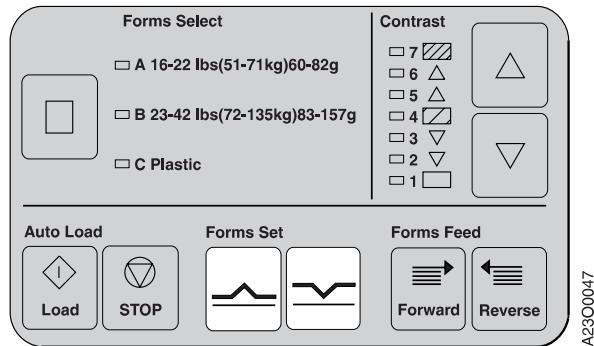
32. Ensure that the **Forms Set** indicator on the printer control panel is set to match the fold direction of the fold on the transfer station lower tractors. If it is not, press the correct **Forms Set** key.

   Note: This step is required only if you are using fan-fold forms, and the forms are going to the stacker.

Forms Select

☐ A 16-22 lbs(51-71kg)60-82g

☐ B 23-42 lbs(72-135kg)83-157g

☐ C Plastic

Contrast

☐ 7
☐ 6
☐ 5
☐ 4
☐ 3
☐ 2
☐ 1

Auto Load — Load — STOP — Forms Set — Forms Feed — Forward — Reverse

A23O0044
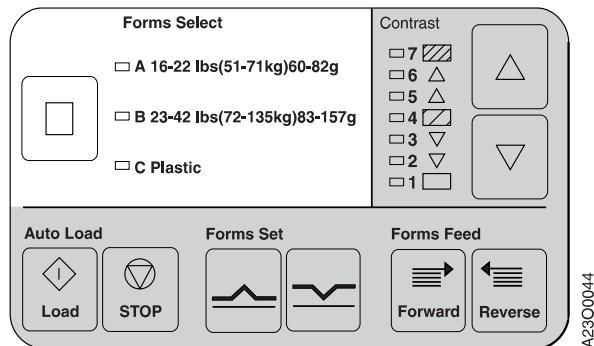
33. If you are loading the *same* type of forms as those last used on the printer, go to step 35 on page 5-17.

34. If you are loading a *different* type of forms from those that were last used on the printer, use the **Forms Select** touch switch according to the basis weight or composition of the forms you are loading.

   Note: If this printer uses automatic forms-based temperature adjustments, this button is inactive. Use "Appendix A. Automatic Forms-Based Printer Adjustments" on page A-1 to adjust the fusing temperature and the amount of fuser oil used during printing.

AT THE PRINTER
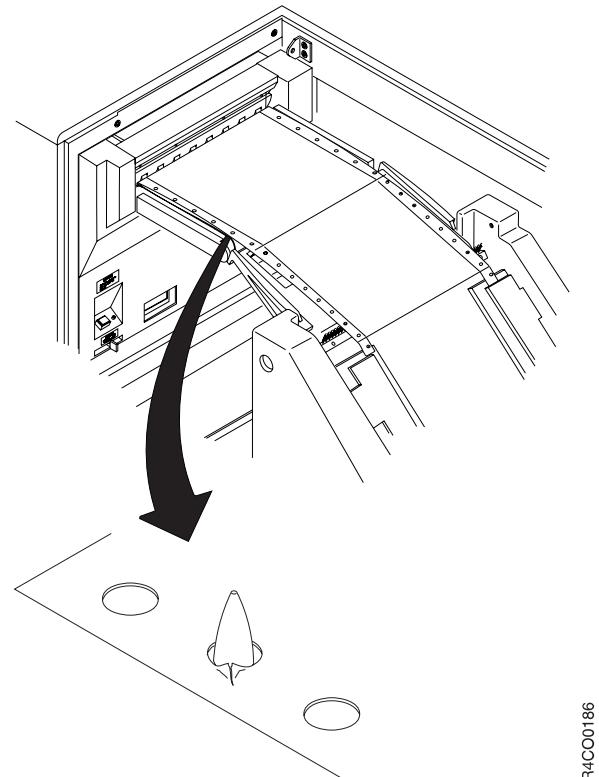
R4CO0186

35. Check the tractor holes on the forms between the transfer station and the fuser entry area. If the holes show signs of tearing, adjust the **Tractor Control Knob** as needed.

36. Check the forms in the stacker. Ensure that the forms are refolding in the natural fold direction.

37. Ensure that the forms-path vacuum is on (the **Vacuum-Off Warning Indicator** is off).

AT THE OPERATOR CONSOLE OR PRINTER CONTROL PANEL

38. Press the **Ready** key on the operator panel of the affected printer, or **SELECT** the **Ready** pushbutton on the main operator console window for the affected printer.

   • See "Checking Print Quality" on page 5-73 if the forms now loaded in the printer are different from the forms that were used last.

   • See "Adjusting the Print Position" on page 5-57 if preprinted forms are now loaded in the printer and you want to check or adjust the registration.

Loading Forms—Auto Load (Duplex Mode)

The printers are designed to have forms loaded through the printers and the Buffer/Flipper Unit by the combined use of the *Auto Load* function and the **Thread/Align Forms** operator console procedure.

This section provides step-by-step instructions for forms threading in duplex printing applications. "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 contains instructions for automatic loading of an individual printer. "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20 contains instructions for loading forms manually in simplex printing applications.

When you are using this procedure you are requested to follow all of the steps in the "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 procedure on Printer 1, and part of "Threading and Aligning Forms" on page 5-34 on Printer 2.

You must use both facilities under the printer covers and the operator console windows to accomplish this task. All messages that you respond to while accomplishing this task appear on both the operator console windows and on the operator panel of the affected printer. Also, some controls that you need to use are available on both the operator console windows and the printer operator panels, while some are available only on the operator console windows. This procedure describes using boxed continuous forms that are loaded at the input area of Printer 1 and threaded through to the output stacker of Printer 2. If preprocessing and/or postprocessing devices are used with the printer, steps involving the continuous forms source and final destination are different from what is described here. Because each preprocessing and postprocessing device is unique, specific instructions for the initial loading steps from a preprocessing device ahead of Printer 1 and for forms handling in a postprocessing device behind Printer 2 are available from the individual pre/postprocessing device suppliers.

Do this task in the following situations:
- You are loading a new type of form, with different characteristics from the last form used in the system, through the system.
- You are loading the same type of form previously used, which had been run out of Printer 1 without splicing on a new supply.
- You are rethreading the system following a forms jam that separated the forms path that could not be rejoined by splicing.

⚠ CAUTION:

<72> As you load forms, be careful to avoid injuries:

The tractor covers are spring-loaded and can pinch if they snap shut unexpectedly.

Moving forms, especially between the transfer station and the fuser entry area, can cause severe paper cuts.

CAUT0102

1. Ensure that both Printer 1 and Printer 2 are in the Not Ready state before you start this task.
2. Follow all steps in the "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 procedure to *Auto Load* Printer 1. During this procedure you assign the form to be loaded.

   You now have forms in the stacker area of Printer 1.
3. Follow the procedure "Threading and Aligning Forms" on page 5-34. Choose "Forms Are Not Loaded In Printer 2" as the starting condition in the "Thread/Align Forms" procedure. You must complete the loading of paper in Printer 2 and thread/align forms in that procedure.

Loading Forms—Semiautomatic Load (Simplex Mode)

Do this task when you need to add or change special-purpose forms, when prompted by a forms jam recovery procedure step, or when you see the following message:

```
END OF
FORMS 078A
```

The printers are designed to have special-purpose forms loaded semiautomatically by the operator. This is especially helpful when you are preparing to print on adhesive labels.

This section provides step-by-step instructions for semiautomatically loading forms. "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 contains instructions for loading forms automatically in simplex printing applications. "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 contains instructions for loading forms automatically in duplex printing applications.

All messages that you respond to while you accomplish this task appear on both the operator console windows and on the operator panel of the affected printer. Most controls that you need to use are available on both the operator console windows and the printer operator panel, but some are available only on the operator console windows.

Because you are working inside the printer covers, it is recommended that you use the operator's panel of the affected printer whenever possible, especially while you work on Printer 1 in the system.

CAUTION:

<72> As you load forms, be careful to avoid injuries:

The tractor covers are spring-loaded and can pinch if they snap shut unexpectedly.

Moving forms, especially between the transfer station and the fuser entry area, can cause severe paper cuts.

CAUT0102

R4CO0099
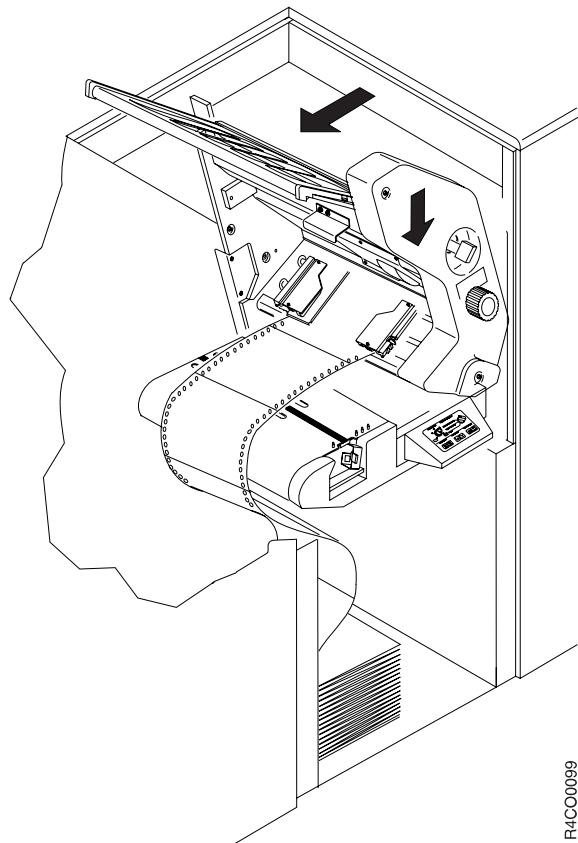
To load forms semiautomatically, follow these steps:

1. Do steps 1 through 6 under "Loading Forms—Auto Load (Simplex Mode)" on page 5-2.

2. Open the lower tractor covers.

3. Release the **Transfer Station Control Lever** and tilt the transfer station away from the photoconductor drum. Ensure that the transfer station is open completely.

> **Attention!**
>
> The photoconductor drum is easily damaged, and it is *very* expensive to replace.
>
> When the transfer station is open, be extremely careful not to let anything touch the photoconductor drum.

4. Open the upper tractor covers.
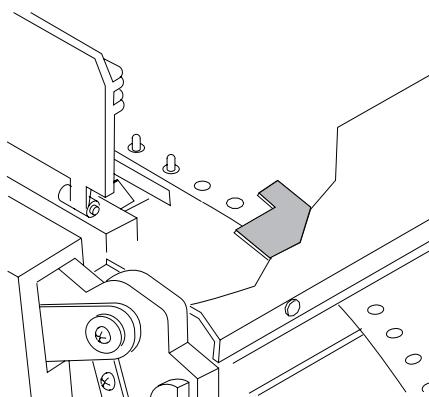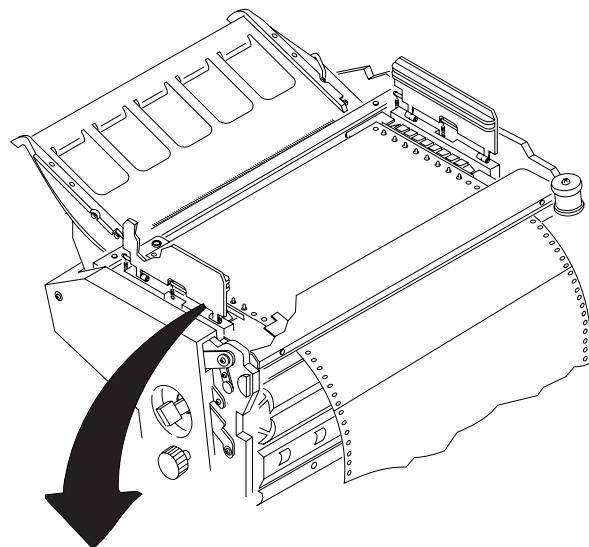
A23O0021

5. Bring the forms up from the input stack, over the forms guide, under the static brush, and across the splicing table.

6. If you are loading a different-width form, use the **Tractor Control Knob** to adjust the tractors close to the correct width by using the scale just to the left of the tractor covers.

7. Without putting the forms on the tractor pins, carefully thread the forms:

   a. Over the transfer station lower tractors

   b. Around the retractors

   c. Under the small, white, plastic paper guides (shown shaded in the picture above) to the right of the upper tractors

   d. Over the upper tractors.

8. If necessary, use the **Tractor Control Knob** to adjust the distance between the front and rear tractors:

   • To *increase* the distance, turn the **Tractor Control Knob** *clockwise*.

   • To *decrease* the distance, turn the **Tractor Control Knob** *counterclockwise*.

   When the tractors are adjusted correctly, a sheet of forms should drop easily onto the tractor pins and lay flat. The pins should be centered in the tractor holes, without binding.

9. Place the forms on the upper tractor pins to the right of the transfer station jam sensor.

> **Important**
>
> Do not cover the jam sensor with the forms.

The first tractor hole on the front edge of the form should be on the tractor pin *directly* across from the pin holding the first tractor hole on the rear edge of the form.

10. Close the upper tractor covers.
11. Gently push the transfer station toward the photoconductor drum until it locks securely into position.
12. Remove any slack from the forms and place the forms on the lower tractor pins.
13. Close the lower tractor covers.
14. Do step 21 on page 5-11 through step 38 on page 5-17 under "Loading Forms—Auto Load (Simplex Mode)" on page 5-2.

Checking the Tension Arm

Do this task whenever you load forms, switch power on to the system, or see the following message:

```
CHECK TENSION ARM  079A
```

Because this task may require you to have visible access to the tractor area, it is recommended that you use the operator panel of the affected printer to complete it.

NWTO0011
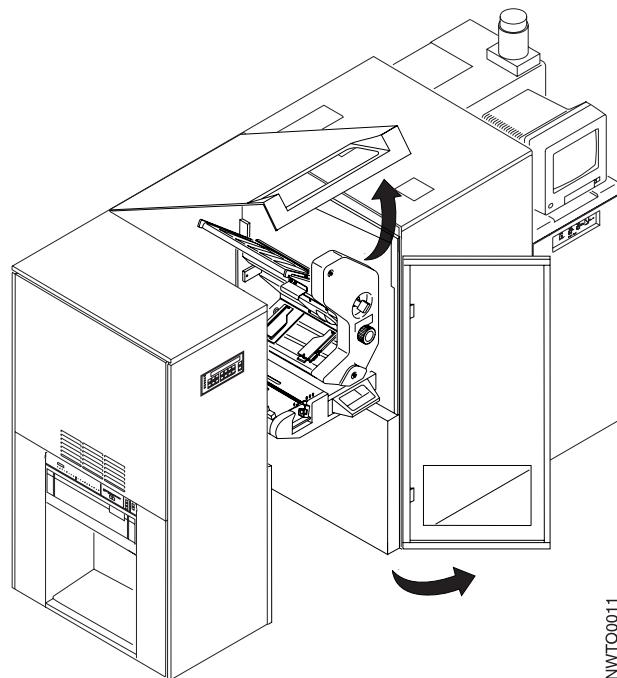
1. Open the center and top covers of the printer.
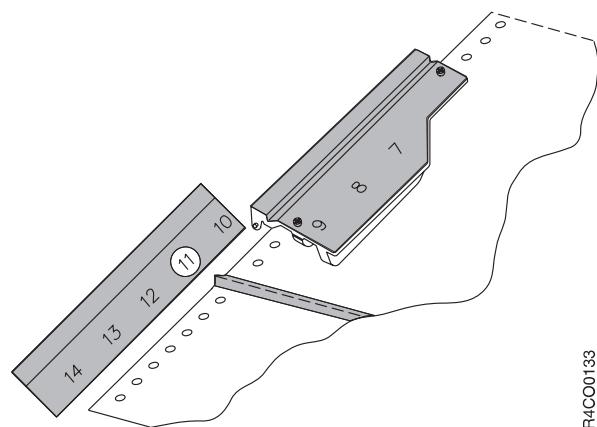
R4CO0133

2. If you are using the stacker, ensure that the **Forms Set** indicator on the printer control panel is set to match the fold direction of the fold perforation that is closest to the red line on the transfer station lower tractors. If it is not, press the correct **Forms Set** key.

R4CO0211
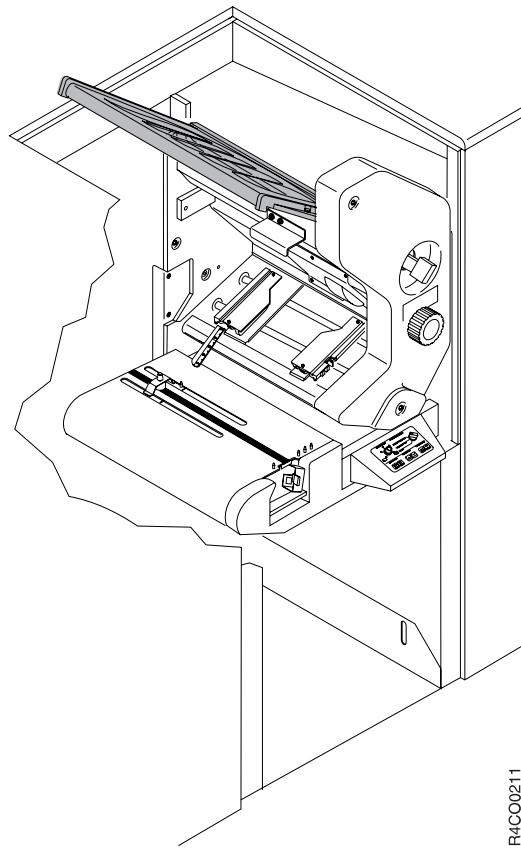
3. Locate the guide notch on the transfer station frame.

Tension Arm

Alignment
Mark and
Guide Notch

A23O0132
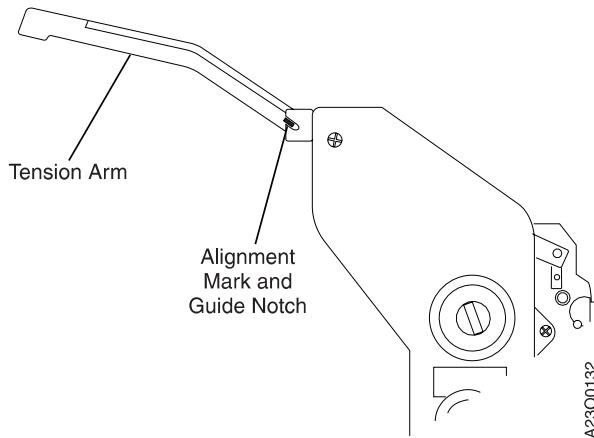
4. For the printer to operate, the blue line on the tension arm must be visible
   through the guide notch. If it is not visible, do the following to move the
   tension arm to the correct position:

   > **Operator Tip**
   >
   > It is necessary to hold the tension arm down while you press the stacker
   > table **UP** key.

a. Press the stacker table **UP** switch on the stacker control panel. This causes the puller rolls to run for five seconds.

b. Gently push the tension arm to the correct position.
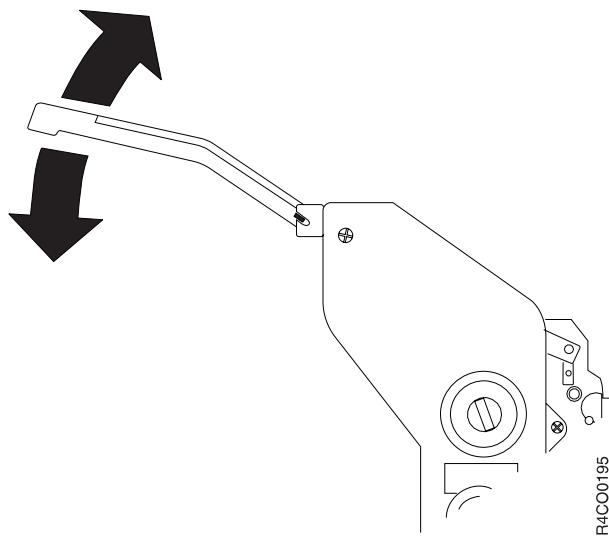
c. When the blue line is visible in the guide notch, turn on the forms path vacuum by pressing the forms path **Vacuum Pushbutton**. The **Vacuum-Off Warning Indicator** flashes and then stays off.

d. If the **Intervention Required** window is still displayed, do one of the following:

- On the operator panel of the affected printer, press the **Check Reset** switch.   OR
- On the **Intervention Required** operator console window, **SELECT** the **Check Reset** pushbutton.

If the message continues, see step 7.

5. Close the center and top covers of the printer.
6. On the operator panel of the affected printer, press the **Ready** key.
7. If the tension arm is in the correct position, but the `CHECK TENSION ARM 079A` message is still displayed, contact your service representative. See "Service Call Procedure" on page 2-6 for instructions.

Splicing Forms

Do this task when you need to splice a new supply of forms to the last page of the previous supply of forms without reloading forms.

The controls you need to accomplish this task are available on both the operator console window and on the operator panel of the affected printer. Because you work with mechanisms inside the printer covers, it is recommended that you use the printer operator panel.

You need the following items when you splice forms:
- A supply of the same type of forms as those that are currently loaded
- Splicing tape.

Operator Tips

1. Splicing tape that has been exposed to air for more than 24 hours tends to lose its adhesive quality. If the tape does not seem sticky, discard the roll and use a new one.

2. You *must* splice forms at a perforation that is centered between tractor holes. In forms with $^1/_3$-inch or $^2/_3$-inch length increments, this occurs *only every third form*; therefore, you may have to discard several blank forms to achieve tractor-hole alignment on both the currently-loaded forms and the new forms.

NWTO0027
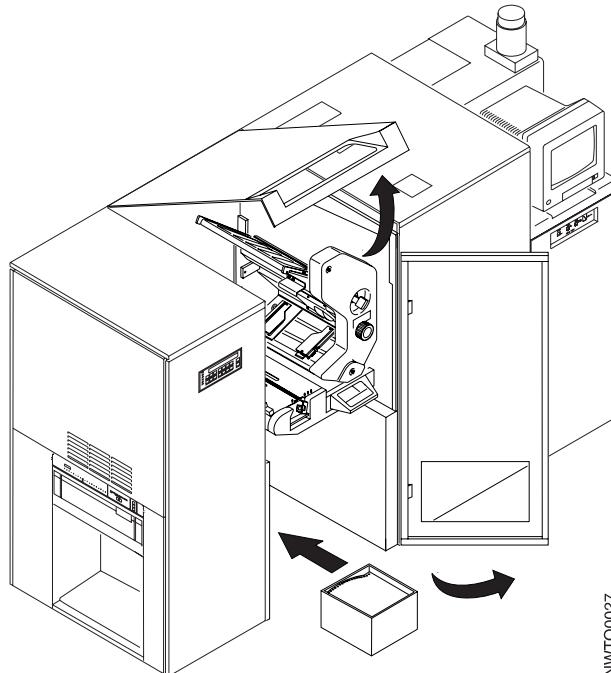
1. Press the **Stop** key on the operator panel of the affected printer or **SELECT** the **Stop** pushbutton on the operator console window for the affected printer.

   Note: Do *not* switch power to the printer off during this process.
2. Open the center front and center top covers of the printer.

3. Locate a new supply of forms (either fan-fold or roll-feed). Ensure that the new forms are exactly the same kind as the forms that are already loaded.

4. Make the new supply of forms available in the forms input area.

R4CO0090
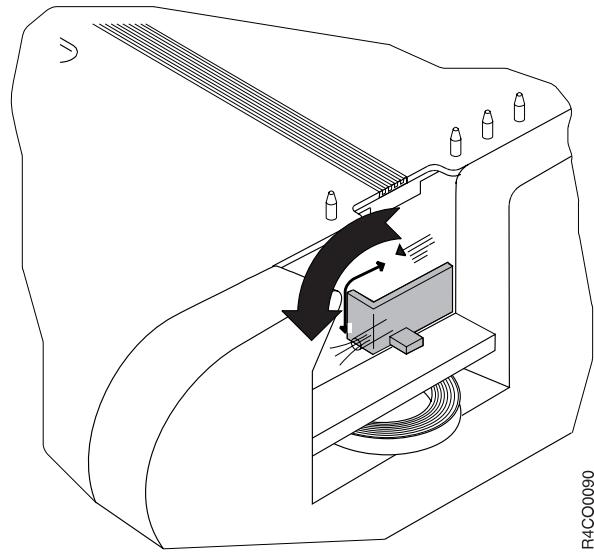
5. Locate a fresh roll of splicing tape. Splicing tape can be kept in the small storage area on the splicing table.

6. Move the **Splice Lever** down to turn on the splicing table vacuum. You see the following message:

```
SPLICE LEVER DOWN  0782
```

> **Operator Tip**
> When the splicing table vacuum is on, you should hear a hissing sound and feel suction if you put your finger on the tape slot.

Moveable Rear
Guide Pins

Tape Slot

R4CO0091
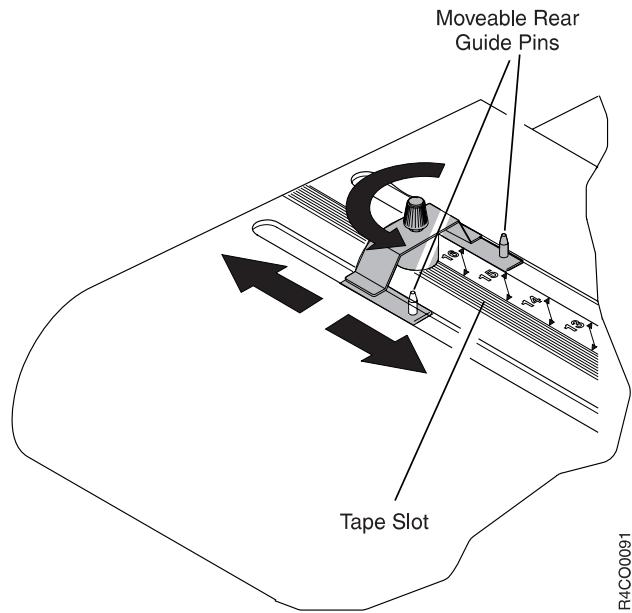
7. Position the moveable rear guide pins by doing the following:

   a. Turn the knurled knob *counterclockwise* to loosen the moveable pins.

   b. Slide the moveable pins so that their front edge is aligned with the width mark that corresponds to the width of the forms you are splicing.

   c. Turn the knurled knob *clockwise* to lock the moveable pins in place.

> **Operator Tips**
>
> a. When the printer senses the end-of-forms condition, there are usually several pages of forms between the input stack area and the transfer station. You may tear off extra pages, *as long as the edge of the last page was from a perforation that was centered between tractor holes*.
>
> b. You *must* splice forms at a perforation that is centered between tractor holes. In forms with $^1/_3$-inch or $^2/_3$-inch length increments, this occurs *only every third form*; therefore, you may have to discard several blank forms to achieve tractor-hole alignment on both the currently-loaded forms and the new forms.

R4CO0093
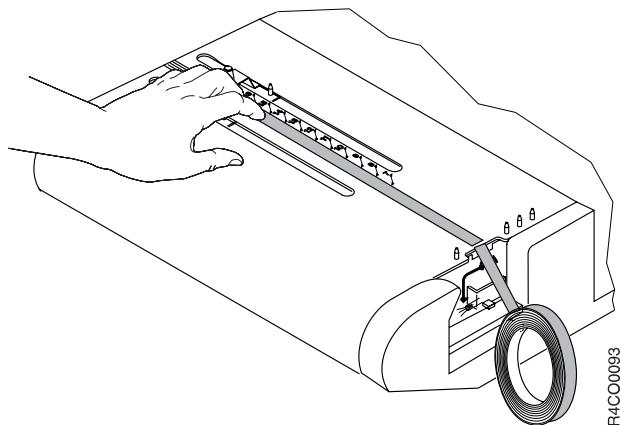
8. Unroll some of the splicing tape.

9. *With the adhesive side up*, put the free end of the tape on the splicing table tape slot, aligned with the width mark that corresponds to the width of the forms you are splicing.

10. Continue unrolling tape on the tape slot. The vacuum holds the tape in place on the splicing table.

11. Cut the tape using the serrated blade at the front edge of the splicing table. Ensure that the tape is aligned squarely on the tape slot, and that the edge of the tape does not extend beyond the rear form-width mark.

12. Put the splicing tape back into the storage area under the splicing table vacuum.

Operator Tip

Splicing tape tends to lose its adhesive quality when it is touched. Avoid touching the adhesive with your hands. Also, keep tape away from the forms until you are ready to actually attach them to the tape.

The fold sequence of the paper to be taped together must match.

Tear off this sheet
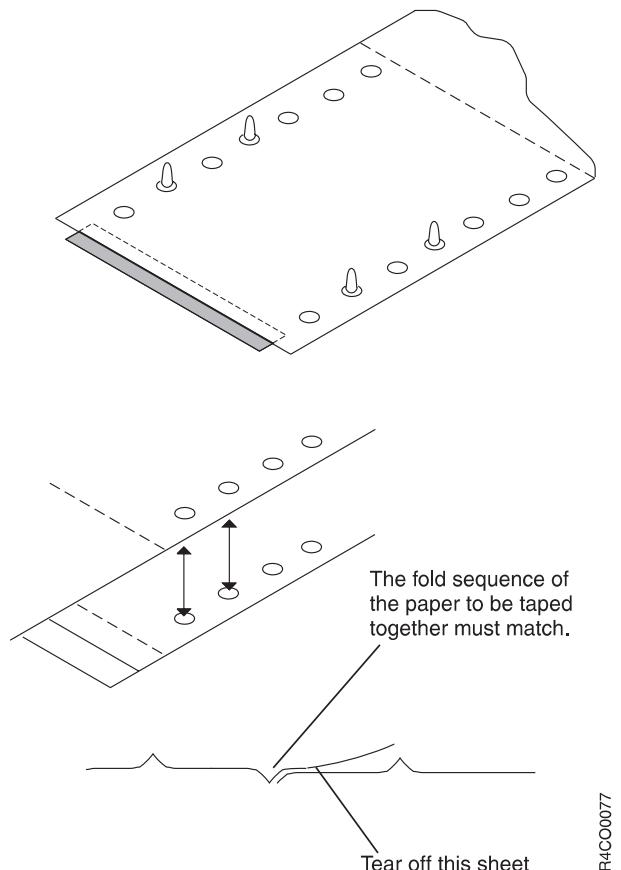
R4CO0077

13. Move the last page of the currently-loaded forms into position. Align the tractor holes with the front and rear guide pins to the right of the tape slot. The edge of the form is at the center of the splicing tape.

14. If you are using fan-fold forms, ensure that the fold direction of the new forms is coordinated with the fold direction of the currently-loaded forms (see the figure above). If necessary, tear off a page of the new forms (see Operator Tips on page 5-29).

15. Fold back the first page of the new forms. Ensure that the print surface of the folded page faces up, and the print surface of the bottom page faces down.

16. Move the new forms into position. Align the tractor holes with the guide pins to the left of the tape slot. The folded perforation is at the center of the tape, against the edge of the currently-loaded forms.

17. Unfold the first page of the new forms, and align its tractor holes on the guide pins to the right of the tape slot. Be sure that the first page of the new forms *overlaps* the currently-threaded forms, as shown in the illustration.

18. Press firmly on the forms and tape along the tape slot to ensure the print surfaces of both forms are securely attached to the splicing tape.

19. With the first page of the new forms unfolded, carefully tear off the overlapping new forms page.

R4CO0094
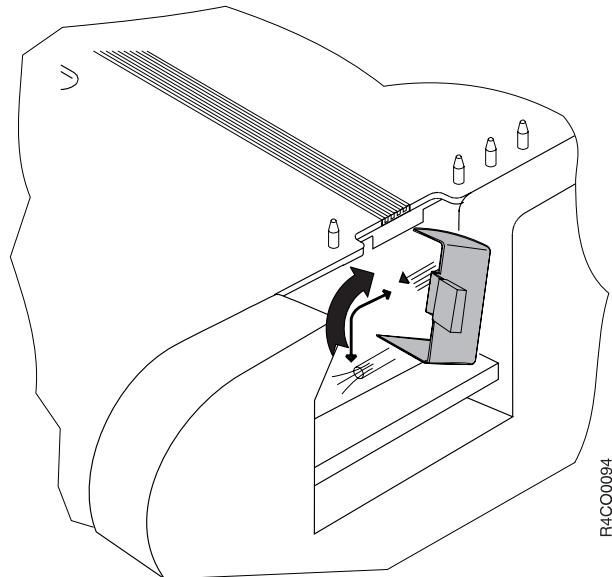
20. Move the **Splice Lever** to the forms feed position to turn off the splicing table vacuum.

21. Lift the spliced forms off the guide pins.

> **Important**
>
> The spliced forms jam if you do not lift the forms off the guide pins.

22. Ensure that the splicing tape does not cover the tractor holes.

23. Ensure that the splicing table is clear of debris.

24. Ensure that the new forms are correctly loaded. They should pass from the input area, over the forms guide, and under the static brush on the left side of the splicing table.

Power
Ready
Receiving
Buffer
Wait
Attention

Feed

NPRO Page | NPRO | Ready

Print Page

Feed Page

Stop NPRO | Stop

Check Reset

NPRO Page | NPRO | Ready | Print Page

Stop NPRO | Stop | Check Reset

A23O0058
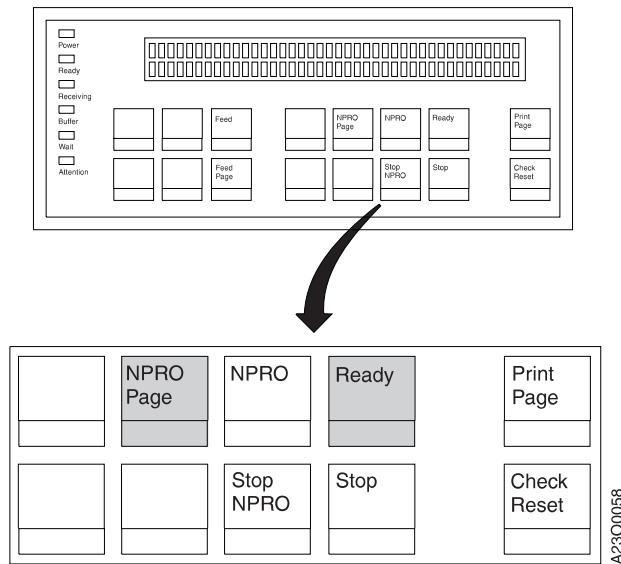
25. To advance the spliced area through the transfer station, press the **NPRO Page** key on the operator panel of the affected printer as many times as necessary until you see the splice on the upper tractors.

26. Check forms alignment at the lower tractors. See "Checking Forms Alignment" on page 5-71.

27. Close the center front and center top covers of the printer.

28. Press the **Ready** key on operator panel of the affected printer or **SELECT** the **Ready** pushbutton for the affected printer to continue printing.

Threading and Aligning Forms

Select this task when you load forms in duplex mode. This procedure is also automatically called up when the system is powered-on in duplex mode and during some error and jam recovery procedures.

All of the controls you need to accomplish this procedure are available on the operator console windows; some controls are also available on the printer operator panels.

This procedure initially displays a Setup **Thread/Align Forms** window (see Figure 5-1).

Note: Proper completion of this task is important to ensure that Printer 2 prints side 2 pages correctly opposite the side 1 pages previously printed by Printer 1.

You can print verification marks on both sides of the pages using the **Verification marks** Printer Configuration Item. You can then visually inspect these marks to ensure that sides 1 and 2 of the forms are properly synchronized. See "Verification Marks" on page 8-8 for more information.
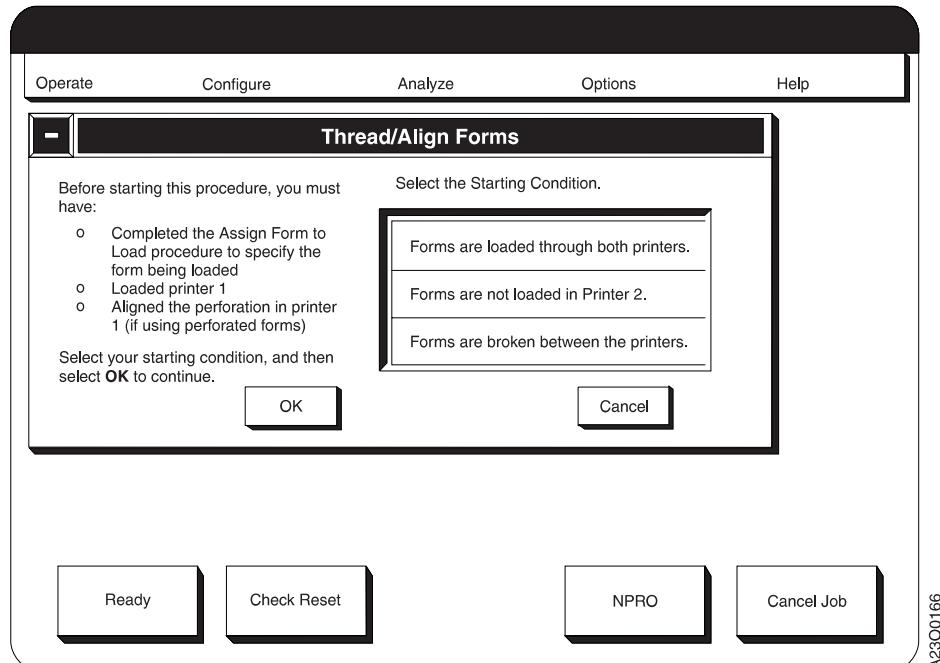
Figure 5-1. Setup Window for Thread/Align Forms

1. **SELECT** which of the three conditions you want from the **Select a Starting Condition** box on the window. Your choice is highlighted.

   The three selectable conditions on this window are:

   • **Forms are threaded through both printers**.

     Select this when you need to verify that the existing front-to-back printing synchronization distance is still accurate:

     – The system has gone through a "Restart" procedure with forms loaded through both printers.

     – You are in a recovery procedure for an error condition or a forms jam that you have determined did not tear, damage, or separate the forms anywhere in the forms path through both printers.

     – The system power has been switched off then switched back on with unseparated forms threaded through both printers.

   • **Forms are not loaded in printer 2**.

     Select this when you need to set the front-to-back printing synchronization distance:

     – You are loading a new type of form with different characteristics from the last form used in the system.

     – You are loading the same type of form previously used in the system that was allowed to run out to end-of-forms and was flushed out of the printer so that a new supply of forms could not be spliced to the trailing edge of the old supply.

     – You are in a forms jam recovery procedure that separated the forms path in a manner that you could not rejoin by splicing.

   • **Forms are broken between the printers**.

     Select this when you are recovering from a condition that separated the forms between Printer 1 and Printer 2 that you can rejoin by splicing.

2. If you **SELECT** the **Cancel** pushbutton on the window, the following actions occur:

   • If you selected this procedure from the **Operate** pull-down menu, the **Thread/Align Forms** procedure closes with no actions taken.

   • If this procedure appeared automatically, the **Thread/Align Forms** procedure closes; however, any later attempt to make the printer Ready displays an **Intervention Required** operator console window containing a "D206" SRC. This requires **SELECTING** the **Thread/Align Forms** procedure and executing it before any printing actions can resume.
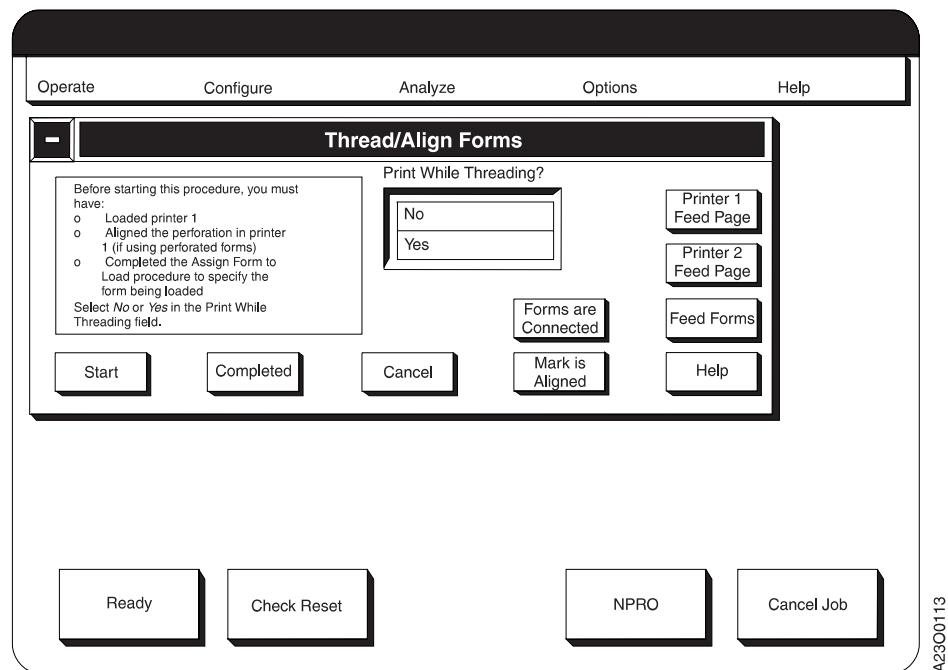
Figure 5-2. Main Thread/Align Forms Window

3. **SELECT** the **OK** pushbutton on the window. The main **Thread/Align Forms** procedure window (Figure 5-2) appears.

Forms Are Loaded Through Both Printers

These procedures assume that:

- You have visually checked the forms path through Printer 1, between Printer 1 and Printer 2, and through Printer 2 and found that the forms path is not separated.
- A customer print job is queued and host attachments are enabled if you intend to select the "Print While Threading" option.
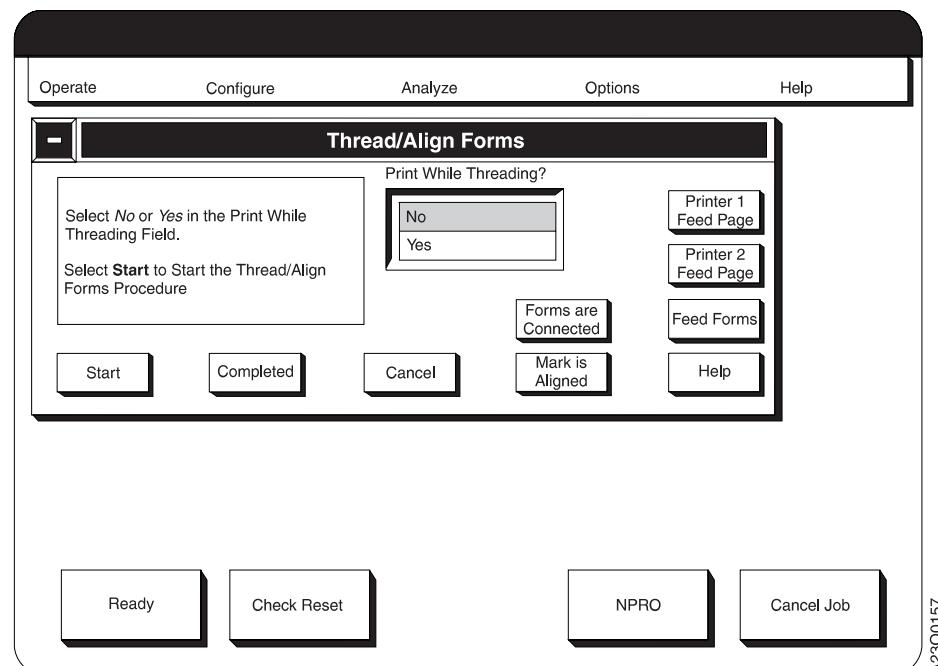
Threading Without Printing

Operate   Configure   Analyze   Options   Help

Thread/Align Forms

Print While Threading?

Select *No* or *Yes* in the Print While Threading **Field**.

Select **Start** to Start the Thread/Align Forms Procedure

| No |
| Yes |

Printer 1 Feed Page

Printer 2 Feed Page

Forms are Connected

Feed Forms

| Start | Completed | Cancel | Mark is Aligned | Help |

Ready   Check Reset   NPRO   Cancel Job

A23O0157

1. **SELECT** the **No** option within the **Print While Threading?** field.
2. **SELECT** the **Start** pushbutton.
3. **SELECT** the **Forms are Connected** pushbutton.
4. **SELECT** the **Feed to Align** pushbutton on the **Thread/Align Forms** window or press the **Feed** key on either the Printer 1 or Printer 2 operator panel.
   a. This prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark are printed on the leading perforation of the page.

      A one-bar or two-bar pattern is also printed on the alignment page to show whether Side 1 or Side 2 of the form is being printed on Printer 1.
   b. This feeds a fixed length of forms through both Printer 1 and Printer 2.

      The fixed length is based on the "Length of Forms Between Transfer Points" configuration item length shown on the **Configure Printer** window under the **Configure** pull-down menu, and is a multiple of the current loaded Form Name page length that is closest to the "Length of Forms Between Transfer Points" length without exceeding it.
5. Visually verify that the alignment mark printed on Printer 1 is aligned to the appropriate form length mark on the input station alignment scale on Printer 2.

a. If the alignment mark is aligned at Printer 2, check to see if there is a sufficient buffer loop of forms between Printer 1 and the Buffer/Flipper Unit. If the buffer loop needs to be increased, change the "Length of Forms Between Transfer Points" printer configuration item. See the table item on page 8-8for more information.

b. If the Printer 1 alignment mark is short of the appropriate forms length scale mark in Printer 2, **SELECT** the **Printer 2 Feed Page** pushbutton or press the Printer 2 **Feed Page** operator panel key as many times as necessary until the Printer 1 alignment mark is aligned at Printer 2.

c. If the Printer 1 alignment mark is past the forms length scale mark in printer 2, first add some more buffer loop between Printer 1 and the Buffer/Flipper Unit by **SELECTING** the **Printer 1 Feed Page** pushbutton several times or press the Printer 1 **Feed Page** operator panel key several times, and then **SELECT** the **Cancel** pushbutton on the window.

You must now restart this **Thread/Align Forms** procedure.

6. After you have visually verified that the Printer 1 alignment mark is aligned correctly on Printer 2, **SELECT** the **Mark is Aligned** pushbutton on the window.

At the **Verification** window, **SELECT** the **OK** pushbutton.

This informs the control unit that the alignment is complete.

Important

If your visual verification of alignment is incorrect, all the following duplex print jobs are printed with incorrect alignment between the front and back of the pages.

---

7. If a postprocessing device is installed and not threaded, **SELECT** the **Feed Forms** pushbutton on the window or press the **Feed** key on either printer operator panel as many times as necessary to advance the forms sufficient distance to thread the postprocessing device.

8. **SELECT** the **Completed** pushbutton on the window that closes this window.

This completes this type of Thread/Align Forms procedure.

9. **SELECT** the **Ready** pushbutton on the main operator console window or press the **Ready** key on either printer operator panel to begin printing.

Print While Threading

Operate   Configure   Analyze   Options   Help

Thread/Align Forms

Print While Threading?

Select *No* or *Yes* in the Print While Threading Field.

Select **Start** to Start the Thread/Align Forms Procedure

No
Yes

Printer 1 Feed Page

Printer 2 Feed Page

Forms are Connected

Feed Forms

Start   Completed   Cancel   Mark is Aligned   Help

Ready   Check Reset   NPRO   Cancel Job

A23O0158

1. **SELECT** the **Yes** option within the **Print While Threading?** field.
2. **SELECT** the **Start** pushbutton.
3. **SELECT** the **Forms are Connected** pushbutton.
4. **SELECT** the **Feed to Align** pushbutton on the **Thread/Align Forms** window or press the **Feed** key on the Printer 1 operator panel.
   a. This prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark are printed on the leading perforation of the page.

      A one-bar or two-bar pattern is also printed on the alignment page to show whether side 1 or side 2 of the form is being printed on Printer 1.
   b. This feeds a fixed length of forms through both Printer 1 and Printer 2.

      The fixed length is based on the "Length of Forms Between Transfer Points" configuration item length shown on the **Configure Printer** window under the **Configure** pull-down menu, and is a multiple of the current loaded Form Name page length that is closest to the "Length of Forms Between Transfer Points" length without exceeding it.
   c. Pages for the queued customer job are printed on Printer 1 starting on the page following the alignment page. Printer 2 processes blank pages.
5. If the queued customer job is too short to print all pages on Printer 1 for the complete "Length of Forms Between Transfer Points", the printing process ceases, the printers stop forward movement of the forms, and a message appears in the non-selectable **Information** field on the window informing you that there is No Data to Print.

   In this case you may either:
   - **SELECT** the **No** option in the **Print While Threading** field, and then **SELECT** the **Feed to Align** pushbutton to finish moving the alignment mark printed on Printer 1 to Printer 2.

- Request the host system operator to send more print jobs to the system. Periodically **SELECT** the **Feed to Align** pushbutton. When more data is available, forward movement of the forms while printing resumes until the "Length of Forms Between Printers' distance is achieved.

6. When the queued and requested print jobs have satisfied the fixed length forward forms movement, visually verify that the alignment mark printed on Printer 1 is aligned to the appropriate form length mark on the input station alignment scale on Printer 2.

   a. If the alignment mark is aligned at Printer 2, check to see if there is a sufficient buffer loop of forms between Printer 1 and the Buffer/Flipper Unit. If the buffer loop needs to be increased, change the "Length of Forms Between Transfer Points" printer configuration item. See the table item on page 8-8for more information.

   b. If the Printer 1 alignment mark is short of the appropriate forms length scale mark in Printer 2, **SELECT** the **Printer 2 Feed Page** pushbutton or press the Printer 2 **Feed Page** operator panel key as many times as necessary until the Printer 1 alignment mark is aligned at Printer 2.

   c. If the Printer 1 alignment mark is past the forms length scale mark in printer 2, first add some more buffer loop between Printer 1 and the Buffer/Flipper Unit by **SELECTING** the **Printer 1 Feed Page** pushbutton several times or press the Printer 1 **Feed Page** operator panel key several times, and then **SELECT** the **Cancel** pushbutton on the window.

   You must now restart this**Thread/Align Forms** procedure.

7. After you visually verify that the Printer 1 alignment mark is aligned correctly on Printer 2, **SELECT** the **Mark is Aligned** pushbutton on the window.

   At the **Verification** window, **SELECT** the **OK** pushbutton.

   This informs the control unit that the alignment is complete.

   Important

   If your visual verification of alignment is incorrect, all following duplex customer print jobs are printed with incorrect alignment between the front and back of the pages.

   ---

8. If a postprocessing device is installed and not threaded, **SELECT** the **Feed Forms** pushbutton on the window or press the **Feed** key on either printer operator panel as many times as necessary to advance the forms sufficient distance to thread the postprocessing device.

   Printer 2 prints Side 2 pages starting on the page following the alignment page during these forms forward movements. If the queued customer job is long enough, Printer 1 continues printing Side 1 pages.

9. **SELECT** the **Completed** pushbutton on the window that closes this window.

   This completes this type of Thread/Align Forms procedure.

10. **SELECT** the **Ready** pushbutton on the main operator console window or press the **Ready** key on either printer operator panel to resume printing the queued customer job.

Forms Are Not Loaded In Printer 2

These procedures assume that:

- You have visually checked that forms have been Auto Loaded in Printer 1, and forms are not loaded in Printer 2.
- The main **Thread/Align Forms** procedure window appears on the operator console.
- A customer print job is queued if you intend to select the "Print While Threading" option.

Threading Without Printing

Operate   Configure   Analyze   Options   Help

Thread/Align Forms

Print While Threading?

Select *No* or *Yes* in the Print While Threading Field.

Select **Start** to Start the Thread/Align Forms Procedure

No
Yes

Printer 1 Feed Page
Printer 2 Feed Page
Forms are Connected
Feed Forms

Start   Completed   Cancel   Mark is Aligned   Help

Ready   Check Reset   NPRO   Cancel Job

A23OO157

1. **SELECT** the **No** option within the **Print While Threading?** field.
2. **SELECT** the **Start** pushbutton.
3. **SELECT** the **Feed Forms** pushbutton on the **Thread/Align Forms** window or press the **Feed** key on the Printer 1 operator panel.
   a. This prints an alignment mark on a page in Printer 1, designated as an alignment page.

   If you are using perforated forms, the alignment mark is printed on the leading perforation of the page.

   A one-bar or two-bar pattern is also printed on the alignment page to show whether Side 1 or Side 2 of the form is being printed on Printer 1.
   b. This feeds a fixed length of forms through Printer 1.

   The fixed length is based on the "Form Feed Length" configuration item shown on the **Configure Printer** window under the **Configure** pull-down menu, and is a multiple of the current loaded Form Name page length that is closest to the "Form Feed Length" without exceeding it.
4. Continue **SELECTING** the **Feed Forms** pushbutton on the window or pressing the **Feed** key on the Printer 1 operator panel until selecting/pressing does not advance the forms any further.

Enough forms should have moved through Printer 1 to manually thread the Buffer/Flipper Unit (see "Threading the Buffer/Flipper Unit (Duplex)—All Models except ID3/ID4" on page 5-53 for details). Advance the forms under Printer 2 into the input area of Printer 2, and *Auto Load* Printer 2.

The **Feed Forms** pushbutton on the window and the **Feed** key on the Printer 1 operator panel becomes inoperable when a multiple of the current loaded Form Name page length that is closest to but not exceeding the length in the "Length of Forms Between transfer Points" configuration item shown on the **Configure Printer** window under the **Configure** pull-down menu has moved through Printer 1.

When the **Feed Forms** pushbutton and the **Feed** key are inoperable and additional length is needed to supply enough forms to *Auto Load* Printer 2, **SELECT** the **Printer 1 Feed Page** pushbutton on the window or press the **Feed Page** key on the Printer 1 operator panel.

5. Once enough forms have moved through Printer 1 and the Buffer/Flipper Unit and created a buffer big enough between the Buffer/Flipper Unit and Printer 2 to allow autoload of Printer 2, do the following:

   a. Remove power from the Urge Unit in the Forms Input area of Printer 2. The Urge Unit cannot be threaded with the roller moving.

   b. Thread forms through the Urge Unit.

   c. Restore power to the Urge Unit.

6. Follow steps 7 on page 5-7 through 38 on page 5-17 in "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 procedure to *Auto Load* Printer 2.

7. Visually verify that the alignment mark printed on Printer 1 is aligned to the appropriate form length mark on the input station alignment scale on Printer 2.

   a. If the alignment mark is aligned at Printer 2, check to see if there is a sufficient buffer loop of forms between Printer 1 and the Buffer/Flipper Unit. If you need to increase the buffer loop, change the "Length of Forms Between Transfer Points" printer configuration item. See the table item on page 8-8for more information.

   b. If the Printer 1 alignment mark is short of the appropriate forms length scale mark in Printer 2, **SELECT** the **Printer 2 Feed Page** pushbutton or press the Printer 2 **Feed Page** operator panel key as many times as necessary until the Printer 1 alignment mark is aligned at Printer 2.

   c. If the Printer 1 alignment mark is past the forms length scale mark in printer 2, first add some more buffer loop between Printer 1 and the Buffer/Flipper Unit by **SELECTING** the **Printer 1 Feed Page** pushbutton several times, and then **SELECT** the **Cancel** pushbutton on the window.

   You must now restart this **Thread/Align Forms** procedure.

8. After you have visually verified that the Printer 1 alignment mark is aligned correctly on Printer 2, **SELECT** the **Mark is Aligned** pushbutton on the window.

   At the **Verification** window, **SELECT** the **OK** pushbutton.

   This informs the control unit that the alignment is complete.

Important

If your visual verification of alignment is incorrect, all following duplex customer print jobs are printed with incorrect alignment between the front and back of the pages.

---

9. If a postprocessing device is installed and not threaded, **SELECT** the **Feed Forms** pushbutton on the window or press **Feed** key on either printer operator panel as many times as necessary to advance the forms sufficient distance to thread the postprocessing device.

10. **SELECT** the **Completed** pushbutton on the window that removes this window.

    This completes this type of Thread/Align Forms procedure.

11. **SELECT** the **Ready** pushbutton on the main operator console window or press the **Ready** key on either printer operator panel to begin printing.

Print While Threading


```
Operate          Configure          Analyze          Options          Help

                              Thread/Align Forms

                              Print While Threading?

  Select No or Yes in the Print While        No              Printer 1
  Threading Field.                                           Feed Page
                                              Yes
  Select Start to Start the Thread/Align                     Printer 2
  Forms Procedure                                            Feed Page

                                       Forms are             Feed Forms
                                       Connected

    Start      Completed      Cancel     Mark is    Help
                                        Aligned


    Ready     Check Reset                 NPRO      Cancel Job
```

A23O0158

1. **SELECT** the **Yes** option within the **Print While Threading?** field.
2. **SELECT** the **Start** pushbutton.

   This informs the control unit to begin the thread/align process.

3. **SELECT** the **Feed Forms** pushbutton on the **Thread/Align Forms** window or press the **Feed** key on the Printer 1 operator panel.

   a. This prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark are printed on the leading perforation of the page.

      A one-bar or two-bar pattern is also printed on the alignment page to show whether side 1 or side 2 of the form is being printed on Printer 1.

   b. This feeds a fixed length of forms through Printer 1.

      The fixed length is based on the "Form Feed Length" configuration item shown on the **Configure Printer** window under the **Configure** pull-down menu, and is a multiple of the current loaded Form Name page length that is closest to the "Form Feed Length" without exceeding it.

   c. Pages for the queued customer job are printed on Printer 1 starting on the page following the alignment page during this and following selections of the **Feed Forms** pushbutton. Printer 2 processes blank pages.

4. Continue **SELECTING** the **Feed Forms** pushbutton on the window or pressing the **Feed** key on the Printer 1 operator panel until selecting/pressing does not advance the forms any further.

   Enough forms should have moved through Printer 1 to manually thread the Buffer/Flipper Unit (see "Threading the Buffer/Flipper Unit (Duplex)—All Models except ID3/ID4" on page 5-53 for details), advance the forms under Printer 2 into the input area of Printer 2, and *Auto Load* Printer 2.

   The **Feed Forms** pushbutton on the window and the **Feed** key on the Printer 1 operator panel becomes inoperable when a multiple of the current loaded Form

Name page length that is closest to but not exceeding the length in the "Length of Forms Between Transfer Points" configuration item shown on the **Configure Printer** window under the **Configure** pull-down menu has moved through Printer 1.

When the **Feed Forms** pushbutton and the **Feed** key are inoperable and you need additional length to supply enough forms to *Auto Load* Printer 2, **SELECT** the **Printer 1 Feed Page** pushbutton on the window or press the **Feed Page** key on the Printer 1 operator panel.

5. If the queued customer job is too short to print all pages on Printer 1 for the complete "Length of Forms Between Transfer Points", the **Feed Forms** window pushbutton and the **Feed** operator panel key becomes inoperable before the "Length of Forms Between Transfer Points" is achieved, and a message appears in the non-selectable **Information** field on the window informing you that there is No Data to Print.

   In this case you may either:

   - **SELECT** the **No** option in the **Print While Threading** field, which restores use of the **Feed Forms** pushbutton and the **Feed** key so that you may continue with the threading process.

   - Request the host system operator to send more print jobs to the system, which when received, resumes printing operations on Printer 1.

     Periodically **SELECT** the **Feed Forms** pushbutton. When more data is available, forward movement of the forms while printing resumes until the "Length of Forms Between Printers' distance is achieved.

6. Once enough forms have moved through Printer 1 and the Buffer/Flipper Unit and created a buffer big enough between the Buffer/Flipper Unit and Printer 2 to allow auto load of Printer 2, do the following:

   a. Remove power from the Urge Unit in the Forms Input area of Printer 2. You cannot thread the Urge Unit with the roller moving.

   b. Thread forms through the Urge Unit.

   c. Restore power to the Urge Unit.

7. Follow steps 7 on page 5-7 through 38 on page 5-17 in "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 procedure to *Auto Load* Printer 2.

8. Visually verify that the alignment mark printed on Printer 1 is aligned to the appropriate form length mark on the input station alignment scale on Printer 2.

   a. If the alignment mark is aligned at Printer 2, check to see if there is a sufficient buffer loop of forms between Printer 1 and the Buffer/Flipper Unit. If you need to increase the buffer loop , change the "Length of Forms Between Transfer Points" printer configuration item. See the table item on page 8-8for more information.

   b. If the Printer 1 alignment mark is short of the appropriate forms length scale mark in Printer 2, **SELECT** the **Printer 2 Feed Page** pushbutton or press the Printer 2 **Feed Page** operator panel key as many times as necessary until the Printer 1 alignment mark is aligned at Printer 2.

   c. If the Printer 1 alignment mark is past the forms length scale mark in printer 2, first add some more buffer loop between Printer 1 and the Buffer/Flipper Unit by **SELECTING** the **Printer 1 Feed Page** pushbutton several times or press the Printer 1 **Feed Page** operator panel key several times, and then **SELECT** the **Cancel** pushbutton on the window.

   You must now Restart this **Thread/Align Forms** procedure.

9. After you have visually verified that the Printer 1 alignment mark is aligned correctly on Printer 2, **SELECT** the **Mark is Aligned** pushbutton on the window.

   At the **Verification** window, **SELECT** the **OK** pushbutton.

   This informs the control unit that the alignment is complete.

   Important

   If your visual verification of alignment is incorrect, all following duplex customer print jobs are printed with incorrect alignment between the front and back of the pages.

---

10. If a postprocessing device is installed and not threaded, **SELECT** the **Feed Forms** pushbutton on the window or press the **Feed** key on either printer operator panel as many times as necessary to advance the forms sufficient distance to thread the postprocessing device.

    Printer 2 starts printing Side 2 pages on the page following the alignment page, and if the customer job is long enough Printer 1 continues printing Side 1 pages.

11. **SELECT** the **Completed** pushbutton on the window which removes this window.

    This completes this type of the Thread/Align Forms procedure.

12. **SELECT** the **Ready** pushbutton on the main operator console window or press the **Ready** key on either printer operator panel to resume printing the queued customer job.

Forms Are Broken Between the Printers

A jam occurring between Printer 1 and Printer 2 normally causes the forms to tear and separate. Printer 1 continues to print and dump forms out on the floor between Printer 1 and Printer 2. Printer 2 feeds forms and print until an `END OF FORMS 078A` **Intervention Required** operator console window appears on Printer 2, at which time both printers stop feeding forms.

The following procedure gives you a method of splicing the separated forms back together between Printer 1 and Printer 2, so that rethreading of Printer 2 and a postprocessing device (if installed) is not required.

These procedures assume that:

- You have visually checked the forms path and found it separated between Printer 1 and Printer 2.
- The main **Thread/Align Forms** procedure window appears on the operator console.
- A customer print job is queued and host attachments are enabled if the "Print While Threading" option is selected.

Threading Without Printing
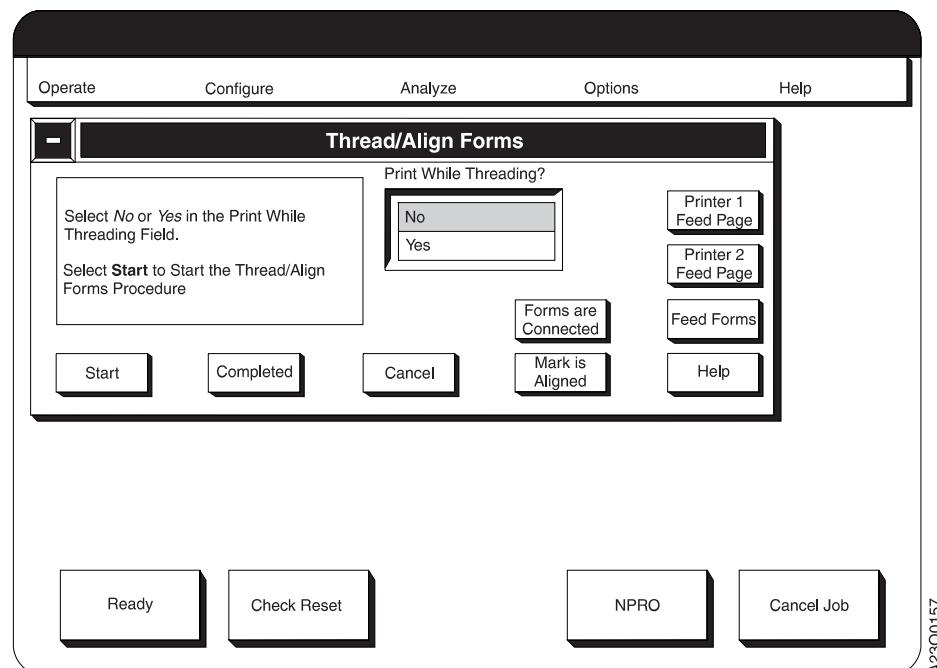
Operate   Configure   Analyze   Options   Help

Thread/Align Forms

Print While Threading?

Select *No* or *Yes* in the Print While Threading Field.

Select **Start** to Start the Thread/Align Forms Procedure

No / Yes

Printer 1 Feed Page   Printer 2 Feed Page   Forms are Connected   Feed Forms

Start   Completed   Cancel   Mark is Aligned   Help

Ready   Check Reset   NPRO   Cancel Job

A23OO157

1. **SELECT** the **No** option within the **Print While Threading?** field.
2. **SELECT** the **Start** pushbutton.
3. If no forms were damaged by the separation and there is sufficient slack in the forms, splice the forms back together at the Printer 2 splicing table. See "Splicing Forms" on page 5-27 for details.

   Go to step 5 on page 5-48.
4. If forms were damaged by the separation and must be removed or there is not enough slack to splice the forms back together, use either the **Feed Forms** or **Printer 1 Feed Page** pushbuttons to advance the forms through Printer 1 a

sufficient distance to splice the forms at the Splicing Table of Printer 2. The first selection of either the **Feed Forms** or the **Printer 1 Feed Page** pushbutton:

   a. Prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark is printed on the leading perforation of the page.

      Print a one-or two-bar pattern on the alignment page to show whether Side 1 or Side 2 of the form is printed on Printer 1.

   b. Feeds a fixed length of forms through Printer 1, either the length set in the **Form Feed Length** printer configuration item if you select the **Feed Forms** pushbutton or the length of one page according the page length definition for the Form Name currently loaded if you select the **Printer 1 Feed Page** pushbutton.

   Go to step 5.

5. **SELECT** the **Forms are Connected** pushbutton.

6. **SELECT** the **Feed to Align** pushbutton on the **Thread/Align Forms** window or press the **Feed** key on the Printer 1 operator panel. This essentially restarts the procedure.

   a. This prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark is printed on the leading perforation of the page.

      A one-bar or two-bar pattern is also printed on the alignment page to show whether side 1 or side 2 of the form is being printed on Printer 1.

   b. This feeds a fixed length of forms through Printer 1.

      The fixed length is based on the "Length of Forms Between Transfer Points" configuration item length shown on the **Configure Printer** window under the **Configure** pull-down menu, and is a multiple of the current loaded Form Name page length that is closest to the "Length of Forms Between Transfer Points" length without exceeding it.

7. Visually verify that the alignment mark printed on Printer 1 is aligned to the appropriate form length mark on the input station alignment scale on Printer 2.

   a. If the alignment mark is aligned at Printer 2, check to see if there is a sufficient buffer loop of forms between Printer 1 and the Buffer/Flipper Unit. If you need to increase the buffer loop, change the "Length of Forms Between Transfer Points" printer configuration item. See the table item on page 8-8for more information.

   b. If the Printer 1 alignment mark is short of the appropriate forms length scale mark in Printer 2, **SELECT** the **Printer 2 Feed Page** pushbutton on the window or press the Printer 2 **Feed Page** operator panel key as many times as necessary until the Printer 1 alignment mark is aligned at Printer 2.

   c. If the Printer 1 alignment mark is past the forms length scale mark in printer 2, first add some more buffer loop between Printer 1 and the Buffer/Flipper Unit by **SELECTING** the **Printer 1 Feed Page** pushbutton several times or press the Printer 1 **Feed Page** operator panel key several times, and then **SELECT** the **Cancel** pushbutton on the window.

   You must now restart this **Thread/Align Forms** procedure.

8. After you have visually verified that the Printer 1 alignment mark is aligned correctly on Printer 2, **SELECT** the **Mark is Aligned** pushbutton on the window.

   At the **Verification** window, **SELECT** the **OK** pushbutton.

This informs the control unit that the alignment is complete.

> **Important**
>
> If your visual verification of alignment is incorrect, all following duplex customer print jobs are printed with incorrect alignment between the front and back of the pages.

9. If a postprocessing device is installed and not threaded, **SELECT** the **Feed Forms** pushbutton on the window or press the **Feed** key on either printer operator panel as many times as necessary to advance the forms sufficient distance to thread the postprocessing device.

10. **SELECT** the **Completed** pushbutton on the window that removes this window.

    This completes this type of Thread/Align Forms procedure.

11. **SELECT** the **Ready** pushbutton on the main operator console window or press the **Ready** key on either printer operator panel to begin printing.

Print While Threading

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1. **SELECT** the **Yes** option within the **Print While Threading?** field.
2. **SELECT** the **Start** pushbutton.

   This informs the control unit to begin the thread/align process.
3. If no forms were damaged by the separation and there is sufficient slack in the forms, splice the forms back together at the Printer 2 splicing table. See "Splicing Forms" on page 5-27 for details.

   Go to step 5.
4. If forms were damaged by the separation and must be removed or there is not enough slack to splice the forms back together, use either the **Feed Forms** or **Printer 1 Feed Page** pushbuttons to advance the forms through Printer 1 a sufficient distance to splice the forms at the Splicing Table of Printer 2. The first selection of either the **Feed Forms** or the **Printer 1 Feed Page** pushbutton:

   a. Prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark is printed on the leading perforation of the page.

      Print a one-or two-bar pattern on the alignment page to show whether Side 1 or Side 2 of the form is printed on Printer 1.

   b. Feeds a fixed length of forms through Printer 1, either the length set in the **Form Feed Length** printer configuration item if you select the **Feed Forms** pushbutton or the length of one page according to the page length definition for the Form Name currently loaded if you select the **Printer 1 Feed Page** pushbutton.

   c. Pages for the queued customer job are printed on Printer 1 starting on the page following the alignment page. Printer 2 process blank pages.
5. **SELECT** the **Forms are Connected** pushbutton.

6. **SELECT** the **Feed to Align** pushbutton on the **Thread/Align Forms** window or press the **Feed** key on the Printer 1 operator panel. This essentially restarts the procedure.

   a. This prints an alignment mark on a page in Printer 1, designated as an alignment page.

      If you are using perforated forms, the alignment mark is printed on the leading perforation of the page.

      A one-bar or two-bar pattern is also printed on the alignment page to show whether side 1 or side 2 of the form is printed on Printer 1.

   b. This feeds a fixed length of forms through Printer 1.

      The fixed length is based on the "Length of Forms Between Transfer Points" configuration item length shown on the **Configure Printer** window under the **Configure** pull-down menu, and is a multiple of the current loaded Form Name page length that is closest to the "Length of Forms Between Transfer Points" length without exceeding it.

   c. Pages for the queued customer job is printed on Printer 1 starting on the page following the alignment page. Printer 2 processes blank pages.

7. If the queued customer job is too short to print all pages on Printer 1 for the complete "Length of Forms Between Transfer Points", the printing process ceases, the printers stop forward movement of the forms, and a message appears in the non-selectable **Information** field on window informing you that there is No Data to Print.

   In this case you may either:

   - **SELECT** the **No** option in the **Print While Threading** field or **SELECT** the **Start** pushbutton and follow the procedure steps in "Threading Without Printing" on page 5-47, because printing while threading cannot be accomplished with the current queued customer job.

   - Periodically **SELECT** the **Feed to Align** pushbutton. When more data is available, forward movement of the forms while printing resumes until the "Length of Forms Between Printers' distance is achieved.

8. If the queued customer job is long enough and the fixed-length forms forward movement completes, visually verify that the alignment mark printed on Printer 1 is aligned to the appropriate form length mark on the input station alignment scale on Printer 2.

   a. If the alignment mark is aligned at Printer 2, check to see if there is a sufficient buffer loop of forms between Printer 1 and the Buffer/Flipper Unit. If you need to increase the buffer loop, change the "Length of Forms Between Transfer Points" printer configuration item. See the table item on page 8-8for more information.

   b. If the Printer 1 alignment mark is short of the appropriate forms length scale mark in Printer 2, **SELECT** the **Printer 2 Feed Page** pushbutton on the window or press the Printer 2 **Feed Page** operator panel key as many times as necessary until the Printer 1 alignment mark is aligned at Printer 2.

   c. If the Printer 1 alignment mark is past the forms length scale mark in printer 2, first add some more buffer loop between Printer 1 and the Buffer/Flipper Unit by **SELECTING** the **Printer 1 Feed Page** pushbutton several times or press the Printer 1 **Feed Page** operator panel key several times. Then **SELECT** the **Cancel** pushbutton on the window.

   You must now restart this **Thread/Align Forms** procedure.

9. After you have visually verified that the Printer 1 alignment mark is aligned correctly on Printer 2, **SELECT** the **Mark is Aligned** pushbutton on the window.

At the **Verification** window, **SELECT** the **OK** pushbutton.

This informs the control unit that the alignment is complete.

> **Important**
>
> If your visual verification of alignment is incorrect, all following duplex customer print jobs are printed with incorrect alignment between the front and back of the pages.

10. If a postprocessing device is installed and not threaded, **SELECT** the **Feed Forms** pushbutton on the window or press the **Feed** key on either printer operator panel as many times as necessary to advance the forms sufficient distance to thread the postprocessing device.

11. **SELECT** the **Completed** pushbutton on the window which removes this window.

    This completes this type of Thread/Align Forms procedure.

12. **SELECT** the **Ready** pushbutton on the main operator console window or press the **Ready** key on either printer operator panel to resume printing the queued customer job.

Threading the Buffer/Flipper Unit (Duplex)—All Models except ID3/ID4

Straight Line Configuration

Figure 5-3 shows the Buffer/Flipper Unit viewed from the front. The darker shaded side of the forms shown in the figure is the side that is printed on Printer 1. The lighter shaded side of the forms is the side that is printed on Printer 2.

Using Figure 5-3, thread the forms through the Buffer/Flipper Unit using the arrows as a guide from Printer 1 at the top of the figure to Printer 2 at the bottom of the figure. The result is that the forms are inverted 180° between Printer 1 and Printer 2.

The guide collars **A** through **F** on the roller bars were adjusted properly when the system was initially installed, so adjustments by you are probably not necessary, even if you are threading a form through the system with a different width than you previously threaded. When the forms are under tension and moving through the Buffer/Flipper Unit, the forms run up against the guide collars shown.
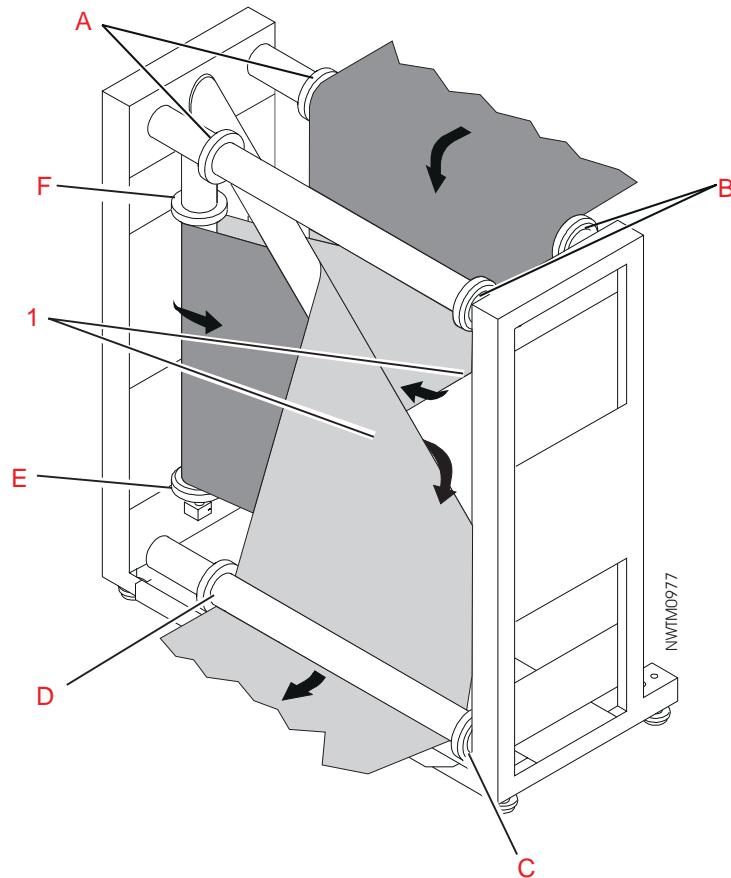
Figure 5-3. Inline Configuration—All Models except ID3/ID4

Left Angle Configuration

Figure 5-4 shows the Buffer/Flipper Unit viewed from the front. The darker shaded side of the forms shown in the figure is the side that is printed on Printer 1. The lighter shaded side of the forms is the side that is printed on Printer 2.

The longer of the two cross bars **1** is removed from its normal position and installed at the lower back of the Buffer/Flipper Unit with the support bar **2**.

Using Figure 5-4, thread the forms through the Buffer/Flipper Unit using the arrows as a guide from Printer 1 at the top of the figure to Printer 2 at the bottom of the figure. The result is that the forms are inverted 180° between Printer 1 and Printer 2.

The guide collars **A** through **F** on the roller bars were adjusted properly when the system was initially installed, so adjustments by you are probably not necessary, even if you are threading a form through the system with a different width than you previously threaded. When the forms are under tension and moving through the Buffer/Flipper Unit, the forms run up against the guide collars shown.
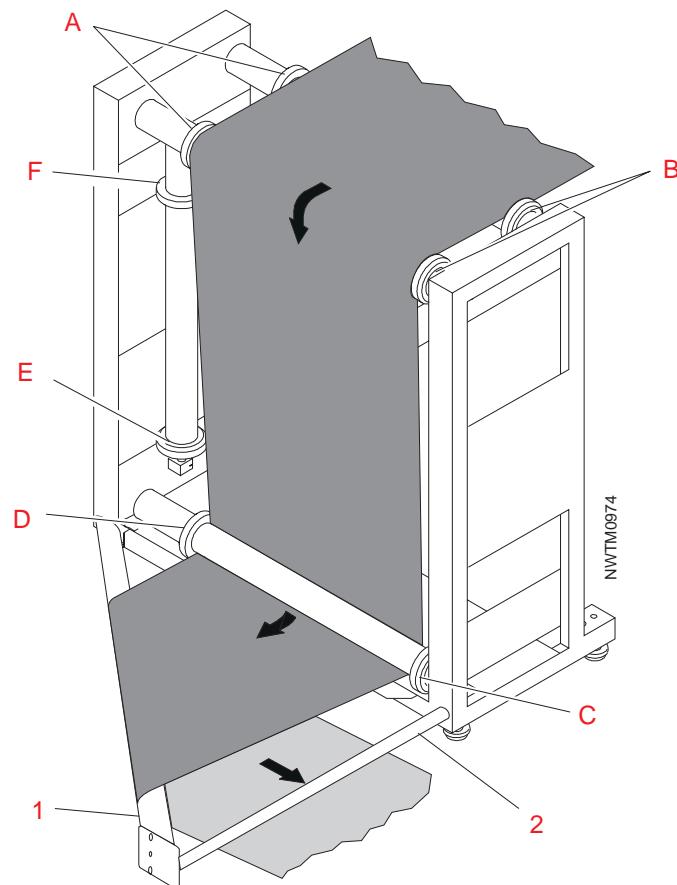
Figure 5-4. Left Angle Configuration—All Models except ID3/ID4

Threading the Buffer/Flipper Unit (Duplex)—Models ID3/ID4

Straight Line Configuration

Figure 5-5 shows the Buffer/Flipper Unit viewed from the front.

Using Figure 5-5, thread the forms through the Buffer/Flipper Unit using the numbered arrows as guides from Printer 1 at the middle of the figure (arrow **1**) to Printer 2 at the bottom of the figure (arrow **8**). The result is that the forms are inverted 180° between Printer 1 and Printer 2.

The guide collars on the roller bars, denoted by capital letters **A** through **D** , were adjusted properly when the system was initially installed, so adjustments by you are probably not necessary, even if you are threading a form through the system with a different width than you previously threaded.
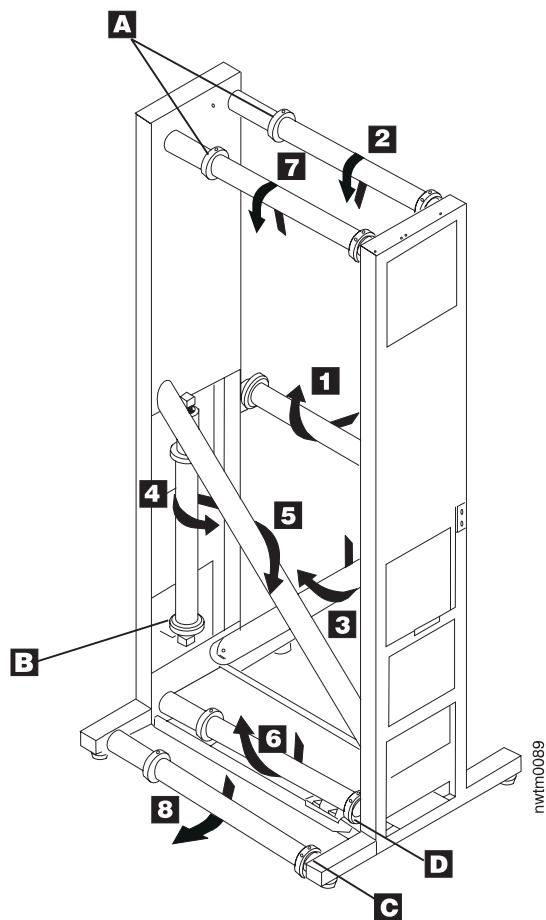
Figure 5-5. Inline Configuration—Models ID3/ID4

Left Angle Configuration

Figure 5-6 shows the Buffer/Flipper Unit viewed from the front.

One of the stationary bars **D** was removed from its normal position and installed at the lower back of the Buffer/Flipper Unit with bar **E** .

Using Figure 5-6, thread the forms through the Buffer/Flipper Unit using the arrows as guides from Printer 1 at the middle of the figure (arrow **1**) to Printer 2 at the bottom of the figure (arrow **6**). The result is that the forms are inverted 180° between Printer 1 and Printer 2.

The guide collars on the indicated roller bars, denoted by capital letters **A** through **C** , were adjusted properly when the system was initially installed, so adjustments by you are probably not necessary, even if you are threading a form through the system with a different width than you previously threaded.
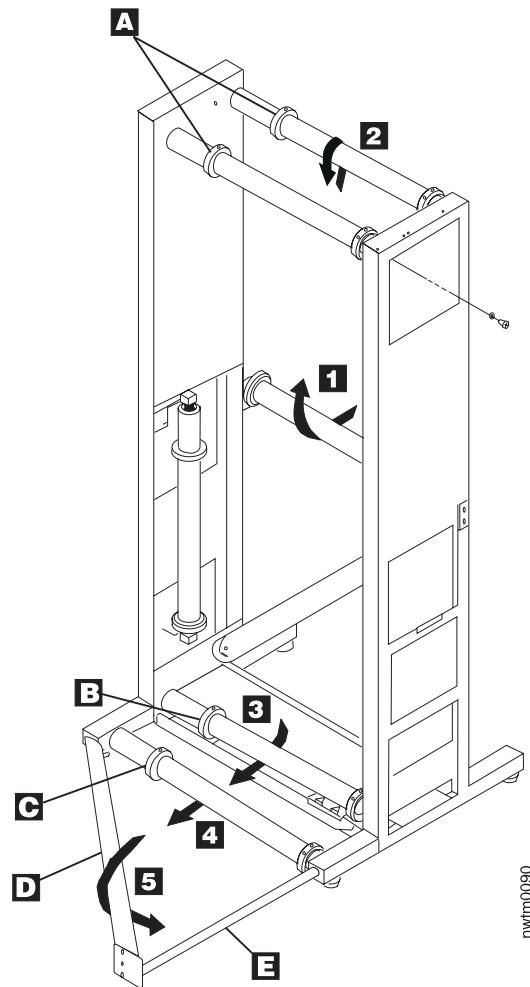
Figure 5-6. Left Angle Configuration—Models ID3/ID4

Adjusting the Print Position

Do this task when you load preprinted forms, adhesive labels, or other forms that require a precise registration that is not satisfied by the factory-set default registration.

> **Requirement For This Procedure**
> A print job must be queued so that print data is available to print test pages during this procedure. This procedure cannot be completed without queued print data available.

In printing, the term *registration* refers to the relative print positions of images that are printed at different times. For example, when you process preprinted forms, the registration is good if the new image printed by the system printer aligns correctly with the preprinted image (as shown in Figure 5-7).

Kuhlly Conditioning			
Name	Quantity	Item #	Date
Smithson, R.T.	14	714562	05/29/90
Barckley, Wm.	03	518329	06/02/90
Martins, S.J.	08	487641	06/03/90
Balons, G.E.	21	894265	06/03/90
A-1 Towing	11	462894	06/03/90
Jones, S.W.	02	783466	06/04/90
Kelly, J.M.	16	186435	06/06/90
Fischer, G.M.	45	087462	06/07/90
Adams, T.A.	14	812576	06/07/90
Mark IV Prop.	19	428967	06/08/90
Hill, W.A.	05	932465	06/11/90
Cullen, E.T.	22	943251	06/26/90
Hertler, D.E.	10	147563	06/27/90

R4CO0037

Figure 5-7. Good Registration

Print that extends beyond box edges and text that overlaps other text are examples of poor registration (as shown in Figure 5-8).

Kuhlly Conditioning			
Name	Quantity	Item #	Date
Smithson, R.T.	14	714562	05/29/90
Barckley, Wm.	03	518329	06/02/90
Martins, S.J.	08	487641	06/03/90
Balons, G.E.	21	894265	06/03/90
A-1 Towing	11	462894	06/03/90
Jones, S.W.	02	783466	06/04/90
Kelly, J.M.	16	186435	06/06/90
Fischer, G.M.	45	087462	06/07/90
Adams, T.A.	14	812576	06/07/90
Mark IV Prop.	19	428967	06/08/90
Hill, W.A.	05	932465	06/11/90
Cullen, E.T.	22	943251	06/26/90
Hertler, D.E.	10	147563	06/27/90

R4CO0038

Figure 5-8. Poor Registration

Note on Point of Origin

When you adjust the print position of a defined and stored forms identification name, the printer automatically stores the new *point of origin* as part of the current stored definition of that form name. The point of origin remains in effect (even when the printer is powered off) until it is changed by a later **Adjust Print** procedure.

Adjust Print

Select A Form Name.

| Letter | ▽ |

Adjust Amount:

Side To Adjust

| Normal duplex side 1 | ▽ |

Horizontal   Vertical

0   3

OK   Print Test...   Cancel   Help

Ready   Check Reset   NPRO   Cancel Job

A23O0119
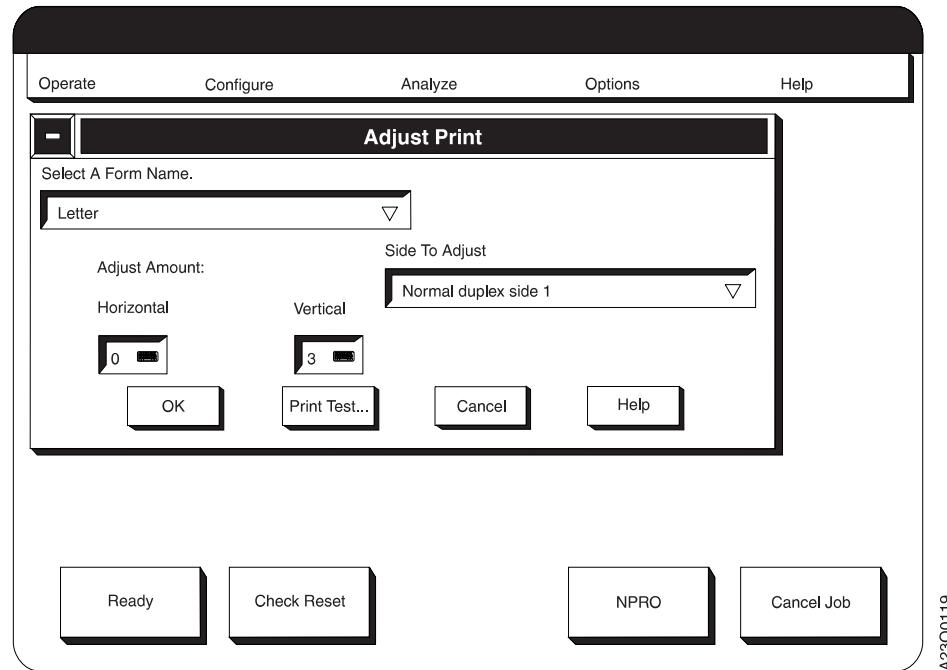
1. Ensure that the form loaded in the printer is the form selected at the **Assign Form to Load** window.
2. If the target printer is Ready, stop the printer by one of the following methods:
   - On the printer operator panel, press the **Stop** key.   OR
   - On main operator console window of the target printer, **SELECT** the **Stop** pushbutton.
3. Display the **Adjust Print** window by doing one of the following:
   - **SELECT** the **Configure** pull-down menu, and then **SELECT Adjust Print**. OR
   - **SELECT** the **Options** pull-down menu, **SELECT Assign Forms to Load**, and then **SELECT Adjust Print**.
4. In duplex mode, if the side displayed in the **Side to Adjust** field is not the side you want to adjust, do the following:
   a. **SELECT** the **Side to Adjust** field.
   b. **SELECT** the side you want to adjust. The choices are:
      1) Normal Duplex Side 1
      2) Normal Duplex Side 2
      3) Tumble Duplex Side 1
      4) Tumble Duplex Side 2

> **Notes to the Operator for Duplex Printing**
>
> - For dual simplex, you have to go through this procedure twice, once to adjust the Form Name on Printer 1, and once to adjust the Form Name on Printer 2.
> - The **Front Sheet Sequence** printer configuration value (see "The Configuration Procedure" on page 8-3 for details) informs you which side of the duplex form is being printed on each printer in the system:
>   - "Front First" Value - Printer 1 prints Side 1 (front side of form) and Printer 2 prints Side 2 (back side of form)
>   - "Front Second" Value - Printer 1 prints Side 2 (back side of form) and Printer 2 prints Side 1 (front side of form)

5. To print sample pages with the current registration values, do the following from the operator console:

> **Requirement For This Procedure**
> This step and the remainder of the procedure cannot be accomplished if a queued print job is not available.

   a. On the **Adjust Print** window, **SELECT** the **Print Test** pushbutton. This displays the **Print Test** window.

   b. If necessary, do the following to update the value in the **Number of Pages** box:
      - **SELECT** the **Number of Pages** box.
      - Use the keypad to type the correct value.
      - On the keypad window, **SELECT** the **OK** pushbutton.

   c. On the **Print Test** window, **SELECT** the **OK** pushbutton.

6. Look at the pages just printed (located above the transfer station) to determine how much to adjust the print position, if at all.

> **Things To Keep In Mind When You Adjust the Print Position**
> Print jobs with data closer than 20 mm (about 1 inch) to the fold perforation or from the edges of the forms do not have the full adjustment range. For example, if the job has data that prints 10 mm (about $^1/_2$ inch) from the fold perforation, the maximum amount that image can be shifted is 10 mm ($^1/_2$ inch) toward the page perforation. If you attempt a larger vertical adjustment, Print Error Marker (PEMs), which are turned on only by the host system, result. If PEMs are turned off, missing data can occur.

V=-300

V=0
H=0

H=-300 +300

+300

Process Direction

A23O0102
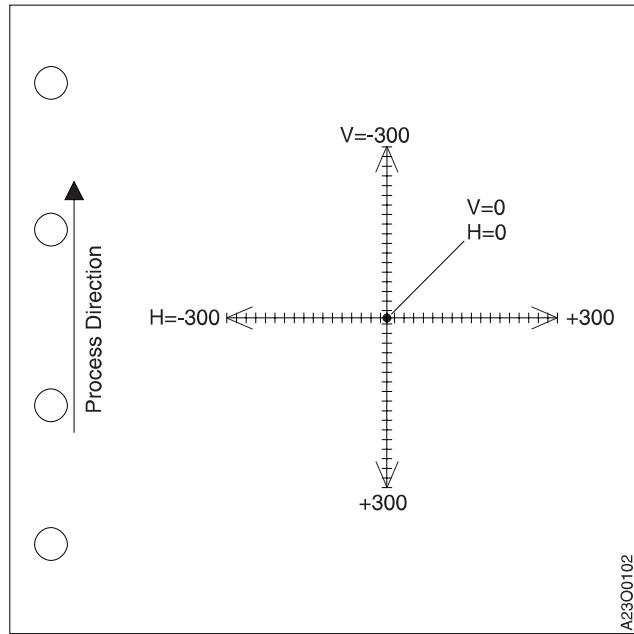
Figure 5-9. Factory Set Default Registration

> **Note:** The horizontal (H) and vertical (V) values vary depending on the print resolution (PEL) selected for the printer.

How This Procedure Works:

Doing this procedure lets you change the point of origin on a page by adding to or subtracting from the vertical and horizontal starting positions.

Figure 5-9 illustrates the default point of origin (vertical=0, horizontal=0) and the range of possible adjustments (not drawn to scale) when the print resolution is set to 300 DPI. The maximum adjustment in any direction from this position is about 6 inches.

What If the Adjustment Required Is Out of Range:

If more than 20 mm adjustment (from 0) is required, refer the application owner to the *Forms Design Reference for Continuous Forms Advanced Function Printers.*

The vertical and horizontal adjustment directions are always relative to the process direction (the direction that forms are moving through the printer). The vertical adjustment moves the point of origin on a line *parallel* to the forms tractor feed holes (the process direction) and the horizontal adjustment moves the point of origin on a line that is at 90° (*perpendicular*) to the forms tractor feed holes. See Figure 5-9.

Be aware that the printed output can be rotated when printed.

Imagine that your sample page shows that the text is printing too high and too far to the left in relation to the preprinted form. To correct this situation, increase the vertical and horizontal positions (to move the point of origin down and to the right). Figure 5-10 shows the result of changing the vertical position to +7 and the horizontal position to +6. (The figure is not drawn to scale.)
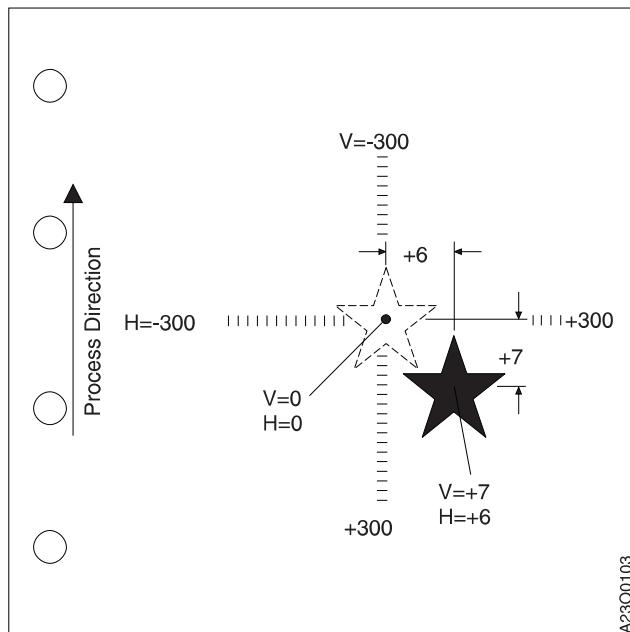
Figure 5-10. Sample Field Adjusted Registration

> **Note:** The horizontal (H) and vertical (V) values vary depending on the print resolution (PEL) selected for the printer.

Operator Tips

- Once you have determined the adjustments for a particular form, you can make a note of the adjustment values on the "Form Identification Work Sheet" on page 8-49.
- Be aware that occasionally some maintenance procedures can affect print position adjustment. If this happens, adjust the print position as needed.

7. To make a horizontal adjustment:

   a. **SELECT** the **Horizontal Adjust Amount** field. This displays a keypad window.

   b. Use the **+/-** pushbutton on the keypad window to set the sign of the change you will make.

   c. Enter the new value, then **SELECT** the **OK** pushbutton to return to the **Adjust Print** window.

   Operator Tips
   - When you *increase* the horizontal value by one, you move the origin toward the *right* side of the form by one pel.
   - When you *decrease* the horizontal value by one, you move the origin toward the *left* side of the form by one pel.
   ---

8. To make a vertical adjustment:

   a. **SELECT** the **Vertical Adjust Amount** field. This displays a keypad window.

   b. Use the **+/-** pushbutton on the keypad window to set the sign of the change you will make.

   c. Enter the new value, then **SELECT** the **OK** pushbutton to return to the **Adjust Print** window.

   Operator Tips
   - When you *increase* the vertical value by one, you move the origin *down* toward the trailing page perforation by one pel.
   - When you *decrease* the vertical value by one, you move the origin *up* toward the leading page perforation by one pel.
   ---

9. To print a sample to test the new values, do step 5 again.

10. If the registration is still not correct, repeat steps 6 through 9.

11. If the registration is satisfactory, **SELECT** the **OK** key on the **Adjust Print** window.

12. Make the printer Ready:
  - If you made the printer Not Ready by **SELECTING** the **Stop** pushbutton on the main operator console window, you may make the printer Ready by doing one of the following:
    – On the operator panel of the affected printer, press the **Ready** key.   OR
    – On the operator console window for the affected printer, **SELECT** the **Ready** pushbutton.
  - If you made the printer Not Ready by pressing the **Stop** key on the operator panel of the affected printer, you *must* press the **Ready** key on the operator panel of the affected printer to make the printer Ready.
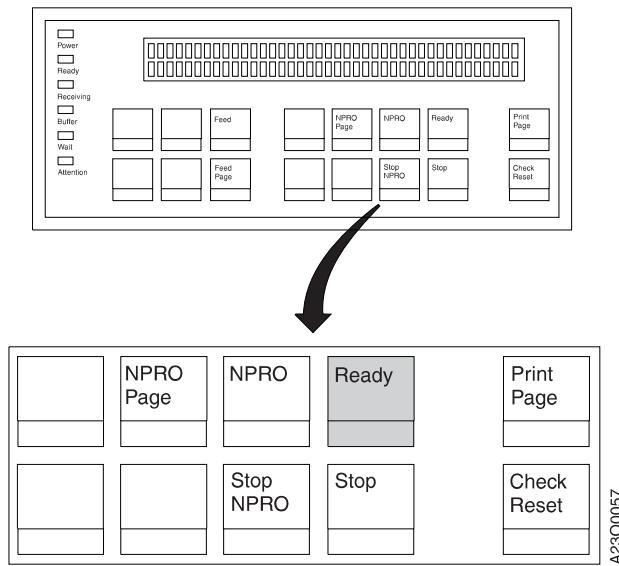
Operator Tips

- After the printer has run for a few seconds, do one of the following:
  – On the operator panel of the affected printer, press the **Stop** key. OR
  – On the operator console window for the affected printer, **SELECT** the **Stop** pushbutton.

  Then look at the output to ensure that the print position is still correct. Sometimes the print position changes slightly when forms are moving at full speed.
- Most applications generate a few sample pages at the beginning of each job so that you can adjust the forms without losing any output. If you need more sample pages to test, ask the host system console operator to restart the job.

Using the NPRO and NPRO Page Functions to Advance Forms

NPRO (NonProcess RunOut) moves forms forward through the forms path.

- In simplex mode, NPRO moves the forms forward to the stacker area. Forms are fused as they move toward the stacker area.
- In duplex mode, NPRO moves forms forward through the forms path of Printer 1, the Buffer/Flipper Unit, and Printer 2. Pages already printed on Printer 1 are printed on Printer 2 and Printer 1 processes blank pages. After all pages are printed on Printer 2, the forms move forward through the forms path of both printers without printing until all pages printed on Printer 2 are in the stacker area. Pages already printed on Printer 1 at the start of this procedure and pages printed on Printer 2 during this procedure are fused as they move toward their respective stacker areas.

The distance NPRO moves forms depends on your printer configuration. There is a fixed NPRO length that can be increased with two different configuration items. You may want to increase the fixed length, for example, if you are using a postprocessing device.

Two configuration parameters let you extend the NPRO length when END OF FORMS 078A is not indicated:

- The "Pre/postprocessor Extended NPRO" parameter in the **Configure Pre/Postprocessors** procedure. See "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28 and the "Extended NPRO" table item on page "Extended NPRO" on page 8-30 for more information.
- The "NPRO Length" parameter in the **Configure Printer** procedure. See "The Configuration Procedure" on page 8-3 and the "NPRO Length" table item on page "NPRO Length" on page 8-7 for more information.

Note: If you set the "Pre/postprocessor Extended NPRO" item of an *enabled* pre/postprocessor to a non-zero value, then it takes precedence over the **Configure Printer** "NPRO Length" item, regardless of the particular values specified.

NPRO Procedure

NPRO is usable only under certain conditions, which balance safety considerations with operator convenience.

Requirements For NPRO To Function

The following conditions must be met before NPRO can function:
- The printer is in a Not Ready state
- Forms are loaded
- And the following printer conditions are **not** present:
  - Program Check
  - Out of Supplies
  - Printer Error
  - Intervention Required (except END OF FORMS 078A)
- A Thread/Align Window is not displayed
- There are no errors or intervention conditions present on any preprocessing or postprocessing devices except END OF FORMS 078A.

You may do the following steps at either a printer operator panel or at the main operator console window. Whichever you choose, consistently perform all required steps at the same panel or window.

Simplex Mode

- Once you have ensured the preceding conditions have been met, do one of the following:
  - On the operator panel of the printer, press the **Stop** key, then press **NPRO** key.   OR
  - On the main operator console window of the printer, under the **Operate** pull-down menu, **SELECT** the **Stop** pushbutton, then **SELECT** the **NPRO** pushbutton.
- Forms, starting with the page at the transfer station, move through the printer to the stacker. The distance they move is the fixed NPRO length plus an additional length if either the "NPRO Length" or the "Pre/postprocessor Extended NPRO" values are set to a non-zero value.

Duplex Mode

- Once you have ensured the preceding conditions have been met, do one of the following:
  - On the operator panel of either printer, press the **Stop** key, then press **NPRO** key.   OR
  - On the main operator console window of the target printer, under the **Operate** pull-down menu, **SELECT** the **Stop** push button, then **SELECT** the **NPRO** pushbutton.
- Forms, starting with the page at the transfer station, move through the printer to the stacker. The distance they move is the fixed NPRO length plus an additional length if either the "NPRO Length" or the "Pre/postprocessor Extended NPRO" values are set to a non-zero value.

NPRO Page Procedure

NPRO Page is a single-page advance function. NPRO Page moves the forms forward to the next top-of-form position, one page at a time.

NPRO Page is active under the same conditions that allow NPRO to function. See "NPRO Procedure" on page 5-66.

In duplex mode, NPRO Page moves forms forward through the forms path of Printer 1 one page at a time, the Buffer/Flipper Unit, and Printer 2 toward the stacker area to the next top-of-form position. A page already printed on Printer 1 is printed on Printer 2 and Printer 1 processes a blank page. A page already printed in Printer 1 at the start of this procedure and a page printed in Printer 2 during this procedure are fused as they move toward their respective stacker areas.

Simplex Mode
- When the printer is stopped, doing one of the following:
  - On the operator panel, press the **NPRO Page** key.   OR
  - On operator console window, under the **Operate** pull-down menu **SELECT** the **NPRO Page** pushbutton.
- Forms advance through the printer to the next top-of-page position.

Duplex Mode
- When both printers are stopped, do one of the following:
  - On the operator panel of either printer, press the **NPRO Page** key.   OR
  - On operator console window, under the **Operate** pull-down menu **SELECT** the **NPRO Page** pushbutton.
- Forms, starting with the page at the transfer station of Printer 1 move through both printers to the next top-of-page position.

Checking for a Front-Facing Page

Do this task when your system uses the eject-to-front-facing-page facility and you need to tell the printer that the next page to be printed is a front-facing or a back-facing page.

For example, the following situations might require you to perform this task:
- Loading a new form name in the printer
- Reloading forms following the clearing of a forms jam
- Restarting printing operations in the middle of a job.

The eject-to-front-facing-page facility places a blank page between jobs that have an odd number of pages. This ensures that a job that requires a certain folding pattern are printed correctly. A good example is a print job that is to be folded like a book, where the cover and all odd-numbered pages are to be printed on front-facing pages.

Page 1 (front-facing)
Page 2 (back-facing)
Page 3
Page 4
Page 5
Page 6
Page 7

Page 3 is "Face Up." Page 4 is "Face Down."
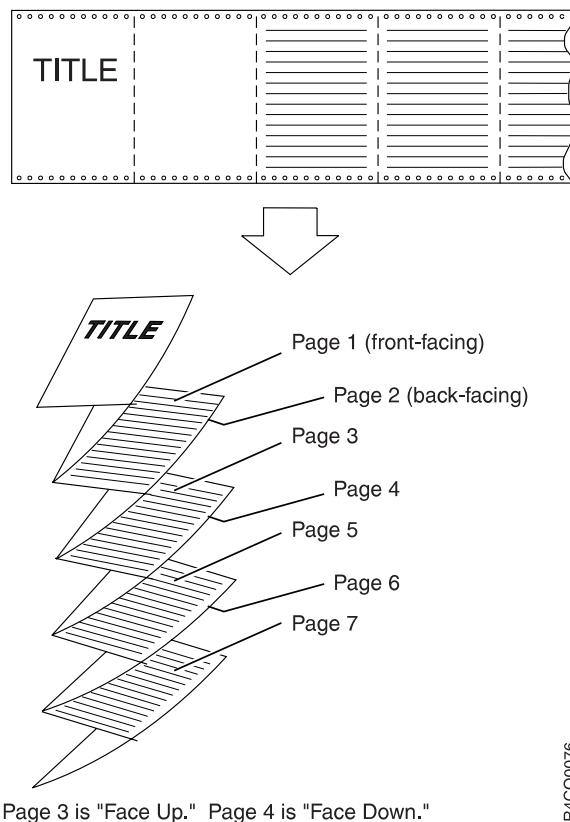
The printers do not count pages, but after you inform the printer what the orientation (front facing or back facing) of the first page of a job will be, the printer simply switches a pointer back and forth in its memory to remember the page orientation and therefore is able to determine, at the end of a job, that the job contained an even or odd number of pages.

Next Page is Front Facing is the power-on default condition. If you do not use the **Front Face** procedure, all print jobs are started or restarted using that default, which may not be aligned with the fold direction. The determination of whether to insert a blank page is still made even if the fold direction is incorrect.

Notes to the Operator:

1. To use the eject-to-front-facing-page facility, the printer configuration item "Eject to Front Facing" must be set to **Yes**.

2. Perform this task only for fan-fold forms to be stacked in the printer stacker or re-folded in a postprocessing device. This task has no benefit if the forms are processed by a postprocessing device that separates each page, either by bursting or cutting.

3. In duplex mode use this procedure only on Printer 1.

This procedure assumes the following:

- The **Front Face** operator console window appears with the text message Next Page is Front Facing.

- The printer has been Auto Loaded (see "Loading Forms—Auto Load (Simplex Mode)" on page 5-2).

- The **Check Forms Alignment** procedure has been completed (see "Checking Forms Alignment" on page 5-71).

---
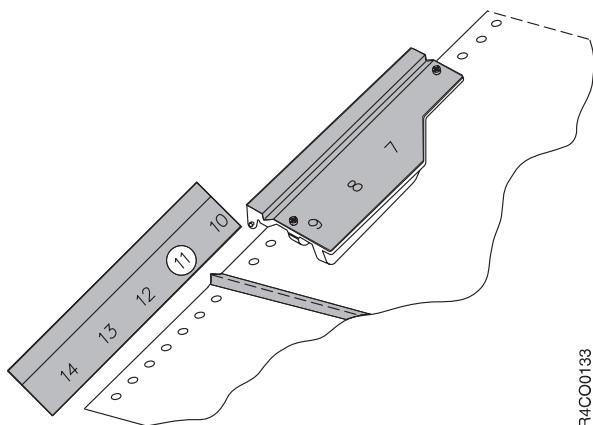
1. Look at the direction of the forms fold at the alignment guide.
   - If the fold is an *UP* fold (as shown above), the next page printed is a back-facing page.
   - If the fold is a *DOWN* fold, the next page printed is a front-facing page.

```
Operate          Configure          Analyze          Options          Help

┌─┐  ┌────────────────────────── Front Face ──────────────────────────┐
│ ─ │
└─┘

                        Next page is Front facing.


        ┌────────┐    ┌────────────┐    ┌──────────┐    ┌──────────┐
        │   OK   │    │ Back Facing │    │  Cancel  │    │   Help   │
        └────────┘    └────────────┘    └──────────┘    └──────────┘



   ┌──────────┐   ┌──────────────┐            ┌──────────┐   ┌──────────────┐
   │  Ready   │   │ Check Reset  │            │   NPRO   │   │  Cancel Job  │
   └──────────┘   └──────────────┘            └──────────┘   └──────────────┘
```

A23O0169
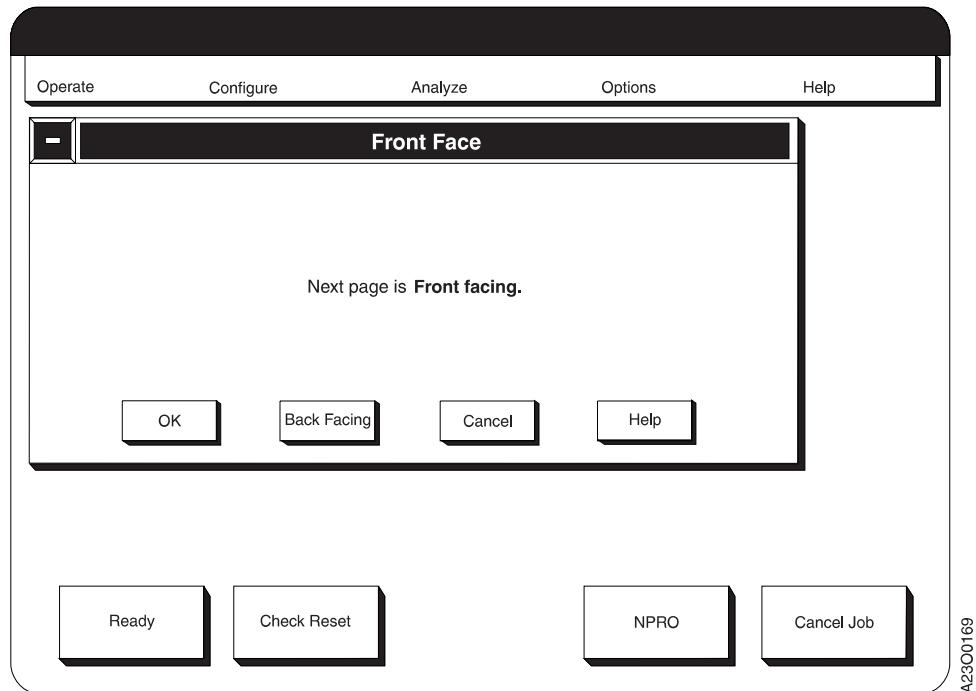
2. If the fold direction is the way you want, do the following to start or continue a print job:

   a. If necessary, **SELECT** the **Back Facing** pushbutton.

      The message text on the window changes to `Next Page is Back Facing` and the **Back Facing** pushbutton text changes to **Front Facing** text. **SELECTING** that pushbutton again changes the message and pushbutton text back to where it was originally.

   b. **SELECT** the **OK** pushbutton.

      This sets the front/back pointer in the printer memory.

3. If the fold direction is *not* the way you want, do the following to start or continue a print job:

   a. Advance the forms by one page using one of the following methods:

      • From the operator console **Operate** pull-down menu, **SELECT** the **NPRO Page** procedure.   OR

      • On the printer operator panel, press the **NPRO Page** key.

   b. If necessary, **SELECT** the **Back Facing** pushbutton to set the window message text to agree with the fold direction.

      The message text on the window changes to `Next Page is Back Facing`. The **Back Facing** pushbutton text changes to **Front Facing** text.

      Note: Selecting that pushbutton again changes the message and pushbutton text back to where it was originally.

   c. **SELECT** the **OK** pushbutton.

Checking Forms Alignment

Do this task when you see a `CHECK FORMS ALIGNMENT` message or whenever you load, splice, or adjust forms.

R4CO0209
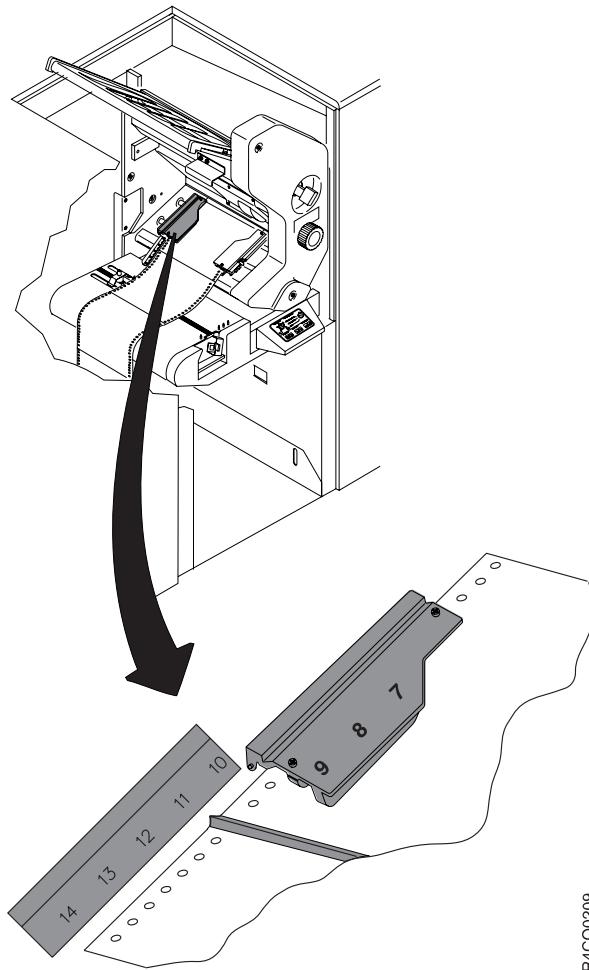
1. At the lower transfer station tractors, ensure that the forms perforation is aligned with the correct forms length.

2. If the forms perforation is not aligned correctly:

   a. Hold down the Tension Arm while doing the next steps. Otherwise, the `CHECK TENSION ARM 079A` message appears when you turn on the forms path vacuum and you must to do the **Check Tension Arm** procedure.

   b. Turn off the forms path vacuum by pressing the **Vacuum Pushbutton** in the input area of the affected printer. The **Vacuum-Off Warning Indicator** flashes and then stays lit.

   c. Use the **Forms Feed** keys on the printer control panel to adjust the position of the perforation.

   d. Turn on the forms path vacuum by pressing the **Vacuum Pushbutton**. The **Vacuum-Off Warning Indicator** flashes and then stays off.

   e. Raise the tension arm until you see the alignment mark (blue line) in the guide notch (see "Checking the Tension Arm" on page 5-24 for details).

Forms Select

Contrast

☐ A 16-22 lbs(51-71kg)60-82g

☐ B 23-42 lbs(72-135kg)83-157g

☐ C Plastic

☐ 7
☐ 6
☐ 5
☐ 4
☐ 3
☐ 2
☐ 1

Auto Load

Forms Set

Forms Feed

Load   STOP

Forward   Reverse
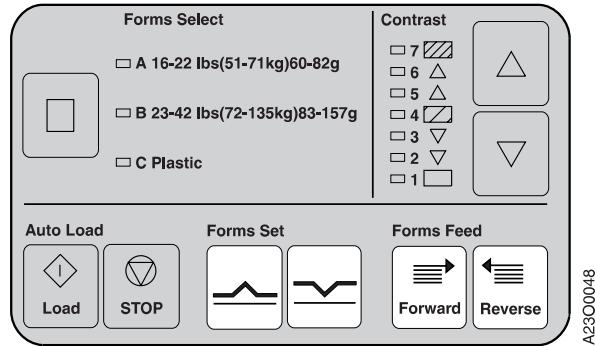
A23O0048

3. If you are using the stacker, ensure that the **Forms Set** indicator on the printer control panel is set to match the fold direction of the fold perforation on the lower transfer station tractors.

4. If you are doing this procedure as a step in a **Printer Error** or **Intervention Required** procedure, continue with the steps in that procedure.

5. If you are doing this when loading, splicing, or adjusting forms, do one of the following:

   • On the operator panel of the affected printer, press the **Ready** key.   OR

   • On the operator console window for the affected printer, **SELECT** the **Ready** pushbutton, to continue processing.

Checking Print Quality

Print quality problems are commonly caused by:
- Paper chads in the transfer corona
- Dirty corona wires
- Photoconductor scratches
- Adhesive labels in the forms path or on the photoconductor drum.

> **Note:** Adhesive labels are supported only in simplex mode.

Check print quality at least once each shift, and also when you do any of the following:
- Print on labels or preprinted forms
- Change from one kind of form to another
- Print bar codes.

1. Inspect a sampling of printed output. To print a variety of samples:

    a. From the **Options** pull-down menu, disable attachments using **Enable/Disable Attachments**.

    b. From the **Analyze** pull-down menu on the operator console, **SELECT** the **Print Samples** procedure. The **Print Samples** window appears.

    c. **SELECT** the type and number of samples you wish to print, and **SELECT** the **Print** pushbutton.

2. In the printed output, check for the following:
    - Is the print dark enough?
    - Is the printing clear and easy to read, especially close to edges, perforations, holes, and cuts?
    - Is print quality uniform across the page?
    - Are spots or blank areas on every page, or on every other page?

    > **Important:** Many print quality problems are directly related to the kind of forms being used and the application being processed. If a particular form or application regularly produces unsatisfactory output, refer the application owner to the *Forms Design Reference for Continuous Forms Advanced Function Printers*. This publication contains detailed information about selecting forms and designing applications for use with continuous-forms printers.

3. If the output shows any of the problems mentioned above, see Table 6-6 on page 6-61, and perform the actions detailed there.

Unloading the Stacker

Do this task when you need to remove printed forms from the stacker or when you see the following message:

```
STACKER FULL  0796
```

Some controls you need to use to accomplish this task are available only on the stacker control panel, and some are available on both the printer operator panel and the operator console window.

1. If necessary to stop the printer, do one of the following:
    *   On the printer operator panel, press the **Stop** key.   OR
    *   On the operator console window, **SELECT** the **Stop** pushbutton.

2. If you need to remove all the current forms from the forms path, separate the forms at a perforation near the splicing table. Ensure that the end-of-forms sensors are uncovered. Raise the static brush on the splicing table so the forms fall back into the box or input area.

3. If you need to move forms to the stacker, choose one of the following to fuse and move the forms.
    *   On the printer operator panel, press the **NPRO** key.   OR
    *   On the operator console window, **SELECT** the **NPRO** pushbutton.
        If END OF FORMS appears, repeat this step again.

4. On the stacker control panel, press the stacker table **Down** switch and wait for the stacker table to stop moving.

5. Open the stacker gate.

R4CO0214
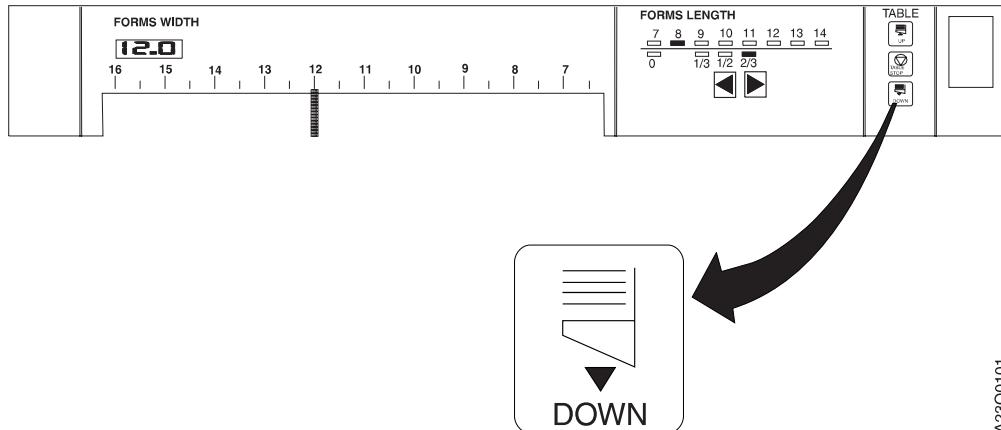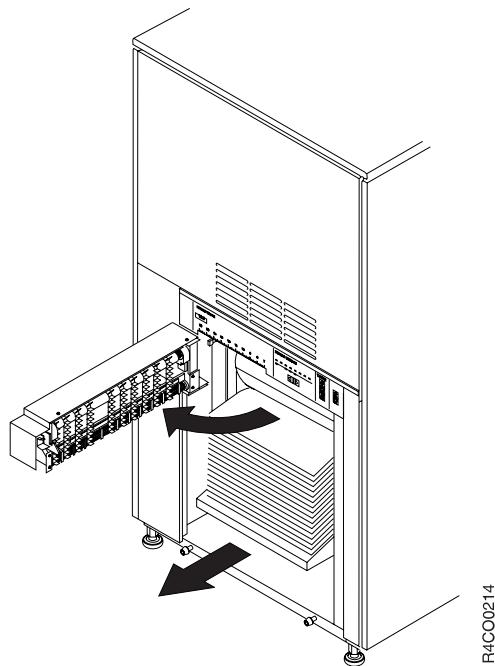
6. If you did not do an NPRO, leave 4 to 5 pages of blank forms attached to the
   end of the job to ensure correct folding when you resume printing.

⚠️ **CAUTION:**

<74> The weight of the paper in the stacker can be very heavy.

CAUT0104

┌─ **Operator Tips on Removing Forms From The Stacker** ──────────────┐
│ *Do not attempt to remove a full stack from the stacker.*
│ • Limit the maximum weight of the stack by breaking the output into
│   small stacks (start with 150 mm [6 in.] high) by separating the forms at
│   convenient perforations.
│ • The stacker height is adjustable see "Note On Stacker Table
│   Adjustment" on page 5-74.
│ • Use a ruler, knife, or letter opener to break hard-to-reach perforations
│   when you separate forms.
│ • Follow these guidelines when you lift forms out of the stacker:
│   a. Ensure that you can stand safely without slipping.
│   b. Try to keep your back straight and balance the weight of the forms
│   between your feet.
│   c. Use a slow lifting force. Never move suddenly or twist when you
│   attempt to lift.
│   d. Lift by standing or by pushing up with your leg muscles. This
│   action removes the strain from the muscles in your back.
└──┘

7. Remove the output from the stacker.

8. On the stacker control panel, press the stacker table **UP** switch.

9. Close the stacker gate.

10. To continue, make the printer ready by one of the following methods:

    - On the printer operator panel, press the **Ready** key.   OR
    - On the operator console window, **SELECT** the **Ready** pushbutton.

Note On Stacker Table Adjustment

You can adjust the stacker table to limit the stack height. This capability is provided to allow you to adjust the height and weight of the printed forms. This adjustment can cause the STACKER FULL message to appear more frequently. Remember, the stacker needs to be emptied more often as the stack height and weight are reduced. To adjust the stacker table, see "Vacuum, Stack Height, Preheat Control, and Puller Controls" on page 1-31.

Using the Printer Stacker with a Postprocessing Device

If a postprocessing device is disabled or not yet configured, you may continue to use boxed forms and the printer stacker. If the postprocessing device includes any rollers, sensors or any other hardware that would interfere with the operation of the stacker, you must remove those interferences before you attempt to use the stacker.

If the "Stacker Enabled" configuration item under the **Configure Printer** procedure is set to **Yes** and there are not any postprocessing devices installed and enabled on the printer, the stacker table automatically rises when printing begins. To raise the stacker table manually, press the stacker table **UP** key on the stacker control panel.

If a postprocessing device is installed on a printer and is enabled, the stacker table is lowered and is prevented from moving upward. The pendulum and other devices in the stacker are also prevented from operating.

In duplex mode, the stacker in Printer 1 is always disabled as if a postprocessing device were installed and enabled.

Verifying Synchronized Duplex Printing

The Side1/Side 2 Verify feature of Models ID1/ID2, ID3/ID4, IR1/IR2, and IR3/IR4 automatically checks to make sure that the duplex printing system is properly aligned and the printing on both sides of the forms is synchronized. If the verification system detects that the data to be printed on Side 2 does not align with the data printed on Side 1, or if it detects the printing alignment from Side 1 to Side 2 is off by more than 4.2 mm ($^1/_6$ inch), it stops the printer and displays an error on the operator console.

Enabling Verification Checking

Note: The marks used to verify duplex printing are always printed, whether verification checking is enabled or disabled.

Verification checking is valid only in duplex mode.

1. **SELECT** the **Configure** pull-down menu on the operator console window.
2. **SELECT** the **Configure Pre/Postprocessors...** procedure.
3. **SELECT Side2Verify** in the list of Processor Names.
4. Change the configuration information:

    a. If necessary, set **PORT** to port number 3 where the control card is connected to the Mechanism Interface Card (MIC). (This would have been set by your service representative and would not normally be changed.)

    b. **SET** the **Enabled** field to **Yes**.

       Note: The **Printer**, **Characteristics**, and **Pre/Postprocessor Type** fields cannot be changed.

5. **SELECT** the **OK** pushbutton to exit the menu.

    The icon ☐1 = ☐2 appears on the operator panel of Printer 2 when this feature is enabled.

Disabling Verification Checking

> **Important**
>
> Certain forms (colored forms or forms that have preprinted marks within the carrier strip) can cause the verification checking to post nuisance errors. When this happens, you may need to disable verification checking temporarily while you use those types of forms. You can continue to have verification page numbers printed on the front and back of the forms by enabling the **Verification Marks** item under the **Configure/Configure Printer...** menus.

1. **SELECT** the **Configure** pull-down menu on the operator console window.
2. **SELECT** the **Configure Pre/Postprocessors...** procedure.
3. **SELECT** the **Side2Verify** option.
4. **SET** the **Enabled** field to **No**.
5. **SELECT** the **OK** pushbutton to exit the menu.

    The icon ☐1 = ☐2 does not appear on the operator panel of Printer 2 when this feature is disabled.

Recovery Procedures

Table 5-1. Verification System Error Recovery Procedures

Error Message SRC Code (in numeric order)	Recovery Actions
Side1/Side 2 Mismatch D71F	The data on side 1 does not align with the data on side 2. The data is off by at least one full page. 1. Perform the Thread/Align Forms procedure. See "Threading and Aligning Forms" on page 5-34. 2. Check the print quality of the verification marks. Look for light or smeared print. Fix any print quality problems. If the problem continues, call for service.
Verification Mark Position Incorrect D720	The printing alignment from side 1 to side 2 is off by at least 4.2 mm ($^1/_6$ inch). Ensure that the forms are aligned correctly. Examine the forms being used. Preprinted marks within the carrier strip can cause this error. Also, some colored forms can cause the error. If you are using one of these types of forms, disable verification checking (see "Disabling Verification Checking" on page 5-78). If the forms are not the problem, call for service.
Hardware Error: Verification Mark Sensor D721	There is a problem with the sensor that reads the verification marks. Check the print quality of the verification marks. Look for light or smeared print. Fix any print quality problems. If the problem continues, call for service.
Side 2 Verify Has Been Disabled D724	• If the Side 2 Verify function is required, see "Enabling Verification Checking" on page 5-78. • If the Side 2 Verify function is not required, **SELECT** the **Completed** pushbutton.

Chapter 6. Taking Care of Problems

Responding to Messages

Program Check Messages

Program Check messages shows that the internal control unit microcode has detected a problem that may not allow the code to keep running. Program Check messages appear only on the operator console.

Soft Program Check


```
Operate          Configure          Analyze          Options          Help

                              Program Check

    A program check has occured. Select Restart to shut down and restart the
    printer.  Select Cancel to continue without shutting down and restarting the
    printer.

    Source: 30
    Source ID: 8000
    Sense Data: 0102030405060708090a0b0c0d0e0f10111213

    Abort Name: mic_model

    Additional Information: soft abort


       Restart          Cancel          Save          Help



   Ready        Check Reset                   NPRO        Cancel Job
```

Figure 6-1. Soft Program Check Window

- **SELECT** the **Save** pushbutton to save all existing trace data to diskette, if desired.
- **SELECT** the **Cancel** pushbutton. If the window is removed, retry the operation in progress when the Program Check condition occurred.
- If the window reappears, **SELECT** the **Restart** pushbutton.
- At the completion of the Restart procedure, retry the operation in progress when the Program Check condition occurred.
- Call for service if the problem continues.

Hard Program Checks

```
┌─────────────────────────────────────────────────────────────────────┐
│                      Hard Program Check                               │
├─────────────────────────────────────────────────────────────────────┤
│                                                                       │
│     ┌───────────────────────────────────────────────────────────┐    │
│     │  Abort Source: 0X0002                                      │    │
│     │  Abort ID: 0X0011                                          │    │
│     │  Abort Name: afccuMain                                     │    │
│     │  Hex Data: None                                            │    │
│     │  Additional Information:                                   │    │
│     │          Subsystem 2 (console) terminate by signal: SIGKILL : KILL │
│     │                                                            │    │
│     │                                                            │    │
│     └───────────────────────────────────────────────────────────┘    │
│                                                                       │
│                                                                       │
│   ┌──────────┐            ┌──────────┐            ┌──────────────┐    │
│   │ Shutdown │            │ Restart  │            │ Save Traces  │    │
│   └──────────┘            └──────────┘            └──────────────┘    │
└─────────────────────────────────────────────────────────────────────┘
```
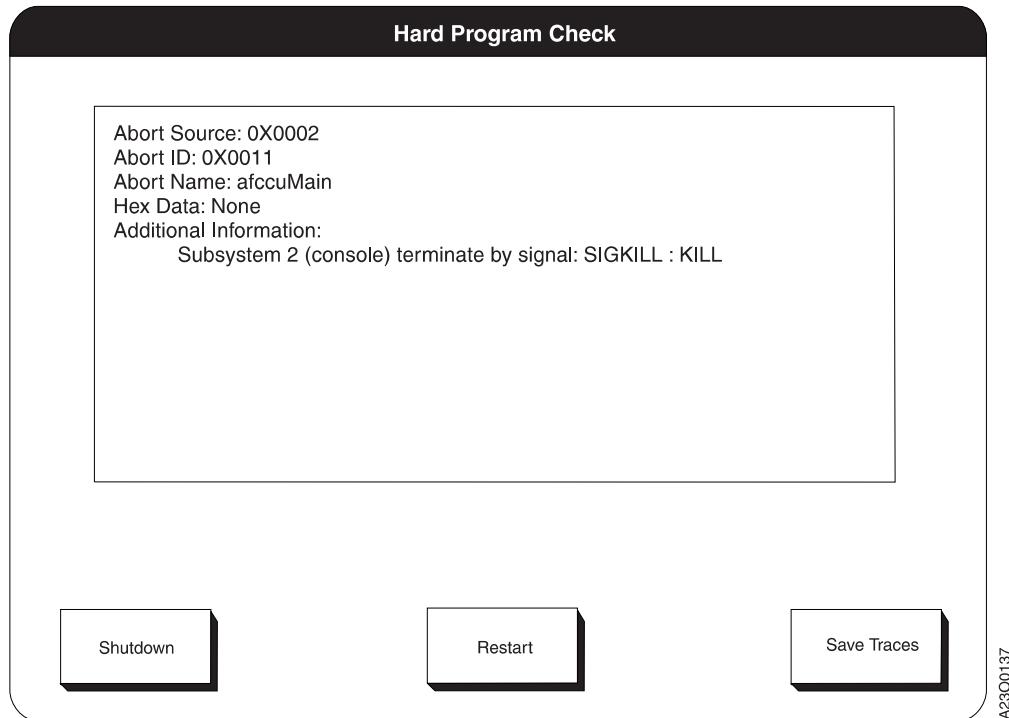
Figure 6-2. Hard Program Check Window - Normal Operations

- For a Hard Program Check occurring during either a power on/bring up sequence or normal operations, do the following:
  - **SELECT** the **Save Traces** pushbutton to save all existing trace data to diskette, if desired.
  - **SELECT** the **Restart** pushbutton. If the window does not reappear after the completion of the Restart procedure, retry the operation in progress when the Program Check condition occurred.
  - If the window reappears after the completion of the Restart procedure, **SELECT** the **Shutdown** pushbutton.
  - At the completion of the Shutdown procedure, power off the system.
  - Switch power on to the system.
  - At the completion of the power on sequence, retry the operation in progress when the Program Check condition occurred.
  - Call for service if the problem continues.
- For a Master Program Check occurring only during a power on/bring up sequence, do the following:
  - **SELECT** the **Save Traces** pushbutton to save trace data to diskette, if desired.
  - **SELECT** the **Continue** pushbutton.
  - If the window reappears, call for service.

Printer Error Messages

Printer Error messages show that a serious hardware, microcode, or host interface problem has been detected in a printer or in the control unit. An operator can sometimes, but not always, recover from this problem.

Figure 6-3 shows a sample **Printer Error** window.

Operate	Configure	Analyze	Options	Help

Printer Error

Printer Error: Printer interface error

Error Code: 0656   Printer: 2

Directions:
1. Press **Check Reset**
2. If this window reappears:
3. Shutdown the system (From the **Operate** pull-down menu).
4. Power off the system.
5. Power on and retry.
6. Call for service if the problem continues.

Check Reset   Help

Ready   Check Reset   NPRO   Cancel Job

A23O0093

Figure 6-3. Printer Error Window

This window contains:
- A short description of the detected error condition.
- The four-character System Reference Code (SRC), which is used for logging of error conditions.
- An indication of which printer the error occurred on. If the error message is for the control unit, this field is not included on the window.
- A step-by-step recovery procedure, or directions to another source of procedures.
- Function pushbuttons:

    Completed
    This pushbutton is included only for error conditions that may be postponed. Select it when you complete all recovery actions.

    Postpone
    This pushbutton is included only for error conditions that may be postponed. Select it when you want to postpone error recovery. The message is then listed in the Messages selection list box on the **Printer Status** window, which you can select from the **Operate** pull-down menu.

Check Reset

This pushbutton is included only for error conditions that you must handle immediately. Select it when you complete all recovery actions.

Help This pushbutton is included on all Printer Error windows, Select it to display help information for the panel.

Notes

1. Table 6-2 on page 6-13 lists all printer error messages.

2. Printer error messages also appear in the printer operator panel display area for the printer on which the error occurred.

Out Of Supplies Messages

Out of Supplies messages specify an operator task that needs to be done involving printer supplies. Figure 6-4 show a sample **Out of Supplies** window.
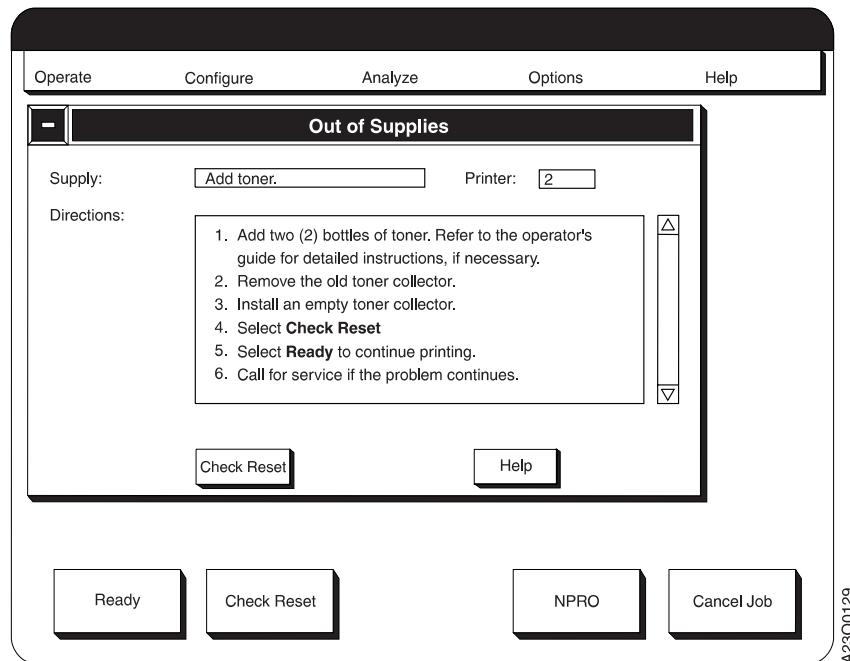
Figure 6-4. Out of Supplies Window

This window contains:
- The name of the supply and the action required.
- An indication of which printer needs attention.
- A step-by-step procedure to follow.
- Function pushbuttons:

    Check Reset
    Informs the control unit that you have completed all actions necessary to replenish the supply item.

    For supply actions that may be postponed, this pushbutton allows you to postpone the action and place the printer back into Ready status.

    Help Displays help information.

Notes

- You may be able to temporarily postpone replacing some of the supplies (such as the fuser oil, developer mix, and fine filter). You must replace toner and the toner collector as soon as the out-of-supplies condition occurs. However, if the printer has Toner-on-the-Fly installed, an additional 800 feet of printing is allowed. See "Chapter 7. Maintaining the Printer" on page 7-1 for more information.
- All Out of Supplies messages also appear in the printer operator panel display area for the printer on which the error occurred.
- See Table 6-2 on page 6-13 for a listing of all messages of this type.

Intervention Required Messages

Intervention Required messages specify an operator task that you need to do. Figure 6-5 shows a sample **Intervention Required** window.
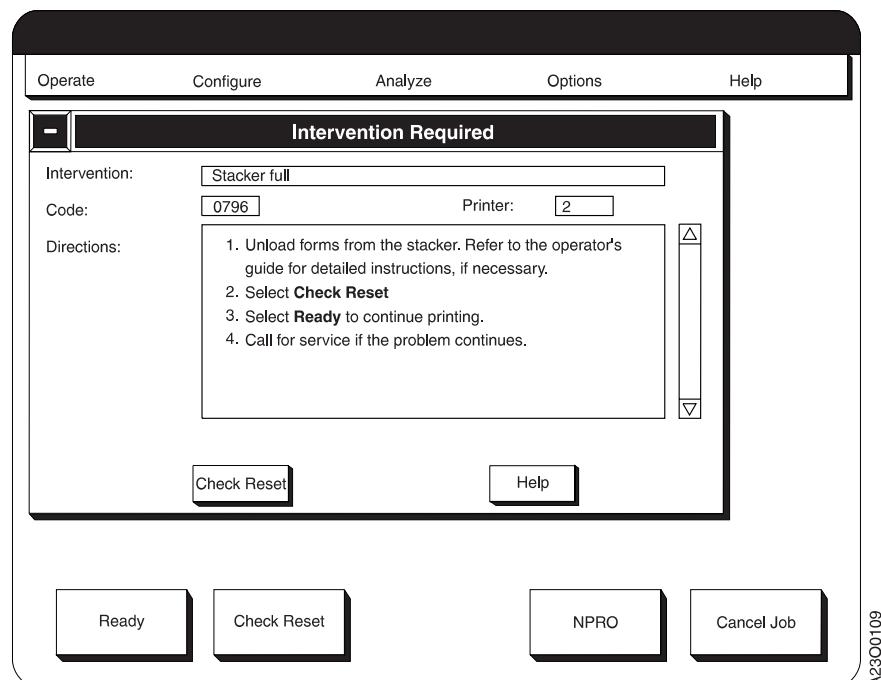

Figure 6-5. Intervention Required Window

This window contains:

- A short description of the detected condition.
- A four-character System Reference Code (SRC), which is used for logging intervention conditions.
- An indication of which printer the condition applies to.
- Function pushbuttons:

Check Reset
> Informs the control unit that you have completed all actions necessary to correct this interruption.

Help   Displays help information.

> **Notes**
>
> 1. You must handle all intervention required conditions, except SRC D206, immediately. You can postpone SRC D206 (Ready Selected Before Forms Thread/Aligned), although you must eventually execute the **Thread/Align Forms** procedure before you can make the system Ready.
> 2. See Table 6-2 on page 6-13 for a listing of all messages of this type.
> 3. Intervention required messages also appear on the printer operator panel.

Status Messages

Status messages describe the condition of a printer or the system. Sometimes they are a response to operator action.

Status messages are given only for your information and do not necessarily mean that something is wrong. However, if a printer is not performing the way you think it should, a status message can give you a clue about what to do.

Figure 6-6 shows a sample **Printer Status** window. The **Printer Status** window automatically appears when the system is powered-on. If you have closed the window, you can see it again by **SELECTING Printer Status** from the **Operate** pull-down.
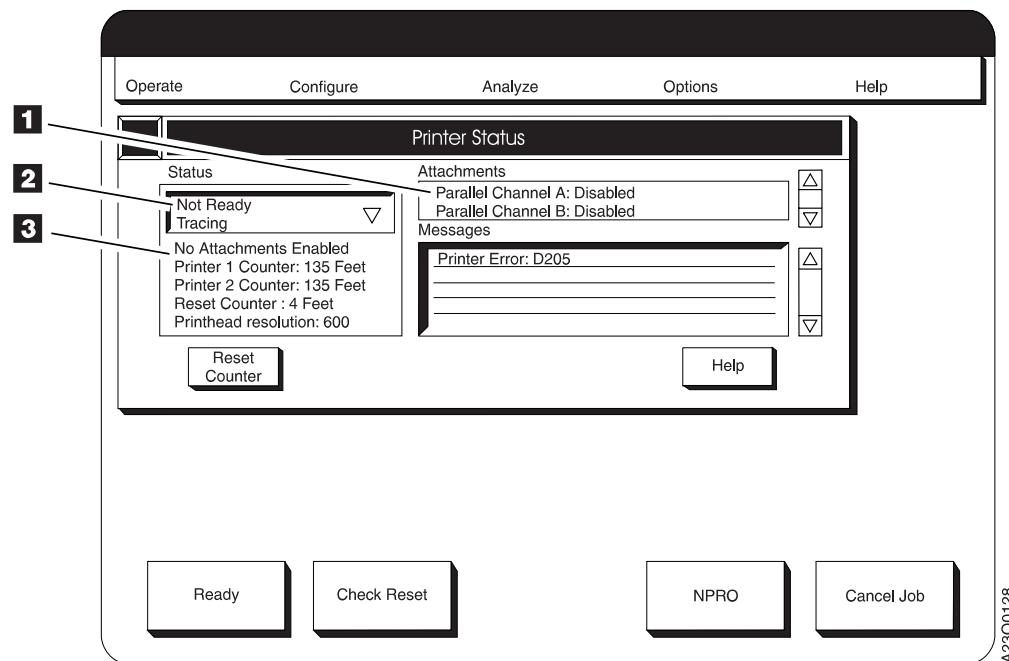
Figure 6-6. Printer Status Window

The window contains:
- **Printer Status** **2**
  - In duplex mode, this field displays a 2-line overall system status. **SELECTING** this field displays more detailed information about both printers and their pre/post-processing device interfaces.
  - In simplex mode, this field displays a 2-line status for the individual printer. **SELECTING** this field displays more detailed information about the printer and its pre/post-processing device interfaces.

  The status messages that may appear in each line in this field are shown in Table 6-1 on page 6-11.
- **Attachments Status** **1**

  This field contains a line of status for each installed host system interface.

- **System Status** `3`

  This field contains:
  - An overall system attachments status.
  - Counters showing the total number of feet of forms run through the printers since they were originally manufactured.
  - A reset counter showing the number of feet of forms processed through the system or printer since the last time the counter was reset. You can press the **Reset Counter** pushbutton to reset the counter.

- **Messages**

  This field displays any postponed **Printer Error** messages, and any active (no action taken at this time) **Out of Supplies** or **Intervention Required** messages.

  To act on a postponed message, select the message from the list.

Note: Printer status is also displayed on the printer operator panel.

Status Message Summary

Table 6-1. Printer Status Window - Status Field Messages

Message	Description
LINE 1	
READY	In duplex mode, the complete system is ready to accept print jobs from the host system. In simplex mode, only the individual printer is ready.
NOT READY	In duplex mode, the complete system is not ready to accept print jobs from the host system. In simplex mode, only the individual printer is not ready.
NOT READY AT PRINTER 1	In duplex mode, the system is not ready to accept print jobs from the host system because someone has pressed the **Stop** key on the Printer 1 operator panel. The printer can be made ready only by pressing the **Ready** key on the Printer 1 operator panel (not by **SELECTING** the **Ready** pushbutton on the operator console). This message is not displayed in simplex mode.
NOT READY AT PRINTER 2	In duplex mode, the system is not ready to accept print jobs from the host system because someone has pressed the **Stop** key on the Printer 2 operator panel. The printer can be made ready only by pressing the **Ready** key on the Printer 2 operator panel (not by **SELECTING** the **Ready** pushbutton on the operator console). This message is not displayed in simplex mode.
NOT READY AT PRINTER (Dual Simplex and Simplex)	This message is displayed for duplex systems in dual-simplex mode and for simplex printers. The message indicates that someone has pressed the **Stop** key on the printer operator panel. The printer can be made ready only by pressing the **Ready** key on the printer operator panel (not by **SELECTING** the **Ready** pushbutton on the operator console).
NOT READ AT PRINTER (Simplex)	Someone has pressed the **Stop** key on the printer operator panel. The printer can be made ready only by pressing the **Ready** key on the printer operator panel (not by **SELECTING** the **Ready** pushbutton on the operator console).
RECEIVING	In duplex mode, the system is receiving print job data from the host system. In simplex mode, the individual printer is receiving host system data.
LINE 2	
WARMING UP	In duplex mode, the fuser in one or both system printers is warming up so that print jobs can begin. In simplex mode, the individual printer fuser is warming.
SLEEPING	In duplex mode, the Printer Configuration "Fuser Inactivity Timer" in one or both system printers has timed out and the fuser has been turned off. In simplex mode, only the fuser in the individual printer has been turned off.
NOT AVAILABLE	In duplex mode, the operator console cannot communicate with either or both of the system printers. In simplex mode, the operator console cannot communicate with the individual printer. In either duplex or simplex modes, when an enabled Pre-processing or Post-processing device has been powered off.
PRINTING	In duplex mode, the system is printing. In simplex mode, only the individual printer is printing.

Table 6-1. Printer Status Window - Status Field Messages (continued)

Message	Description
TRACING	In either duplex or simplex modes this indicates that a trace operation is running.
PRE/POSTPROCESSOR BUSY	In either duplex or simplex modes this indicates that an enabled pre-processing or post-processing device is showing "Busy" status on its interface.
PRE/POSTPROCESSOR NOT READY	In either duplex or simplex modes this indicates that an enabled pre-processing or post-processing device is showing "Not Ready" status on its interface.
PRE/POSTPROCESSOR EOF	In either duplex or simplex modes this indicates that an enabled pre-processing or post-processing device is showing "End-of-File" status on its interface.
PRE/POSTPROCESSOR PAUSED	In either duplex or simplex modes this indicates that an enabled pre-processing or post-processing device is showing "Paused" status on its interface.
"Blank"	No secondary status message to display.

Messages with System Reference Codes

The following table lists all of the messages that include a system reference code. There are three types of messages included:

Out of Supplies
   The message appears on the **Out of Supplies** window (see "Out Of Supplies Messages" on page 6-7).

Intervention Required
   The message appears on the **Intervention Required** window (see "Intervention Required Messages" on page 6-8).

Printer Error
   The message appears on the **Printer Error** window (see "Printer Error Messages" on page 6-5).

Note: All of the messages are Printer Error messages unless noted otherwise. Also, note that all of the following messages also appear on the **Printer Operator Panel**.

Table 6-2. SRC Messages

Code	Message Text	Type (Printer Error unless noted otherwise)
0102	Retractor speed error	
0103	Retractor extended during NPRO	
0104	Retractor retracted during print	
0113	Tractor motor encoder error	
0114	Tractor motor overcurrent	
0115	Retractor position error	
0116	Retractor motor overcurrent	
0117	Forms width sensor error	
0118	Forms width sensor fuse	
0119	Upper tractor forms jam	
011B	Tractor drive signal always ON	
011C	Tractor detent signal error	
011D	Tractor motor overspeed	
011E	Tractor motor initial position error	
0121	Drum rotation error	
0122	Drum motor overcurrent	
0123	Drum timeout error	
0124	Drum overspeed	
0125	Drum position error	
0131	Tension arm down	
0132	Tension arm up	
0133	Skew error	
0134	Fuser wrap	
0135	Backup roll motor thermal error	
0136	Backup roll position error	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
0137	Steering motor driver error	
0138	Hot roll motor overspeed	
0139	Backup roll overtravel	
013A	Backup roll drive signal ON	
013B	Backup roll not open	
013C	Hot roll motor underspeed	
013D	Hot roll motor blower error	
0141	Oiler belt motor driver error	
0142	Oil pump driver error	
0143	Oiler belt motor always driven	
0144	Oiler belt motor never driven	
0145	Oil pump always driven	
0146	Oil pump never driven	
0152	Scuff roll motor thermal	
0153	Backup idler roll not closed	
0154	Backup idler roll not open	
0155	Backup idler roll motor thermal error	
0156	Backup roll lift motor position error	
0157	Backup roll lift motor overcurrent	
0161	Stacker forms jam	
0162	Pendulum motor overcurrent	
0163	Pendulum position error	
0164	Stacker forms jam	
0165	Pendulum control error	
0166	Pendulum encoder signal error	
0167	Pendulum not moving	
0169	Stacker blower rotation error	
0171	Stacker table motor thermal error	
0172	Stacker table timeout	
0174	Stacker safety switch ON	
0175	Stacker table motor ON too long	
0176	Stacker forms length sensor error	
0177	Stacker length motor timeout	
0178	Stacker length motor driver error	
017A	Right finger belt motor overcurrent	
017B	Postprocessor STOP line active	
0181	Bridge safety switch ON (Auto Load)	
0182	Pinch-roll down timeout (Auto Load)	
0183	Bridge up timeout (Auto Load)	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
0184	Transfer station forms jam (Auto Load)	
0185	Upper fuser forms jam (Auto Load)	
0186	Pinch-roll up timeout (Auto Load)	
0187	Bridge down timeout (Auto Load)	
0188	Pinch-roll position error (Auto Load)	
0189	Bridge home position (Auto Load)	
018A	Auto load reset error	
0191	Upper tractor forms jam (Auto Load)	
0192	Stacker pendulum forms jam (Auto Load)	
0193	Developer running (Auto Load)	
0194	Error present at start (Auto Load)	
0195	Check Reset pressed (Auto Load)	
0196	Splice lever down (Auto Load)	
0197	Transfer station open (Auto Load)	
0198	End-of-forms (Auto Load)	
0199	Stacker table down (Auto Load)	
019A	Stacker safety switch ON (Auto Load)	
019B	Auto load stopped	
019C	Stacker gate open (Auto Load)	
0211	Charge corona voltage error	
0212	Transfer corona voltage error	
0213	Preclean corona voltage error	
0214	Precharge corona voltage error	
0221	Mirror motor underspeed	
0222	Video data active	
0223	Mirror motor drive error	
0224	Mirror motor start-up error	
0225	Resolution lens initial position error	
0226	Resolution lens motor overcurrent	
022A	PC drum cover open	
022B	Laser power dropped	
022C	Laser power-up error	
022D	Laser power supply error	
0231	Mag brush bias error	
0232	Conveyor roll rotation error	
0233	Mag roll motor thermal error	
0234	Toner overfeed	
0235	Toner underfeed	
0236	Toner feed motor overcurrent	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
0241	Primary erase lamp never ON	
0242	Secondary erase lamp never ON	
0243	Primary erase lamp always ON	
0244	Secondary erase lamp always ON	
0251	Cleaner brush rotation error	
0252	Cleaner brush motor thermal error	
0253	Cleaner housing never at home position	
0254	Cleaner housing motor driver error	
0256	Cleaner housing always at home position	
0261	Vacuum blower thermal error	
0262	Vacuum shutter motor driver error	
0263	Vacuum shutter home position error	
0264	Cyclone blower motor thermal error	
0265	Vacuum shutter home position error	
0266	Cyclone blower rotation error	
0281	Preheat A/B overtemperature	
0282	Preheat A/B undertemperature	
0283	Preheat C/D overtemperature	
0284	Preheat C/D undertemperature	
0285	Preheat control signal error	
0286	Preheat A lost temperature	
0287	Preheat B lost temperature	
0288	Preheat C lost temperature	
0289	Preheat D lost temperature	
028A	Thermistor 1 overtemperature	
028B	Thermistor 2 overtemperature	
028C	Thermistor 3 overtemperature	
028D	Thermistor 1 undertemperature	
028E	Thermistor 2 undertemperature	
028F	Thermistor 3 undertemperature	
0291	Hot roll overtemperature	
0292	Hot roll lamp drive error	
0293	Fuser soft-start thermal error	
0294	Hot roll overcurrent	
0295	Hot roll undertemperature	
0296	Hot roll lamp 1 relay error	
0297	Hot roll lamp 1 open	
0298	Hot roll lamp 2 relay error	
0299	Hot roll lamp 2 open	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
029A	Hot roll lamp drive error	
029C	Hot roll lamp 3 open	
029D	Hot roll lamp 3 relay error	
029E	Hot roll lamp 4 open	
029F	Hot roll lamp 4 relay error	
0300	Operator panel power-on error	
0310	Operator panel communication error	
0312	Operator panel communication error	
0314	Operator panel communication error	
0316	Operator panel communication error	
0320	Operator panel communication error	
0330—0339	Operator console error	
0511	Printer power error	
0514	Printer logic gate thermal error	
0515	+24 V DC error	
0516	PJ136 disconnected	
0521	Form length fuse	
0522	Laser driver fuse	
0523	+5v to connectors PJ103 and PJ104 fuse	
0524	Fuser sensors fuse	
0525	DV fuse	
0611—0666	Printer interface error	
0782	Splice lever down	Intervention Required
0783	Transfer station open	Intervention Required
0784	Vacuum is OFF	Intervention Required
0785	Change toner collector	Out of Supplies
0786	Add toner	Out of Supplies
0787	Check toner collector	Intervention Required
0788	Change developer mix	Out of Supplies
0789	Developer drain open	Intervention Required
078A	End of Forms	Intervention Required
078B	Developer running	Intervention Required
078C	Forms loading	Intervention Required
078D	Toner loading	Intervention Required
078E	End of Forms on preprocessor	
0791	Change fine filter	Out of Supplies
0792	Add fuser oil	Out of Supplies
0793	Change oiler belt	Out of Supplies
0794	Oiler gate open	Intervention Required

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
0795	Set forms direction	Intervention Required
0796	Stacker full	Intervention Required
0797	Stacker gate open	Intervention Required
0798	Stacker table down	Intervention Required
0799	Check fine filter	Intervention Required
079A	Check tension arm	Intervention Required
079B	Install one toner bottle	Out of Supplies
079C	Toner Supply Low	Out of Supplies
0841	Postprocessor not ready	
0842	Postprocessor STOP line active	
A000	ESCON attachment: Program error	
A001	ESCON attachment: Functional error	
A010	ESCON Attachment: Card diagnostic failed. (Link A)	
A018	ESCON attachment: Wrap diagnostic failed. (Link A)	
A020	ESCON attachment: Card diagnostic failed. (Link B)	
A028	ESCON attachment: Wrap diagnostic failed. (Link B)	
A030	ESCON attachment: AIX system call failed.	
A040	ESCON attachment: Controller configuration value error	
A041	ESCON attachment: General load failure	
A042	ESCON attachment: No ESCON configuration file	
A050	ESCON attachment: Data overrun - link A	
A051	ESCON attachment: Data overrun - link B	
A052	ESCON attachment: Lost connection - link A	
A053	ESCON attachment: Lost connection - link B	
A054	ESCON attachment: Bus out check - link A	
A055	ESCON attachment: Bus out check - link B	
A056	ESCON attachment: Online failed - link A	
A057	ESCON attachment: Online failed - link B	
A058	ESCON attachment: Spurious interrupt - link A	
A059	ESCON attachment: Spurious Interrupt - link B	
A05A	ESCON attachment: Unknown CCW - link A	
A05B	ESCON attachment: Unknown CCW - link B	
A05C	ESCON attachment: Forced offline - link A	
A05D	ESCON attachment: Forced offline - Link B	
A05E	ESCON attachment: Log only - link failure	
A060	ESCON attachment: Bit error rate exceeded - Link A	
A061	ESCON attachment: Bit error rate exceeded - Link B	
A201	370 Parallel attachment: Data streaming overrun	
A203	370 Parallel attachment: Online failure	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
A205	370 Parallel attachment: Bus out parity checks	
A206	370 Parallel attachment: Functional failure	
A209	370 Parallel attachment: Card diagnostic failed - Interface A	
A210	370 Parallel attachment: Card diagnostic failed - Interface B	
A211	370 Parallel attachment: Wrap diagnostic failed - Interface A	
A212	370 Parallel attachment: Wrap diagnostic failed - Interface B	
A213	370 Parallel attachment: Controller configuration failure	
A214	370 Parallel attachment: AIX system call failure	
A215	370 Parallel attachment: PCA card operation failure	
A216	370 Parallel attachment: PCA internal error	
A217	370 Parallel attachment: Bad file, cannot open	
A218	370 Parallel attachment: Program Error	
A220	370 Parallel attachment: Bad command	
A221	370 Parallel attachment: Line mode page mode switch	
A222	370 Parallel attachment: Data received after ACK request	
A400	Token Ring TCP/IP: Token Ring timeout	
A401	Token Ring TCP/IP: Basic test failed	
A402	Token Ring TCP/IP: Wrap test failed	
A403	Ethernet TCP/IP: Ethernet timeout	
A404	Ethernet TCP/IP: Basic test failed	
A405	Ethernet TCP/IP: Wrap test failed	
A406	Ethernet TCP/IP: 10Base2 failed	
A407	Ethernet TCP/IP: 10BaseT failed	
A40D	FDDI TCP/IP: FDDI timeout	
A40E	FDDI: Basic test failed	
A40F	FDDI: Wrap test failed	
A410	Ethernet TCP/IP: Diagnostic/hardware setting mismatch	
A440	TCP/IP: PSF protocol error	
A441	TCP/IP: ASA protocol error	
A442	TCP/IP: Internal error	
A450	Ethernet TCP/IP: Local software error	
A451	Ethernet TCP/IP: Remote software error	
A452	Ethernet TCP/IP: Network software error	
A453	Ethernet TCP/IP: Unknown software error	
A454	Ethernet TCP/IP: Local hardware error	
A455	Ethernet TCP/IP: Remote hardware error	
A456	Ethernet TCP/IP: Network Hardware error	
A457	Ethernet TCP/IP: Unknown hardware error	
A458	Ethernet TCP/IP: Unknown local error	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
A459	Ethernet TCP/IP: Unknown remote error	
A45A	Ethernet TCP/IP: Unknown network error	
A45B	Ethernet TCP/IP: Unknown error	
A45C	Ethernet TCP/IP: Invalid configuration during enable	
A45D	Ethernet TCP/IP: Invalid configuration during run	
A460	Token Ring TCP/IP: Local software error	
A461	Token Ring TCP/IP: Remote software error	
A462	Token Ring TCP/IP: Network software error	
A463	Token Ring TCP/IP: Unknown software error	
A464	Token Ring TCP/IP: Local hardware error	
A465	Token Ring TCP/IP: Remote hardware error	
A466	Token Ring TCP/IP: Network hardware error	
A467	Token Ring TCP/IP: Unknown hardware error	
A468	Token Ring TCP/IP: Unknown local error	
A469	Token Ring TCP/IP: Unknown remote error	
A46A	Token Ring TCP/IP: Unknown network error	
A46B	Token Ring TCP/IP: Unknown error	
A46C	Token Ring TCP/IP: Invalid configuration during enable	
A46D	Token Ring TCP/IP: Invalid configuration during run	
A470	FDDI TCP/IP: Local software error	
A471	FDDI TCP/IP: Remote software error	
A472	FDDI TCP/IP: Network software error	
A473	FDDI TCP/IP: Unknown software error	
A474	FDDI TCP/IP: Local hardware error	
A475	FDDI TCP/IP: Remote hardware error	
A476	FDDI TCP/IP: Network hardware error	
A477	FDDI TCP/IP: Unknown hardware error	
A478	FDDI TCP/IP: Unknown local error	
A479	FDDI TCP/IP: Unknown remote error	
A47A	FDDI TCP/IP: Unknown network error	
A47B	FDDI TCP/IP: Unknown error	
A47C	FDDI TCP/IP: Invalid configuration during enable	
A47D	FDDI TCP/IP: Invalid configuration during run	
A501	Internal printing: Invalid event	
A502	Internal printing: File error	
A503	Internal printing: Unexpected ACK	
A504	Internal printing: Host recovery bit set	
A505	Internal printing: Invalid request from ASA	
AF00	Attachment subsystem cannot open attach driver.	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
AF01	Attachment subsystem cannot create a file.	
AF02	Attachment subsystem cannot open a file.	
AF11	Attachment card present before last shutdown not found	
B000	The printer has been powered on or restarted.	
B001	An attachment has been enabled.	
B002	An attachment has been reset.	
B003	Printer attributes have changed.	
B004	MICR has been enabled.	
B005	MICR has been disabled.	
B006	Postprocessor enabled or disabled	
B007	Medium modifier changed	
B008	Stacker enabled or disabled	
B009	Print adjust has been entered.	
B00A	Job has been canceled.	
B00C	Printer has been made NOT READY.	
B00D	Operator has overridden jam recovery.	
B00E	Jam recovery has been suppressed.	
B010	Attachment has been suspended.	
B011	Attachment has been released from suspension.	
B012	Paper path rethreaded	
BA00	Program check - Type 1	
BA01	Program check - Type 2	
BA02	Program check - Type 3	
BC01	Invalid form size	
BC02	Invalid print head resolution	
BC03	Invalid form source	
BC04	Invalid maximum form size	
BC05	Memory configuration has changed	
BC07	Resolution is not 600 DPI in POD mode	
BF01	File read error, hard disk	
BF02	File write error, hard disk	
BF03	Hard disk backup to diskette failure	
C000	Operator touch screen error	
C001	Operator panel error	
C002	Microcode update diskette error	
C003	Microcode update failed.	
C004	Microcode update failed.	
C005	X Window event	
D080	MIC abort	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
D081	MIC permanent error	
D082	MIC failure during diagnostics	
D083	MIC failure during initial power on EPROM diagnostics	
D084	MIC microcode error	
D090	MIC failure during attention light test	
D091	MIC failure during printer activate test	
D092	MIC failure during printer interface test	
D093	MIC failure during alarm test	
D095	MIC failure during intelligent interface wrap test	
D096	MIC failure during coupled interface wrap test	
D097	MIC failure during pre/postprocessor run motor test	
D098	MIC failure during pre/postprocessor offset test	
D099	MIC failure during printer dormant test	
D201	Fuser warming timeout	
D202	Pre/postprocessor PAUSE was active more than 100 seconds.	
D203	Pre/postprocessor STOP line became active.	
D204	Pre/postprocessor NOT READY line became active.	
D205	PAGE COMPLETE timeout	
D206	Ready was selected before threading forms	Intervention Required
D208	Communication with the MIC has failed	
D20A	Pre/postprocessor BUSY was active too long.	
D20B	Incorrect printer speed	
D20C	Form length mismatch	
D20D	Form width mismatch	
D20E	Pre/postprocessor Processor power is off.	
D20F	Undefined character received by intelligent interface	
D210	Illegal position received by intelligent interface	
D211	Illegal media modification received by intelligent interface	
D212	MICR data received while MICR option disabled	
D213	Availability of intelligent postprocessor has changed	
D214	Intelligent postprocessor forms jam	
D215	MIC to intelligent interface communications failure	
D216	Intelligent interface response timeout	
D217	Command rejected by intelligent interface	
D218	Intelligent interface responded, but is not in configuration	
D219	Intelligent interface type not recognized	
D21A	Intelligent postprocessor restarted	
D21B	Intelligent postprocessor failed to clear buffer	
D21C	PAGE COMPLETE not sent by intelligent interface	

Table 6-2. SRC Messages (continued)

Code	Message Text	Type (Printer Error unless noted otherwise)
D21E	Side 2 verify has stopped checking pages	
D702	Out of data while printing	
D703	Printer unable to do requested command	
D705	Printhead overrun while printing	
D706	BEAM DETECT was not received.	
D707	Loss of printer DVS (vertical sync) pulse	
D70B	Printhead underrun	
D70C	Print buffers out of sequence	
D70D	DVS (vertical sync) pulse frequency error	
D70E	Mechanism Interface Card (MIC) parity error	
D70F	MIC Print Quality Enhancement (PQE) error	
D713	Operator panel error	
D714	MIC timer 2 error	
D715	Parity error between MIC and PQE card	
D716	PQE card failed to initialize.	
D717	Early ACK from intelligent postprocessor	
D718	MIC failed to send frame to intelligent interface	
D719	Response timeout on intelligent interface	
D71A	Noise on pre/postprocessor port 1	
D71B	Noise on pre/postprocessor port 2	
D71C	Noise on pre/postprocessor port 3	
D71D	6 PPI sync pulse missing	
D71E	Scan line error while printing	
D71F	Side1/Side2 mismatch	
D720	Verification mark position incorrect	
D721	Hardware error: verification mark sensor	
D723	MIC memory failure	
D724	Side 2 verify has been disabled	

Recovering from a Forms Jam (Simplex Operations)

This section describes how to clear specific simplex mode form jams.

All of the messages that appear and some function switches you need to use are duplicated on the printer operator panel and on the operator console windows. Because clearing a forms jam involves the printer mechanisms, it is recommended that you use the operator panel of the affected printer for messages and function keys wherever possible, rather than using the operator console windows.

See "Recovering from a Forms Jam (Duplex Operations)" on page 6-33 for details of jam recovery when operating the system printers in duplex printing mode.

Depending on how they are configured, the printers can automatically reprint certain pages as part of the recovery process after some jams.

You must set the following **Configure Printer** configuration items to allow automatic reprinting following a forms jam recovery:

- **Jam Recovery Type** - Must be set to either:
  - "Use Normal Jam Repositioning"
  - "Suppress MICR Jam Repositioning", and MICR postprocessing printing is not being requested
- **Direct Attach** - Must be set to "No"

Automatic reprinting normally requests from the host and reprint the number of pages of data, based on the current in-effect page length, for all the pages that can fit in the forms path between the transfer station and the top of the stacker at the time the jam was detected. Also, if a postprocessing device is used, an extra number of pages can be added to the normal number of reprinted pages by setting the **Jam Recovery Point Distance** configuration item under the **Configure Printer** procedure to a non-zero value. This extra number of pages is the physically configured distance from the top of the stacker to/through the postprocessing device. Figure 6-7 on page 6-25 shows the normal reprint path length from the transfer station (Point A) to the stacker (Point B), and the additional Jam Recovery Point Distance from the stacker (Point B) to/through the postprocessing device (Point C).

Transfer Station
Point A

Fuser

Point B

Point C

Output
Stacker
Area

Input Forms Area

A23O0138
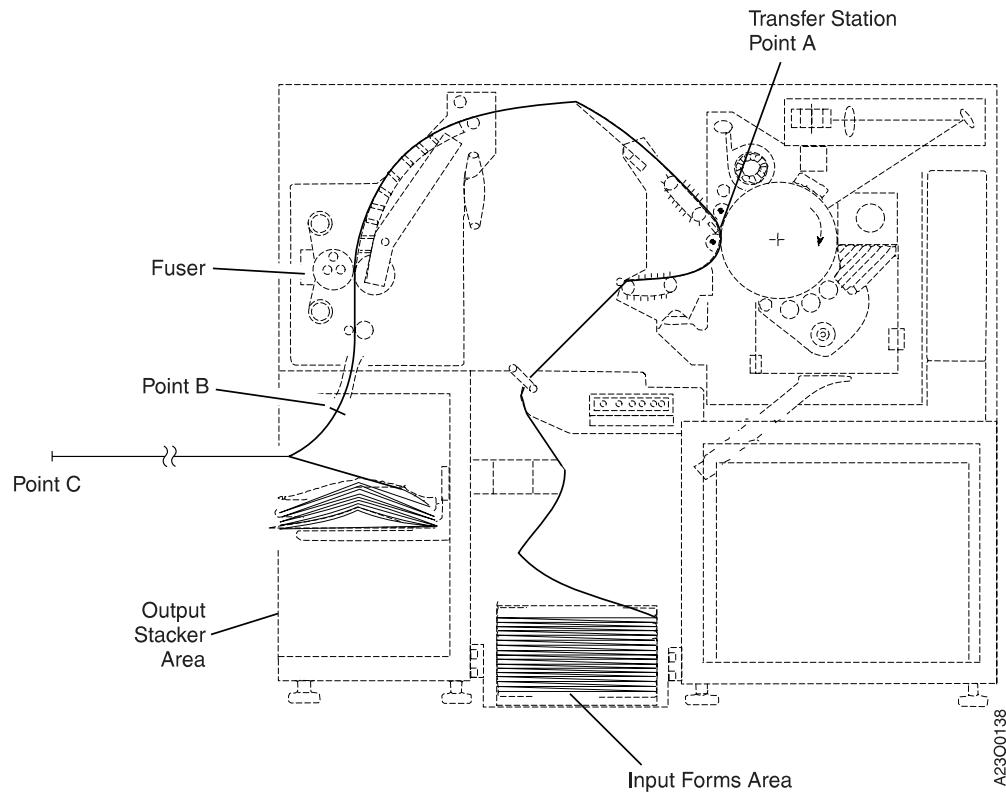
Figure 6-7. Reprint Path Length

Following the automatic reprinting of pages, you must check for and discard any duplicate pages that may have been printed. Locate the first reprinted page, then attempt to find that same page in the stacker or a postprocessing device and if found, discard all pages starting with that page.

In all cases but one, the automatic reprinting of pages recovers all pages that might have been lost or damaged as the result of the jam. The exception occurs when a `FUSER WRAP 0134` jam type is detected. A jam of this type can backup (accordion-pleat) the forms until the error is detected and the forward movement of the forms stopped. If that occurs, a few lost pages are not be automatically reprinted. You need to work with the host system console operator to take action to recover those lost pages.

If the printer is not configured to recover lost pages, you may need to ask the host system console operator to do one of the following:
* Restart the job at the point where the output was lost
* Restart the entire job.

Jams Within the Printer Engine

Do this task when the printer operator panel and a **Printer Error** operator console window shows one of the messages listed in Table 6-3 on page 6-27. All of the messages apply to all Infoprint 4000 models unless otherwise noted.

Important

To clear the jam message from the operator panel display and the operator console window, do the following:

- For STACKER JAM 161 and STACKER JAM 164, you must open and close the stacker gate, *or* you must lower and raise the stacker table.

- For jam messages that occur while auto loading, you must press the auto load **Stop** switch on the printer control panel.

- For the jam messages in the following list, push the **Vacuum Pushbutton** twice: once to turn the vacuum off and once to turn the vacuum back on.
    ```
    UPPER TRACTOR FORMS JAM 0119
    TENSION ARM DOWN 0131
    TENSION ARM UP 0132
    SKEW ERROR 0133
    FUSER WRAP 0134
    ```

- If the printer power is turned off while the jam message is displayed, the message reappears when power is restored. This ensures that the jam is cleared and that no damage is done to the printer if jammed forms are present during the power-on procedure.

Jam Recovery Procedures

Table 6-3. Jam Recovery Procedures - Simplex Mode

Error Message SRC Code (in numeric order)	Recovery Actions
UPPER TRACTOR FORMS JAM 0119 TENSION ARM DOWN 0131 TENSION ARM UP 0132 SKEW ERROR 0133 FUSER WRAP 0134 **(Forms are jammed, torn, or separated.)**	1. Press the **Vacuum Pushbutton** to turn **Off** the forms vacuum. 2. Clear the forms path. See "Clearing the Forms Path" on page 6-53. 3. Hold down the tension arm while you press the **Vacuum Pushbutton** to turn **On** the forms vacuum. 4. If any of the **Printer Error** messages still appear, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console. 5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or the operator console windows. 6. Reload forms. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2. 7. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer. 8. If reprinting is allowed, all unfused pages between the transfer station and the top of the stacker plus any jam recovery point distance defined in the printer configuration are reprinted. Check for and discard duplicate pages. If the jam was the result of a FUSER WRAP 0134, all lost/damaged pages may not be reprinted. Work with the host system console operator to recover these pages. 9. If reprinting is not allowed, work with the host system console operator to recover the lost pages. 10. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-3. Jam Recovery Procedures - Simplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER TRACTOR FORMS JAM   0119
TENSION ARM DOWN   0131
TENSION ARM UP   0132
SKEW ERROR   0133
FUSER WRAP   0134
 	
(Forms are <u>NOT</u> jammed, torn, or separated.)
	1. If you do not find a forms jam, do the following:
	  a. Be aware that dark-colored backing on the forms can cause the printer to display these messages.
	  b. The message UPPER TRACTOR FORMS JAM 0119 may appear if the printer engine top cover is open and allowing light to affect an optical sensor. Ensure that the top cover is closed.
	  c. Clean the upper tractor jam sensor. See step 19 on page 7-13.
	
	2. Open the upper tractor covers and ensure that the tractor holes align with the tractor pins.
	
	3. Press the **Vacuum Pushbutton** to turn **Off** the forms vacuum.
	
	4. Hold down the tension arm while you do the following:
	  a. Use the **Forms Feed** switches on the printer control panel to align the form perforation of the first full page with the correct length alignment mark on the lower tractors. See Figure 6-9 on page 6-42 for details.
	  b. Press the **Stacker Up** key on the stacker control panel to make the forms taut.
	  c. Slowly move the Tension Arm up to line up the blue mark with the alignment slot, then press the **Vacuum Pushbutton** to turn **On** the forms vacuum. If you do not hold down the Tension Arm while turning on the forms vacuum, you see a CHECK TENSION ARM 079A message, which you must handle before you can continue with this procedure.
	
	5. If any of the **Printer Error** messages are still displayed, press the **Check Reset** switch on operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	6. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or the operator console windows.
	
	7. Check to ensure that the perforation is aligned at the correct forms length of the lower tractor station alignment scale and adjust if necessary.
	
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	
	9. If reprinting is allowed, all unfused pages between the transfer station and the top of the stacker plus any jam recovery point distance defined in the printer configuration are reprinted. Check for and discard duplicate pages.
	
	10. If reprinting is not allowed, work with the host system console operator to recover the lost pages.
	
	11. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-3. Jam Recovery Procedures - Simplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions
STACKER FORMS JAM 0161 STACKER FORMS JAM 0164 **(These errors are not set when a Postprocessing Device Interface feature is installed and enabled, which disables the stacker mechanism.)**	1. Visually check to see if a forms jam is actually present. 2. Open the stacker gate. 3. If you do not find a jam, clean the stacker jam sensors. See step 27 on page 7-16 under " Cleaning the Printer." Go to step 5. 4. If you find a jam, clear forms from the "Stacker and Pendulum Area" on page 6-57. **Note:** When you remove the forms from the stacker, leave 4 to 5 pages attached to the end of the job running in the stacker to ensure correct forms folding when printing resumes. 5. Close the stacker gate. 6. If either **Printer Error** stacker jam message is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window. 7. Check for and resolve/postpone any other error or intervention message appearing on the printer operator panel or operator console window. 8. Ensure that the **Forms Set** indicator on the printer control panel displays the same fold direction as the fold on the lower tractors. 9. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer. 10. If reprinting is allowed, all unfused pages between the transfer station and the top of the stacker plus any jam recovery point distance defined in the printer configuration are reprinted. Check for and discard duplicate pages. 11. If reprinting is not allowed, work with the host system console operator to recover the lost pages. ┌─ **Important** ───────── If this error occurs shortly after you use the auto load function, you may be loading forms with the wrong first-fold direction. This causes the forms to fold opposite their natural fold direction in the stacker. See step 7 or step 8 on page 5-7 under "Loading Forms—Auto Load (Simplex Mode)" on page 5-2. └────────────────── 12. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-3. Jam Recovery Procedures - Simplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

`TRACTOR STATION FORMS JAM (AUTO LOAD) 0184`	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	2. Visually check to see if a forms jam is actually present.
	
	   If **Yes**, go to step 4.
	
	   If **No**, continue at step 3.
	
	3. If you do not find a forms jam, do the following:
	   a. Be aware that dark-colored backing on the forms can cause the printer to display this message.
	   b. Clean the upper tractor jam sensor. See step 19 on page 7-13.
	
	   Go to step 5.
	
	4. Clear forms from the "Transfer Station Area" on page 6-53.
	
	5. If the **Printer Error** `TRACTOR STATION FORMS JAM (AUTO LOAD) 0184` is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	6. Check for and resolve/postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	7. If you found a forms jam, reload forms. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 or "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20.
	
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer.
	
	   Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	9. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-3. Jam Recovery Procedures - Simplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions
UPPER FUSER FORMS JAM (AUTO LOAD) 0185 UPPER TRACTOR FORMS JAM (AUTO LOAD) 0191 STACKER PENDULUM FORMS JAM (AUTO LOAD) 0192	1. Press the **Auto Load - Stop** key on the printer control panel. 2. Visually check to see if a forms jam is actually present. If **Yes**, continue at step 3. If **No**, go to step 4. 3. Clear forms from the area indicated in the message: • "Fuser and Stacker Areas" on page 6-55. • "Transfer Station Area" on page 6-53. • "Stacker and Pendulum Area" on page 6-57. 4. If the **Printer Error** message is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window. 5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows. 6. If you found a forms jam, reload forms. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 or "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20. 7. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer. Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected. 8. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Jams Between the Printer and a Postprocessing Device

Jams or separated forms occurring between the postprocessing device and the printer are not detected and presented as form jams. The usual error condition presented is a PRE/POST NOT READY LINE BECAME ACTIVE D204 message. This error message occurs when the "Pre/postprocessor Busy Timer" (see "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28 for details) included in the characteristics section of an installed and enabled postprocessing device has timed out.

1. Clear the forms path of any jam, or clear any forms feeding problem between the postprocessing device and the printer.

2. Press the **Check Reset** switch on the printer operator panel or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.

3. Make the postprocessing device Ready.

4. If you have to remove damaged or separated forms in the forms path, you must rethread the postprocessing device.

5. Press the **Ready** switch on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console for the affected printer.

For jams in a postprocessing device, see "Recovering from a Forms Jam In the Postprocessing Device" on page 6-52.

Recovering from a Forms Jam (Duplex Operations)

This section contains techniques for clearing specific form jams that appear as error messages on both the operator panel display of the affected printer and a **Printer Error** window on the operator console when the printer is operating in duplex printing mode.

All the messages that appear and some function switches you need to use are duplicated on the printer operator panel and on the operator console windows. Because clearing a forms jam involves the printer mechanisms, it is recommended that you use the operator panel of the affected printer for messages and function keys wherever possible, rather than using the operator console windows.

Note: When a function switch is duplicated on both the printer operator panel and the operator console window, only the printer operator panel switch (called a key) is described in this section. When a function switch is available only on the operator console windows, it is the only function switch (called a pushbutton) described.

See "Recovering from a Forms Jam (Simplex Operations)" on page 6-24 for details of jam recovery when the system printers are in simplex printing mode. After some jams occurring within the printer engine, the printer automatically reprints certain pages as part of its recovery process. This occurs only if the printer is configured to allow reprinting.

```
UPPER TRACTOR FORMS
    JAM 0119
TENSION ARM DOWN 0131
TENSION ARM UP 0132
SKEW ERROR 0133
FUSER WRAP 0134
```

You must set the following **Configure Printer** configuration items to allow automatic reprinting following a forms jam recovery:

- **Jam Recovery Type** – Must be set to either:
  - "Use Normal Jam Repositioning"
  - "Suppress MICR Jam Repositioning", and MICR postprocessing printing is not being requested
- **Direct Attach** – must be set to "No"

Automatic reprinting normally requests from the host and reprints the number of pages of data, based on the current in-effect page length, for all of the pages that can fit in the forms path between the transfer station in Printer 1 and the top of the stacker in Printer 2 at the time the jam was detected. Also, if a postprocessing device is used on the output of Printer 2, an extra number of pages can be added to the normal number of reprinted pages by setting the **Jam Recovery Point Distance** configuration item under the **Configure Printer** procedure to a non-zero value. This extra number of pages is the physically configured distance from the top of the stacker in Printer 2 to/through the postprocessing device. Figure 6-8 on page 6-34 shows the normal reprint path length from the transfer station (Point A) in Printer 1 to the stacker in Printer 2 (Point B), and the additional Jam Recovery Point Distance from the stacker in Printer 2 (Point B) to/through the postprocessing device (Point C).
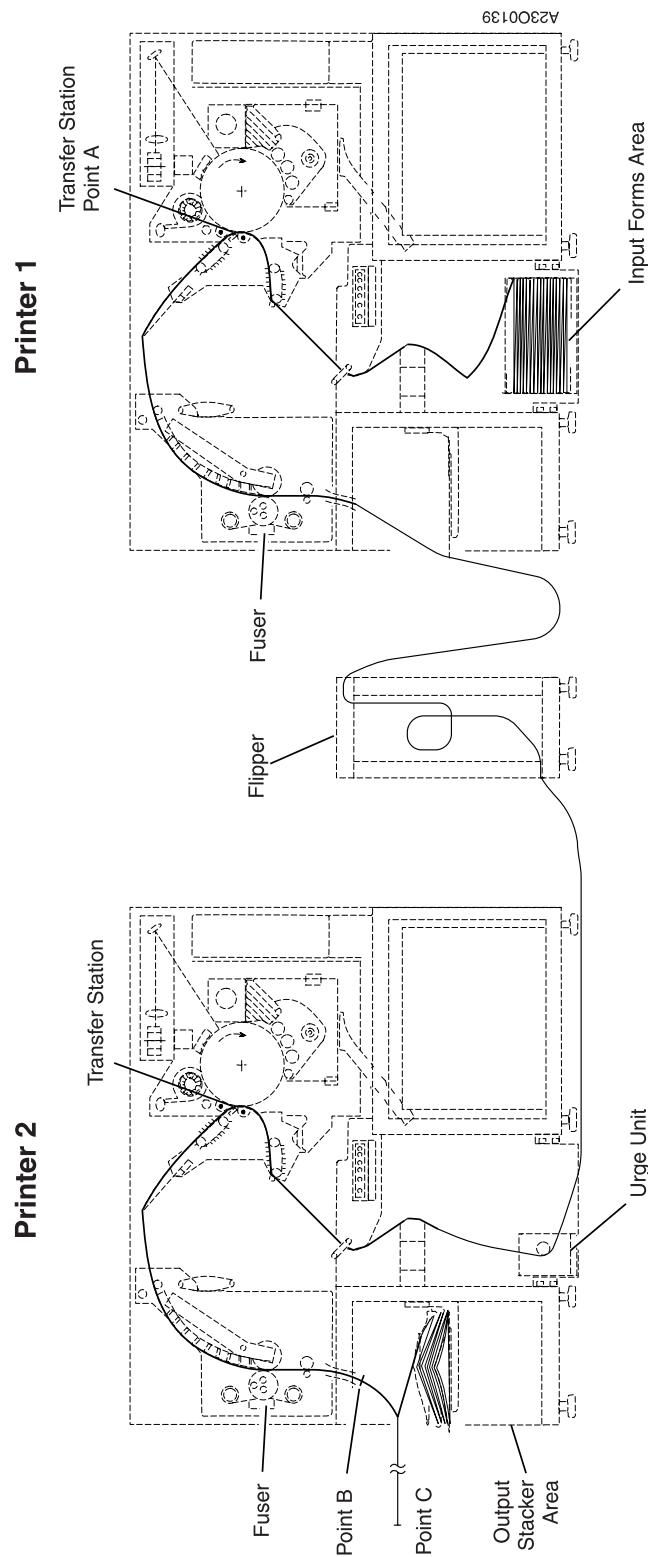
Figure 6-8. Duplex Mode Reprint Path Length

Following the automatic reprinting of pages, you must check for and discard any
duplicate pages that may have been printed. Locate the first reprinted page, then
attempt to find that same page in the stacker or a postprocessing device and if
found, discard all pages starting with that page.

In all cases but one, the automatic reprinting of pages recovers all pages that might have been lost or damaged as the result of the jam. The exception occurs when a FUSER WRAP 0134 jam type is detected. A jam of this type can backup (accordion-pleat) the forms until the error is detected and the forward movement of the forms stopped. If that occurs, there are some small number of lost pages that are not be automatically reprinted. You need to work with the host system console operator to take action to recover those lost pages.

Also, if automatic reprinting is not allowed by configuration, you need to work with the host system console operator to recover lost pages by one of the following actions:
- Restart the job at the point where the output was lost
- Restart the entire job.

Similar to recovering from a forms jam in simplex mode, you must rethread the printer with the jam. However, in addition to rethreading the printer with the jam, you may also have to rethread the other printer (if the jam occurred in Printer 1). Whenever rethreading is required, the **Thread/Align Forms** operator console procedure window automatically appears and requires you to execute and complete that procedure (see "Threading and Aligning Forms" on page 5-34).

Important

To clear the jam message from the operator panel display and the operator console window, the printer's logic requires the following:

- For STACKER JAM 161 and STACKER JAM 164, you must open and close the stacker gate, *or* you must lower and then raise the stacker table.

- For jam messages that occur while auto loading, you must press the auto load **Stop** switch on the printer control panel.

- For the following jam messages, push the **Vacuum Pushbutton** twice: once to turn vacuum off and once to turn the vacuum back on.

    ```
    UPPER TRACTOR FORMS
        JAM 0119
    TENSION ARM DOWN 0131
    TENSION ARM UP 0132
    SKEW ERROR 0133
    FUSER WRAP 0134
    ```

- If the printer power is turned off while the jam message is displayed, the message reappears when power is restored. This ensures that the jam is cleared and that no damage is done to the printer if jammed forms are present during the power-on procedure.

Jams Within Printer 1

Do this task when the printer operator panel and a **Printer Error** operator console window show one of the messages listed in Table 6-4:

Table 6-4. Printer 1 Jam Recovery Procedures - Duplex Mode

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER TRACTOR FORMS
   JAM 0119
TENSION ARM DOWN 0131
TENSION ARM UP 0132
SKEW ERROR 0133
FUSER WRAP 0134
 	
(Forms are jammed, torn, or separated.)
	1. Press the **Vacuum Pushbutton** to turn **Off** the forms vacuum.
	2. Clear the forms path. See "Clearing the Forms Path" on page 6-53.
	3. Hold down the tension arm while you press the **Vacuum Pushbutton** to turn **On** the forms vacuum.
	4. If any of the **Printer Error** messages are still displayed, press the **Check Reset** key on the Printer 1 operator panel or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or the operator console windows.
	6. Reload the forms. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2.
	7. Enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47).
	  a. **SELECT** the **Feed Forms** pushbutton once; this provides enough forms beyond Printer 1 to splice (on the floor between Printer 1 and Printer 2) the forms just Auto Loaded on Printer 1 to the forms remaining in the path. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27.
	  b. Complete the **Thread/Align Forms** procedure.
	  c. Do all the steps in "Checking Forms Alignment" on page 5-71 for both Printer 1 and Printer 2.
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer.
	9. If reprinting is allowed, all unfused pages between the transfer station in Printer 1 and the top of the stacker plus any jam recovery point distance defined in the printer configuration in Printer 2 are reprinted. Check for and discard duplicate pages.
	10. If reprinting is not allowed, work with the host system console operator to recover the lost pages.
	11. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

*Table 6-4. Printer 1 Jam Recovery Procedures - Duplex Mode (continued)*

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER TRACTOR FORMS JAM 0119
TENSION ARM DOWN 0131
TENSION ARM UP 0132
SKEW ERROR 0133
FUSER WRAP 0134
 	
(Forms are <u>NOT</u> jammed, torn, or separated.)
	1. If you do not find a forms jam, do the following:
	  a. Be aware that dark-colored backing on the forms can cause the printer to display these messages.
	  b. The message UPPER TRACTOR FORMS JAM 0119 may appear if the printer engine top cover is open and allowing light to affect an optical sensor. Ensure that the top cover is closed.
	  c. Clean the upper tractor jam sensor. See step 19 on page 7-13.
	2. Open the upper tractor covers and ensure that the tractor holes align with the tractor pins.
	3. Press the **Vacuum Pushbutton** to turn **Off** the forms vacuum.
	4. Hold down the tension arm while you do the following:
	  a. Use the **Forms Feed** switches on the Printer 1 control panel to align the form perforation of the first full page with the correct length alignment mark on the lower tractors. See Figure 6-9 on page 6-42 for details.
	  b. Press the **Stacker Up** key on the Printer 1 stacker control panel to make the forms taut.
	  c. Slowly move the tension arm up to line up the blue mark with the alignment slot, then press the **Vacuum Pushbutton** to turn **On** the forms vacuum. If you do not hold down the tension arm while you turn on the forms vacuum, a CHECK TENSION ARM 079A **Intervention Required** message appears, which you must handle before you can continue with this procedure.
	5. If any of the **Printer Error** messages are still displayed, press the **Check Reset** switch on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	6. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or the operator console windows.
	7. Check to ensure that the perforation on both Printer 1 and Printer 2 are aligned at the correct forms length of the lower tractor station alignment scale; adjust if necessary.
	8. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Loaded Through Both Printers" on page 5-37).
	9. Complete the **Thread/Align Forms** procedure.
	10. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	11. If reprinting is allowed, all unfused pages between the transfer station in Printer 1 and the top of the stacker plus any jam recovery point distance defined in the printer configuration in Printer 2 are reprinted. Check for and discard duplicate pages.
	12. If reprinting is not allowed, work with the host system console operator to recover the lost pages.
	13. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-4. Printer 1 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

TRACTOR STATION FORMS JAM (AUTO LOAD) 0184	This error is detected while Auto Loading the printer during one of the early steps in "Loading Forms—Auto Load (Duplex Mode)" on page 5-18.
	
	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	2. Visually check to see if a forms jam is actually present.
	
	   If **Yes**, go to step 4.
	
	   If **No**, continue at step 3.
	
	3. If you do not find a forms jam, do the following:
	   a. Be aware that dark-colored backing on the forms can cause the printer to display this message.
	   b. Clean the upper tractor jam sensor. See step 19 on page 7-13.
	
	   Go to step 5.
	
	4. Clear forms from the "Transfer Station Area" on page 6-53.
	
	5. If the **Printer Error** TRACTOR STATION FORMS JAM (AUTO LOAD) 0184 is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	6. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	7. If you found a forms jam, you need to begin the "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 procedure again.
	
	8. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Loaded Through Both Printers" on page 5-37).
	
	9. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	
	   Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	10. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-4. Printer 1 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER FUSER FORMS JAM (AUTO LOAD) 0185	This error is detected while Auto Loading the printer during one of the early steps in "Loading Forms—Auto Load (Duplex Mode)" on page 5-18.
	
	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	2. Visually check to see if a forms jam is actually present.
	
	   If **Yes**, continue at step 3.
	
	   If **No**, go to step 4.
	
	3. Clear forms from the "Fuser and Stacker Areas" on page 6-55.
	
	4. If the **Printer Error** UPPER FUSER FORMS JAM (AUTO LOAD) 0185 is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	6. If you found a forms jam, you need to begin the "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 procedure again.
	
	7. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Loaded Through Both Printers" on page 5-37).
	
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	
	   Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	9. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-4. Printer 1 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER TRACTOR FORMS JAM (AUTO LOAD) 0191	This error is detected while Auto Loading the printer during one of the early steps in "Loading Forms—Auto Load (Duplex Mode)" on page 5-18.
	
	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	2. Visually check to see if a forms jam is actually present.
	
	  If **Yes**, continue at step 3.
	
	  If **No**, go to step 4.
	
	3. Clear forms from the "Transfer Station Area" on page 6-53.
	
	4. If the **Printer Error** UPPER TRACTOR FORMS JAM (AUTO LOAD) 0191 is still displayed, press the **Check Reset** key the on operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	6. If you found a forms jam, you need to begin the "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 procedure again.
	
	7. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Loaded Through Both Printers" on page 5-37).
	
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	
	  Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	9. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-4. Printer 1 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

STACKER PENDULUM FORMS JAM (AUTO LOAD) 0192	This error is detected while Auto Loading the printer during one of the early steps in "Loading Forms—Auto Load (Duplex Mode)" on page 5-18.
	
	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	2. Visually check to see if a forms jam is actually present.
	  If **Yes**, continue at step 3.
	  If **No**, go to step 4.
	
	3. Clear forms from the "Stacker and Pendulum Area" on page 6-57.
	
	4. If the **Printer Error** STACKER PENDULUM FORMS JAM (AUTO LOAD) 0192 is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	6. If you found a forms jam, you need to begin the "Loading Forms—Auto Load (Duplex Mode)" on page 5-18 procedure again.
	
	7. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Loaded Through Both Printers" on page 5-37).
	
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	  Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	9. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Figure 6-9. Reestablishing Forms Alignment

Jams Within Printer 2

Do this task when the printer operator panel and a **Printer Error** operator console window show one of the messages listed in Table 6-4 on page 6-36:

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode

Error Message SRC Code (in numeric order)	Recovery Actions
| ```
UPPER TRACTOR FORMS
      JAM  0119
TENSION ARM DOWN  0131
TENSION ARM UP  0132
SKEW ERROR  0133
FUSER WRAP  0134
```<br><br>**(Forms are jammed, torn, or separated.)** | 1. Press the **Vacuum Pushbutton** to turn **Off** the forms vacuum.<br><br>2. Clear the forms path. See "Clearing the Forms Path" on page 6-53.<br><br>3. Hold down the tension arm while you press the **Vacuum Pushbutton** to turn **On** the forms vacuum.<br><br>4. If any of the **Printer Error** messages are still displayed, press the **Check Reset** key on operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.<br><br>5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or the operator console windows.<br><br>6. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47).<br><br>   a. **SELECT** the **Feed Forms** pushbutton twice; this provides enough forms beyond Printer 1 to Auto Load Printer 2.<br><br>   b. Complete the **Thread/Align Forms** procedure by adding enough forms beyond Printer 2 to splice (on the floor between Printer 2 and a postprocessing device) forms just Auto Loaded on Printer 2 to the forms remaining threaded in a postprocessing device. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27.<br><br>   c. Do all the steps in "Checking Forms Alignment" on page 5-71 for both Printer 1 and Printer 2.<br><br>7. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.<br><br>8. If reprinting is allowed, all unfused pages between the Transfer Station in Printer 1 and the top of the Stacker in Printer 2 are reprinted. Check for and discard duplicate pages.<br><br>   If the jam was the result of a `FUSER WRAP 0134` in printer 2, all lost/damaged pages may not be reprinted. Work with the host system console operator to recover these pages.<br><br>9. If reprinting is not allowed, work with the host system console operator to recover the lost pages.<br><br>10. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently. |

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER TRACTOR FORMS
     JAM 0119
TENSION ARM DOWN 0131
TENSION ARM UP 0132
SKEW ERROR 0133
FUSER WRAP 0134
 	
(Forms are <u>NOT</u> jammed, torn, or separated.)
	1. If you do not find a forms jam, do the following:
	  a. Be aware that dark-colored backing on the forms can cause the printer to display these messages.
	  b. The message UPPER TRACTOR FORMS JAM 0119 may appear if the printer engine top cover is open and allowing light to affect an optical sensor. Ensure that the top cover is closed.
	  c. Clean the upper tractor jam sensor. See step 19 on page 7-13.
	
	2. Open the upper tractor covers and ensure that the tractor holes align with the tractor pins.
	
	3. Press the **Vacuum Pushbutton** to turn **Off** the forms vacuum.
	
	4. Hold down the tension arm while you do the following:
	  a. Use the **Forms Feed** switches on the Printer 2 control panel to align the form perforation of the first full page with the correct length alignment mark on the lower tractors. See Figure 6-9 on page 6-42 for details.
	  b. Press the **Stacker Up** key on the Printer 2 stacker control panel to make the forms taut.
	  c. Slowly move the tension arm to line up the blue mark with the alignment slot, then press the **Vacuum Pushbutton** to turn **On** the forms vacuum. If you do not hold down the tension arm while you turn on the forms vacuum, a CHECK TENSION ARM 079A **Intervention Required** message appears, which you must handle before you can continue with this procedure.
	
	5. If any of the **Printer Error** messages are still displayed, press the **Check Reset** switch on operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	6. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or the operator console windows.
	
	7. Check to ensure that the perforation on both Printer 1 and Printer 2 are aligned at the correct forms length of the lower tractor station alignment scale and adjust if necessary.
	
	8. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Loaded Through Both Printers" on page 5-37).
	
	9. Complete the **Thread/Align Forms** procedure.
	
	10. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window.
	
	11. If reprinting is allowed, all unfused pages between the Transfer Station in Printer 1 and the top of the Stacker in Printer 2 are reprinted. Check for and discard duplicate pages.
	
	12. If reprinting is not allowed, work with the host system console operator to recover the lost pages.
	
	13. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

STACKER FORMS JAM 0161
STACKER FORMS JAM 0164
 	
(These errors are not set when a postprocessing device is installed and enabled, which disables the stacker mechanism.)
	1. Visually check to see if a forms jam is actually present.
	2. Open the stacker gate.
	3. If you do not find a jam, clean the stacker jam sensors. See step 27 on page 7-16 under " Cleaning the Printer."
	
	   Go to step 5.
	4. If you do find a jam, clear forms from the "Stacker and Pendulum Area" on page 6-57.
	   Note: <u>When you remove the forms from the stacker, leave 4 to 5 pages attached to the end of the job running in the stacker to ensure correct forms folding when printing resumes.</u>
	5. Close the stacker gate.
	6. If either stacker jam message is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	7. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console window.
	8. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47).
	   a. **SELECT** the **Feed Forms** pushbutton twice; this provides enough forms beyond Printer 1 to Auto Load Printer 2.
	   b. Complete the **Thread/Align Forms** procedure by adding enough forms beyond Printer 2 to splice (on the floor between Printer 2 and a postprocessing device) forms just Auto Loaded on Printer 2 to the forms remaining threaded in a postprocessing device. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27.
	   c. Do all the steps in "Checking Forms Alignment" on page 5-71 on both Printer 1 and Printer 2.
	9. Ensure that the **Forms Set** indicator on the printer control panel displays the same fold direction as the fold on the lower tractors.
	10. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer.
	
	   Even if automatic reprinting is allowed, no pages are reprinted for this type of jam.
	
	   ┌─ **Important** ─────────────────────
	   │ If this error occurs shortly after you use the auto load function, you may be loading forms with the wrong first-fold direction. This causes the forms to fold opposite their natural fold direction in the stacker. See step 7 or step 8 on page 5-7 under "Loading Forms—Auto Load (Simplex Mode)" on page 5-2.
	   └──────────────────────────────────
	
	11. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

TRACTOR STATION FORMS JAM (AUTO LOAD) 0184	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	2. Visually check to see if a forms jam is actually present.
	
	   If **Yes**, go to step 4.
	
	   If **No**, continue at step 3.
	
	3. If you do not find a forms jam, do the following:
	   a. Be aware that dark-colored backing on the forms can cause the printer to display this message.
	   b. Clean the upper tractor jam sensor. See step 19 on page 7-13.
	
	   Go to step 5.
	
	4. Clear forms from the "Transfer Station Area" on page 6-53.
	
	5. If TRACTOR STATION FORMS JAM (AUTO LOAD) 0184 is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	6. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	7. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47).
	   a. **SELECT** the **Feed Forms** pushbutton twice; this provides enough forms beyond Printer 1 to Auto Load Printer 2.
	   b. Complete the **Thread/Align Forms** procedure by adding enough forms beyond Printer 2 to splice (on the floor between Printer 2 and a postprocessing device) forms just Auto Loaded on Printer 2 to the forms remaining threaded in a postprocessing device. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27.
	   c. Do all the steps in "Checking Forms Alignment" on page 5-71 on both Printer 1 and Printer 2.
	
	8. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer.
	
	   Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	9. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions
`UPPER FUSER FORMS JAM AUTO LOAD) 0185`	1. Press the **Auto Load - Stop** key on the printer control panel. 2. Visually check to see if a forms jam is actually present. If **Yes**, continue at step 3. If **No**, go to step 4. 3. Clear forms from the "Fuser and Stacker Areas" on page 6-55. 4. If `UPPER FUSER FORMS JAM (AUTO LOAD) 0185` is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window. 5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows. 6. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47). a. **SELECT** the **Feed Forms** pushbutton twice; this provides enough forms beyond Printer 1 to Auto Load Printer 2. b. Complete the **Thread/Align Forms** procedure by adding enough forms beyond Printer 2 to splice (on the floor between Printer 2 and a postprocessing device) forms just Auto Loaded on Printer 2 to the forms remaining threaded in a postprocessing device. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27. c. Do all the steps in "Checking Forms Alignment" on page 5-71 on both Printer 1 and Printer 2. 7. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer. Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected. 8. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

UPPER TRACTOR FORMS JAM (AUTO LOAD) 0191	1. Press the **Auto Load - Stop** key on the printer control panel.
	
	 2. Visually check to see if a forms jam is actually present.
	
	 If **Yes**, continue at step 3.
	
	 If **No**, go to step 4.
	
	 3. Clear forms from the "Transfer Station Area" on page 6-53.
	
	 4. If UPPER TRACTOR FORMS JAM (AUTO LOAD) 0191 is still displayed, press the **Check Reset** key on operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	
	 5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	
	 6. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47).
	
	    a. **SELECT** the **Feed Forms** pushbutton twice; this provides enough forms beyond Printer 1to Auto Load Printer 2.
	
	    b. Complete the **Thread/Align Forms** procedure by adding enough forms beyond Printer 2 to splice (on the floor between Printer 2 and a postprocessing device) forms just Auto Loaded on Printer 2 to the forms remaining threaded in a postprocessing device. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27.
	
	    c. Do all the steps in "Checking Forms Alignment" on page 5-71 on both Printer 1 and Printer 2.
	
	 7. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer.
	
	 Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	
	 8. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Table 6-5. Printer 2 Jam Recovery Procedures - Duplex Mode (continued)

Error Message SRC Code (in numeric order)	Recovery Actions

STACKER PENDULUM FORMS JAM (AUTO LOAD) 0192	1. Press the **Auto Load - Stop** key on the printer control panel.
	2. Visually check to see if a forms jam is actually present.
	If **Yes**, continue at step 3.
	If **No**, go to step 4.
	3. Clear forms from the "Stacker and Pendulum Area" on page 6-57.
	4. If the **Printer Error** STACKER PENDULUM FORMS JAM (AUTO LOAD) 0192 is still displayed, press the **Check Reset** key on the operator panel of the affected printer or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
	5. Check for and resolve or postpone any other error or intervention message appearing on the printer operator panel or operator console windows.
	6. If necessary, enter the **Thread/Align Forms** procedure (see "Forms Are Broken Between the Printers" on page 5-47).
	  a. **SELECT** the **Feed Forms** pushbutton twice; this provides enough forms beyond Printer 1 to Auto Load Printer 2.
	  b. Complete the **Thread/Align Forms** procedure by adding enough forms beyond Printer 2 to splice (on the floor between Printer 2 and a postprocessing device) forms just Auto Loaded on Printer 2 to the forms remaining threaded in a postprocessing device. Use the generalized splicing procedures found in "Splicing Forms" on page 5-27.
	  c. Do all the steps in "Checking Forms Alignment" on page 5-71 on both Printer 1 and Printer 2.
	7. Press the **Ready** key on the printer operator panel or **SELECT** the **Ready** pushbutton on the operator console window for the affected printer.
	Even if automatic reprinting is allowed, no pages are reprinted because printing was not occurring when this jam was detected.
	8. See "Suggestions for Preventing Jams" on page 6-58 if the error recurs frequently.

Jam Between Printer 1 and Printer 2

A jam occurring between Printer 1 and Printer 2 normally causes the forms to tear and separate. Both Printer 1 and Printer 2 continue to feed forms and print until an error condition is detected and displayed. A large supply of forms may be present on the floor at the output of Printer 1.

1. Press the **Check Reset** key on the Printer 1 operator panel or **SELECT** the **Check Reset** pushbutton on the **Intervention Required** operator console window.

2. Do not flush any forms out of either printer.

3. Manually pull the forms through the Buffer/Flipper Unit under Printer 2 and up into forms input area of Printer 2.

4. Begin the **Thread/Align Forms** operator console procedure (see "Forms Are Broken Between the Printers" on page 5-47). If necessary, use the **Printer 1 Feed Page** pushbutton on the **Thread/Align Forms** window to feed enough forms to splice, at the Splicing Station of Printer 2, the forms from the Buffer/Flipper Unit to the forms remaining in the Printer 2 path.

5. Complete the **Thread/Align Forms** procedure.

6. Press the **Ready** key on the operator panel of either printer or **SELECT** the **Ready** pushbutton on the main operator console window.

Jams Between the Printer and a Postprocessing Device

A jam or separated form occurring between the postprocessing device and the printer is not detected and presented as a form jam. The usual error condition presented is a PRE/POST NOT READY LINE BECAME ACTIVE D204 message on a **Printer Error** operator console window or PRINTER ERROR D204 message on the Printer 2 operator panel display. This error message occurs when the "Pre/postprocessor Busy Timer" (see "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28 for details) included in the characteristics section of an installed and enabled postprocessing device has timed out.

1. Clear the forms path of any jam, or clear any forms feeding problem between the postprocessing device and the printer.
2. Press the **Check Reset** key on the printer operator panel or **SELECT** the **Check Reset** pushbutton on the **Printer Error** operator console window.
3. If you must remove damaged or separated forms in the forms path between the postprocessing device and the printer, advance the forms through the printers sufficient distance to splice, on the floor between the printer and the postprocessing device, the forms exiting the printer to the forms remaining in the postprocessing device.
4. Make the postprocessing device Ready.
5. Press the **Ready** key on the Printer 2 operator panel or **SELECT** the **Ready** pushbutton on the operator console for the affected printer.

Recovering from a Forms Jam In the Postprocessing Device

When a paper jam occurs in a postprocessing device that causes the device to go to a Not Ready condition, the **Intervention Required** window provides an additional pushbutton, **Jam Recovery**, which causes a number of pages to be reprinted. The number of pages reprinted is determined by the distance from the printer to the farthest postprocessing device attached to the printer.

If a paper jam occurs in the postprocessing device causing a Not Ready condition, the **Intervention Required** window appears on the operator console. The SRC code **D204** appears on the window.

| Operate | Configure | Analyze | Options | Help |

Intervention Required

Intervention: Pre/postprocessor NOT READY line became active.

Code: D204

Directions:
1. Check the pre/postprocessor for errors.
2. Make the pre/postprocessor ready.
3. Select **Ready** and retry operation.
4. Call for service if the problem continues.

Completed   Postpone   Jam Recovery   Help

Ready   Check Reset   NPRO   Cancel Job

NWTM0930

1. Remove the jammed paper from the postprocessing device.
2. If you want to reprint pages, **SELECT** the **Jam Recovery** pushbutton on the **Intervention Required** window.
3. **SELECT** the **Completed** pushbutton on the **Intervention Required** window. (You do not have to wait between SELECTING the **Jam Recovery** and **Completed** pushbuttons.)
4. **SELECT** the **Ready** pushbutton on the operator console.

Clearing the Forms Path

NWTO0024
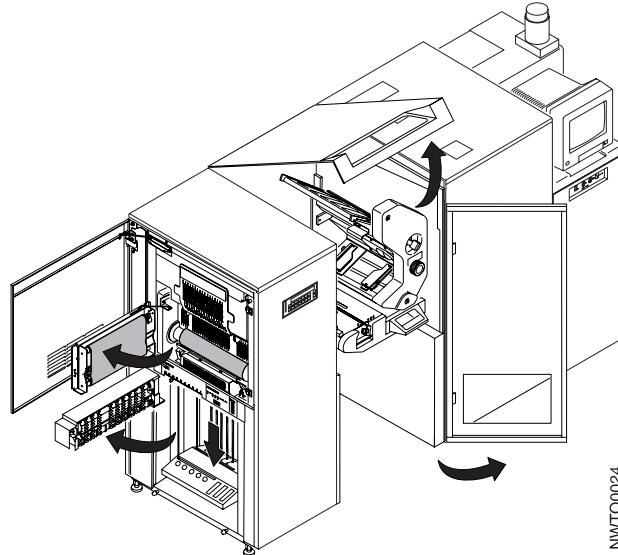
Transfer Station Area

1. Open the covers as shown in the figure above.

> **Attention!**
>
> Do *not* use the **Forms Feed** keys on the printer control panel if forms are jammed in the transfer station.

2. Break the forms at a perforation near the splicing table.
3. Break the forms at a perforation between the tension arm area and the fuser entry area.
4. Open the lower transfer station tractor covers.
5. Check for torn carrier strips, oversized carrier holes, and torn paper.
6. Remove any torn forms, carrier strips, and paper chads from the lower tractor area.
7. Open the transfer station by tilting the transfer station away from the photoconductor drum.

> **Attention!**
>
> The photoconductor drum is easily damaged, and it is *very* expensive to replace.
>
> When the transfer station is open, be extremely careful not to let anything touch the photoconductor drum.
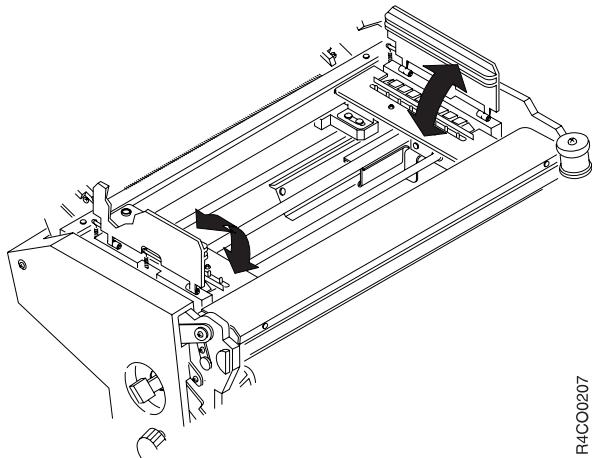
R4CO0207

8. Open the upper transfer station tractor covers.

9. Check for torn carrier strips, oversized carrier holes, and torn paper.

10. Remove any torn forms, carrier strips, and paper chads from the transfer station area, the transfer corona, and the retractors.

11. Close the upper tractor covers.

12. Gently push the transfer station toward the photoconductor drum until it locks securely into position.

13. Close the lower tractor covers.

14. Press the **Vacuum Pushbutton**. The **Vacuum Off Warning Indicator** flashes and then stays lit.

15. Press the **Forms Feed - Forward** key to clear the forms from the fuser area.

Fuser and Stacker Areas

1. Break the forms at a perforation near the pendulum.

2. Unload forms from the stacker. See "Unloading the Stacker" on page 5-74.

3. Close the stacker gate.

4. Press the **Vacuum Pushbutton**. The **Vacuum-Off Warning Indicator** flashes and then stays lit.

5. Move the puller lever to the left.

6. Grasping the forms near the fuser entry area, pull them up and out of the fuser. (This moves the forms in the opposite direction from their usual path.)

7. If the forms will not pull up, or if some forms remain in the pendulum, do the following:

    a. Lower the stacker table.

    b. Open the stacker gate.

    c. Grasp both sides of the forms and pull down evenly.

    d. Close the stacker gate.

    e. Raise the stacker table.
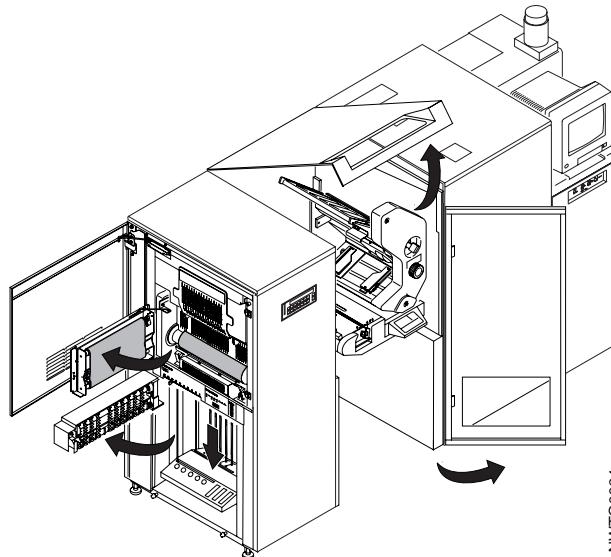
NWTO0024

CAUTION:

<70> The oiler belt, oiler wick roll, and their environments are *high-temperature* areas. Be very careful when working in these areas.

CAUT0100

8. If forms remain in the fuser, do the following:
   a. Open the fuser gate.
   b. Lower the hot roll shield.
   c. Remove any forms you see.
   d. Raise the hot roll shield.
   e. Close the fuser gate.
9. Press the **Vacuum Pushbutton**. The **Vacuum-Off Warning Indicator** flashes and then stays off.
10. Return to the appropriate jam message listed in Table 6-3 on page 6-27, Table 6-4 on page 6-36, or Table 6-5 on page 6-43.

Stacker Table
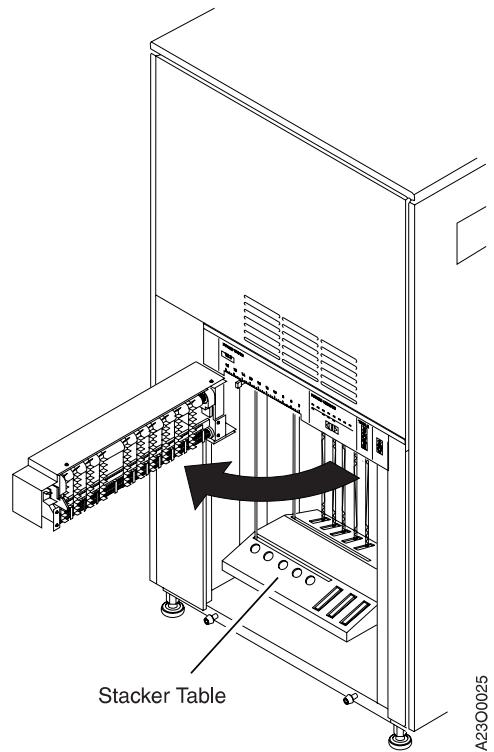
A23O0025

Stacker and Pendulum Area

1. Open the stacker gate.
2. Ensure that the forms are folding correctly; that is, the forms stack lies flat (without bowing between forms).
3. Ensure that the **Forms Set** indicator on the printer control panel is set to match the fold direction of the fold perforation that is on the lower transfer station tractors.
4. Separate the forms at the perforation near the top of the stacker. Save as much of the output as possible. Work with the host system console operator to recover any lost pages.
5. Unload forms from the stacker.

   Note: When you remove the forms from the stacker, leave 4 to 5 pages attached to the end of the job running in the stacker to ensure correct forms folding when printing resumes. See "Unloading the Stacker" on page 5-74.

6. Check that the correct forms length and width are selected at the stacker panel.
7. If you receive a message when no forms appear jammed, clean the six stacker jam sensors and two mirrors with a soft dry cloth. See step 27 on page 7-16 under "Cleaning the Printer".

Suggestions for Preventing Jams

The best way to prevent jams is to use forms and applications that were designed for use with the printers. Form and application problems cannot be corrected by adjusting or repairing the printer.

If a particular form jams frequently, refer the application owner to the *Forms Design Reference for Continuous Forms Advanced Function Printers*. This book contains detailed information about selecting forms and designing applications for use with continuous-forms printers.

It is also important to ensure that the forms are loaded correctly. To prevent jams from happening:

- Ensure that the forms are not being damaged either in the forms input area or before they reach the transfer corona within the printer engine, or in the Buffer/Flipper Unit between the printers when they are in duplex mode.
- Ensure that the perforations have ties at the ends, not cuts.
- Ensure that the back side of the forms do not have dark colors or markings when using simplex mode, or that either side of the forms do not have dark colors or markings when the printers are in duplex mode.
- If you are using fan-fold forms, ensure that the folded or leading edge is not wrinkled or torn.
- If you are using fan-fold forms and the first page is folded under, ensure that the tractor holes line up *exactly*, especially if you are using forms with a $^1/_3$-inch or $^2/_3$-inch length.
- Ensure that the tractor holes are aligned correctly on the tractor pins.
- Ensure that the forms are positioned correctly in the forms input area. The forms must not twist or tear when they travel around the input guide, splicing table, and transfer station.
- If the forms are in a box, ensure that the box does not interfere with form movement.
- If you are using fan-fold forms and the stack of forms seems to curve (dishing), roll the first form in the opposite direction of the curve, and then unroll it before you put the form on the transfer station lower tractors.
- Load different forms, or if you are using fan-fold forms, a new box of the same forms. Ensure that the forms are loaded correctly.
- If the jam occurs only with one kind of form, especially one that has not been used before on the printers, the problem may be form-related. Forms that are unusually heavy or light, forms that have holes or cuts, and adhesive-label forms are all likely to cause jams.

  Forms orientation may have an effect on stacking and jam frequency. On non-preprinted forms:
  - If you are using fan-fold forms, rotating the box 180° can change the frequency of jams.
  - Remove damaged sections.
- If you are using fan-fold forms and you folded back the first page of the form, try loading the form *without* folding; conversely, if you did *not* fold the form, try doing so.
- If you have been running labels, print a test job on plain paper forms to remove any adhesive residue that the labels may have left in the printer.
- If you are using fan-fold forms, ensure that you leave 4 to 5 blank forms correctly folded in the stacker when you resume printing.

Running Traces

The Traces procedure lets you select, start, stop, and print traces.

> **Note**
>
> - Trace affects both printers when you are printing in duplex mode. In simplex mode, all trace actions (Start, Stop, Save, and Print) apply to only to that printer.
> - Tracing may affect performance.
> - The **Configure...** action requires Customer Engineer authorization.

1. **SELECT** the **Analyze** pull-down menu on the main operator console window.
2. **SELECT** the **Traces** procedure. You see the **Traces** window, which lists the available traces and the current status of each.
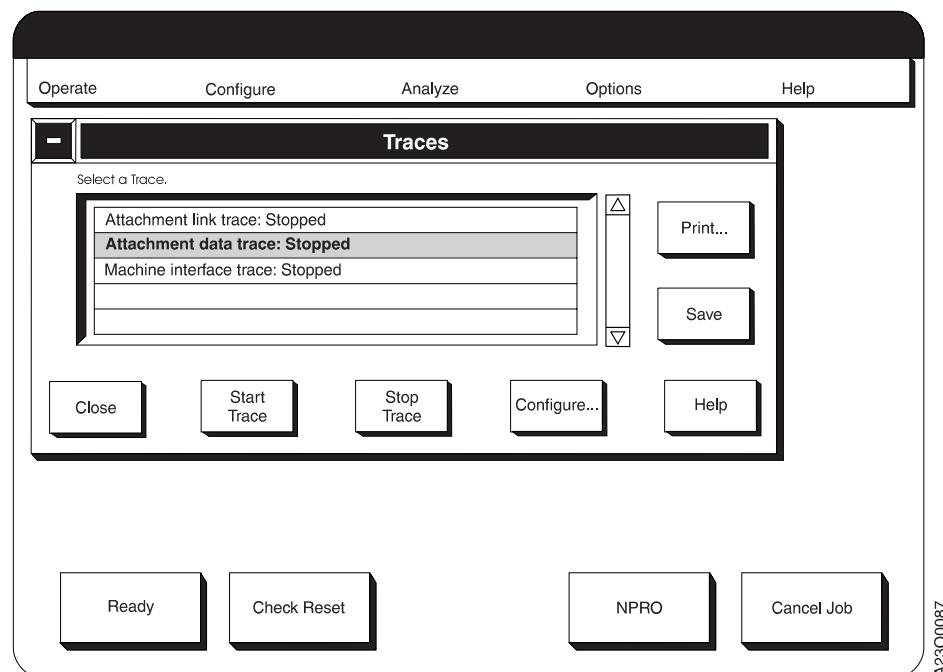
Figure 6-10. Traces Window

3. To start a trace:
   a. **SELECT** the trace you want to run from the **Select a Trace** box.
   b. **SELECT** the **Start Trace** pushbutton.
4. To stop a trace:
   a. **SELECT** the trace you want to stop from the **Select a Trace** box.
   b. **SELECT** the **Stop Trace** pushbutton.
5. To save trace data:
   a. Stop all traces.
   b. **SELECT** the **Save** pushbutton.
   c. Insert a diskette in the diskette drive, and **SELECT Save** on the verification window that appears.
6. To print a trace:

a. You must stop the trace before you can print it. Do step 4 on page 6-59.

b. Disable all host attachments before you print a trace. See "Enabling and Disabling Attachments" on page 4-11 for details.

c. **SELECT** the **Print...** pushbutton on the **Traces** window. You see the **Print Trace** window.

d. **SELECT** the trace you want to print from the **Select a Print File** box.

e. To change the number of copies you print, do the following:

   1) **SELECT** the **How Many?** field.

   2) Type the number of copies you want to print.

   3) **SELECT** the **OK** pushbutton.

f. **SELECT** the **Print** pushbutton on the **Print Trace** window.

Print Quality Problems

Many print quality problems are directly related to the kind of forms being used and the application being processed. If a particular form or application regularly produces unsatisfactory output, refer the application owner to the *Forms Design Reference for Continuous Forms Advanced Function Printers*, G544-3921. This publication contains detailed information about selecting forms and designing applications for use with continuous forms printers.

Table 6-6 describes possible print quality problems and suggests actions that may correct the symptoms.

Table 6-6. Print Quality Symptom Table

Symptom	Action
Repeating spot patterns	• Clean the printer and the oiler belt. See "Cleaning the Printer" on page 7-7 and "Cleaning the Oiler Belt" on page 7-51. • If you have been running labels, print a test job on plain paper forms to remove any adhesive residue that the labels may have left in the printer.
Print is too dark or characters appear too wide	Press the **Lighter Contrast Control** key on the printer control panel.
In duplex printing mode there is a noticeable difference in the printing contrast between the front and back sides of the form, even though the Contrast Switch setting is set the same on both printers.	It is normal for printing contrast to vary between printers. Adjust the Contrast setting on the printer control panel of both printers to balance the contrast between the printers.

Blank spots (voids) or light areas appear near perforations.	This problem is usually related to forms design, and it cannot be corrected by adjusting the printer.
	
	The following restrictions, copied from the *Forms Design Reference for Continuous Forms Advanced Function Printers*, G544-3921 must be maintained.
	
	Print quality may be poor when printing near folding perforations, an internal perforation, or any cut in the form. To ensure correct operation and print quality, maintain the following distances:
	• From non-folding and internal perforations: 1.27 mm (0.05 in.)
	• From folding perforations:
	  – For text, OCR, and bar codes: 8.5 mm (0.33 in.)
	  – For images and solid-area fill: 12.7 mm (0.5 in.)
	• From binder holes and cuts: 2.54 mm (0.1 in.)
	
	If the specified distance from the page perforations is not being maintained, refer the application owner to the *Forms Design Reference for Continuous Forms Advanced Function Printers*, G544-3921.

Loss of edge definition or lighter print contrast (boldness) at the trailing edge of bar codes, shaded or solid fill areas, or formatted bold text characters.	The problem can be reduced or eliminated by increasing the **Contrast** switch setting on the printer operator panel. Remember to adjust the contrast setting on both printers, in duplex mode, to balance the contrast between the front and back of the forms.

Table 6-6. Print Quality Symptom Table (continued)

Symptom	Action
Blank spots (voids) or light areas not near perforations	• Ensure that the forms are smooth and flat. Feel the forms, especially near the perforation. If you find lumps, bumps, or wrinkles, load another box of forms. This kind of problem can be caused by storing forms in a poor environment (for example, high humidity). • If you have been running labels, print a test job on plain paper forms to remove any adhesive residue that the labels may have left in the printer. • Clean the coronas. See step 23 on page 7-13 in "Cleaning the Printer". • Press the **Darker Contrast Control** key on the printer control panel. • If the void or light area is in the shape of an adhesive label, call your service representative. See "Service Call Procedure" on page 2-6.
Print has white streaks	• Clean the coronas. See step 23 on page 7-13 in "Cleaning the Printer". If necessary, remove the coronas and look for forms chads in the wire or corona housing. Be careful not to touch the wire with your hands. See "Cleaning the Printer" on page 7-7.
Print is too light	• Press the **Darker Contrast Control** key on the printer control panel. • Clean the coronas. See step 23 on page 7-13 in "Cleaning the Printer" and step 10 on page 7-9 in " Cleaning the Printer". • If an operator opened and closed the developer drain *without* replacing the developer mix, replace the developer mix now. Opening the drain resets the developer mix usage timer, which could result in the developer mix being used beyond its normal life and result in immediate print quality problems. See "Changing the Developer Mix" on page 7-37.
Print rubs off easily	• If print rubs off solid fill areas (logos, bar codes) on the form, press the **Lighter Contrast Control** key setting on the printer control panel until fuse grade is acceptable. Remember to adjust the contrast setting on both printers, when in duplex mode, to balance the contrast between the front and back of the forms. • Ensure that the **Forms Select** switch is set correctly for the forms being used. • In simplex mode, ensure that the preheat control is set correctly; in duplex mode, ensure that the control is set to 1. • Clean the oiler belt. See "Cleaning the Oiler Belt" on page 7-51 if you need instructions. • Ensure that the forms were fused. For example, did you use **Forms Feed** when you should have used **NPRO**? • Ensure that the hot roll shield is up. • Load a different box of forms. The forms you are running may be too heavy (more than 160 g/m² [42 lb] when running simplex mode, or more than 105 g/m² [28 lb] when running duplex mode), or too moist, or have too rough a surface. • Ensure that no adhesive labels are on the hot roll.
Print is offset (double images)	• If you are printing on labels, ensure that the **Forms Select** switch is set on **Plastic**. • If you are not printing on labels, try setting the **Forms Select** switch to **23–42lbs. (72–135kg) 83–157g** • Clean the oiler belt. See "Cleaning the Oiler Belt" on page 7-51 if you need instructions. • Ensure that the hot roll shield is up.

Table 6-6. Print Quality Symptom Table (continued)

Symptom	Action
Print is not correctly registered	• Ensure that the print position is adjusted correctly. See "Adjusting the Print Position" on page 5-57 for more information. • Check forms alignment. See "Checking Forms Alignment" on page 5-71 if you need instructions.
Dark background or dirty prints	Clean the printer, particularly the coronas and the oiler belt. See "Cleaning the Oiler Belt" on page 7-51 and "Cleaning the Printer" on page 7-7.
Dark streaks	Clean the printer, particularly the coronas and the oiler belt. See "Cleaning the Oiler Belt" on page 7-51 and "Cleaning the Printer" on page 7-7.
Dark or fuzzy 0.5 inch (12 mm) wide band across width of page (print bloom); characters appear bolder or slightly larger than normal	This problem may occur at the point where pages stop in the fuser. The problem may also be application-related, and if so, cannot be corrected by adjusting the printer.
Any other print quality problem or any of the above problems that persist after you have followed all of the corrective steps	Call your service representative. See "Service Call Procedure" on page 2-6.

Sudden Failures

If your printer has been operating satisfactorily for a reasonable period and then suddenly fails, consider the following questions:

- Is the printer processing a new application?
- Is the printer using new forms?
- Are forms or other supplies being obtained from a new supplier?
- Have the IBM Advanced Function Printing licensed programs been updated?
- Have any changes occurred in the operating system environment?
- Has the printer been recabled or moved?
- Have any configuration items been changed recently?

If the answer to any of these questions is "yes," that may be the cause of the problem. Work with your system programmer, service representative, or application owner to resolve the situation.

Problem Solving Tips and Suggested Actions

Table 6-7 is a summary of some hard-to-classify symptoms, a discussion of the probable cause, and some actions for you to try.

Table 6-7. Miscellaneous Problems

Symptom	Discussion	Suggested Action
The printer frequently jams during auto load.	Loading problems are usually caused by the forms that are being loaded. If a particular form jams frequently, refer the application owner to the *Forms Design Reference for Continuous Forms Advanced Function Printers*, G544-3921. This book contains detailed information about selecting forms and designing applications for use with a continuous forms printer.	• Ensure that the folded or leading edge of the form is not wrinkled or torn. • If the first page is folded under, ensure that the tractor holes line up *exactly*. If you are using forms with a $1/3$- inch or $2/3$-inch increment, ensure that the fold is on a perforation that is centered between tractor holes. This occurs only once every three pages. • If the stack of forms seems to curve (dishing), roll the first form in the opposite direction of the curve, and then unroll it before you put the form on the transfer station lower tractors.
A message appears repeatedly on the printer operator panel display and a operator console window.	None	• See "Responding to Messages" on page 6-2. Ensure that you have tried all of the actions described in the message • If the message continues, call your service representative. See "Service Call Procedure" on page 2-6.
A status message is displayed for a long time without changing.	Some messages give status about operations that really *do* take a long time. For example, during a Restart operation the control unit is transferring programs from the hard disk into the control unit memory, and it cannot display a new message until those programs are up and running.	• Wait at least five minutes before attempting any recovery action. • If the message does not change and recovery actions fail, use the "Service Call Procedure" on page 2-6 to contact your service representative.
The operator panel display and the operator console monitor are blank, all indicators are off, and the printer is silent.	The printer is not getting any electrical power.	Determine if some or all of your building is experiencing a power outage. If not, use the "Service Call Procedure" on page 2-6 to contact your service representative.
Some function switches do not respond when pressed.	The printers keep only potentially valid controls (hardware switches and operator console pushbuttons) active while operating. For example, when the operator panel display shows READY, only the **Stop** function is active; you must stop the printer before using any other functions.	If a function key *should* be active but is not, use the "Service Call Procedure" on page 2-6 to contact your service representative.
The alarm is sounding.	The audible alarm tone should sound whenever an interruption message appears in an operator console window and on the operator panel display. The intervention light on top of the printer comes on at the same time.	• **SELECT** the **Check Reset** pushbutton on the interruption window. • If the alarm continues, use the "Service Call Procedure" on page 2-6 to contact your service representative.

Table 6-7. Miscellaneous Problems (continued)

Symptom	Discussion	Suggested Action
The intervention light on top of the printer comes on, but the alarm does not sound.	The alarm volume may be set to a low volume or alarm suppression may be set to Yes in the printer configuration.	Adjust the alarm volume control, see "Adjusting the Volume of Operator Alert Assembly" on page 4-18.
Labels stick together in the stacker. Toner from one page sticks to the facing page.	Labels must be processed in simplex mode.	• Set the **Forms Select** switch on the printer control panel to **Plastic**. • Reduce the contrast by pressing the **Lighter Contrast Control** key on the printer control panel. • Print a stack of forms and check to ensure that the problem is resolved.
The operator panel display and the operator console **Printer Status** window show READY, but the printer does not respond when the host system console operator directs a job to it.	There is probably a problem with the attachment hardware connecting the printer to the controlling computer system, such as the channel is not enabled or cables are not connected.	Work with the system console operator and the system programmer to resolve the problem. Review the questions in "Sudden Failures" on page 6-64 to see if there have been any changes in the environment that might affect attachment hardware.
The printer starts and stops repeatedly, or the forms move at an irregular speed.	This problem may be related to the application that is being processed, or to the printer configuration. If the printed pages are complex to format; many transmission errors occur; or the buffered data commands are issued by the host, the printers must pause as those pages are created in memory.	Work with the system engineer or system programmer to resolve the problem. The *Forms Design Reference for Continuous Forms Advanced Function Printers*, G544-3921, contains detailed information about selecting forms and designing applications, and may be of use in resolving the problem.
The operator panel display and the operator console show END OF FORMS, but forms are present.	Something is preventing the printer from sensing that forms are available. Narrow forms sometimes slide sideways, away from the paper sensor.	• Inspect the forms below the splicing table for holes in the printable area.
Missing data at the rear of the forms (printer right-hand side).	The rear tractor could be out of adjustment.	• Ensure that you are using the correct form width for the form ID that was entered. • Ensure that the correct form ID was entered for that form.

Preheat Control Diagnostics

Use Table 6-8 to help you isolate and diagnose problems that may be caused by the preheat control knob adjustment, when using this facility in simplex mode.

Table 6-8. Preheat Control Diagnostics - Simplex Mode Only

Explanation	Suggested Action
Preheat too cool (poor fuse quality)	1. Increase the preheat control knob one position. 2. Print a 2-inch stack of forms. 3. Check the forms for acceptable fusing. 4. If not acceptable, increase the platen temperature one position and print the sample again. 5. If acceptable fusing *cannot* be obtained, the forms being used may not be acceptable for use on the printer. 6. Load different forms.
Preheat too hot (forms damaged or sticking)	1. Decrease the preheat control knob one position. 2. Print a 2-inch stack of forms. 3. Check the forms for damage or sticking. 4. If not acceptable, decrease the platen temperature one position and print the sample again. 5. If damage or sticking continues, the form being used may not be acceptable for use on the printer. 6. Load different forms.

Chapter 7. Maintaining the Printer

> **Chapter Overview**
>
> This chapter describes ordering and replenishing printer supplies and routine cleaning of the printer:
>
> - "Supplies" on page 7-2
> - "IBM Supplies Work Sheet" on page 7-3
> - "Ordering Supplies" on page 7-5
> - "Storing Supplies" on page 7-6
> - "Cleaning the Printer" on page 7-7
> - "Adding Fuser Oil" on page 7-18
> - "Adding Toner" on page 7-21
> - "Checking the Toner Collector" on page 7-30
> - "Changing the Developer Mix" on page 7-37
> - "Checking the Fine Filter" on page 7-46
> - "Changing the Fine Filter" on page 7-47
> - "Cleaning the Oiler Belt" on page 7-51
> - "Changing the Oiler Belt" on page 7-54
> - "Checking the Absorbent Pad in the Oil Pan" on page 7-61
> - "Adding Supplies to Pre/Postprocessing Devices" on page 7-64

Supplies

For optimum reliability and print quality use IBM supplies, which are engineered specifically for IBM printers. Use the "IBM Supplies Work Sheet" on page 7-3 to help you order supplies for the printer before the system is delivered, and to maintain a stock of supplies for continuous operation.

When a printer runs low on a supply item, it displays a status message on the operator console screen, sounds an alarm, and turns on an operator intervention light on top of the printer.

IBM recommends that you keep the following quantities on hand per print engine:

Item	Suggested Quantity
Toner	48 bottles
Developer mix	4 bottles
Fuser oil	4 bottles
Oiler belt	2 belts
Fine filter	2 filters
Splicing tape	72 rolls

The estimated quantities are approximations for planning purposes only, and do not represent a warranty, a guarantee, or a minimum. The actual consumption depends on variables such as machine toner settings, job-stream percent toner coverage, form characteristics, temperature, and humidity.

Also ensure that a toner-certified vacuum cleaner (see page 7-7) is available for printer operators to use when cleaning the printer.

IBM Supplies Work Sheet

Important Notes Concerning Supplies

Notes:

1. Make sure to use the correct part numbers when you order new supplies. Different models use different supplies (such as toner, developer, fuser oil, oiler belts, and fine filters). Using the wrong developer or toner, for example, causes serious print quality problems and <u>forces a service call</u>.

2. Infoprint 4000 Models DR1/DR2, IR1/IR2, and IR3/IR4 use an Oiler Wick Roll in place of the Oiler Belt that is used on other models. These models do not use a customer-replaceable oiler belt. The Oiler Wick Roll is replaced by your service representative as part of routine preventative maintenance.

3. The toner bottle can also be used as a waste toner collection bottle.

   Note: Do not reuse waste toner.

4. The yields listed in Table 7-1 on page 7-4 are approximations. They are not a warranty or guarantee of minimum life, and are provided only to assist in supplies planning. Analyze your actual usage figures to determine how much of each supply item to stock.

5. Toner yield is affected by several factors, including print coverage, contrast setting, form type, and environment. Yields provided by the following formulas are approximate averages only. Toner yield is expressed in impressions per bottle.

   ```
   Yield in impressions per bottle = (16 820 000 × A) ÷ (W × L × C)
     (For toner PN 1402822 - blue lettering on the bottle)
   Yield in impressions per bottle = (19 435 000 × A) ÷ (W × L × C)
     (For toner PN 1402833 - green lettering on the bottle)

   A = 1.71 for contrast setting 1
   A = 1.00 for contrast setting 4
   A = 0.71 for contrast setting 7

   W = Width of impression
   L = Length of impression
   C = Coverage on impression expressed as a percentage
   ```

   For example, on an <u>8.5 x 11-inch form</u> with a contrast setting of 1 and a coverage of 4%:

   ```
   Yield = (16 820 000 × 1.71) ÷ (8.5 × 11 × 4) = 76 904 impressions
     (For toner PN 1402822 - blue lettering on the bottle)
   Yield = (19 435 000 × 1.71) ÷ (8.5 × 11 × 4) = 88 860 impressions
     (For toner PN 1402833 - green lettering on the bottle)
   ```

   Notes:

   a. This toner yield formula is for all printers <u>except</u> Models ID3/ID4, Models IR1/IR2, and Models IR3/IR4. Reduce the yield by 10% for these models.

   b. The number of impressions per bottle is independent of the paper size. For example: 76 904 8.5×11 impressions on 8.5×11 forms. Or: 76 904 8.5×11 impressions on 11×18 forms running 2 up.

6. Fine Filter processing yield is based on 4 square inches of toner coverage per foot of forms with the printer control panel Contrast switch in the center (4) position. More dense applications, such as extensive bar codes, or images, or solid area fill, or printing with a higher Contrast setting can expect to achieve yields lower than those achieved with the average text page.

7. The life of the absorbent pad for the oil pan in Model DW1, Model ID1, and ID3 varies according to the way you run your printer. In general, the more

often the printer is idle, the more often you may need to replace the pad. IBM recommends that you check the absorbent pad weekly. The *Operator's Guide* contains instructions for checking the pad.

Contact your CE for replacement pads.

Table 7-1 is a work sheet that lists IBM supplies and their part numbers. Make copies of this work sheet to use when you order supplies.

Table 7-1. IBM Supplies Work Sheet

IBM Supply Item	Approximate Forms Processed (In Feet)	Part Number	Minimum Order Quantity	Quantity Needed
Toner – All Models (**green** lettering on bottle) 1.500-kilogram (3.30-lb) bottle	See note 5 on page 7-3	1402833	1 carton (8 bottles per carton)	
Developer Mix – All Models (**green** lettering on bottle) 3.5-kilogram (7.7-lb) bottle	ID3/ID4, IS2 = 0.8 Mft per bottle; OW1, OW3, DW1/DW2, IS1, ID1/ID2 — 1.0 Mft per bottle; DR1/DR2 = 0.7 Mft per bottle	1402834	1 carton (2 bottles per carton)	
Toner – All Models (**blue** lettering on bottle) 1.360-kilogram (3-lb) bottle	See note 5 on page 7-3	1402822	1 carton (8 bottles per carton)	
Developer Mix – All Models (**blue** lettering on bottle) 3.5-kilogram (7.7-lb) bottle	Max at 150 IPM: 1 000 000 per bottle Max at 229 IPM: 1 400 000 per bottle Max at 310 and 324 IPM: 1 200 000 per bottle For Models IR3/IR4: 1 000 000 per bottle	1402823	1 carton (2 bottles per carton)	
Fuser Oil (D01 and D02) 1-kilogram (2.2-lb) bottle	700 000 per bottle	6190656	1 carton (1 bottles per carton)	
Fuser Oil (0W1/0W3, DW1/DW2, IS1, IS2, ID1/ID2, ID3/ID4) 1-kilogram (2.2-lb) bottle	700 000 per bottle	1372463	1 carton (1 bottle per carton)	
Fuser Oil (DR1/DR2, IR1/IR2, IR3/IR4) 1-kilogram (2.2-lb) bottle	450 000 per bottle (219 000 per bottle for Models IR3/IR4)	1402819	1 carton (1 bottle per carton)	
Oiler Belt (D01/D02)	At 150 IPM: 1 300 000 per belt At 229 IPM: 1 500 000 per belt	70X7243	1 carton (1 belt per carton)	

IBM Supply Item	Approximate Forms Processed (In Feet)	Part Number	Minimum Order Quantity	Quantity Needed

Oiler Belt (0W1/0W3, DW1/DW2, IS1, IS2, ID1/ID2, ID3/ID4) (see note 2 on page 7-3)	At 150 IPM:
	  1 300 000
	At 229 IPM:
	  1 500 000
	At 310 and 324 IPM:
	  1 700 000
		1372459	1 carton (1 belt per carton)	

Oil Pan Absorbent Pad (DW1, ID1, and ID3)	See note 7 on page 7-3	Contact Service Representative	1 pad (1 pad per pack)	
Fine Filter (D01/D02)	3 900 000 per filter	70X7244	1 carton (1 filter per carton)	
Fine Filter (0W1/0W3, DW1/DW2, DR1/DR2, IS1, IS2, ID1/ID2, ID3/ID4, IR1/IR2, IR3/IR4)	3 500 000 per filter	1372464	1 carton (1 filter per carton)	
Splicing Tape	45 feet of tape per roll	4165880	1 carton (72 rolls per carton)	

Ordering Supplies

You can order supplies directly from IBM or from your Lexmark representative. Your IBM representative can assist you in the procedure for placing your first order of supplies.

Maintenance Supply Items

In the U.S.A., Latin America, and EMEA, the IBM Monthly Maintenance Charge includes the fuser oil, oiler belt, and fine filter. Approximately a 90-day stock of these items are supplied with each printer.

In the U.S.A., you can order these maintenance items by calling 1-800-793-5888 if you have an IBM Maintenance Contract.

Customer-Replaceable Supply Items

There are several methods for ordering supplies:
- You can purchase toner, developer, and other supplies through Lexmark. You can contact Lexmark at 1-800-438-2468 or through any Lexmark International authorized supply dealer.
- You can fax a completed order to Lexmark at 1-800-522-3422.

Warranty Returns

If the supplies you receive are defective, return them to the place of purchase during the warranty period for a free replacement.

Include a copy of your invoice, a description of the problem, print-quality samples, and an estimate of the amount of printing already done with that supply.

This information applies only to supplies purchased in the U.S.A. In other countries, contact your point of purchase for returns information.

Storing Supplies

Store printer supplies in the printer operating environment for at least one day before using them. At other times, you can store supplies in an environment that does not exceed the following requirements:

Temperature
> −25° to 40°C (−13° to 104°F)

Relative Humidity
> 5% to 90%

Forms have different storage requirements. Store forms in an area where temperature and humidity are similar to the environment in which they will be used. If forms do not adapt to moisture changes, wrinkles and voids during printing can occur.

Avoid areas of extreme heat or humidity. Extended exposure to these extremes can damage the materials permanently. Relative humidity levels above 65% may reduce print quality.

Cleaning the Printer

Clean the following areas of both printers before each shift:
* Developer area
* Forms input area
* Transfer station area
* Stacker area
* Rear service area.

Clean the following area at least once each week:
* Oiler belt. See "Cleaning the Oiler Belt" on page 7-51 for instructions.

Recommendations About Cleaning the Printer

* You may need to clean the printer more often, especially before and after printing labels.
* The following procedure specifies that you unload forms from the printer before you clean.
  – Unloading forms before cleaning requires that forms be re-loaded after cleaning.
  – Loading forms is a time consuming activity and requires flushing forms out of the entire forms path, then reloading and threading the entire forms path.
  – It is recommended that for normal, once-per-shift cleaning of the printer you leave forms loaded on the printer, and do the best job you can working around the forms to follow all of the cleaning steps. It is also recommended that you do an additional cleaning when you load a new form type or when you have cleared the forms path.
* You should clean the printer only with a vacuum cleaner approved for toner applications.
* You need the following items to clean the printer:
  – Toner-certified vacuum cleaner

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

    - All attachments or tools that are connected to the vacuum cleaner through which paper dust, toner, or developer mix pass are nonconductive.
    - Vacuum-cleaner motor cooling *must* be separate from the vacuum line so that these same substances do not contact the electrical brushes of the vacuum-cleaner motor. Filtering the vacuum line and allowing the filtered air to cool the motor is not safe.
  – Cloth or paper towels.

The printer cleaning procedure is as follows:

1. Disable the host attachments. See "Enabling and Disabling Attachments" on page 4-11 for details.

2. Separate the forms at a perforation near the splicing table.

3. Raise the static brush at the splicing table so that the forms fall back into the input area. Ensure that the end-of-forms sensor is not covered by forms in the input area.

4. Advance the forms by doing one of the following:

   - In duplex mode,
     – On the operator console main window, **SELECT** the **NPRO** pushbutton. OR
     – On the operator panel of either printer, press the **NPRO** key.

   - In simplex mode,
     – On the operator console main window, **SELECT** the **NPRO** pushbutton. OR
     – On the operator panel of the affected printer, press the **NPRO** key.

   The END OF FORMS 078A message appears on the operator console.

   Note: NPRO is not operable if the **Thread/Align Forms** procedure window appears.

5. **SELECT** or press the **NPRO** pushbutton or key again.

   In duplex mode, the forms move through both Printer 1 and Printer 2 to either the stacker on Printer 2 or to a postprocessing device behind Printer 2. In simplex mode, the forms move through the printer to the stacker or to a postprocessing device behind the printer.

   If forms have moved to a printer stacker, go to step 6.

   If forms have moved to a postprocessing device, go to step 7.

6. Unload the stacker. See "Unloading the Stacker" on page 5-74.

   Perform the **Shutdown** procedure.

7. Switch power off to the printer. See "Controlling the System Power" on page 4-2 for details.

> **Attention!**
>
> Damage to the printer can occur if printer power is not turned off before you use the vacuum cleaner.

---

8. Plug a toner-certified vacuum cleaner into a 110 V ac outlet near the printer.

DEVELOPER AREA

Coronas

A23O0014
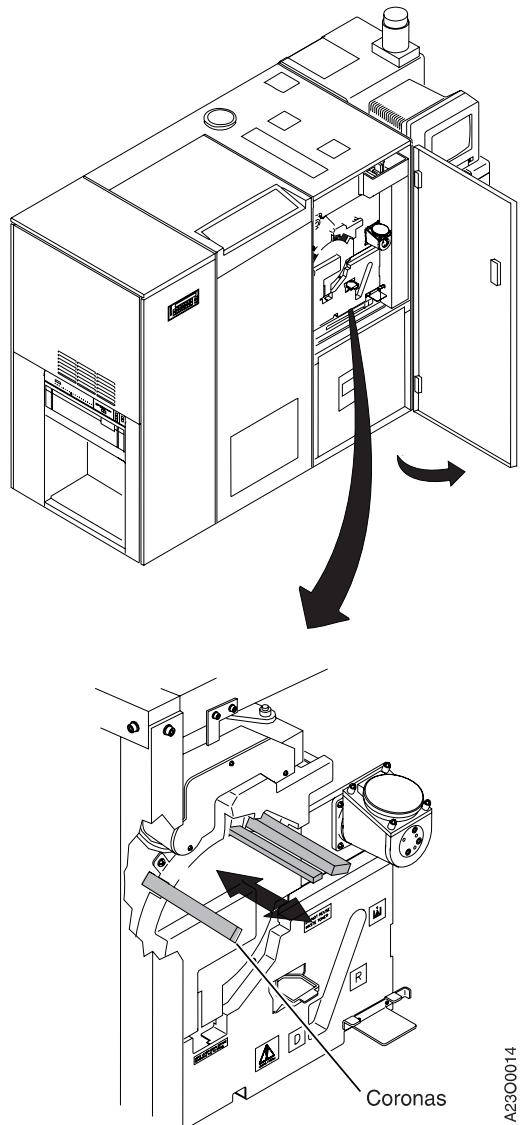
9. Open the right front cover of the printer.
10. To clean each corona (preclean, precharge, and charge), do the following:

> ┌─ **Important Note About the Coronas** ─────────────────────
> There is no device to prevent you from pulling out the coronas. Be
> careful not to break the thin wires and tiny retractor springs inside the
> corona.

a. Pull each white corona (the shaded areas in the illustration) toward you
until it is *almost* out of its track. A brush inside the corona housing cleans
thecorona as it is pulled out and then pushed back in.

b. Gently push each corona back into place. Ensure that the corona is pushed
in completely.

11. Use a cloth or paper towel to wipe away any paper dust, toner, or other debris from the developer area.

R4CO0241
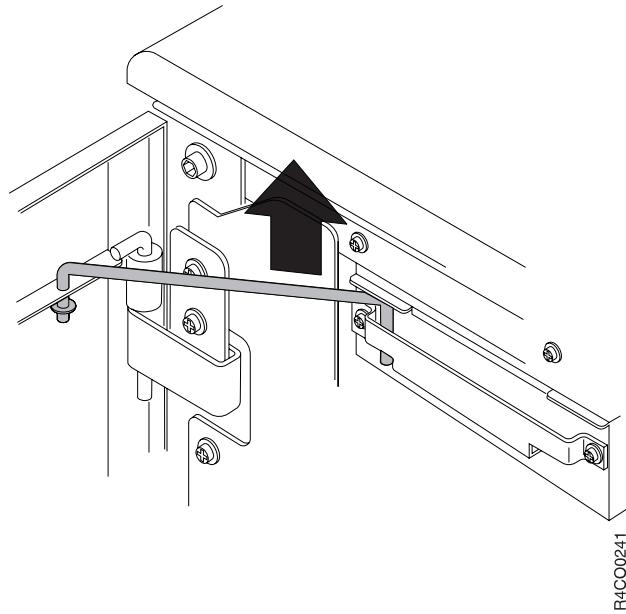
12. Close the right front cover of the printer. Liftthe cover hinge bar and slide the bar toward the printer.

Important

The printer right front door *must* be completely closed whenever the printer is running. Light entering the printer can significantly reduce print quality.

FORMS INPUT AREA

13. Open the center top and center front covers of the printer.

Splicing
Table

Static
Brush

Forms Guide

Input
Area
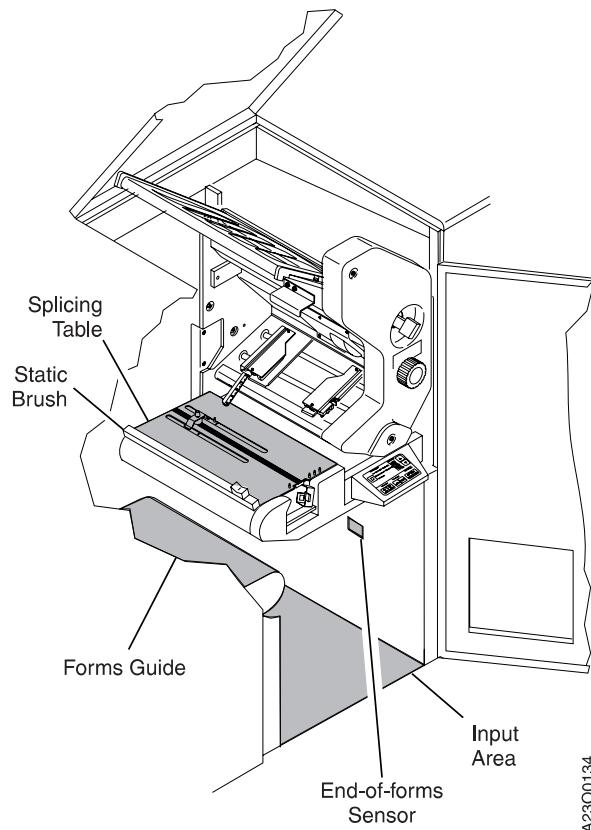
End-of-forms
Sensor

A23O0134

14. Use a toner-certified vacuum cleaner to clean the:
    - Input area
    - End-of-forms sensor
    - Forms guide
    - Splicing table and attached static brush.

> **Attention!**
> Cleaning is not required behind the transfer station as the photoconductor drum is easily damaged.

⚠️ **CAUTION:**

<71> The tractor covers are spring-loaded and can pinch if they snap shut unexpectedly.

CAUT0101

A23O0133
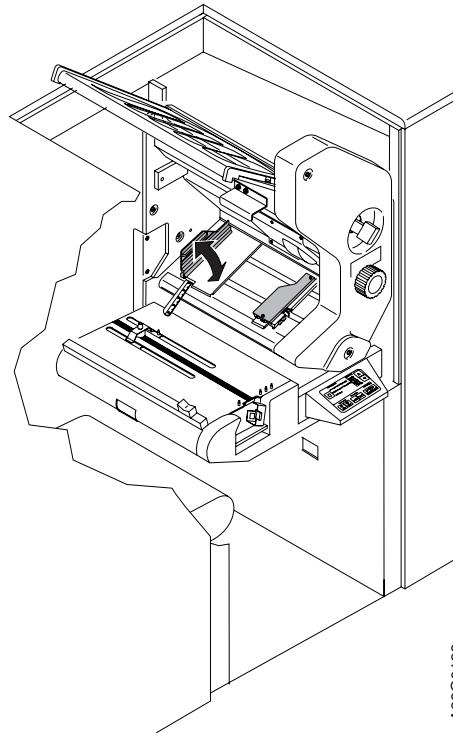
15. Open the lower tractor covers.

16. Vacuum the lower tractor pins to remove forms dust and debris.

17. Close the lower tractor covers.
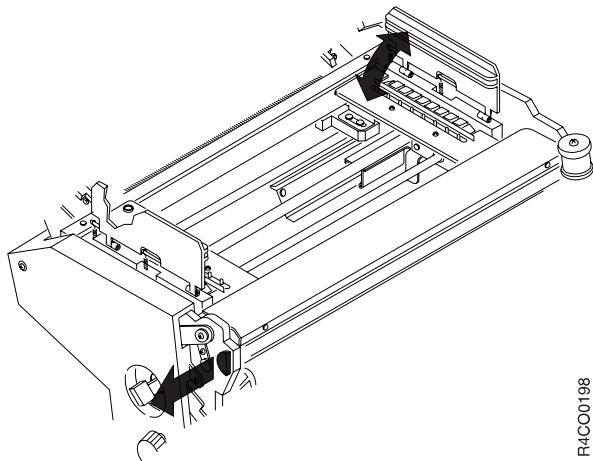
R4CO0198

18. Open the upper tractor covers.

19. Use a soft cloth to clean the upper tractor jam sensor (the glass window under the upper front tractor cover). If necessary, use a pencil eraser to remove forms residue.

20. Use a vacuum cleaner to remove dust and debris around the upper tractor pins.

21. Close the upper tractor covers.

22. Clean the static discharge brush on the transfer station (located near the tension arm).

23. To clean the transfer corona, do the following:

> **Important Note About Cleaning the Coronas**
>
> There is no device to prevent you from pulling out the coronas. Be careful not to break the thin wires and tiny retractor springs inside the corona.

   a. Open the transfer station, and tilt it away from the photoconductor drum.

R4CO0222
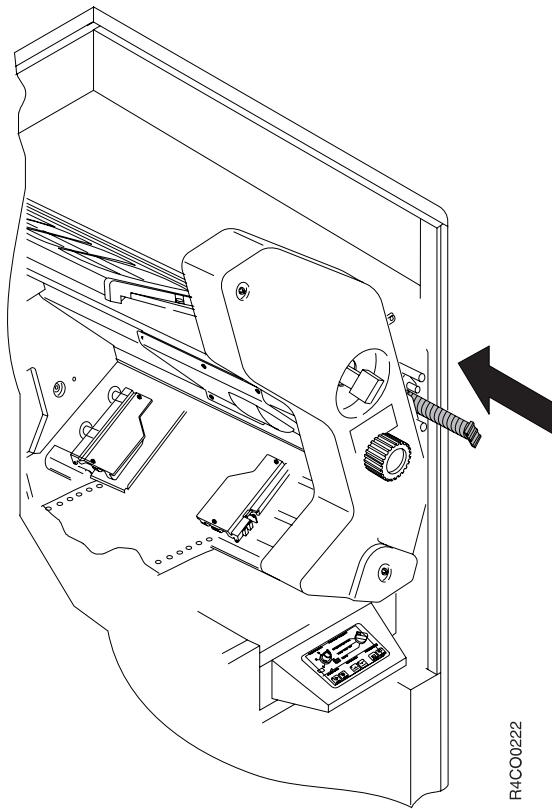
b. Gently pull the white corona (the shaded area in the illustration on this page) toward you until it is *almost* out of its track. A brush inside the corona housing cleans the corona.

c. Gently push the corona back into place. Ensure that the corona is pushed in completely.

d. Gently push the transfer station toward the photoconductor drum and latch it using the Transfer Station Control Lever. See "Transfer Station Control Lever and Tractor Control Knob" on page 1-29 for details.

24. Close the center top and center front covers of the printer.

STACKER AREA

Stacker Table

R4CO0019
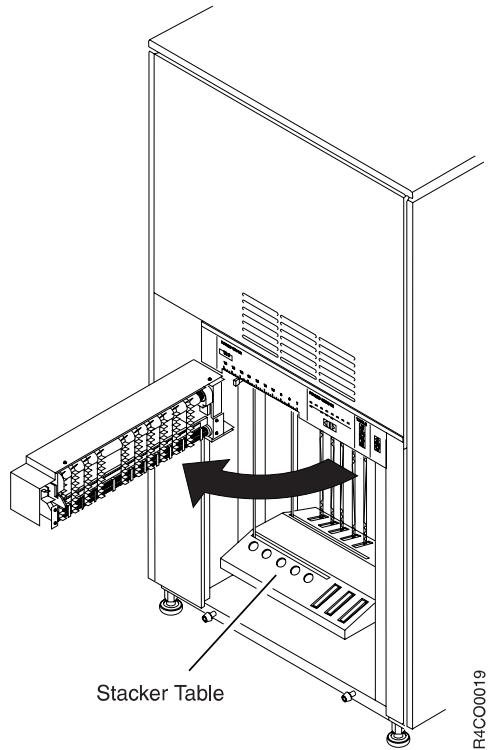
25. Open the stacker gate if an installed postprocessing device does not interfere.

26. Use a toner-certified vacuum cleaner to clean paper dust, chads, and other debris from the following:
    - Pendulum
    - Stacker table
    - Finger belts
    - Stacker floor.

    If you cannot open the stacker gate completely because of interference from an installed postprocessing device, open the gate as wide as you can and clean as much of the area as you can reach.

Sensor

Sensor

Sensor

R4CO0188
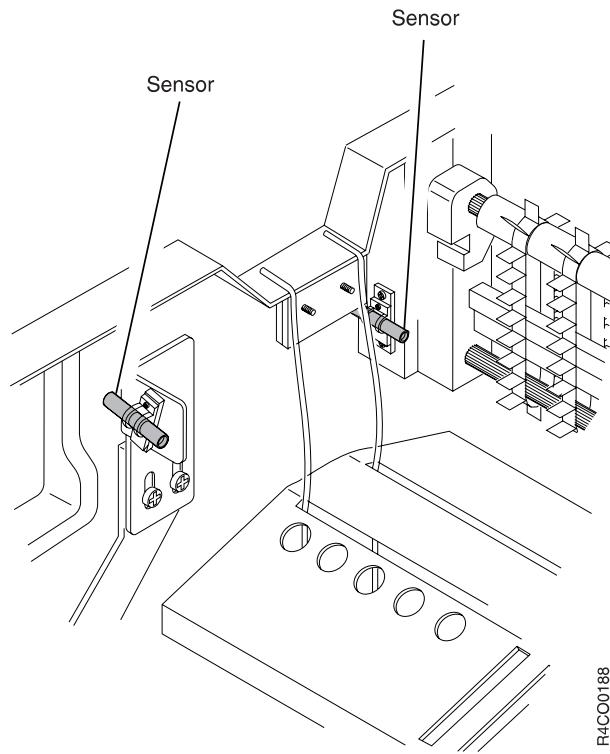
27. Use a soft cloth to clean the six stacker jam sensors and two mirrors.

Mirror

Sensor

Mirror

Mirror

Sensor

Sensor

Sensor

R4CO0237
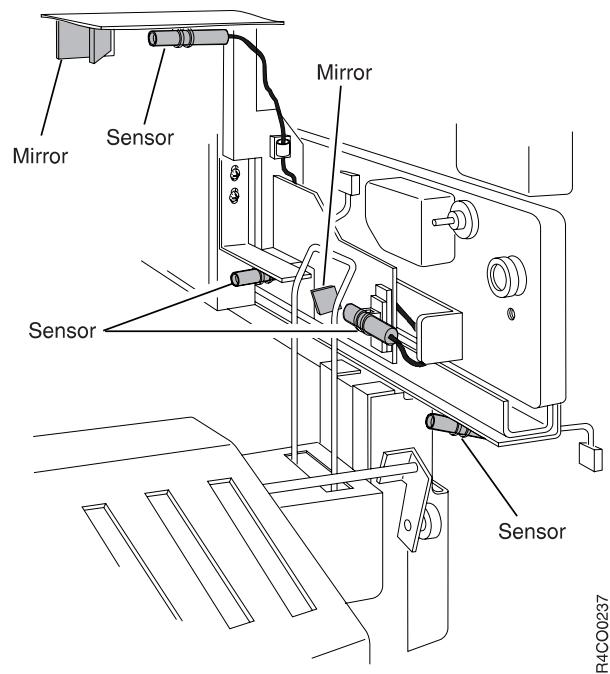
28. Close the stacker gate.

REAR SERVICE AREA

NWTO0015
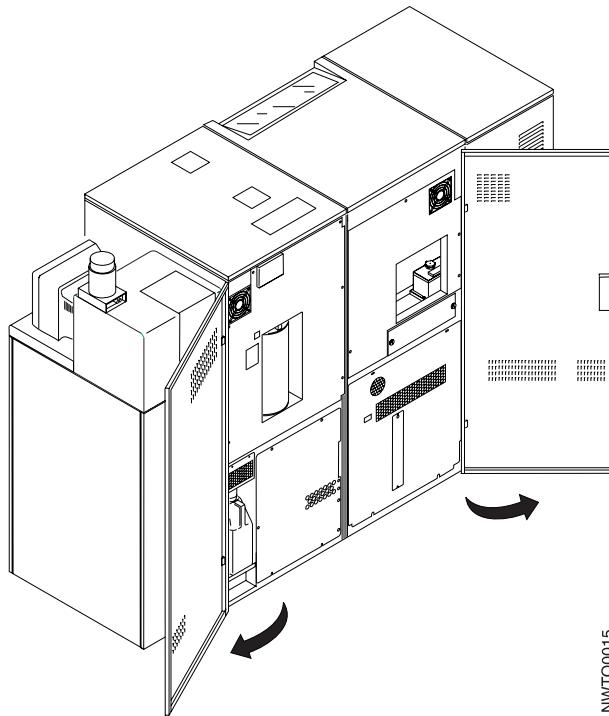
29. Open the left rear and center rear covers of the printer.
30. Vacuum any spilled toner from around and under the Toner Collector bottle.
31. Use a soft cloth to clean the *inside* cover surfaces in the rear service area.
32. Close all covers securely.
33. Use a soft cloth moistened with water to clean the covers and panels.

Important Note About Cleaners

Do not use commercial cleaners that might contain ammonia, solvents, or other volatile chemicals. The vapors from these cleaners can cause chemical reactions that result in reduced print quality.

---

34. Power on the printer. See "Controlling the System Power" on page 4-2.
35. Load forms into the printer, if necessary. See "Loading Forms—Auto Load (Simplex Mode)" on page 5-2 or "Loading Forms—Semiautomatic Load (Simplex Mode)" on page 5-20 for details.

    This step is not required if you did not unload forms before starting this procedure.
36. Enable the host attachments, if necessary. See "Enabling and Disabling Attachments" on page 4-11 for details.

Adding Fuser Oil

> **Attention!**
> Using the wrong fuser oil causes print quality problems. See Table 7-1 on page 7-4 for the correct part number.

Do this task when you see the following message:

```
ADD FUSER OIL
```
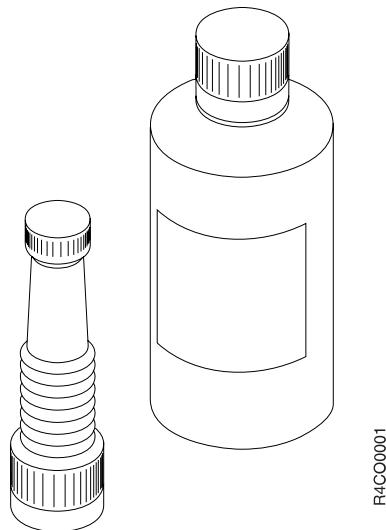

You need the following items when you add fuser oil:
- Fuser oil bottle
- Plastic spout (packaged with the oil)
- Paper towels.

Note: You do not have to replace fuser oil the first time you see the `ADD FUSER OIL` message. To bypass the message, **SELECT** the **Ready** pushbutton on the main operator console.

The `ADD FUSER OIL` message reappears each time end-of-forms is reached, or every 4 000 feet of forms thereafter if you are using a roll-feed pre-processing device. When 50 000 additional feet of forms have been processed since the message originally appeared, you **must** add fuser oil before you can return the printer to Ready status.

CAUTION:

<75> When adding fuser oil:

Avoid contact with eyes.
Wash hands with soap and water after use.
Flush eyes thoroughly in case of accidental contact.
Keep sealed to reduce possibility of leakage.
Wipe up spillage completely to prevent slipping.
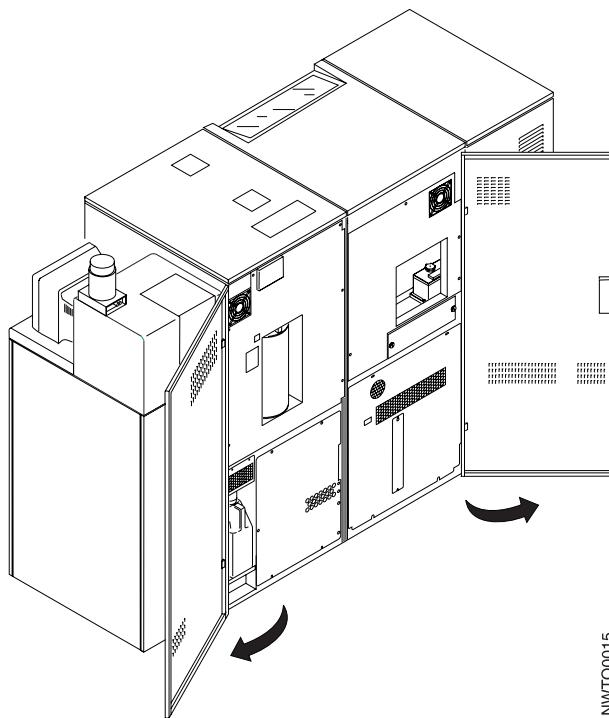
NWTO0015

1. Open the center rear and left rear covers of the printer as shown.
2. Remove the cap from the oil reservoir. Put the cap in a safe place.
3. Locate a bottle of fuser oil and a plastic spout. (Every new package should contain a bottle of fuser oil and a plastic spout.)
4. Ensure that the spout is clean.
5. Remove the bottle lid and the inner seal.
6. Screw the spout onto the bottle of fuser oil.
7. Bend the spout and carefully place it into the oil reservoir opening.

> **Operator Tip**
>
> When you add fuser oil, be careful to pour *slowly*. A filter in the reservoir restricts the flow of fuser oil.

8. Tip the fuser oil bottle to let the fuser oil drain into the oil reservoir.
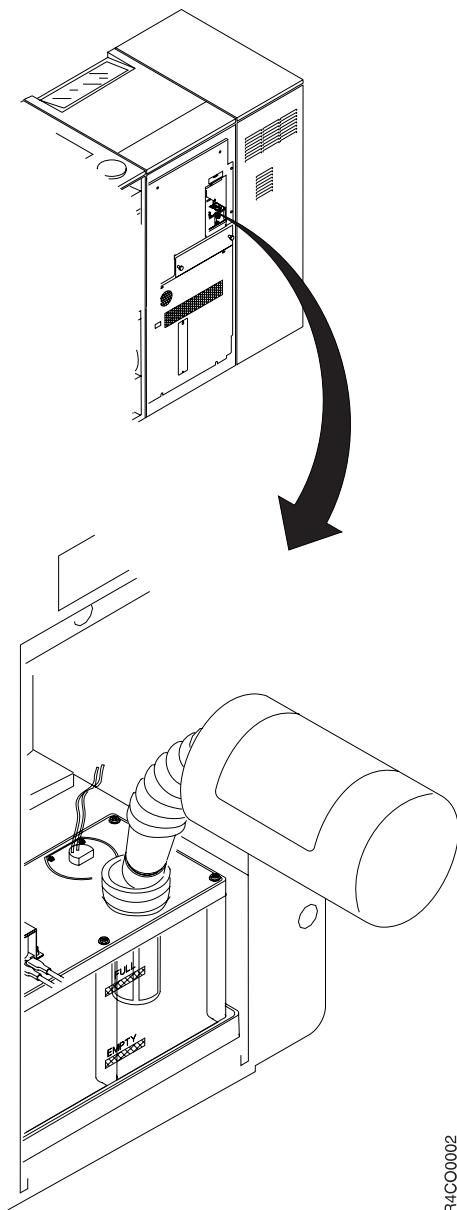
R4CO0002

9. Remove the spout and put the lid on the bottle. If the bottle is empty, discard the bottle and the spout. If some oil remains, store the bottle and spout in a clean, dark place.

10. Ensure that the oil reservoir cap is clean.

11. Put the oil reservoir cap back in place.

12. Close the center and right rear covers of the printer.

13. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.

Adding Toner

> **Important!**
>
> Using the wrong toner or developer mix causes serious print quality problems and forces a service call.
>
> The toner and developer mix bottles are color coded, **blue** or **green**. If you are using toner with blue lettering on the bottle, you must use developer mix with blue lettering on the bottle; the same is true of the toner and developer mix with green lettering on the bottles.
>
> Also, if the toner inlet has a **green label**, you must use the toner and developer mix with green lettering on the bottles. If the toner inlet does not have a green label, use toner and developer mix with blue lettering on the bottles.
>
> See Table 7-1 on page 7-4 for the correct part numbers.

Do this task when you see either of these messages:

```
TONER SUPPLY LOW
```

or

```
ADD TONER
```

Enhanced Toner Loading Notes:

1. The TONER SUPPLY LOW message appears only on printers with the Enhanced Toner Loading function installed. When this message appears, printing operations continue and you may add toner. This message appears while an additional 800 feet of forms (3.5 to 7.0 minutes depending of operating speed) are processed, then the message changes to ADD TONER and printing stops. When the ADD TONER message appears, you must add toner before printing can resume.

2. If your printer has the Enhanced Toner Loading function installed, the configuration of the toner inlet is different from what is shown in the following illustrations. Except as noted in the steps, the procedure for adding toner is the same.

R4CO0144
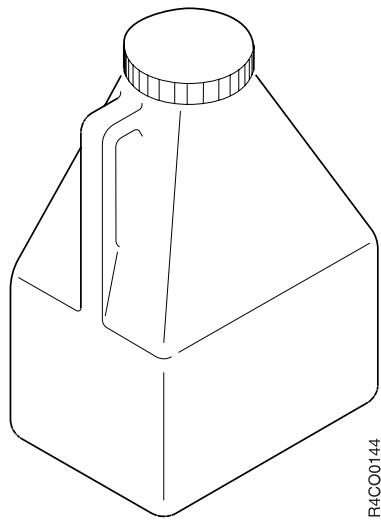
You need the following items when you add toner:
- Two bottles of toner
- Cloth or paper towels.

With either message add two bottles of toner.

1. Open the right front cover of the printer.

Attention!
Do *not* switch power off to the printer during this procedure.

NWTO0029
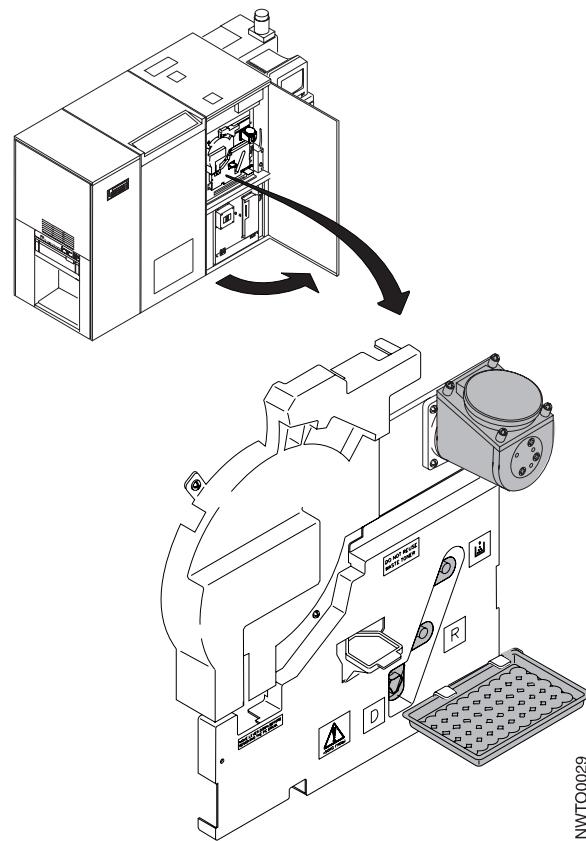
2. Place the toner spill tray on the front of the developer.

Operator Tips

- Working with toner can be messy. You may want to spread papers on the floor under the developer inlet to catch spills.
- If you get toner on your hands, gently brush or blow it off, and avoid touching your eyes or mouth.
- If you get toner on your clothes, gently brush or blow it off. If that does not remove all of the toner, wash the clothes with *cold* water. Hot water may cause the toner to fuse to the cloth.

A23OO067
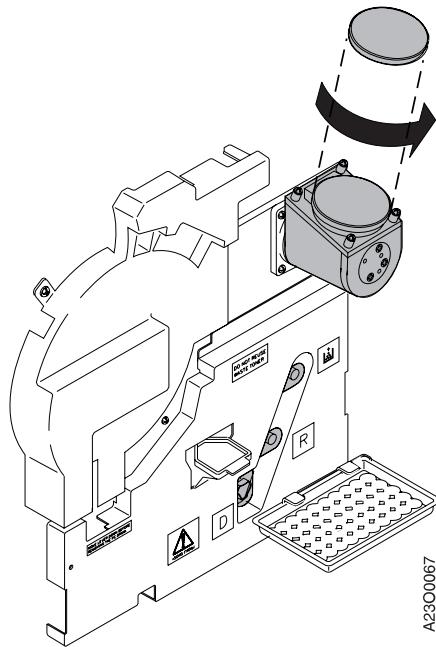
3. To remove the **Toner Inlet** cap, rotate it *counterclockwise* until the cover unlocks.

4. Wipe the **Toner Inlet** cap to remove any excess toner, and put it in a safe place.

R4CO0066
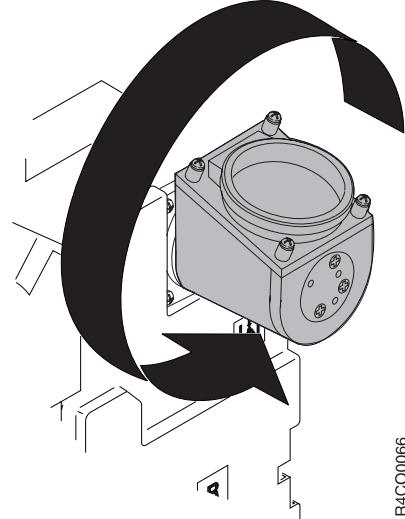
5. Rotate the **Toner Inlet** 120° *counterclockwise* (one-third of a turn to the left).

Operator Tip

Excess toner may spill out of the **Toner Inlet**.

---

6. Locate two new bottles of toner.

> **Attention!**
>
> Do not add more than two bottles of toner.
>
> To prevent damage to the printer, never try to reuse waste toner. Never put anything other than new toner in the toner inlet.

7. Ensure that the toner-bottle cap is attached securely. Shake the bottle several times to loosen the toner.
8. Remove the toner-bottle cap.

R4CO0072
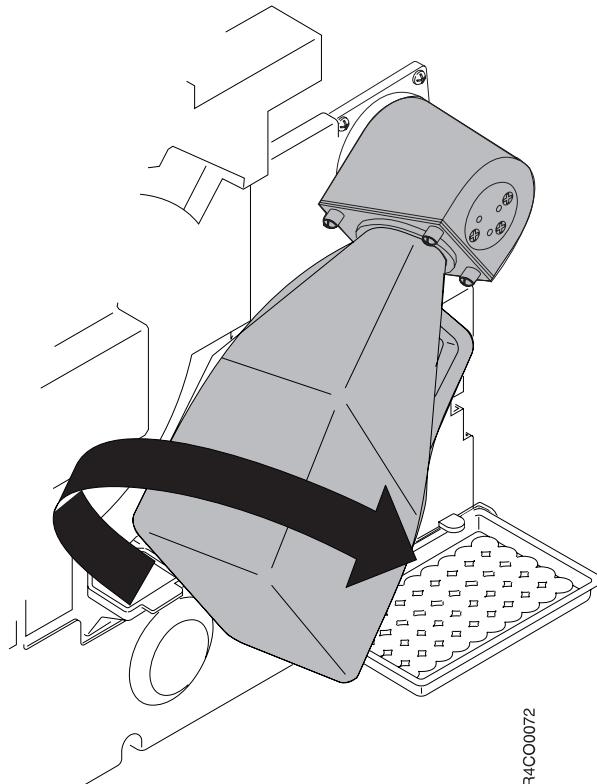
9. To attach the toner bottle to the **Toner Inlet**:
   a. Align the triangle on the toner bottle to the triangle on the **Toner Inlet**.
   b. Insert the bottle neck into the **Toner Inlet** opening.
   c. Push up on the bottle and rotate it *clockwise* until the bottle is locked securely in the inlet.
      The wide side of the bottle is now parallel to the printer.

A23O0068
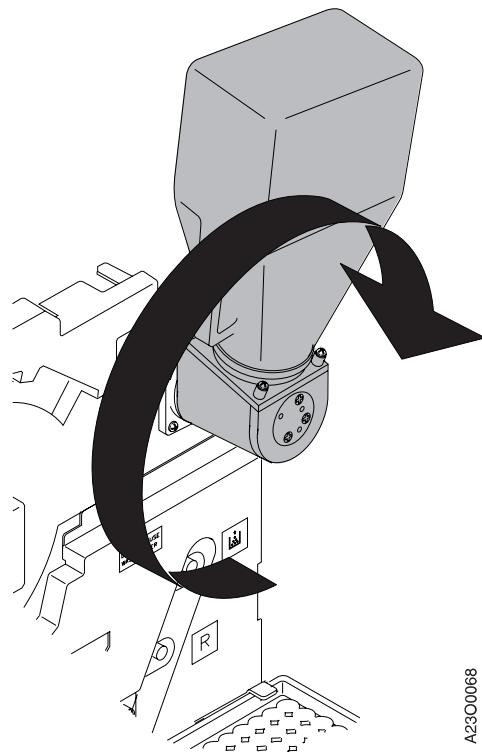
10. Rotate the **Toner Inlet** and the attached bottle *clockwise* 120°. The bottle is now above the toner inlet.

> **Attention!**
> Never press the Toner Supply Pushbutton unless you have attached a toner bottle to the Toner Inlet or installed the Toner Inlet cap.

A23O0096

Toner Supply
Pushbutton

A23O0069
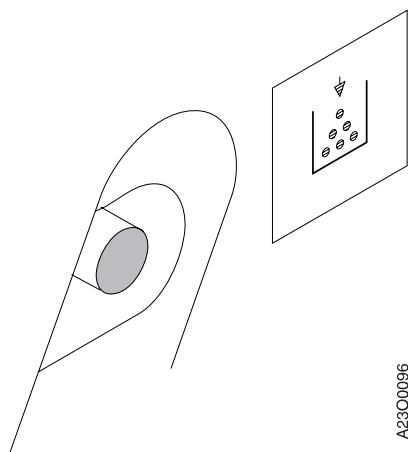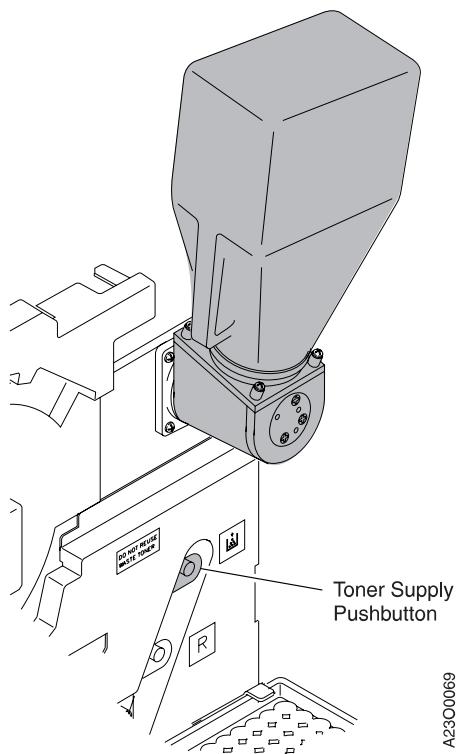
11. Press the **Toner Supply Pushbutton** to move toner away from the inlet and into the toner supply area. When the toner feed motor is running, the rotation indicators on the face of the **Toner Inlet** alternately show red and white. If your printer has the Enhanced Toner Loading function installed, you cannot see the red and white rotation indicators. In this case, you need to observe the motion of the toner bottle while the toner is feeding. The bottle rocks back and forth while the feed motor is running.

> **Operator Tip**
> To ensure that all the toner empties from the toner bottle into the toner inlet, it is helpful to gently tap the toner bottle while the toner feed motor is running.

12. After the toner feed motor has stopped running, press the **Toner Supply Pushbutton** a second time.

> **Operator Tip**
> It is important that you press the **Toner Supply Pushbutton** *two times* to completely empty the toner bottle *and* to cause the CHANGE TONER COLLECTOR message to appear at the correct time. This message always appears with the ADD TONER message and after the eighth time you press the **Toner Supply Pushbutton** following a change of the toner collector. You must change the toner collector after you have added four bottles of toner to the printer to prevent over filling the toner collector.

R4CO0071
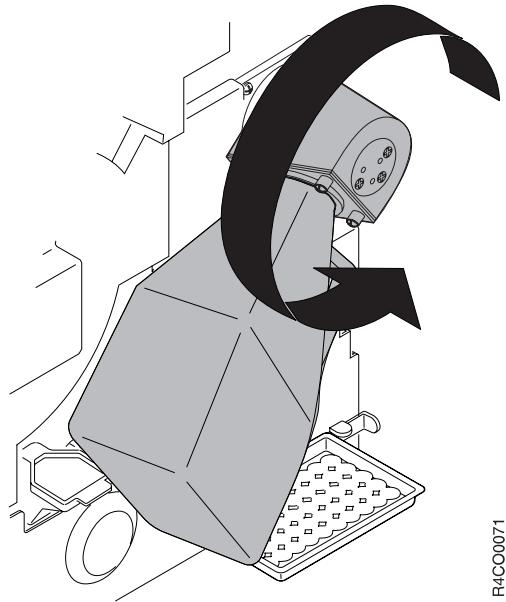
13. After the toner feed motor has stopped running, rotate the **Toner Inlet** and the attached toner bottle 120° *counterclockwise*. The toner bottle is now below the **Toner Inlet**.

14. Gently tap the toner bottle to move excess toner from the toner inlet back into the bottle.

15. To remove the toner bottle from the **Toner Inlet**:

   a. Push up on the bottle and rotate it *counterclockwise* until the bottle is unlocked from the inlet. The narrow side of the bottle is now parallel to the printer.

   b. Pull the neck of the toner bottle out of the **toner inlet**.

Operator Tip

If the toner bottle still contains a large amount of toner, tap it sharply a few times, and repeat steps 9 through 15b.

---

16. Repeat steps 7 through 15b with the second bottle of toner.

Attention!

Do not add more than two bottles of toner.

NWTO0030
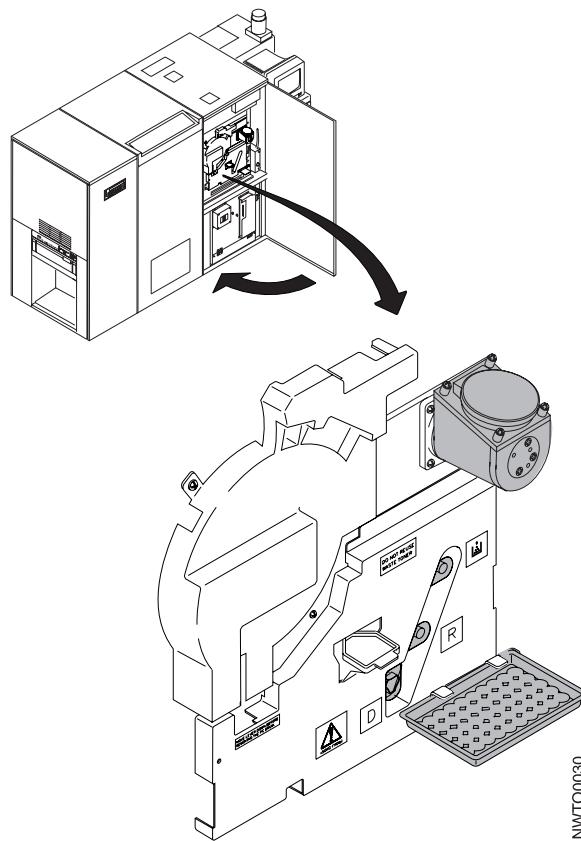
17. After you have added both bottles of toner to the toner hopper, wipe the **Toner Inlet** opening to remove any excess toner.

18. Rotate the **Toner Inlet** so that the **Toner Inlet** opening is pointing up.

19. Put the toner inlet cap on the **Toner Inlet**. To do this, rotate the cap *clockwise* until it is locked securely.

20. Remove the toner spill tray and discard it.

Attention!

Never operate the printer when the toner-inlet cap is off.
---

21. Close the right front cover of the printer.

22. This completes the Add Toner procedure:

   - If you started this procedure because of a TONER SUPPLY LOW message, no further action is required.

   - If you started this procedure because of an ADD TONER message, **SELECT** the **Ready** pushbutton on the main operator console to resume processing.

Checking the Toner Collector

Do this task when you see the following message:

```
CHECK TONER COLLECTOR  0787
```

Notes:

1. This task must be done immediately; you cannot delay it as you can for some **Out of Supplies** conditions.
2. Do *not* switch power off to the printer during this procedure.

NWTO0041
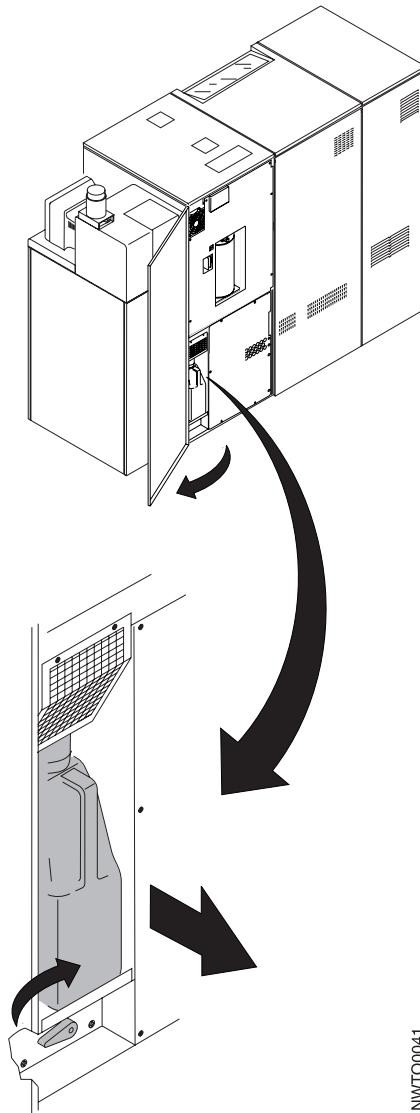
1. From the rear of the printer, open the cover as shown.
2. Ensure that the toner collector is pushed firmly to the rear of the toner-collector table.
3. If you had just replaced the toner collector bottle when this message appeared, try lowering and raising the toner-collector table using the table lever.
4. If you have not replaced the toner collector bottle, replace it now. See "Changing the Toner Collector" on page 7-32.

Note: If you lower the toner-collector table *without* replacing the bottle, the printer resets its counter and may cause an overflow of toner.

5. Ensure that the toner-collector table is raised completely.

6. Close the right rear cover of the printer.

7. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.

8. If the CHECK TONER COLLECTOR message appears again, repeat steps 1 on page 7-30 through 6. If that still does not correct the problem, contact your service representative. See "Service Call Procedure" on page 2-6 for instructions.

Changing the Toner Collector

Do this task when you finish adding toner in response to an `ADD TONER` message, or when you see the following message:

```
CHANGE TONER COLLECTOR
```

This message also appears after you have pressed the **Toner Supply Pushbutton** eight times following changes of the toner collector bottle.

Note: This task must be done immediately; you cannot delay it as you can for some other **Out of Supplies** conditions.

You need the following items when you change the toner collector:
- Empty toner bottle
- Paper towels.

Attention!

Never reuse waste toner. Doing so severely reduces print quality and may require repair of the printer.

Operator Tips

- You may want to spread papers on the floor near the toner collector to catch spills.
- To help prevent spills, take the toner-bottle cap from the new toner collector and put it on the used toner collector bottle.
- If you get toner on your hands, gently brush or blow it off, and avoid touching your eyes or mouth.
- If you get toner on your clothes, gently brush or blow it off. If that does not remove all of the toner, wash the clothes with *cold* water. Hot water may cause the toner to fuse to the cloth.
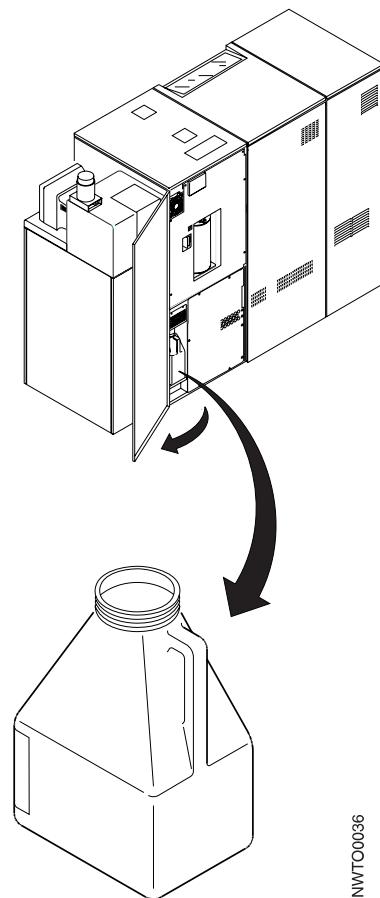
NWTO0036

1. From the rear of the printer, open the cover as shown.

NWTO0037
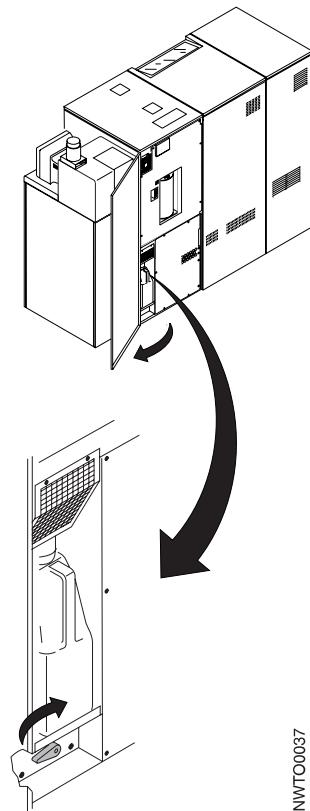
2. Turn the table lever *clockwise* to lower the toner-collector table.

Attention!

Never lower and raise the toner-collector table without changing the
toner collector. Moving the table resets the toner-collector usage timer.
Resetting the timer without changing the toner collector could result in
the toner collector being overfilled and may require repair to the printer.

NWTOO0038
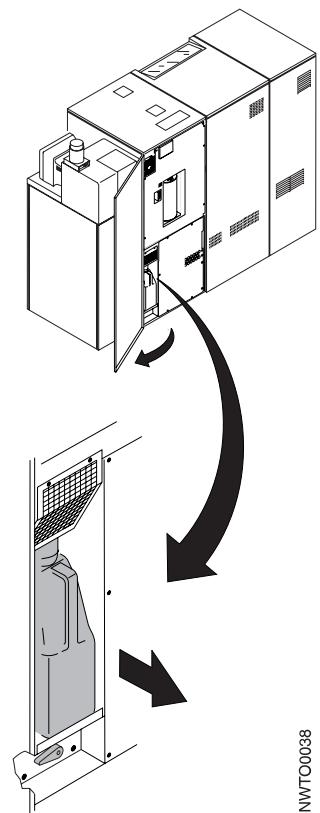
3. Remove the toner collector by pulling it toward you.
4. Wipe the toner-collector table with a cloth or paper towel to remove spilled toner.
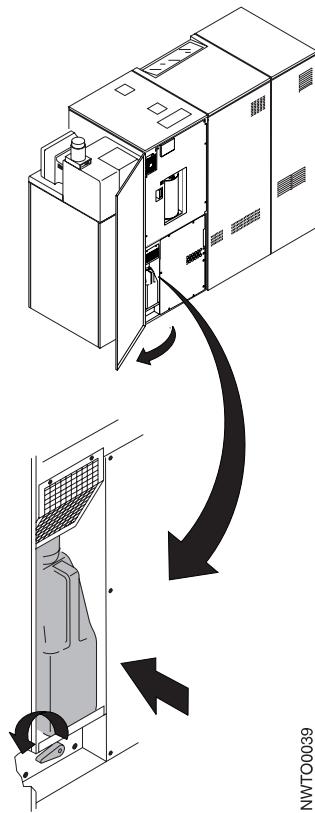
5. Remove the cap from the new toner collector and place it on the full toner collector bottle.
6. Put the new toner collector in place.
7. Firmly push the toner collector toward the printer.
8. Turn the table lever *counterclockwise* to raise the toner-collector table. Ensure that the toner-collector table is raised completely.
9. Close the right rear cover of the printer.
10. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.
11. Discard the used toner collector.

Changing the Developer Mix

Attention!

Using the wrong developer mix causes serious print quality problems and forces a service call. See Table 7-1 on page 7-4 for the correct part number.

Do this task when you see the following message:

```
CHANGE DEVELOPER MIX
```

Note: You do not have to replace developer mix the first time you see the `CHANGE DEVELOPER MIX` message. To bypass the message, **SELECT** the **Ready** pushbutton on the main operator console.

The `CHANGE DEVELOPER MIX` message reappears each time end-of-forms is reached, or every 4 000 feet of forms thereafter if you are using a roll-feed pre-processing device. When 50 000 additional feet of forms have been processed since the message originally appeared, you **must** change developer mix before you can return the printer to Ready status.

Operator Tips

- Developer mix is slippery and working with it can be messy. You may want to spread papers on the floor under the developer drain hose and under the developer mix inlet to catch spills.
- If you get developer mix on your hands, wipe it off as soon as possible.

You need the following items when you change developer mix:
- Developer mix
- An empty developer mix bottle
- Soft cloth or paper towels.

NWTOO031
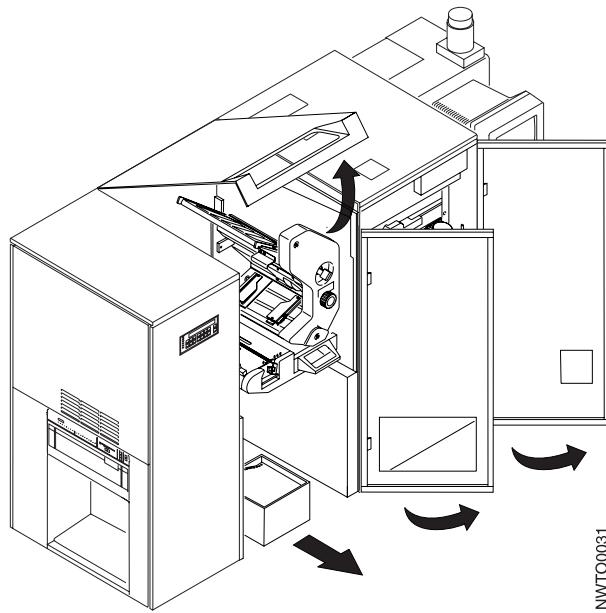
1. Open the center front cover, the center top cover, and the right front cover as shown.

2. Clear the forms, if possible, from directly under the Developer Mix Drain Hose at the right side of the forms input area.

   - If you are using boxed fan-fold forms, slide the box of forms as far to the left (stacker end of the printer) of the forms input area as possible.

   - If you are using a pre-processing device supplying forms under the printer up into the forms input area, create enough slack in the forms supply so that you can move the forms to the far left side of the forms input area.

     Spread paper towels on top of the forms on the floor of the forms input area.

3. Remove the cap from an *empty* developer mix bottle, and put the bottle in the forms input area, directly under the Developer Mix Drain Hose.

Developer Mix
Drain Hose
(In recessed area)

R4CO0015
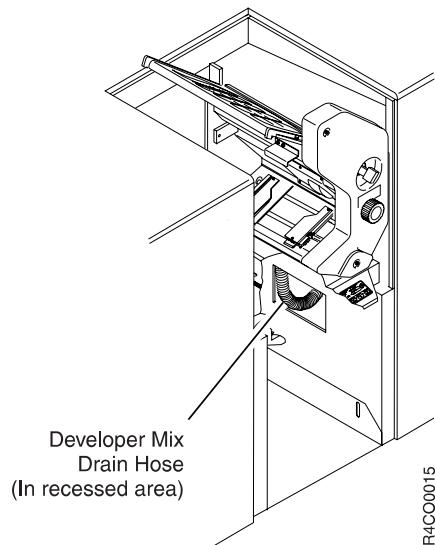
4. Pull out the developer drain hose, keep the capped end pointing up (so that any developer mix in the hose from the last change does not spill), and remove the cap from the hose.

R4CO00121
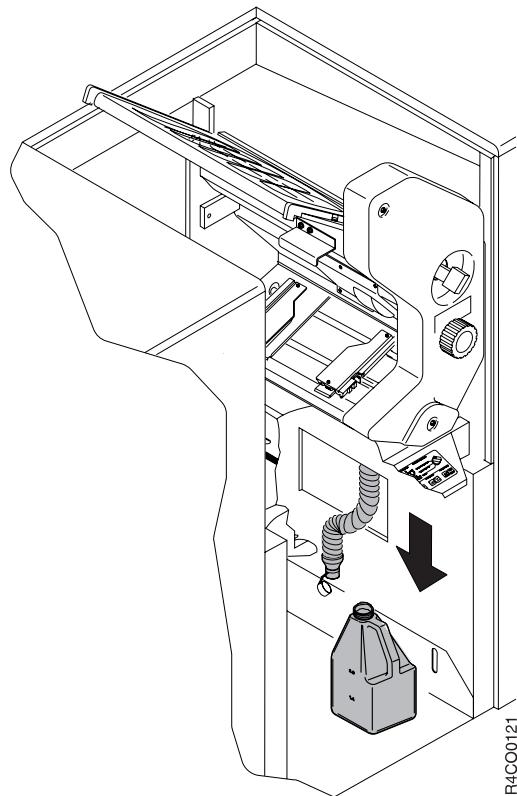
5. Carefully insert the end of the hose into the empty developer mix bottle and put the bottle on the floor. Ensure that the hose is inserted securely and that no sharp bends obstruct the hose.

NWTO0060
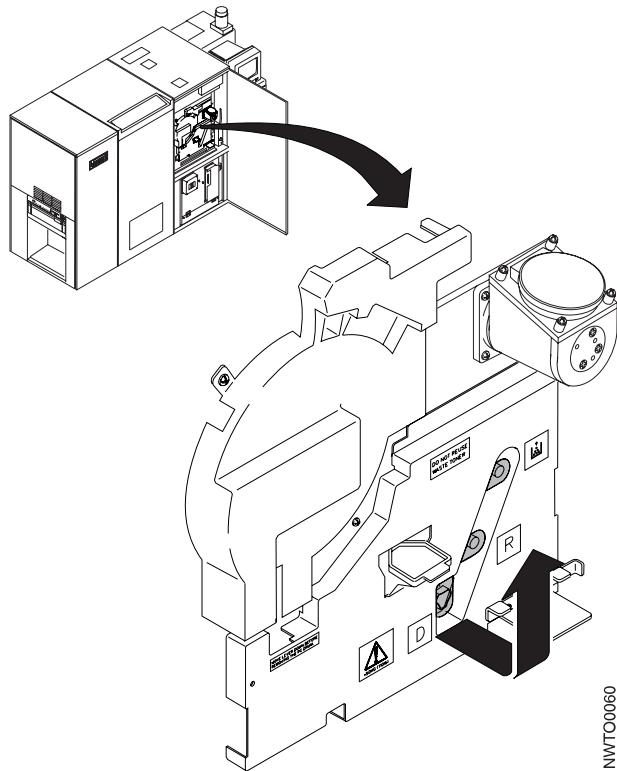
6. Locate the **Developer Mix Inlet**, the **Developer Drain Lever**, and the **Developer Run Pushbutton** in the developer area.

Important

a. Never open the developer drain unless the developer drain hose is inserted into an empty developer mix bottle.

b. After you have opened and closed the developer drain, you *must* replace the developer mix. Opening the drain resets the developer mix usage timer. Resetting the timer without changing the developer mix could result in severe print quality problems caused by the developer mix being used beyond its normal life.

D

R4CO0110

7. Open the **Developer Drain Lever (D)** by pulling out the **Developer Drain Lever** and then lifting it up.

8. The developer starts draining the developer mix immediately. Hold the drain hose so that it does not come out of the empty mix bottle. Shake the hose several times while the mix is draining to ensure that no developer mix remains in the hose.

R

R4CO0111

9. If necessary, press the **Developer Run Pushbutton (R)** one time to ensure that all of the developer mix is drained. There should be about 1.8 liters of used developer mix in the bottle.

NWTO0061
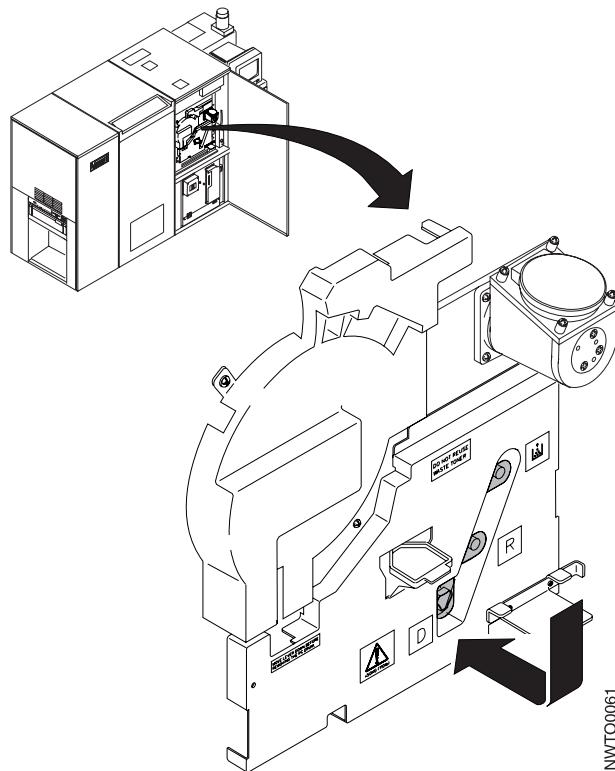
10. When the developer stops running, close the developer drain by pushing down the **Developer Drain Lever** and then pushing it in.

R4CO0206
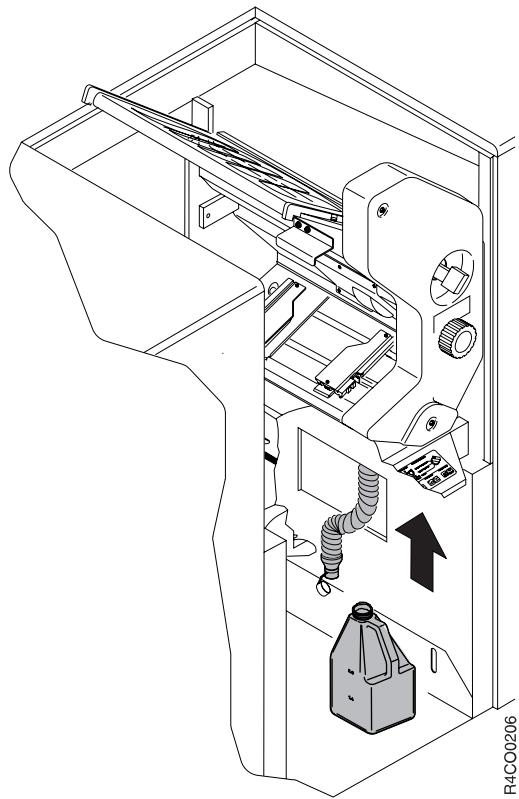
11. Once the developer mix has finished draining, ensure that no developer mix remains in the drain hose by shaking the hose vigorously while you hold the hose as vertical as possible.

12. Remove the developer drain hose from the bottle. Put the cap on the developer drain hose, and return the hose to its recessed storage area.

13. Put the cap on the bottle. Discard the bottle and its contents.

Attention!

To prevent print quality problems, never reuse waste developer mix. Never put anything other than developer mix into the developer inlet.

---
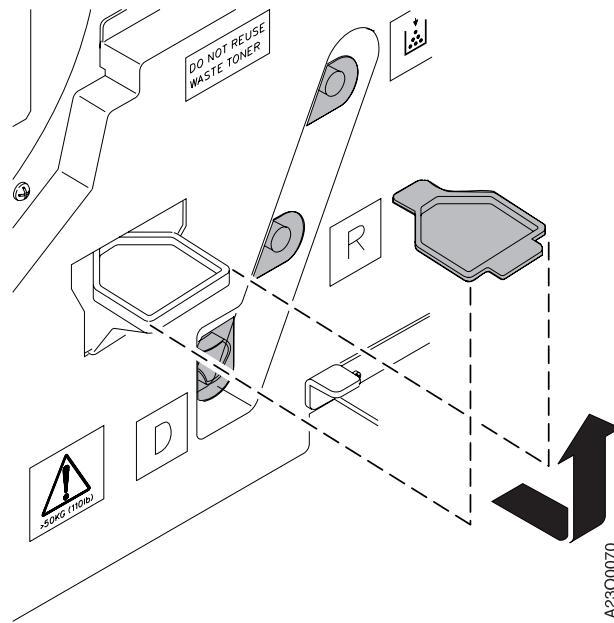
14. Remove the cap from the new developer mix bottle.
15. Remove the developer inlet cover.
16. Clean the cover to remove any excess developer mix, and put it in a safe place.

Important
Ensure that the developer drain is **closed**.

---
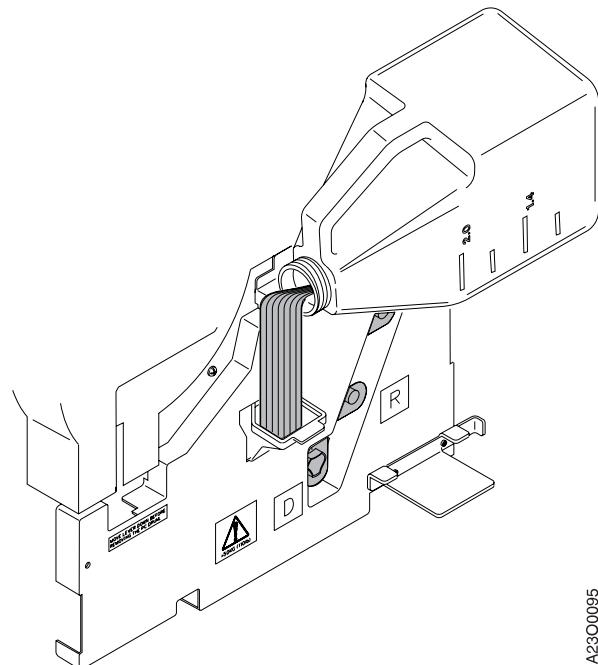
17. Press the **Developer Run Pushbutton (R)** and slowly pour the developer mix into the inlet.

    If the developer stops running before the new developer mix bottle is empty, press the **Developer Run Pushbutton (R)** again.

18. Clean the empty developer mix bottle with a cloth or paper towel to remove any excess developer mix. Save the bottle for the next time you change developer mix.

Operator Tip

If you already have several empty developer mix bottles in storage, you may discard the extra bottle.
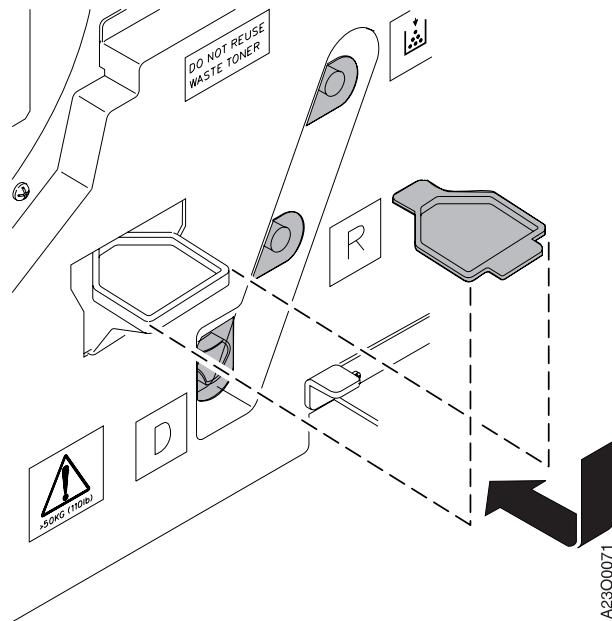
Attention!

Never operate the printer when the developer inlet cover is removed.

---

19. Put the developer inlet cover back in place.

20. Clean the developer area with a cloth or paper towel to remove any spilled developer mix.
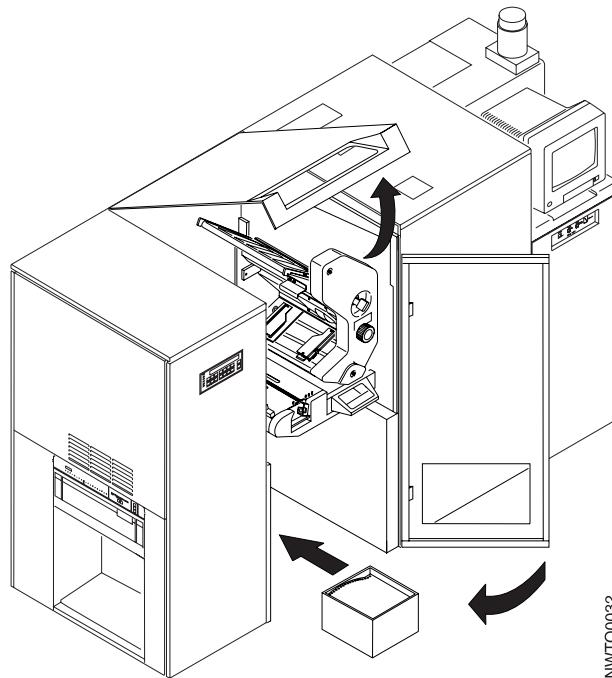
NWTO0032

21. Replace the forms in the forms input area so that printing may continue.
22. Close the covers of the printer.
23. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.

Checking the Fine Filter

NWTO0045
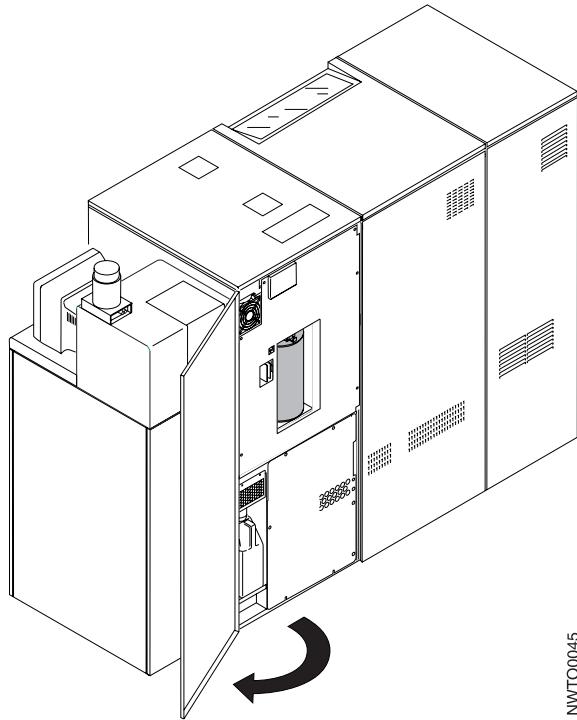
Do this task when you see the following message:

```
CHECK FINE FILTER 0799
```

Note: This task must be done immediately; you cannot delay it as you can for some **Out of Supplies** conditions.

1. From the rear of the printer, open the cover as shown.
2. Ensure that the filter flange is aligned in the guide and that the fine filter is firmly pressed against the back of the recessed filter area.
3. Close the right rear cover of the printer.
4. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.
5. If the CHECK FINE FILTER message appears again, repeat steps 2 through 4. If that still does not correct the problem, contact your service representative. See "Service Call Procedure" on page 2-6 for instructions.

Changing the Fine Filter

NWTO0043
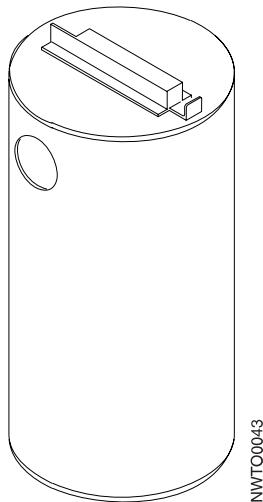
Do this task when you see the following message:

```
CHANGE FINE FILTER
```

Notes:

1. You do not have to replace the fine filter the first time you see the CHANGE FINE FILTER message. To bypass the message, **SELECT** the **Ready** pushbutton on the main operator console.

   The CHANGE FINE FILTER message reappears each time end-of-forms is reached, an error condition occurs, or every 4 000 feet of forms thereafter if you are using a roll-feed pre-processing device. When 100 000 additional feet of forms have been processed since the message originally appeared, you **must** change the fine filter before you can return the printer to Ready status.

2. To clear this action message, the printer power *must* be on while you replace the fine filter.

NWTO0033
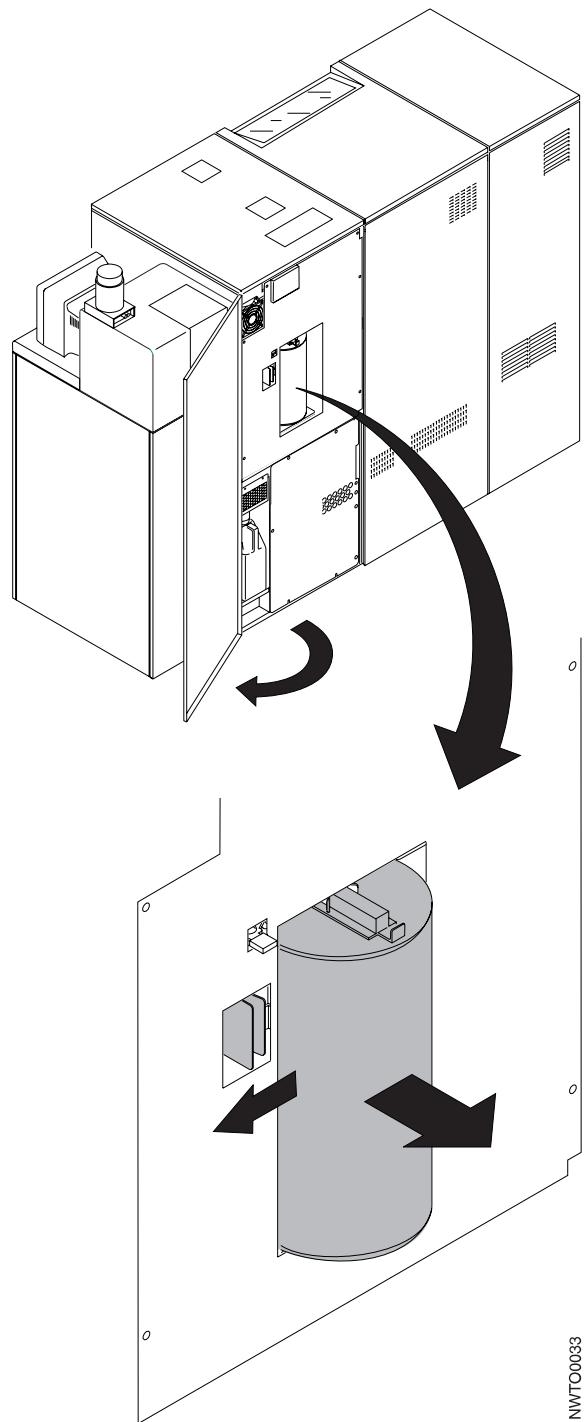
1. Locate a new fine filter.
2. From the rear of the printer, open the cover as shown.
3. Locate the latch on the left side of the fine filter, and firmly push the latch to the left until it snaps into place.
4. Slowly pull out the old fine filter from the recessed filter area.
5. Remove the plastic bag from the new fine filter and place the fine filter on the floor.

6. Place the used fine filter into the plastic bag you just removed.
7. Discard the used fine filter.
8. Wipe the filter housing with a soft cloth to remove any debris.

NWTO0034
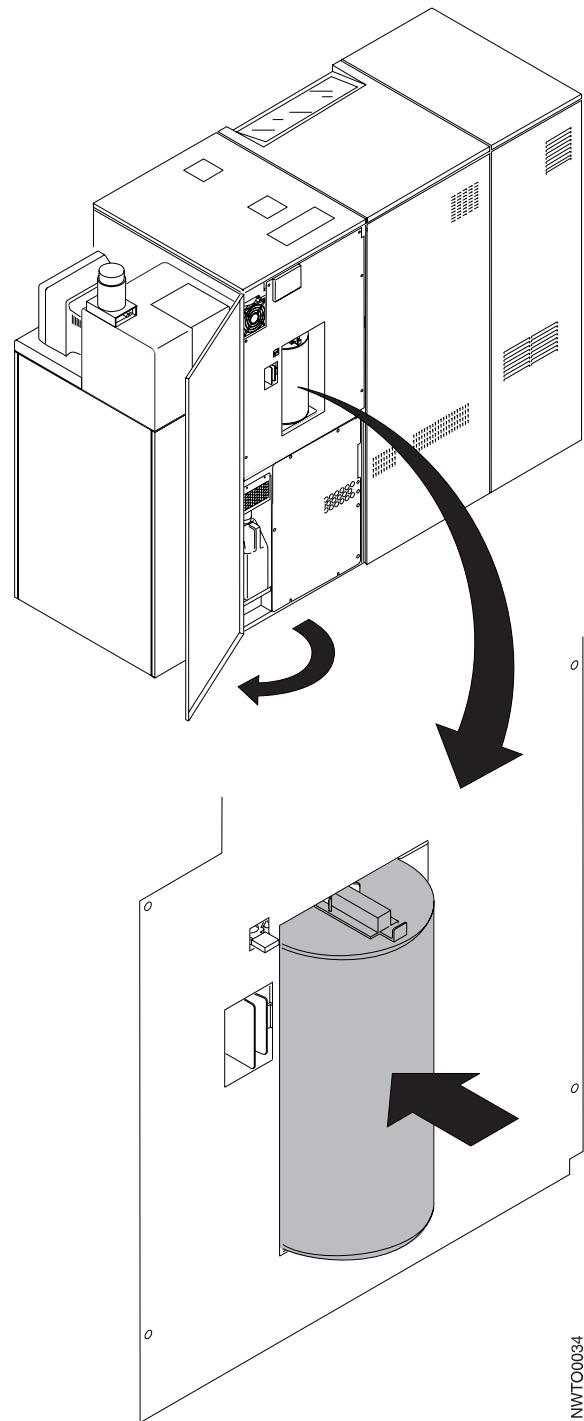
9. Firmly push the fine filter all the way to the back of the housing. The latch you pressed to the left during filter removal must snap back to the right.

10. Close the right rear cover of the printer.
11. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.
12. If the CHECK FINE FILTER message appears, the fine filter is not pushed all the way to the back of the filter housing. Adjust the fine filter, then repeat step 11. If that does not correct the problem, contact your service representative. See "Service Call Procedure" on page 2-6 for instructions.

Cleaning the Oiler Belt

The oiler belt is used on all printer models except Models DR1/DR2, IR1/IR2, and IR3/IR4.

Notes to the Operator On Cleaning the Oiler Belt

- For reliable printer performance, clean the oiler belt at least once each week.
- You can accomplish this task by using either the operator console windows or the operator panel of the affected printer; however, because you must access to the affected printer, it is recommended that you use the operator panel.
- You need the following items to clean the oiler belt:
    - Lightweight cardboard (scraps)
    - Cloth or paper towels.
- It is not necessary to switch the printer power off during this procedure.

CAUTION:

<70> The oiler belt, oiler wick roll, and their environments are *high-temperature* areas. Be very careful when working in these areas.

CAUT0100

1. Press the **Stop** key on the operator panel of the affected printer.
2. Open the stacker end cover.
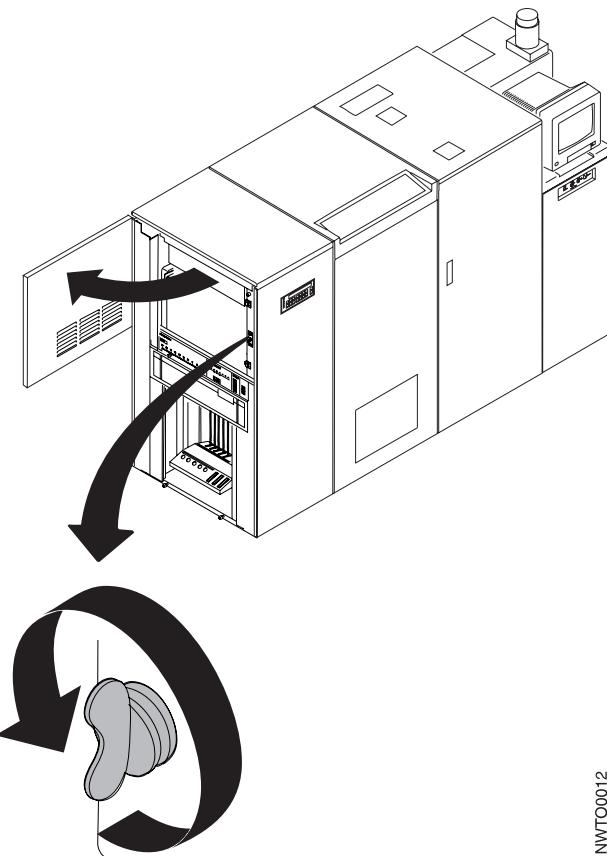
NWTO0012

3. Turn the wing nut *counterclockwise* to release the oiler gate.
4. Open the oiler gate.
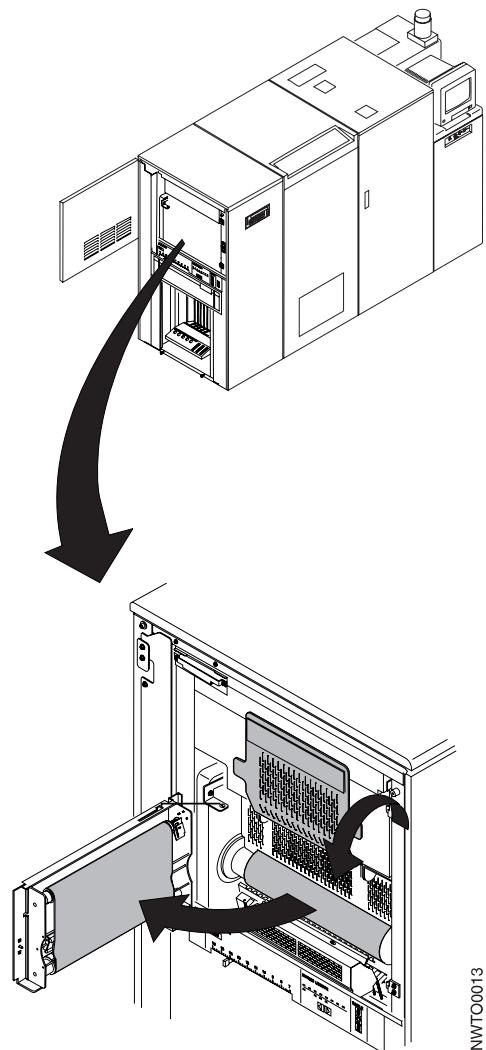
NWTO0013

5. Allow the oiler belt to cool for at least 10 minutes.

6. Lower the hot roll shield.

7. Spread papers on the floor or place a wastebasket under the oiler belt.

8. Use a piece of lightweight cardboard to scrape paper dust and paper chads from the oiler belt.

9. Raise the hot roll shield.

10. Close the oiler gate.

11. Turn the wing nut *clockwise* to latch the gate. Ensure that the gate is firmly latched.

12. Close the stacker end cover.

13. The fuser begins a warm-up cycle. Make the printer ready by doing one of the following:
    - On the operator panel of the affected printer, press the **Ready** key.   OR
    - On the operator console window, **SELECT** the **Ready** pushbutton.

    Printing resumes when the fuser completes its warm-up cycle.

Changing the Oiler Belt

The oiler belt is used on all models *except* Models DR1/DR2, IR1/IR2, and IR3/IR4.
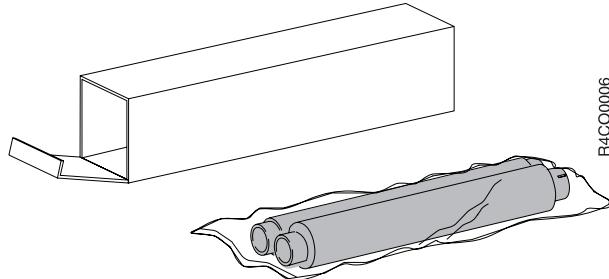
Do this task when you see the following message:

```
CHANGE OILER BELT
```

Note: You do not have to replace the oiler belt the first time you see the `CHANGE OILER BELT` message. To bypass the message, **SELECT** the **Ready** pushbutton on the main operator console. The message reappears each time end-of-forms is reached or every 4 000 feet of forms thereafter if you are using a roll-feed pre-processing device. When 10 000 additional feet of forms have been processed since the message originally appeared, you **must** change the oiler belt before you can return the printer to Ready status.

You need the following items when you change the oiler belt:
- New oiler belt
- Paper towels.
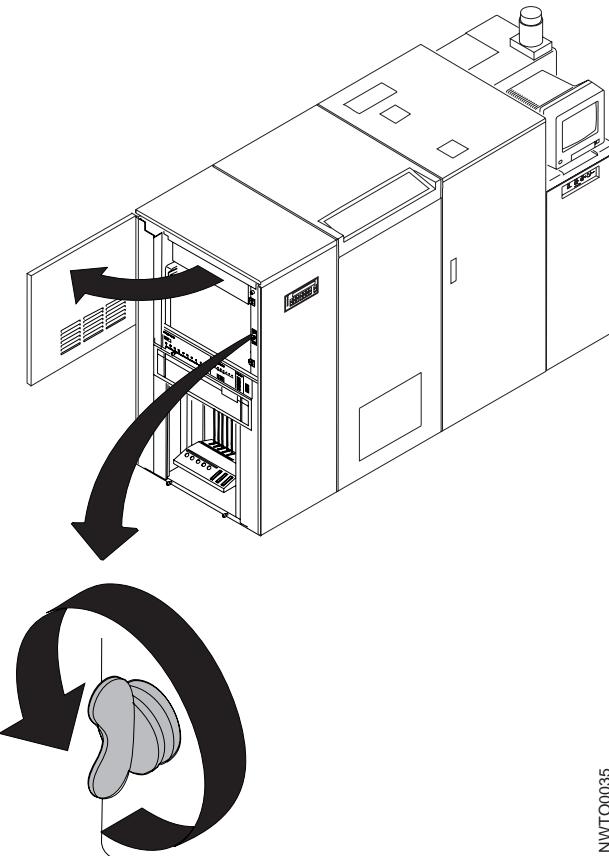
NWTO0035

CAUT0100

⚠ **CAUTION:**

<70> The oiler belt, oiler wick roll, and their environments are *high-temperature* areas. Be very careful when working in these areas.

1. Open the stacker end cover.

   Note: When the oiler belt gate is opened, the fuser begins to cool down immediately and the printer operator panel message changes to `OILER GATE OPEN`.

2. Turn the wing nut *counterclockwise* to release the oiler-belt gate.

3. Place several layers of absorbent material, such as paper towels, on the floor beneath the oiler-belt gate.

4. Open the oiler-belt gate.

5. Allow the printer to cool for at least **30 minutes**.

R4CO0176

6. Lower the hot roll shield.

NWTO0144
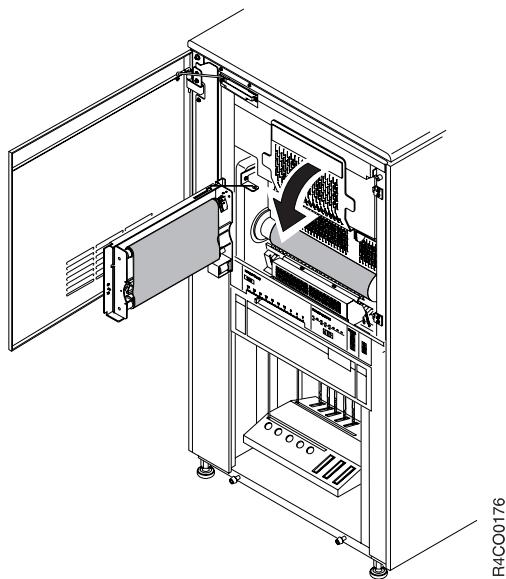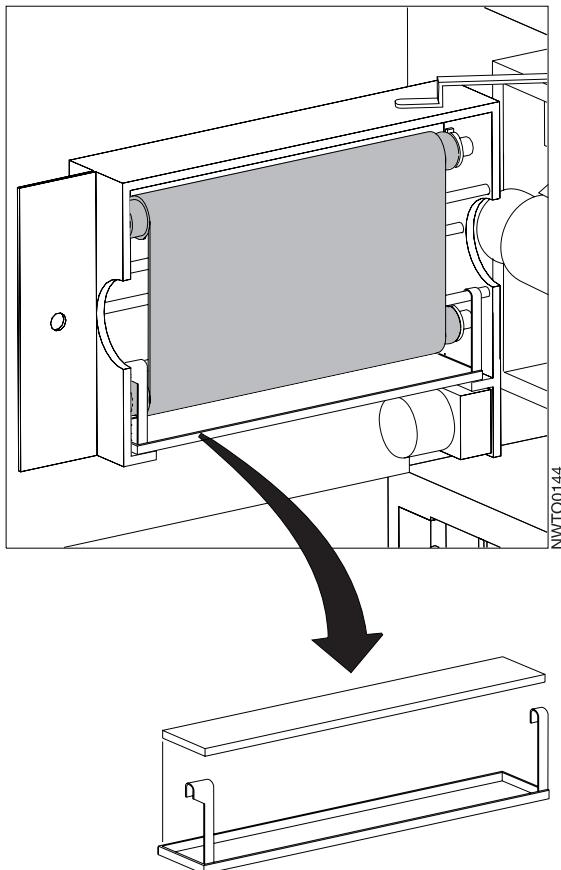
7. If you are changing the oiler belt and the oil pan shown above is present, do
   the following. Otherwise, go to step 8 on page 7-57.

   a. Remove the oil pan. To do this, lift the pan until the hooked portion is
      disengaged from the lower oiler belt support shaft.

b. Check to see if the absorbent pad is saturated with oil. If the pad is saturated, continue with the next step. If it is not saturated, go to step 8.

c. Remove the new absorbent pad (part number 30H6594) from the plastic shipping bag.

d. Remove the saturated absorbent pad from the oil pan.

e. Place the saturated pad in the plastic shipping bag and discard the bag in an approved waste container.

f. Install the new absorbent pad in the oil pan.

NWTO0148
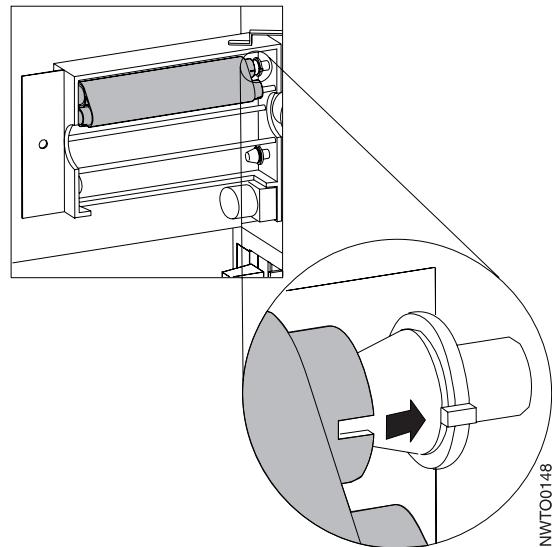
8. Grasp both ends of the upper oiler-belt roll, and move it to the right, against the spring.

NWTO0146
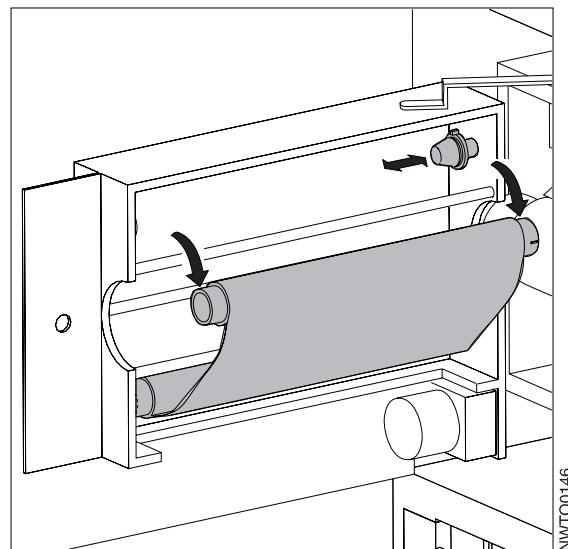
9. Pull out the upper oiler-belt roll, left end first.

NWTO0147
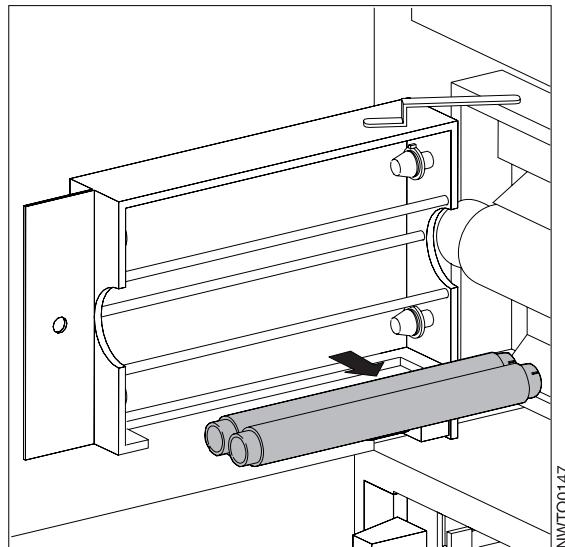
10. Roll the upper roll down against the lower roll.
11. Holding both rolls, press the lower oiler-belt roll to the right, against the spring.
12. Remove the lower oiler-belt roll, left end first.
13. Place the old oiler belt on several thicknesses of absorbent material, such as paper towels.
14. Remove the new oiler belt from its carton, saving the plastic bag for the old oiler belt.

Operator Tip

The oiler-belt roll with the most material is the *upper* roll. The notched end of the roll is the *right* side (nearest the printer).

NWTO0148
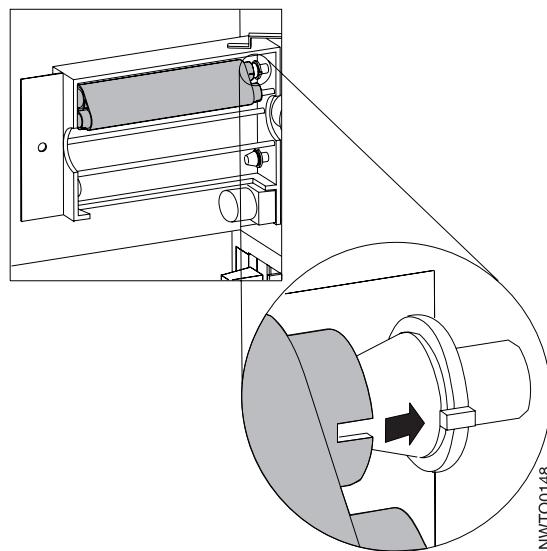
> **Important**
>
> When you install the oiler-belt rolls, you *must* line up the notches in the rolls with the tabs on the sprocket. If you do not do this, the oiler belt does not advance correctly and causes reduced print quality.

15. With the upper (larger) roll held against the lower roll, do the following:
    a. Place the right end of the upper roll on the sprocket, lining up the notches in the roll to the tabs on the sprocket, and press to the right, against the spring.
    b. Place the left end of the upper roll on the sprocket, and let the right spring-loaded sprocket hold the roll in place.

16. Working with the lower roll, repeat step 15.

17. Rotate the upper oiler-belt roll to remove slack in the belt.
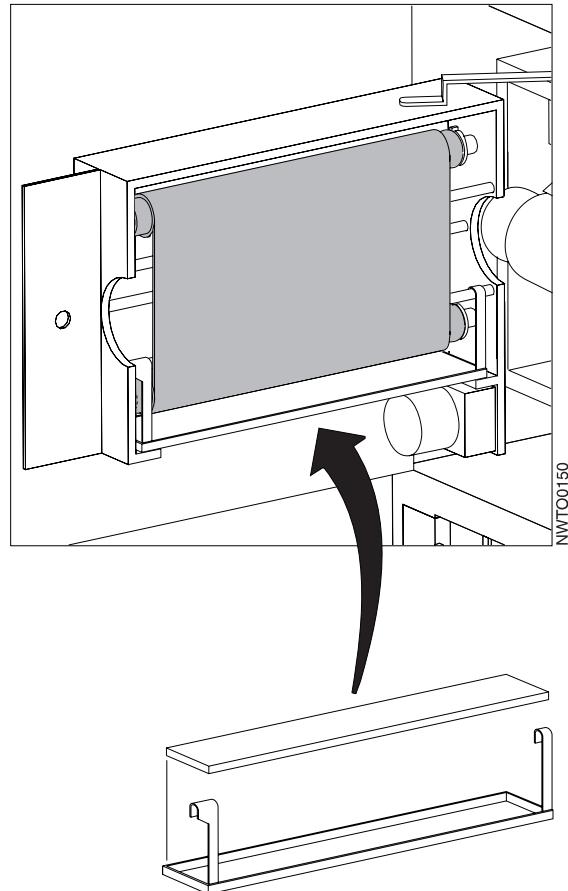
18. If you are changing the oiler belt and you removed the oil pan shown above in step 7 on page 7-56, reinstall the pan now.

19. Raise the hot roll shield.

20. Close the oiler gate.

21. Turn the wing nut *clockwise* to latch the gate. Ensure that the gate is firmly latched.

22. Close the stacker end cover.

23. The printer operator panel message may change to `WARMING UP` or `PLEASE STAND BY`.

24. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.

25. Place the old oiler belt inside the plastic bag and discard it.

Checking the Absorbent Pad in the Oil Pan

This procedure is for the Infoprint 4000 Models ID1 and ID3 only. Do this task weekly.
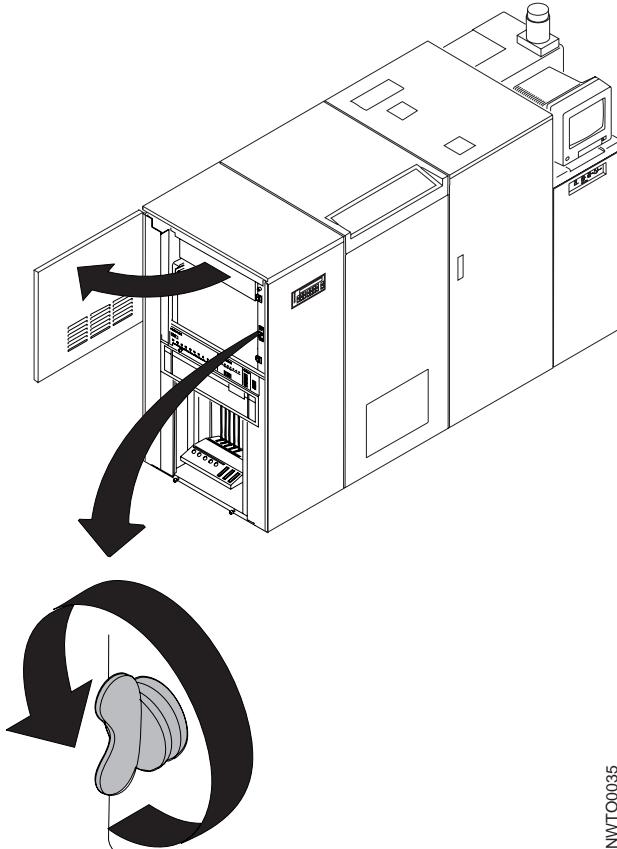
NWTO0035

CAUT0100

CAUTION:

<70> The oiler belt, oiler wick roll, and their environments are *high-temperature* areas. Be very careful when working in these areas.

1. Open the stacker end cover.

   Note: When the oiler belt gate is opened, the fuser begins to cool down immediately and the printer operator panel message changes to OILER GATE OPEN.

2. Turn the wing nut *counterclockwise* to release the oiler-belt gate.

3. Place several layers of absorbent material, such as paper towels on the floor beneath the oiler-belt gate.

4. Open the oiler-belt gate.

5. Check to see if the absorbent pad is saturated with oil. If the pad is saturated, continue with step 6. If it is not saturated, go to step 15 on page 7-63.

6. Allow the printer to cool for at least **30 minutes**.

R4CO0176
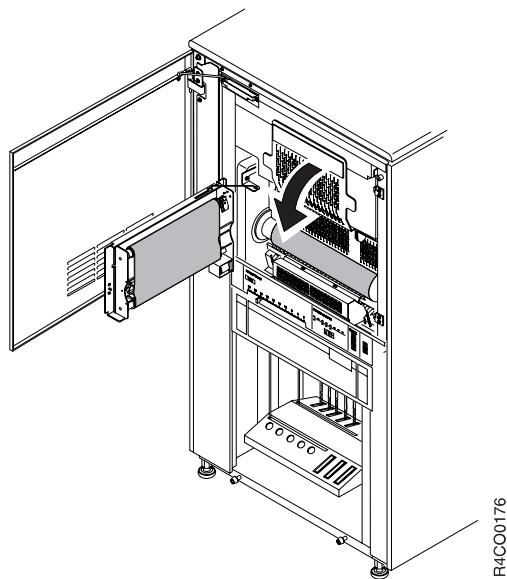
7. Lower the hot roll shield.

NWTO0144
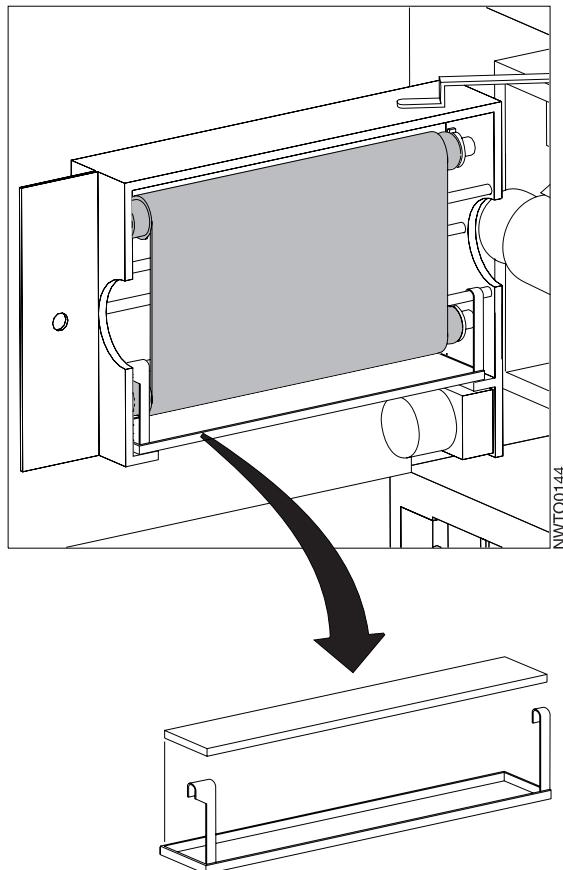
8. Remove the oil pan by lifting the pan until the hooked portion of the pan is disengaged from the lower oiler-belt support shaft.

9. Remove the new absorbent pad (part number 30H6594) from the plastic shipping bag.
10. Remove the saturated absorbent pad from the oil pan.
11. Place the saturated pad in the plastic shipping bag and discard the bag in an approved waste container.
12. Install the new absorbent pad in the oil pan.
13. Install the oil pan onto the lower oiler-belt support shaft.
14. Raise the hot roll shield.
15. Close the oiler-belt gate.
16. Turn the wing nut *clockwise* to latch the gate. Ensure that the gate is firmly latched.
17. Close the stacker end cover.
18. The printer operator panel message may change to WARMING UP or PLEASE STAND BY.
19. To resume processing, **SELECT** the **Ready** pushbutton on the main operator console.

Adding Supplies to Pre/Postprocessing Devices

The printers normally display "Out of Supplies" messages when an internal usage counter reaches a fixed threshold. You can defer taking action on most "Out of Supplies" messages for some amount of additional usage. During that additional usage time, the "Out of Supplies" message reappears each time an error condition is detected or an end-of-forms is detected. When you use a roll-feed preprocessing device, the printer checks the level of the supplies every 4000 feet after an initial deferred "Out of Supplies" message was presented and displays an "Out of Supplies" message at that time, if no end-of-forms or error condition is detected.

Chapter 8. Configuring the System

> **Chapter Overview**
>
> This chapter describes how to update the printer configuration and define forms. Worksheets for changing the printer configuration and defining forms are also included:
>
> - "Configuring the Printer" on page 8-2
> - "Configuring the Host Attachments" on page 8-16
> - "Configuring Pre/Postprocessing Devices/Interfaces" on page 8-28
> - "Configuration Worksheets" on page 8-32
> - "Defining Forms" on page 8-46

Configuring the Printer

> **Important**
>
> This section describes how to update the printer configuration. It assumes that the person changing the configuration is familiar with the various settings, and understands the impact that changes may have on the system.

Changing the Language of Messages

This procedure lets you change the language used for all text within the operator console windows and on the printer operator panel.

1. **SELECT** the **Options** pull-down menu on the main operator console window.
2. **SELECT** the **Change Language** procedure. You see the **Change Language** window, which lists the languages you can select in their native spelling and accent marks.
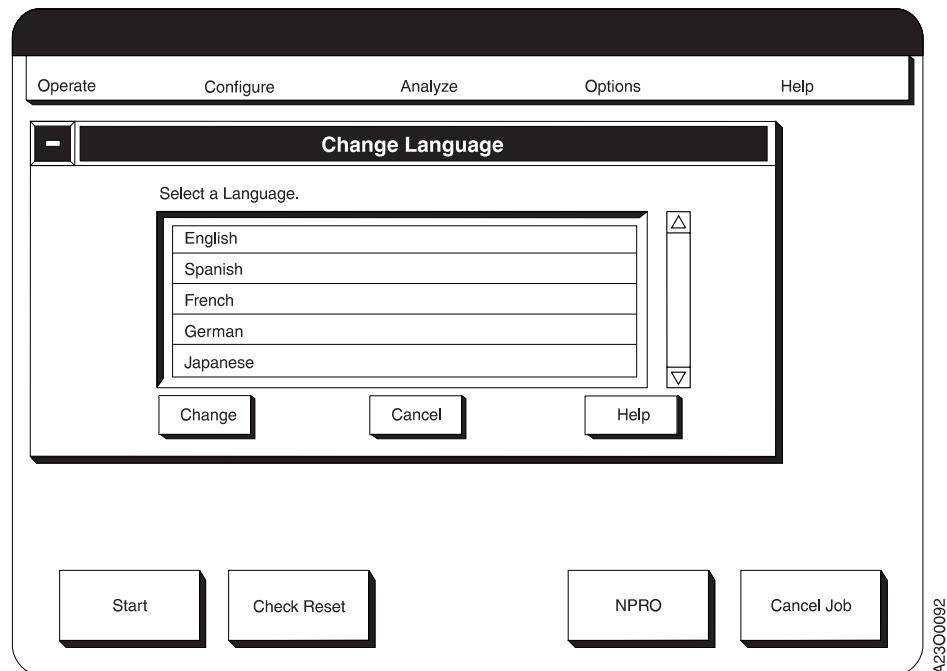
3. **SELECT** a new language from the list. In dual simplex mode, the language applies to the operator consoles and operator panel displays for both printers.
4. **SELECT** the **Change** pushbutton. You see a **Language Change Warning** prompting window. Some language changes automatically shutdown and restart the system.
5. **SELECT** the **OK** pushbutton to change the language.

The Configuration Procedure

This procedure lets you view, update, or print a copy of the printer configuration.

Note: The printer can have multiple sets of configuration data: one for each mode in which that the printer can operate. To update a configuration for a particular mode, the printer must be running in that mode.

1. Before you print the printer configuration, ensure that all attachments are disabled. See "Enabling and Disabling Attachments" on page 4-11 for more information. You do not need to disable attachments if you are viewing or changing the configuration.

2. To access the configuration settings, do one of the following:
   - In duplex mode, **SELECT** the **Configure** pull-down menu.
   - In simplex mode, **SELECT** the **Configure** pull-down menu on the operator console window of the printer you want to work with.

3. **SELECT** the **Configure Printer** procedure. The **Configure Printer** window is displayed. Use the scroll bar to scroll through the list of configuration items. For information about configuration items, see Table 8-1 on page 8-5 or **SELECT** the **Help** pushbutton on the **Configure Printer** window.
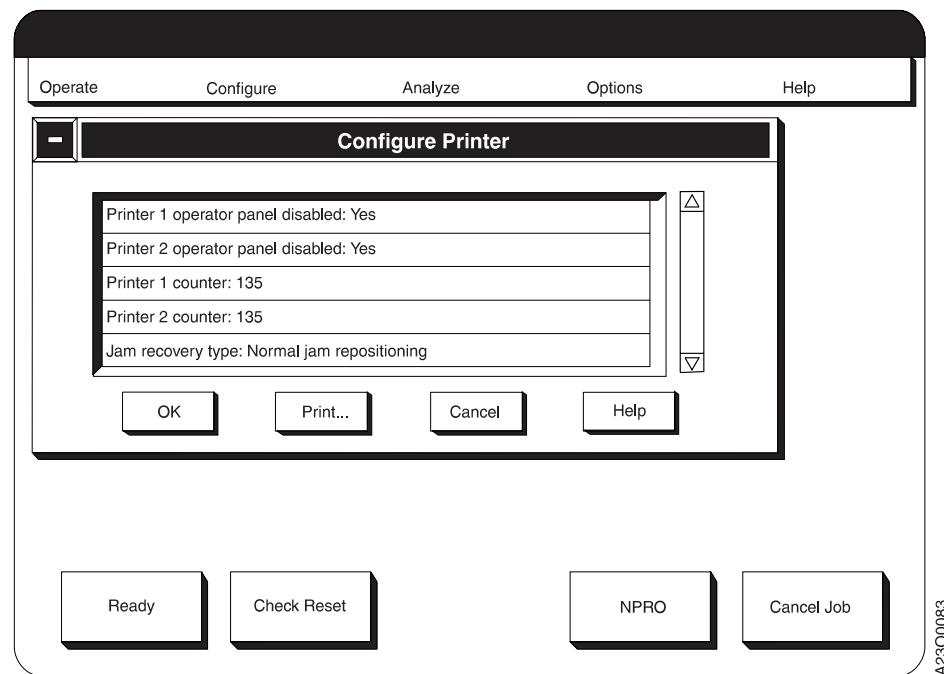
Figure 8-1. Configure Printer Window

4. To print a copy of the configuration, do the following:
   a. **SELECT** the **Print...** pushbutton. You see the **Print Configuration** window.
   b. To change the number of copies you print, do the following:
      1) **SELECT** the **How Many?** field.
      2) Type the number of copies you want to print.
      3) **SELECT** the **OK** pushbutton.
   c. **SELECT** the **Print** pushbutton on the **Print Configuration** window.

> **Important**
>
> The configuration data is printed in U.S. English regardless of the language used on the operator console windows.

5. To change an item:

   a. **SELECT** it from the list. You see either a pop-up window or a keypad window.

   b. **SELECT** the value you want from the pop-up window, or enter data on the keypad window. Then **SELECT** the **OK** pushbutton.

      Repeat this step for as many items as you want to change.

      Note: If you are changing **Printer Mode** or **Printhead Resolution**, any other configuration items you may be changing will change *only* for the mode you are switching *from*. The mode you are switching *to* will not have any changed configuration items.

   c. When you have made all the changes, **SELECT** the **OK** pushbutton. You see the **Restart** prompting window.

   d. If you have other configuration changes to make, you can make them before you restart the system. If your configuration changes are complete, **SELECT** the **Restart** pushbutton on the **Restart** window to make them effective.

Printer Configuration Information

Table 8-1 describes all configuration items, what each is used for, and the allowable value options for each item. The factory set default value options are underlined or separately specified.

Important! Table 8-1 lists all configuration items for all models of InfoPrint 4000 printers. Some items may be grayed out or not shown for your particular model of printer:
* Configuration items marked (D) appear only for Duplex systems.
* Configuration items marked (S) appear only for Simplex systems.
* Configuration items marked (POD) appear only for Models IR1/ID2.
* All unmarked items appear for both Duplex and Simplex systems.

Table 8-1. Printer Configuration Items

Configuration Item	Description	Value Options
Print on Demand mode (POD)	Enables the Print on Demand function of the Models IR1/IR2 and IR3/IR4 printers. If you change the POD Mode, the **Restart** procedure automatically executes a Shutdown procedure.	Yes or No
Printer mode (D)	This entry allows setting whether the duplex system is to be operated in duplex or simplex (dual-simplex) mode. (This item does not apply to Models DR1/DR2. This item does not apply to Models IR1/IR2 or IR3/IR4 when operating in POD mode.) If you change the Printer Mode, the **Restart** procedure automatically executes a Shutdown procedure.	Duplex or Simplex
Autostart	If Yes, all current attachment interface status (enabled/disabled) is saved during a **Shutdown** procedure, and automatically restored at the next power on of the system. Simplex and dual simplex printers are also automatically made Ready at the completion of the power on sequence. The Thread/Align forms procedure must be performed on duplex printers before the system can be made Ready.	Yes or No
PQE boldness for printer 1	This entry allows you to change the vector boldness. The boldness is expressed as a percentage of stroke width.	Range is: 15% to 85%. Default is 50. **Note:** CE can set PQE boldness from 0% to 100% from the CE Diagnostics.
PQE boldness for printer 2 (D)	See entry for printer 1.	See entry for printer 1.
Printer 1 counter	(CE Change Only) The Print Usage Count from the mechanical counter at the rear of the printer may be transferred to this counter, which will then become a new base count in the running "Printer 1 Counter" displayed in the **Printer Status** operator console window.	0 to 2 000 000 000
Printer 2 counter (D)	(CE Change Only) The Print Usage Count from the mechanical counter at the rear of the printer may be transferred to this counter, which will then become a new base count in the running "Printer 2 Counter" displayed in the **Printer Status** operator console window.	0 to 2 000 000 000

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Printhead resolution	This parameter changes the resolution that the printhead in this printer uses. Not all values are supported on all printers.	Valid values are 240, 300, 480, and 600 DPI. The value you select depends on the model of printer that you have.
IPDS resolution	This parameter can only be set when a printhead resolution of 600 DPI is selected.	Automatic, 240, 300, or 600 DPI
Font enhancement	This parameter is used to activate or deactivate the edge smoothing algorithm for raster fonts. Set to No if edge smoothing is not desired.	<u>Yes</u> or No
Jam recovery type	This entry controls under what conditions the host system will automatically retransmit pages after a forms jam has been cleared. • Normal Jam Repositioning - All lost pages are automatically retransmitted and reprinted. • Suppress MICR Repositioning - Lost pages printed with a MICR printer will not be retransmitted. • Suppress All Jam Repositioning - No lost pages will be retransmitted. Any missing or damaged pages must be manually recovered.	• <u>Use Normal Jam Repositioning</u> • Suppress MICR Jam Repositioning • Suppress All Jam Repositioning
Font usage	Font usage allows you to select the amount of memory that the printer's control unit (computer) will use for font management. Select the font usage according to the type of print jobs you run. Select Low font usage for jobs using a normal number of fonts with normal point sizes, but not double-byte fonts. Medium font usage indicates an abnormal SBCS (single-byte character set) printing mode; select it for jobs using a large number of fonts or very large point sizes, but not double-byte fonts. High font usage is primarily for double-byte font jobs.	<u>Low</u>, Medium, or High
Page segment usage	This is used to allocate space for IPDS source for page segments and overlays. Set to Low if the size or number of page segments and overlays is a small. Set to High if the size or number of page segments and overlays is large.	Low, <u>Medium</u>, or High
Overlay usage	This parameter is used to allocate space for a cache of ready-to-print overlays. Set to Low if a few small overlays are used. Set to High if many or large overlays are used.	Low, <u>Medium</u>, or High
Overlay cache	This parameter is used to activate or deactivate overlay caching. Set to No if overlays are not reused multiple times or if overlays are not reused in the same location on subsequent pages.	<u>Yes</u> or No
Input buffer size	This parameter is used to allocate space for the IPDS data that was just received from the server before being processed by the control unit. Set to Low if pages contain little data or if printing from PSF/MVS on a S/370 channel or an ESCON channel (this is because of the frequent IPDS acknowledgment rate). Set to High if printing pages with large amounts of data (such as large images).	Low, <u>Medium</u>, or High

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Output buffer size	This parameter is used to allocate space for ready-to-print pages, including pages between the transfer points of a continuous-forms, duplex printer. Set the value to Low if these conditions are met: • The pages contain little data • This is a simplex printer • This is a duplex printer with a distance between transfer points of less than 400 inches. Set the value to High if these conditions are met: • The pages contain large amounts of data, especially shaded areas • This is a duplex printer with a distance between transfer points of over 400 inches.	Low, Medium, or High
Direct attach	This entry shows if printing is to occur in direct-printing mode when connected to an MVS operating system, with no host-assisted recovery procedures such as retransmission of pages after a forms jam. The host system programmer will inform you whether this entry should be set to **Yes**.	Yes or No
NPRO length	This entry sets an *extra* length that is added to the fixed NPRO length to create a total distance that forms are moved through the printer. This entry can be used when an uncoupled (not functionally attached) post-processing device is installed and it is necessary to extend the NPRO length to be able to easily remove forms at the post-processing device output. If any installed and enabled pre/postprocessing devices have the "Pre/postprocessor Extended NPRO" distance of an enabled pre/postprocessor set to greater than zero, then that distance will take precedence over the "NPRO Length", even if the "NPRO Length" is longer. The "Pre/postprocessor Extended NPRO" distance is set in the **Configure Pre/Post** procedure. If several "Pre/postprocessor Extended NPRO" distances are set, then the longest one takes precedence.	Range of 0 to 1200 inches.
Auto NPRO at End of Forms	This entry indicates whether an automatic NPRO is performed when an End of Forms is detected.	Yes or No
Line mode enabled	Allows the printer to enter the 3800 compatibility mode (line mode). Whenever you change this setting, you must restart the printer. (This item applies only to simplex models and only when the printhead resolution is set to 240 DPI.)	Yes or No
If line mode is set to Yes, these items appear: Default lines per inch		6 / 8 / 10 / 12
Pages with job separator mark		range 1 to 9

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Jam recovery point distance	This entry sets a distance past the printer fuser sufficient for forms to reach an installed post-processing device, so that those forms will be reprinted following a forms jam recovery. In duplex mode, this distance is measured past the fuser of Printer 2. In dual simplex mode, it is a distance past either Printer 1 or Printer 2. A non-zero value setting assumes that: a post-processing device is installed and enabled, the "Jam Recovery Type" configuration item setting above allows reprinting of pages, and the "Direct Attach" configuration item setting above is **No**.	Range of 0 to 500 inches.
Form feed length (D)	This entry sets the length, in inches, that forms are to be moved forward through Printer 1 when the **Feed Forms** pushbutton is selected during execution of the **Thread/Align Forms** procedure in duplex mode.	Range of 17 to 250 inches. Default is 60 inches.
Length of forms between transfer points (D)	This entry sets the length, in inches, of the forms path length from the alignment mark on the lower transfer station tractors of Printer 1, through Printer 1, across the floor to the Buffer/Flipper Unit, through the Buffer/Flipper Unit, across the floor to Printer 2, under Printer 2 up to the alignment mark on the lower transfer station tractors of Printer 2. This is used during the duplex mode procedure **Thread/Align Forms**. If you are continually feeding paper at either printer in order to get the forms aligned, this configuration item may have to be changed. See "Appendix B. Physical System Layouts" on page B-1 for physical layout details and dimensions.	Range of 150 to 800 inches. Default is 315 inches.
Front sheet sequence (D)	This entry sets whether the front side of the forms will be printed on Printer 1 or Printer 2 in duplex mode. Front First means that the odd pages (1st, 3rd, 5th,...) of a customer job will print on Printer 1, and the even pages (2nd, 4th, 6th, ...) pages will print on Printer 2. Front Second means just the opposite of Front First. A post-processing device is being used that bursts and stacks the output, the "Front Second" setting will deliver output with the odd number pages facing to the front.	Front First or Front Second
Verification marks (D)	Indicates if verification marks (numbers) are to be printed on the edge (tractor hole area) of each side of forms. When these marks are printed, it is possible to verify that the forms are synchronized or aligned (the two sides of the form coincide). The verification numbers can be read by the operator. If the number on side 1 of a form matches that on side 2, then the forms are properly synchronized. Multiple copies of the same page will have the same verification mark numbers.	When in Duplex mode, this option is automatically selected and cannot be changed.

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Logical page increment	This entry allows expansion of the logical page size for cases where the printed page is larger than the valid InfoPrint 4000 printable area, without errors being set. This case may be encountered when a print job created for a 3800 prints too close to the page edge. The value entered will increase the valid printable area by that number of pels in all directions. Please review your applications to ensure that this setting does not cause loss of data, such as printing on the tractor hole carrier strip that will be trimmed off.	Range of <u>0</u> to 20 pels.
Clear memory for security	This entry allows setting of whether residual print data is to be cleared from memory. Clearing memory can result in a delay of up to two minutes before a print job starts. Select **Yes** if a high level of security is required.	Yes or <u>No</u>
Screen saver timeout	This entry allows specifying, in minutes, the idle time before the operator console monitor screen is blanked out. This extends the life of the monitor screen. A value of 0 means the screen saver is not to be used. In dual simplex mode if Printer 1 and Printer 2 are set with different values, the shortest setting time will be used even if the associated printer console is not being used. Touching a blank screen caused by this timeout will restore the display.	0 to 60 minutes. Default is 10 minutes.
Alarm suppression	This entry allows suppression of the Operator Alert alarm tone for error and supply-item actions.	Yes or <u>No</u>
Fuser inactivity timer	This entry sets the time, in hours, of printer inactivity before the fuser is to be turned off. This saves electrical power costs and extends the life of the printer. The fuser will automatically turn on when printing resumes, with a delay until the fuser has reached operating temperature. A value of 0 means that the timer is not being used.	0 to 9 hours. Default is 1 hour.
Eject to front facing enabled	This entry allows accepting or rejecting the Eject to Front Facing (EFF) signals sent by the host. A No value will suppress EFFs. If Yes, the EFF signal from the host will cause a blank page to be inserted between print jobs if the prior job contained an odd number of pages. This option should be set to **No** if either a post-processing device is installed that bursts and stacks output pages, or if Direct Attach is set to Yes.	Yes or <u>No</u>
Form definition order	When selected, the form definitions will be listed in the order that they were entered.	<u>Yes</u> or No

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Stacker enabled	This entry allows setting of whether or not the stacker is to be used. A setting of **Yes** implies that a post-processing device is not being used and that fanfold forms (not roll-feed forms) are being used. However, if a post-processing device is installed and enabled, a **Yes** value is ignored. In duplex mode, it refers only to the Printer 2 stacker. In dual simplex mode, it may refer to either Printer 1 or Printer 2.	Yes or No
Cut sheet emulation	Sheets are divided in half using an imaginary line that is parallel to the tractor strips. Each resulting "half sheet" is treated as if it were a whole sheet running through a cut-sheet printer. None implies the cut-sheet emulation is not enabled. Normal Left-to-Right allows the print data to be placed on the left half-sheet first and then the right half-sheet. The left half-sheet is closest to the operator. The physical orientation of the data is based on the lower-left corner of the paper as viewed from the operator's viewpoint. Normal Right-to-Left allows the print data to be placed on the right half-sheet first and then the left half-sheet. The right half-sheet is furthest from the operator. The physical orientation of the data is based on the lower-left corner of the paper as viewed from the operator's viewpoint. Inverted Left-to-Right allows the print data to be placed on the left half-sheet first and then the right half-sheet. The left half-sheet is furthest from the operator. The physical orientation of the data is based on the upper-right corner of the paper as viewed from the operator's viewpoint. This mode is the "upside down" version of the Normal Left-to-Right mode. Inverted Right-to-Left allows the print data to be placed on the right half-sheet first and then the left half-sheet. The right half-sheet is closest to the operator. The physical orientation of the data is based on the upper-right corner of the paper as viewed from the operator's viewpoint. This mode is the "upside down" version of the Normal Right-to-Left mode.	None, Normal Left-to-Right, Normal Right-to-Left, Inverted Left-to-Right, Inverted Right-to-Left
BTS installed	This entry allows setting whether a Burster/Trimmer/Stacker post-processing device is installed. It does not show whether it is being used.	Yes or No
BTS enabled	This entry allows setting whether an installed Burster/Trimmer/Stacker post-processing device is being used. The host system will not send eject-to-front-facing commands if the BTS is enabled.	Yes or No
Offsetter installed	This entry allows setting whether an Offsetter post-processing device is installed. It does not show whether it is being used.	Yes or No

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Offsetter enabled	This entry allows setting whether an installed Offsetter post-processing device is being used. The host system will send "Alternate Offset Stacker" commands if the offsetter is enabled and the print job contains these commands.	Yes or No
Offset on mark forms	This entry allows setting whether "Alternate Offset Stacker" commands from the host system are passed on to an enabled stacking-type post-processing device for any page containing the Mark Forms.	Yes or No
3130 barcode compatibility	This entry controls whether the printer operates in 3130 Barcode Compatibility mode.	Yes or No
Printer 1 Contrast	(CE Change Only) This is used by service personnel to adjust the contrast (toner density) of print on the forms. This value is used only when no other value is set during the Define Forms procedure for a specific form.	Range of 1 to 7 Default is 4
Printer 2 Contrast	(CE Change Only) See entry for Printer 1. This value is used only when no other value is set during the Defined Forms procedure for a specific form.	See entry for Printer 1.
Printer 1 Preheat (Platen Temperature)	(CE Change Only) This is used by service personnel to adjust the preheat platen temperature. The value entered is a relative number, not a measure of degrees, with 1 being the coolest and 100 being the hottest. This value is used only when no other value is set during the Defined Forms procedure for a specific form.	Range of 1 to 100 Default is 50
Printer 2 Preheat (Platen Temperature)	(CE Change Only) See entry for Printer 1. This value is used only when no other value is set during the Defined Forms procedure for a specific form.	See entry for Printer 1.
Printer 1 Hot Roll (Temperature)	(CE Change Only) This is used by service personnel to adjust the hot roll temperature. The value entered is a relative number, not a measure of degrees, with 1 being the coolest and 100 being the hottest. This value is used only when no other value is set during the Define Forms procedure for a specific form.	Range of 1 to 100 Default is 50
Printer 2 Hot Roll (Temperature)	(CE Change Only) See entry for Printer 1. This value is used only when no other value is set during the Define Forms procedure for a specific form.	See entry for Printer 1.
Printer 1 Oil Rate	(CE Change Only) This is used by service personnel to adjust the amount of oil fed to the oil belt. The value entered is a relative number, not a measure of quantity, with 1 being the lowest rate and 100 being the highest rate. This value is used only when no other value is set during the Define Forms procedure for a specific form.	Range of 1 to 100 Default is 50
Printer 2 Oil Rate	(CE Change Only) See entry for Printer 1. This value is used only when no other value is set during the Define Forms procedure for a specific form.	See entry for Printer 1.

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Printer 1 Oil Belt (Speed)	(CE Change Only) This is used by service personnel to adjust the speed at which the oil belt moves. The value entered is a relative number, not a measure of speed, with 1 being the slowest speed and 100 being the fastest speed. This value is used only when no other value is set during the Define Forms procedure for a specific form.	Range of 1 to 100 Default is 50
Printer 2 Oil Belt (Speed)	(CE Change Only) See entry for Printer 1. This value is used only when no other value is set during the Define Forms procedure for a specific form.	See entry for Printer 1.
Backup Idler Roll (BIR)	(CE Change Only) This is used by service personnel use the Backup Idler Roll to enhance fusing of labels or heavy-stock forms. Using the BIR permits using lower preheat platen temperatures.	• ID2 (Duplex - Printer 2 only) - On or Off • ID2 (Simplex - Printer 2 only) - Off • ID3/ID4 - On or Off • IS2 - On or Off
Preheat temperature	Preheat temperature allows adjustment of the preheat platen for optimal fusing of different types of forms. This value is used only if preheat value has been set for the form in Define Forms.	45 to 100 in increments of 5 Default is 80 degrees C.
Scan factory adjust for Printer 1	(CE Change Only) This is used by service personnel to adjust the scan direction printing registration. See "Registration" in the Printhead section of CARR within the Maintenance Information Manuals.	Range of 0 to 100 units Default is 40 units Unit = 2 pels
Process factory adjust for Printer 1	(CE Change Only) This is used by service personnel to adjust the process direction printing registration. See "Registration" in the Printhead section of CARR within the Maintenance Information Manuals.	Range of 0 to 60 units Default is 15 units Unit = 1 pel
Scan factory adjust for Printer 2 (D)	(CE Change Only) This is used by service personnel to adjust the scan direction printing registration. See "Registration" in the Printhead section of CARR within the Maintenance Information Manuals.	Range of 0 to 100 units Default is 40 units Unit = 2 pels
Process factory adjust for Printer 2 (D)	(CE Change Only) This is used by service personnel to adjust the process direction printing registration. See "Registration" in the Printhead section of CARR within the Maintenance Information Manuals.	Range of 0 to 60 units Default is 15 units Unit = 1 pel
Beam 1 offset adjustment	(CE Change Only). This is used by maintenance personnel to control the vertical alignment or horizontal adjustment of the separate beams of a multi-beam printer. See "AOM Skew" in the Multi-Beam Printhead section of CARR within the Maintenance Information Manuals.	Range of 0.0 to 15.9 Default is 8.0 units Unit = .1 pel
Beam 2 offset adjustment	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)
Beam 3 offset adjustment	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)
Beam 4 offset adjustment	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)

Table 8-1. Printer Configuration Items (continued)

Configuration Item	Description	Value Options
Beam 1 offset adjustment for Printer 2 (D)	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)
Beam 2 offset adjustment for Printer 2 (D)	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)
Beam 3 offset adjustment for Printer 2 (D)	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)
Beam 4 offset adjustment for Printer 2 (D)	(See information in *Beam 1 offset adjustment*)	(See information in *Beam 1 offset adjustment*)
Machine sequence for Printer 1	(CE Change on Initial Configuration Only) This is the serial number for Printer 1 (7 numeric only characters). Each time the AFCCU hard disk is replaced, this data is lost; the CE must re-enter the serial number found on the rear inside of the AFCCU frame.	N/A
Manufacturing plant for Printer 1	(CE Change on Initial Configuration Only) This is the code for plant of manufacture of Printer 1 (2 numeric only characters). Each time the AFCCU hard disk is replaced this data is lost; the CE must re-enter this code from information saved from the last time Printer Configurations were changed.	N/A
Machine sequence for Printer 2	(CE Change on Initial Configuration Only) This is the serial number for Printer 1 (7 numeric only characters). Each time the AFCCU hard disk is replaced, this data is lost; the CE must re-enter the serial number found on the rear inside of the AFCCU frame.	N/A
Manufacturing plant for Printer 2	(CE Change on Initial Configuration Only) This is the code for the plant of manufacture of Printer 2 (2 numeric only characters). Each time the AFCCU hard disk is replaced, this data is lost; the CE must re-enter this code from information saved from the last time Printer Configurations were changed.	N/A
Date and time	(CE Change Only). This is in the form of mmddHHMM.ssyy. mm=month dd=day HH=hour MM=minute ss=second yy=year	N/A
Printer 1 BIR installed		Yes or <u>No</u>
Printer 2 BIR installed		See entry for Printer 1.

Configuring Remote Access

This procedure lets you enable and configure remote access to the printer. These methods can be used:

- SNMP (Simple Network Management Protocol)
- RMI (Remote Management Interface)
- Modem.

Follow these steps to configure remote access:

1. **SELECT** the **Configure** pull-down menu on the main operator console window.
2. **SELECT** the **Remote Access** procedure.
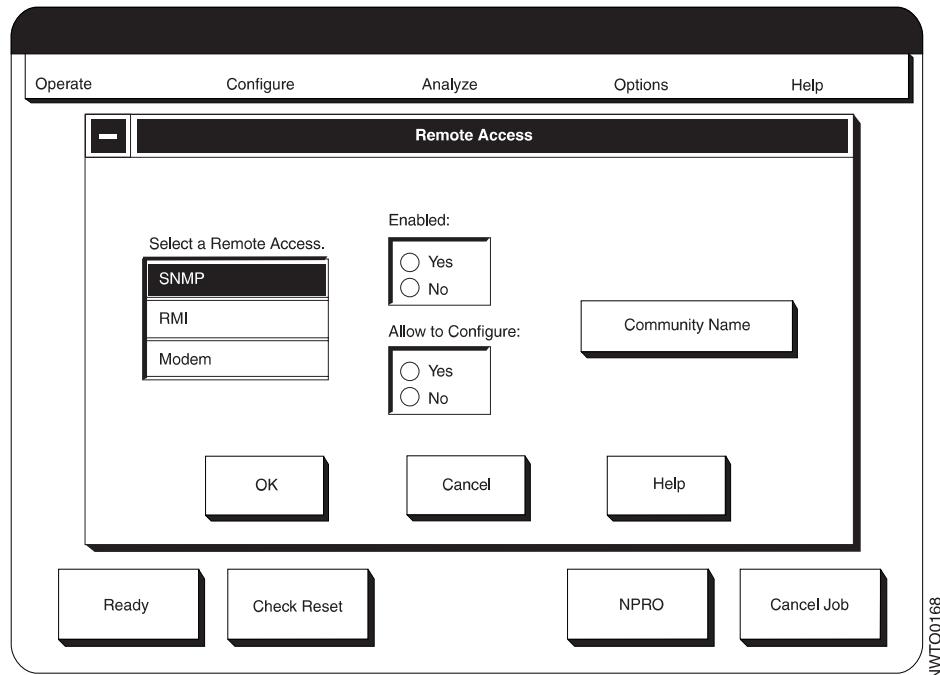
3. **SELECT** the type of remote access that is to be used
4. Enable or disable remote access for the type of remote access chosen in the previous step.

   Note: If **Allow to Configure** is set to **Yes** for SNMP or RMI, that interface is allowed to remotely change selected printer configuration items.

5. **SELECT** the **Community Name** procedure to configure additional SNMP
   parameters:

| Operate | Configure | Analyze | Options | Help |

Remote Access SNMP

Select a community Access.

public

Access: ○ Read ○ Write ○ None

IP Address

Trap Manager: ○ Yes ○ No

Netmask

OK   Add...   Delete   Cancel   Help

Ready   Check Reset   NPRO   Cancel Job

NWTO0169
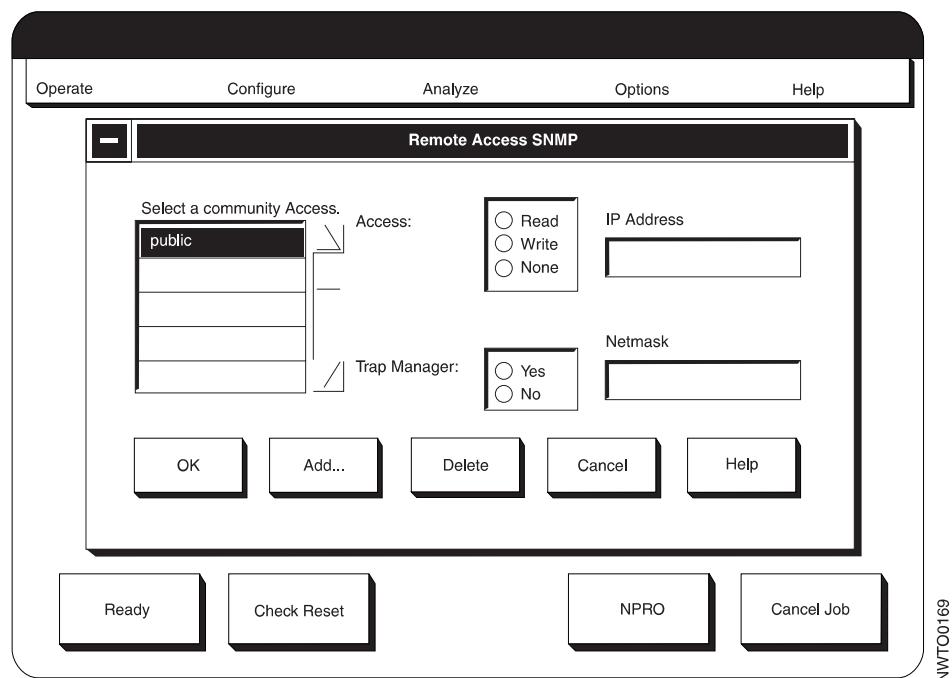
Configuring the Host Attachments

This procedure lets you view, print, or change the configuration settings of an installed attachment.

Note: The printer can have multiple sets of configuration data: one for each mode in which that the printer can. To update a configuration for a particular mode, the printer must be running in that mode (for example, POD mode or Duplex mode).

The following host attachments are available:
- Parallel Channel
- ESCON Channel
- Token Ring TCP/IP
- Ethernet TCP/IP
- FDDI TCP/IP (for Models IR1/IR2 and IR3/IR4 only)

Before you change a configuration value, please review the configuration information table for the attachment configuration you are changing:
- "Parallel Channel Configuration Information" on page 8-19
- "ESCON Channel Configuration Information" on page 8-21
- "Token Ring TCP/IP Attachment Information" on page 8-23
- "Ethernet TCP/IP Attachment Information" on page 8-25
- "FDDI TCP/IP Attachment Information" on page 8-27

1. Before you print the attachment configuration, ensure that all attachments are disabled. See "Enabling and Disabling Attachments" on page 4-11 for more information. You do not need to disable attachments if you are viewing or changing the configuration.

2. To access the configuration settings, do one of the following:
   - In duplex mode, **SELECT** the **Configure** pull-down menu on the main operator console window.
   - In dual simplex mode, **SELECT** the **Configure** pull-down menu on the operator console window of the printer you want to work with.

3. **SELECT** the **Configure Attachments** procedure. You see the **Configure Attachments** window. This window lists the attachments that are currently installed, and the attachments that are not installed but are present in the control unit and could be installed.

```
 ┌─────────────────────────────────────────────────────────────────┐
 │                                                                   │
 │   Operate        Configure        Analyze       Options     Help  │
 │  ┌──────────────────────────────────────────────────────────┐    │
 │  │ ▬                Configure Attachments                    │    │
 │     Select an Attachment                                          │
 │     ┌──────────────────────────────────────────────┐ ┌─┐         │
 │     │ Parallel Channel: Installed                  │ │△│         │
 │     │ ESCON Channel: Installed                     │ │ │         │
 │     │                                              │ │ │         │
 │     │                                              │ │ │         │
 │     │                                              │ │▽│         │
 │     └──────────────────────────────────────────────┘ └─┘         │
 │                                                                   │
 │   ┌──────────┐  ┌─────────┐  ┌──────┐  ┌────────┐  ┌──────┐       │
 │   │Configure…│  │ View… │  │  OK  │  │ Cancel │  │ Help │       │
 │   └──────────┘  └─────────┘  └──────┘  └────────┘  └──────┘       │
 │                                                                   │
 │   ┌──────────┐  ┌─────────────┐       ┌────────┐  ┌────────────┐  │
 │   │  Ready   │  │ Check Reset │       │  NPRO  │  │ Cancel Job │  │
 │   └──────────┘  └─────────────┘       └────────┘  └────────────┘  │
 └───────────────────────────────────────────────────────────────────┘
                                                          A23O0084
```
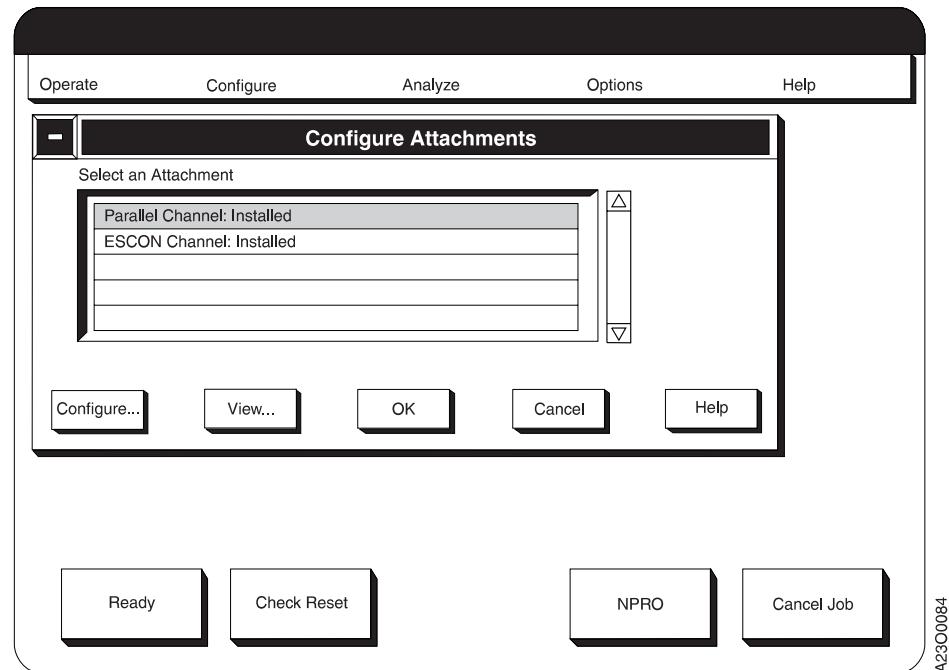
4. To display configuration information for an attachment, do the following:

  a. **SELECT** an attachment type from the list.

  b. **SELECT** the **View...** pushbutton. You see the **View Configuration** window.

5. To print a copy of the configuration information for an attachment, do the following:

  a. **SELECT** an attachment type from the list.

  b. **SELECT** the **View...** or **Configure...** pushbutton.

  c. On the resulting window, **SELECT** the **Print...** pushbutton. You see the **Print Configuration** window.

  d. To change the number of copies you print, do the following:

    1) **SELECT** the **How Many?** field.

    2) Type the number of copies you want to print.

    3) **SELECT** the **OK** pushbutton.

  e. **SELECT** the **Print** pushbutton on the **Print Configuration** window.

> **Important**
>
> The configuration data is printed in U.S. English regardless of the language used on the operator console windows.

6. To change configuration information for an attachment, do the following:
   a. **SELECT** an attachment type.
   b. **SELECT** the **Configure...** pushbutton. You see a list of configuration items for the attachment.
   c. To change an item:
      1) **SELECT** it from the list. You see either a pop-up window or a keypad window.
      2) **SELECT** the value you want from the pop-up window, or enter data on the keypad window. Then **SELECT** the **OK** pushbutton.

      Repeat this step for as many items as you want to change.
   d. When you have made all the changes, **SELECT** the **OK** pushbutton. You see the **Configure Attachments** window. If you want to change configuration information for other attachments, repeat the previous steps as necessary.
   e. When you have made all attachment changes, **SELECT** the **OK** pushbutton on the **Configure Attachments** window. You see the **Restart** prompting window.
   f. If you have other configuration changes to make, you can make them before you restart the system. If your configuration changes are complete, **SELECT** the **Restart** pushbutton to make them effective.

> **Note**
>
> **SELECTING Restart** does the following:
>
> - If you are making this change in duplex or simplex mode, a window appears that informs you that an automatic **Shutdown** procedure has started, followed by a window stating that the system is being "rebooted" (reloading AFCCU microcode). At the completion of the microcode reload, the attachment changes are in effect with no system power off, then power on required.
>
> - If you are making this change in dual simplex mode, the operator console screen goes blank while an internal Shutdown procedure is executed on the printer you are working on. The system then displays a message indicating that the other printer must be shutdown for the changes to take affect. This message is followed by the display of the operator console window for the other printer. You must select the **Shutdown/Restart** procedure from the **Operate** pull-down menu on that operator console, and then execute the **Shutdown** routine. A window appears stating that the system is being "rebooted". At the completion of the reboot, the attachment changes are in effect with no system power off, then power on required.

Parallel Channel Configuration Information

Table 8-2 lists all configuration items, the purpose of each item, and the allowable value options for each item. The factory set default values are underlined.

Table 8-2. Parallel Channel Attachment Items

Configuration Item	Description	Value Options
Parallel Link A Installed	Specifies if Parallel Channel Link A is installed.	Yes or No
Parallel Link B Installed	Specifies if Parallel Channel Link B is installed.	Yes or No
Device Address	Specifies the 2-digit hexadecimal channel address which includes the device address. **Notes:** 1. In simplex mode, only one device address is required. In dual simplex mode, each printer requires a unique device address. Printer 1 requires an even number (for example, X'30'); Printer 2 requires the next consecutive number (for example, X'31'). 2. The duplex system does not require a unique number. It can use either of the addresses used for dual simplex Printer 1 or dual simplex Printer 2. However, it is often easier from an operational viewpoint to assign duplex a separate address (so the duplex and simplex printers look like unique devices to the operating system). The general convention in this case is to assign the duplex system the next consecutive address (even) after the address for simplex Printer 2. For example, if you define Printer 1 in dual simplex as X'30', you should then define Printer 2 in dual simplex as X'31', and, optionally, define the complete system in duplex as X'32'. 3. The device addresses specified above must match the device addresses defined to the host PSF software, and in the case of S/390 hosts, the I/O device definitions.	00 to FF (Hexadecimal notation). Default is X'00'
Second Channel	Specifies the switching mode of the Two-Channel Switch: Static or Dynamic Mode. When a second Parallel Channel is installed, a Two-Channel Switch facility is provided. • **Static**–You can enable only one channel at a time. You can connect two interfaces to two channels on the same processing unit, on tightly coupled processing units (units controlled by the same operating system, or on independent (uncoupled) processing units. • **Dynamic**–You can enable both channels at the same time with the two-Channel Switch used as a dynamic interface switch. Connect the two interfaces to two channels either on the same processing unit or on tightly-coupled processing units (units controlled by the same operating system). You cannot select this item unless two channels are installed.	Static or Dynamic

Table 8-2. Parallel Channel Attachment Items (continued)

Configuration Item	Description	Value Options
Data Transfer Protocol	Specifies the data transfer mode to be used: DC Interlocked or Data-Streaming. If two channels are installed, both channels use the same protocol.	Interlocked or Data Streaming
Data Streaming Rate	Specifies the data rate being used if you select the Data-Streaming Data Transfer Protocol. Use the highest rate that is supported by your system. If two channels are installed, both channels use the same data rate.	• For MCA bus: 1.9MB/sec, 2.7MB/sec, 3.4MB/sec, 4.5MB/sec • For PCI bus: 3.0 MB/sec, 4.5MB/sec
Card 1 Slot Position	The printer sets this entry automatically at power on time if the system senses the presence of a Parallel Channel card. This item is not selectable.	2 or 4 or Not Installed
Card 2 Slot Position	The printer sets this entry automatically at power on time if the system senses the presence of a Parallel Channel card. This item is not selectable.	2 or 4 or Not Installed

ESCON Channel Configuration Information

Table 8-3 lists all configuration items, what each item is used for, and the allowable value options for each item. The factory set default values are underlined.

Table 8-3. ESCON Channel Attachment Items

Configuration Item	Description	Value Options
ESCON Link A Installed	Specifies if ESCON Channel Link A is installed.	Yes or No
ESCON Link B Installed	Specifies if ESCON Channel Link B is installed.	Yes or No
Device Address	Specifies the 2-digit hexadecimal channel address which includes the device address. **Notes:** 1. In simplex mode, only one device address is required. 2. In dual simplex mode, each printer requires a unique device address. Printer 1 requires an even number (for example, X'30'); Printer 2 requires the next consecutive number (for example, X'31'). 3. The duplex system does not require a unique number. It can use either of the addresses used for dual simplex Printer 1 or dual simplex Printer 2. However, it is often easier from an operational viewpoint to assign duplex a separate address (so the duplex and simplex printers look like unique devices to the operating system). The general convention in this case is to assign the duplex system the next consecutive address (even) after the address for simplex Printer 2. For example, if you define Printer 1 in dual simplex as X'30', you should then define Printer 2 in dual simplex as X'31', and, optionally, define the complete system in duplex as X'32'. 4. The device addresses specified above must match the device addresses defined to the host PSF software, and in the case of S/390 hosts, the I/O device definitions.	00 to FF (Hexadecimal notation). Default is X'00'

Multi-host environment flag	Shows whether a multiple host printer-sharing system exists. (Multi-Host Environment support increases configuration flexibility and simplifies operational procedures for ESCON-attached printers.)
	
	Notes regarding ESCON attachment:
	
	• Do not enable this flag unless all hosts sharing the printer have:
	  – OS/390 V1 Release 3.0 or higher
	  – PSF ASSIGN/UNASSIGN support (PSF 3.1.0 for OS/390 or APAR OW29992 to PSF/MVS 2.2).
	
	If these conditions are not satisfied, and Multi-Host Environment is enabled on the printer, PSF may not be able to access the printer.
	
	• The Multi-Host configuration item is available only on printer control units that have newer ESCON adapters. The Multi-Host configuration item is grayed out and not accessible on older control units.
		True or False

Table 8-3. ESCON Channel Attachment Items (continued)

Configuration Item	Description	Value Options
Card 1 Slot Position	The printer sets this entry automatically at power on time if the system senses the presence of an ESCON Channel card. This item is not selectable.	2 or 4 or Not Installed
Card 2 Slot Position	The printer sets this entry automatically at power on time if the system senses the presence of an ESCON Channel card. This item is not selectable.	2 or 4 or Not Installed

Token Ring TCP/IP Attachment Information

Table 8-4 lists all configuration items, what each item is used for, and the allowable value options for each item. The factory set default values are underlined.

Table 8-4. Token Ring TCP/IP Attachment Items

Configuration Item	Description	Value Options
Token Ring TCP/IP Installed	Specifies if the Token Ring adapter is installed.	Yes or No
TCP Port	Specifies the TCP socket address of the attachment. **Notes:** 1. Only one address is required for operating a simplex system. 2. In dual simplex mode, each printer requires a unique device address. If you use the default value of 5001 for simplex Printer 1, IBM recommends using 5002 as the value for simplex Printer 2. 3. The duplex printing system does not require a unique port number. It can use either of the TCP port numbers specified for simplex Printer 1 or simplex Printer 2. However, it is often easier from an operational viewpoint to assign duplex a separate TCP port number. If 5001 and 5002 are used for simplex Printer 1 and simplex Printer 2, IBM recommends that the duplex system be assigned TCP port number 5003. 4. The TCP Port numbers specified in the printer configuration must match the PORT numbers assigned in the host PSF system.	5001 to 65535.
IP Address	Specifies the Internet protocol (IP) address of the printer in dotted decimal format. Get this value from your LAN administrator. This value must match the IP address value in the host PSF configuration. This value is unique to a duplex system, and is the same regardless of whether the printer is in duplex or dual-simplex mode.	X.X.X.X where X ≤ 255.
Subnet Mask	Specifies the mask that identifies the local subnet in dotted decimal format. Get this value from your LAN administrator. If you do not have a local subnet, leave this field blank.	X.X.X.X where X ≤ 255
Default Gateway Address	Specifies the IP address of the default gateway in dotted decimal format. Get this value from your LAN administrator.	X.X.X.X where X ≤ 255
MTU Size	Specifies the Maximum Transmission Unit (MTU) – maximum allowable length of IP packets.	60 to 4096
Hardware address	Specifies the TCP/IP Token Ring adapter ROM address.	This address cannot be changed.
Alternate address (Local adapter address)	Sets the unique LAN adapter address for the network. The address must be different from other addresses on the LAN. New cards are restricted to X'4000 0000 0000' to X'FFFF FFFF FFFF'.	X'0' to X'FFFF FFFF FFFF'
Ring Speed	Specifies the ring speed of the network to which the adapter attaches. The value must match the speed of the network or the network may stop operating.	4 or 16

Table 8-4. Token Ring TCP/IP Attachment Items (continued)

Configuration Item	Description	Value Options
Confine Broadcast	Specifies if broadcast packets (that is, Address Resolution Protocol packets) are enabled to cross bridges to other rings.	Yes or <u>No</u>

Ethernet TCP/IP Attachment Information

Table 8-5 lists all configuration items, what each item is used for, and the allowable value options for each item. The factory set default values are underlined.

Table 8-5. Ethernet TCP/IP Attachment Items

Configuration Item	Description	Value Options
Ethernet TCP/IP Installed	Specifies if the Ethernet adapter is installed.	Yes or <u>No</u>
TCP Port	Specifies the TCP socket address of the attachment. **Notes:** 1. Only one address is required for operating a simplex system. 2. In dual simplex mode, each printer requires a unique device address. If you use the default value of 5001 for simplex Printer 1, IBM recommends using 5002 as the value for simplex Printer 2. 3. The duplex printing system does not require a unique port number. It can use either of the TCP port numbers specified for simplex Printer 1 or simplex Printer 2. However, it is often easier from an operational viewpoint to assign duplex a separate TCP port number. If 5001 and 5002 are used for simplex Printer 1 and simplex Printer 2, IBM recommends that the duplex system be assigned TCP port number 5003. 4. The TCP Port numbers specified in the printer configuration must match the PORT numbers assigned in the host PSF system.	5001 to 65535
IP Address	Specifies the Internet Protocol (IP) address of the printer in dotted decimal format. Get this value from your LAN administrator. This value must match the IP address value in the host PSF configuration. This value is unique to a duplex system, and is the same regardless of whether the printer is in duplex or dual-simplex mode.	X.X.X.X where X ≤ 255.
Subnet Mask	Specifies the mask that identifies the local subnet in dotted decimal format. Get this value from your LAN administrator. If you do not have a local subnet, leave this field blank.	X.X.X.X where X ≤ 255
Default Gateway Address	Specifies the IP address of the default gateway in dotted decimal format. Get this value from your LAN administrator.	X.X.X.X where X ≤ 255
Standard MTU Size	Specifies the Maximum Transmission Unit (MTU) size. The MTU size for Standard Ethernet type ranges from 60 to 1500.	60 to 1500
IEEE802.3 MTU Size	Specifies the MTU size for IEEE802.3 Ethernet type. The range is from 60 to 1492.	60 to 1492
Ethernet Type	Specifies either the Standard or the IEEE802.3 Ethernet type.	Standard or IEEE802.3
Hardware address	Specifies the TCP/IP Token Ring adapter ROM address.	This address cannot be changed.

Table 8-5. Ethernet TCP/IP Attachment Items (continued)

Configuration Item	Description	Value Options
Alternate address (Local adapter address)	Sets the unique LAN adapter address for the network. The address must be different from other addresses on the LAN. New cards are restricted to X'4000 0000 0000' to X'FFFF FFFF FFFF'	X'0' to X'FFFF FFFF FFFF'
Cable type	Select the Ethernet Cable Connector to be used on the Ethernet Card if the card has more than one connector. If you want RJ45 (10 BaseT) via a transceiver, then you must select 15 pin "D" shell (10 Base5 cable type) to drive into the transceiver to convert to 10 BaseT. If the Ethernet card has RJ45 (10 BaseT) only, then this configuration item has no effect. This configuration item is only available with Microchannel Ethernet adapter cards.	10Base2 or 10Base5
Media Speed	**Notes:** 1. The Media Speed setting is used only if the Ethernet adapter supports configuration of the media speed. If media speed configuration is not supported by the Ethernet adapter, this configuration item is ignored 2. In most cases, the Auto_Negotiation setting should be used. Explicit media mode and speed settings can be used if: • There is very slow Ethernet throughput • The LED indicators are incorrect • The printer cannot be contacted using the Ping command Due to different Auto Sensing standards used by manufactures of 10/100 Ethernet adapters, this may cause them to not work correctly in all combinations. The quick way to determine this type of problem is to see if the Duplex and 10/100 indicators are inconsistent between the printer and the switch. 3. Check the LED's on the printer 10/100 Ethernet adapter card when enabled. Note the values for each of the indicators on the adapter. • FDX (Full Duplex) indicator is on when operating in Full Duplex Mode and off when operating Half Duplex. • 100 indicator is on when operating at 100 Megabit and off when operating at 10 Megabits. • RCV (Receive) indicator is on when receiving packets from the network. • ACT (Activity) or LNK (LINK) indicators are on when packets are being received or transmitted over the network. 4. There should be similar indicators on the switch or system that the printer is connected to and their values should be noted. The Full/Half Duplex and 10/100 indicator values must agree between the printer and the switch that the printer is connected to. To resolve this, you must take the switch out of auto negotiation mode and explicitly set the mode and speed at the switch. On the printer, the media mode can be either half or full duplex and the speed can be either 10 or 100 Mbps. These settings must match those of the switch.	<u>Auto negotiate Speed and Duplex Mode</u> 10 Mbit Half Duplex 10 Mbit Full Duplex 100 Mbit Half Duplex 100 Mbit Full Duplex

FDDI TCP/IP Attachment Information

Table 8-6 lists all configuration items, what each item is used for, and the allowable value options for each item. The factory set default values are underlined.

Table 8-6. FDDI TCP/IP Attachment Items

Configuration Item	Description	Value Options
FDDI TCP/IP Installed	Specifies if the FDDI adapter is installed.	Yes or No
TCP Port	Specifies the TCP socket address of the attachment. **Notes:** 1. Only one address is required for operating a simplex system. 2. In dual simplex mode, each printer requires a unique device address. If you use the default value of 5001 for simplex Printer 1, IBM recommends using 5002 as the value for simplex Printer 2. 3. The duplex printing system does not require a unique port number. It can use either of the TCP port numbers specified for simplex Printer 1 or simplex Printer 2. However, it is often easier from an operational viewpoint to assign duplex a separate TCP port number. If 5001 and 5002 are used for simplex Printer 1 and simplex Printer 2, IBM recommends that the duplex system be assigned TCP port number 5003. 4. The TCP Port numbers specified in the printer configuration must match the PORT numbers assigned in the host PSF system.	5001 to 65535.
IP Address	Specifies the Internet protocol (IP) address of the printer in dotted decimal format. Get this value from your LAN administrator. This value must match the IP address value in the host PSF configuration. This value is unique to a duplex system, and is the same regardless of whether the printer is in duplex or dual-simplex mode.	X.X.X.X where X ≤ 255.
Subnet Mask	Specifies the mask that identifies the local subnet in dotted decimal format. Get this value from your LAN administrator. If you do not have a local subnet, leave this field blank.	X.X.X.X where X ≤ 255
Default Gateway Address	Specifies the IP address of the default gateway in dotted decimal format. Get this value from your LAN administrator.	X.X.X.X where X ≤ 255
MTU Size	Specifies the Maximum Transmission Unit (MTU) – maximum allowable length of IP packets.	256 to 4352
Hardware address	Specifies the FDDI adapter ROM address.	This address cannot be changed.
Alternate address (Local adapter address)	Sets the unique LAN adapter address for the network. The address must be different from other addresses on the LAN. New cards are restricted to X'4000 0000 0000' to X'FFFF FFFF FFFF'	X'0' to X'FFFF FFFF FFFF'
Confine Broadcast	Specifies if broadcast packets (that is, Address Resolution Protocol packets) are enabled to cross bridges to other rings.	Yes or No

Configuring Pre/Postprocessing Devices/Interfaces

This procedure lets you add, delete, or change specifications for pre-processing and post-processing device interface features. You may configure and store up to ten defined pre/postprocessing devices, each configured for either Printer 1 or Printer 2, but only three devices may be enabled for each printer. The printers have three interface ports. These ports may be equipped with Pre-processing/Post-processing (Pre/Post) or Advanced Function Post-processing (AF Post) interfaces as shown in the following table. Port 1 comes standard with a Pre/Post device interface adaptor, and the following table assumes that adaptor is installed.

Table 8-7. Pre-Processing/Post-Processing Interface Options

Port	Configuration Options					
1	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post	Pre/Post
2	—	Pre/Post	Pre/post	AF Post	Pre/Post	AF Post
3[1]	—	—	Pre/Post	—	AF Post	Pre/Post
[1] Port 3 is not available on Models DR2, ID2, ID4, IR2, and IR4.						

The procedure for changing your pre/postprocessor configuration is as follows:

1. Do one of the following:
   - In duplex or simplex mode, **SELECT** the **Configure** pull-down menu on the main operator console window. You can work with all configured pre-processing and post-processing devices.
   - In dual simplex mode, **SELECT** the **Configure** pull-down menu on the operator console window of the printer you want to work with. You can work with only the pre-processing and post-processing devices configured for that printer.

2. **SELECT** the **Configure Pre/Postprocessors** procedure. You see the **Configure Pre/Postprocessors** window, which lists the device interfaces that are currently defined and installed.
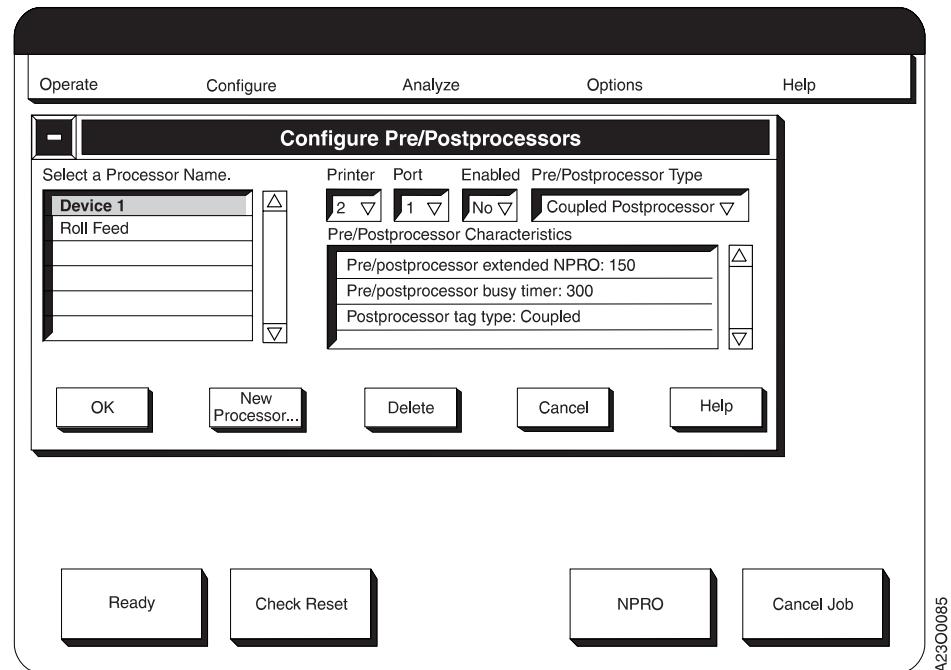
Figure 8-2. Configure Pre/Postprocessors Window - Duplex Mode

3. To add a new interface, do the following:

   a. **SELECT** the **New Processor...** pushbutton.

   b. Use the keyboard to enter the name of the interface you are adding.

   c. **SELECT** the keyboard **OK** pushbutton.

   d. Change the configuration information for the new interface (see the next step).

4. To change the values assigned to an interface, do the following:

   a. **SELECT** from the **Select a Processor Name** selection list box the name of the device interface you want to change. The window shows the current values for the device.

   b. **SELECT** the field you want to change.

   c. **SELECT** the new value you want from the pop-up window, or enter data on the keypad window and **SELECT** the **OK** pushbutton.

   Repeat this step for as many items and devices as you want to change.

5. To delete a device, do the following:

   a. **SELECT** from the **Select a Processor Name** box the name of the device you want to delete from the configured list.

   b. **SELECT** the **Delete** pushbutton.

6. **SELECT** the **OK** pushbutton on the **Configure Pre/Postprocessors** window when you have finished making all changes to the pre/postprocessor configuration.

Pre/Postprocessor Configuration Values

Table 8-8 lists all configuration items, what each item is used for, and the allowable value options for each item. The factory set default values are <u>underlined</u>.

Table 8-8. Pre/Postprocessing Device Configuration Items

Selectable Field/Item	Description	Value Options
Printer (This item is not displayed for simplex models.)	When the Configure Printer **Printer Mode** configuration item is set to **Simplex** mode, this **Printer** selectable field is grayed out in the **Configure Pre/Postprocessors** window. All devices configured while in **Simplex** mode are automatically configured for the printer associated with operator console you are currently using.	1 or 2
Port	The physical connection between the printer and the pre/postprocessing device.	1 or 2 or 3
Enabled	Enables a device for a port. If a device is already enabled for a specific Port number when you select a device that is also configured for that Port Number, the **Yes** is grayed out so that you cannot attempt to enable a second device for the same Port. An error window appears when the restart procedure to activate this change is complete and either of the following conditions exist: • You attempted to enable a device for a Port Number that does not have an interface adaptor installed or • The adapter has a different type (Pre/Post versus AF Post) adaptor installed than the device type you are enabling.	Yes or No
Pre/Postprocessor Type	Specify a **Coupled** type when the Port to be used has a **Pre/Post** type adaptor installed. Specify an **Advanced Postprocessor** type when the Port to be used has a **AF Post** type adaptor installed. Different types have different **Pre/Postprocessor Characteristics** configuration items listed.	Options Include: • Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification) • Spot-color Postprocessor
Pre/Postprocessor Characteristics		
Pre/Postprocessor Extended NPRO (non-process runout)	Listed for all Pre/Postprocessor Types. Extends the NPRO. Enter a non-zero value to extend the fixed NPRO length because of Pre-processing or Post-processing device usage. Setting the "NPRO Length" configuration item under the **Configure Printer** also sets this function. The "Pre/Postprocessor Extended NPRO" value overrides the "Configure Printer NPRO Length" value if both are set to non-zero values.	0 to 800 inches (<u>150</u>)

Table 8-8. Pre/Postprocessing Device Configuration Items (continued)

Selectable Field/Item	Description	Value Options
Pre/Postprocessor Busy Timer	Listed only for "Coupled" Pre/Postprocessor Types. Specifies the length of time in seconds that follows a Pre-processing or Post-processing device going to "Busy" status before the status automatically changes to "Not Ready." The printer does not report "Busy" status to the host system, but does report "Not Ready" status. This time must be set to less than the Missing Interrupt Handler timer at the Host Channel Interface.	1 to 999 seconds (300)
Postprocessor Tag Type	Listed only for "Coupled" Pre/Postprocessor Types. Specify a **Coupled** tag type for all Post-processing devices not manufactured by Roll System, Inc. Specify an **RSI Compatible** tag type for all Post-processing devices manufactured by Roll System, Inc..	• Coupled • RSI Compatible This item is ignored if you are configuring a Pre-processing device interface.
Distance to Postprocessor	Listed only for "Advanced Postprocessor" Pre/Postprocessor Types. If two AF postprocessors are installed, the distance of the second postprocessor must exceed that of the first. If the first postprocessor is a Troy MICR 3900, add an extra 102 inches to the actual measured distance from the printer to the second postprocessor. If the first postprocessor is a Troy MICR 3900 High Speed, add an extra 148 inches to the actual measured distance from the printer to the second postprocessor. For more information, see *Using the IBM 3835 Page Printers and the IBM 3900 Advanced Function Printers with the Troy MICR Printers*, GA32-0261.	• 24 to 800 inches (99) • 24 to 1200 inches (99)
Postprocessor Error Page Stop	Listed only for "Advanced Postprocessor - MICR" Pre/Postprocessor Type.	0 to 50 pages
Postprocessor Verify Alignment Page Stop	Listed only for "Advanced Postprocessor - MICR" Pre/Postprocessor Type.	0 to 5000 pages
Pre/Postprocessor Baud Rate in Kbps	Listed only for "Advanced Postprocessor" Pre/Postprocessor Types.	19.2 or 62.5
Side 2 Verify	Indicates if the Side 2 Verify feature is enabled. Available in duplex only. **Note:** In printers with code version 9.608 or higher, the Side 2 Verify feature is enabled at the factory. The operator must have the CE disable the factory-set feature. However, once the factory-set feature has been disabled by the CE, the operator can enable and disable Side 2 Verify as needed.	Yes or No
Color side	Indicates which side of the sheet the color will be printed on.	• Color on front • Color on back (D)

Configuration Worksheets

Duplex Configuration Work Sheet

Table 8-9. Configuration Work Sheet – Duplex Models

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
MESSAGE DISPLAY LANGUAGE:	• US English • Spanish • French • German • Japanese • Italian • Brazilian Portuguese • Chinese Simplified • Chinese Traditional			
PRINTER CONFIGURATION:				
POD mode (Print on Demand) (for Models IR1/IR2 only)	Yes / No		N/A	N/A
Printer mode	Duplex / Simplex			
Autostart	Yes / No			
PQE boldness for printer 1	15% to 85% **Note:** CE can set PQE boldness from 0% to 100% from the CE Diagnostics.			
PQE boldness for printer 2	15% to 85% **Note:** CE can set PQE boldness from 0% to 100% from the CE Diagnostics.			
Printer 1 counter	(CE Change Only) 0 to 2 000 000 000			N/A
Printer 2 counter	(CE Change Only) 0 to 2 000 000 000		N/A	
Printhead resolution (not all values are supported on all printers) Depending on the value selected, these items appear: IPDS resolution Font enhancement (single-byte font / double-byte font)	240, 300, 480, 600 DPI Automatic, 240, 300, 600 DPI Yes / No			
Jam recovery type	• Use Normal Jam Repositioning • Suppress MICR Jam Repositioning • Suppress All Jam Repositioning			
Font usage	Low / Medium / High			
Page segment usage	Low / Medium / High			
Overlay usage	Low / Medium / High			
Overlay cache	Yes / No			

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Input buffer size	Low / Medium / High			
Output buffer size	Low / Medium / High			
Direct attach	Yes / No			
NPRO length	0 to 1200 inches			
Auto NPRO at EOF	Yes / No			
Jam recovery point distance	0 to 500 inches			
Form feed length (duplex mode only)	17 to 250 inches		N/A	N/A
Length of forms between transfer points (duplex mode only)	150 to 800 inches		N/A	N/A
Front sheet sequence (duplex mode only)	Front First / Front Second		N/A	N/A
Verification marks (duplex mode only)	Automatically selected when in duplex mode. Cannot be changed.	N/A	N/A	N/A
Logical page increment	0 to 20 pels			
Clear memory for security	Yes / No			
Screen saver timeout	0 to 60 minutes			
Alarm suppression	Yes / No			
Fuser inactivity timer	0 to 9 hours			
Eject to front facing enabled	Yes / No			
Form definition order	Yes / No			
Stacker enabled	Yes / No			
Cut sheet emulation	None Normal Left-to-Right Normal Right-to-Left Inverted Left-to-Right Inverted Right-to-Left			
BTS installed	Yes / No			
BTS enabled	Yes / No			
Offsetter installed	Yes / No			
Offsetter enabled	Yes / No			
Offset on mark forms	Yes / No			
3130 bar code compatibility	Yes / No			
Printer 1 Contrast	(CE Change Only) 1 to 7	N/A	N/A	N/A
Printer 2 Contrast	(CE Change Only) 1 to 7	N/A	N/A	N/A
Printer 1 Preheat (Platen Temperature)	(CE Change Only) 1 to 100	N/A	N/A	N/A
Printer 2 Preheat (Platen Temperature)	(CE Change Only) 1 to 100	N/A	N/A	N/A
Printer 1 Hot Roll (Temperature)	(CE Change Only) 1 to 100	N/A	N/A	N/A

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Printer 2 Hot Roll (Temperature)	(CE Change Only) 1 to 100	N/A	N/A	N/A
Printer 1 BIR (Backup Idler Roll)	(CE Change Only) On/Off	N/A	N/A	N/A
Printer 2 BIR (Backup Idler Roll)	(CE Change Only) On/Off	N/A	N/A	N/A
Printer 1 Oil Rate	(CE Change Only) 1 to 100	N/A	N/A	N/A
Printer 2 Oil Rate	(CE Change Only) 1 to 100	N/A	N/A	N/A
Printer 1 Oil Belt (Speed)	(CE Change Only) 1 to 100	N/A	N/A	N/A
Printer 2 Oil Belt (Speed)	(CE Change Only) 1 to 100	N/A	N/A	N/A
Scan factory adjust for Printer 1	(CE Change Only)	N/A	N/A	N/A
Process factory adjust for Printer 1	(CE Change Only)	N/A	N/A	N/A
Scan factory adjust for Printer 2	(CE Change Only)	N/A	N/A	N/A
Process factory adjust for Printer 2	(CE Change Only)	N/A	N/A	N/A
Beam 1 offset adjustment for Printer 1 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 2 offset adjustment for Printer 1 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 3 offset adjustment for Printer 1 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 4 offset adjustment for Printer 1 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 5 offset adjustment for Printer 1 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 1 offset adjustment for Printer 2 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 2 offset adjustment for Printer 2 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 3 offset adjustment for Printer 2 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 4 offset adjustment for Printer 2 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Beam 5 offset adjustment for Printer 2 (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9			
Machine sequence for Printer 1	(CE change on initial configuration only)	N/A	N/A	N/A
Manufacturing plant for Printer 1	(CE change on initial configuration only)	N/A	N/A	N/A

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Machine sequence for Printer 2	(CE change on initial configuration only)	N/A	N/A	N/A
Manufacturing plant for Printer 2	(CE change on initial configuration only)	N/A	N/A	N/A
Date and time	(CE Change Only)	N/A	N/A	N/A
HOST ATTACHMENTS CONFIGURATION:				
Parallel Channel Attachment:				
Parallel link A installed	Yes / No			
Parallel link B installed	Yes / No			
Device address	00 to FF			
Second channel	Static / Dynamic			
Data transfer protocol	Interlocked / Data Streaming			
Data streaming rate	MCA Bus: 1.9 / 2.7 / 3.4 / 4.5 MB/sec PCI Bus: 3.0 / 4.5 MB/sec			
Card 1 position	2 / 4 /Not Installed	N/A	N/A	N/A
Card 2 position	2 / 4 /Not Installed	N/A	N/A	N/A
ESCON Channel:				
ESCON link A installed	Yes / No			
ESCON link B installed	Yes / No			
Device address	00 to FF			
Multi-host environment flag	True / False			
Card 1 position	2 / 4 / Not Installed	N/A	N/A	N/A
Card 2 position	2 / 4 / Not Installed	N/A	N/A	N/A
Token Ring TCP/IP Configuration:				
Installed	Yes / No			
TCP port	5001 to 65535			
IP address	X.X.X.X where X ≤ 255			Match Printer 1
Subnet mask	X.X.X.X where X ≤ 255			Match Printer 1
Default gateway address	X.X.X.X where X ≤ 255			Match Printer 1
MTU size	60 to 4096			
Hardware address	cannot be changed			
Alternate address	X'0' to X'FFFF FFFF FFFF'			
Ring speed	4 or 16			
Confine broadcast	Yes / No			
Ethernet TCP/IP Configuration:				

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Installed	Yes / No			
TCP port	5001 to 65535			
IP address	X.X.X.X where X ≤ 255			Match Printer 1
Subnet mask	X.X.X.X where X ≤ 255			Match Printer 1
Default gateway address	X.X.X.X where X ≤ 255			Match Printer 1
Standard MTU size	60 to 1500			
IEEE8023 MTU size	60 to 1492			
Ethernet type	Standard or IEEE8023			
Hardware address	cannot be changed			
Alternate address	X'0' to X'FFFF FFFF FFFF'			
Cable type (For MCA card only. Not applicable to PCI card.)	10Base2 or 10Base5			
Media Speed	Auto negotiate Speed and Duplex Mode 10 Mbit Half Duplex 10 Mbit Full Duplex 100 Mbit Half Duplex 100 Mbit Full Duplex			
FDDI TCP/IP Configuration:				
Installed	Yes / No			
TCP port	5001 to 65535			
IP address	X.X.X.X where X ≤ 255			Match Printer 1
Subnet mask	X.X.X.X where X ≤ 255			Match Printer 1
Default gateway address	X.X.X.X where X ≤ 255			Match Printer 1
MTU size	256 to 4352			
Hardware address	cannot be changed			
Alternate address	X'0' to X'FFFF FFFF FFFF'			
Confine broadcast	Yes / No			
PRE-PROCESSING/POST-PROCESSING INTERFACE CONFIGURATIONS:				
DEVICE Number_____				
Printer number	1 / 2		N/A	N/A
Port number	1 / 2 / 3			
Enabled	Yes / No			
Name	1-12 alphanumeric characters (including spaces)			

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)			
Characteristics:				
Pre/postprocessor extended NPRO:	0 to 800 inches			
Pre/postprocessor busy timer:	1 to 999 seconds			
Postprocessor tag type:	• Coupled • RSI Compatible			
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches			
Postprocessor error page stop	0 to 50 pages			
Postprocessor verify alignment page stop	0 to 5000 pages			
Pre/postprocessor baud rate in Kbps	19.2 or 62.5			
Side 2 Verify	Yes / No		N/A	N/A
DEVICE Number_____				
Printer number	1 / 2		N/A	N/A
Port number	1 / 2 / 3			
Enabled	Yes / No			
Name	1-12 alphanumeric characters (including spaces)			
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)			
Characteristics:				
Pre/postprocessor extended NPRO:	0 to 800 inches			
Pre/postprocessor busy timer:	1 to 999 seconds			
Postprocessor tag type:	• Coupled • RSI Compatible • Advanced			
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches			
Postprocessor error page stop	0 to 50 pages			

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Postprocessor verify alignment page stop	0 to 5000 pages			
Pre/postprocessor baud rate in Kbps	19.2 or 62.5			
Side 2 Verify	Yes / No		N/A	N/A
DEVICE Number_____				
Printer number	1 / 2		N/A	N/A
Port number	1 / 2 / 3			
Enabled	Yes / No			
Name	1-12 alphanumeric characters (including spaces)			
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)			
Characteristics:				
Pre/postprocessor extended NPRO:	0 to 800 inches			
Pre/postprocessor busy timer:	1 to 999 seconds			
Postprocessor tag type:	• Coupled • RSI Compatible • Advanced			
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches			
Postprocessor error page stop	0 to 50 pages			
Postprocessor verify alignment page stop	0 to 5000 pages			
Pre/postprocessor baud rate in Kbps	19.2 or 62.5			
Side 2 Verify	Yes / No		N/A	N/A
DEVICE Number_____				
Printer number	1 / 2		N/A	N/A
Port number	1 / 2 / 3			
Enabled	Yes / No			
Name	1-12 alphanumeric characters (including spaces)			

Table 8-9. Configuration Work Sheet – Duplex Models (continued)

Item	Available Values	Selected Values		
		Duplex	Simplex	
			Printer 1	Printer 2
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)			
Characteristics:				
Pre/postprocessor extended NPRO:	0 to 800 inches			
Pre/postprocessor busy timer:	1 to 999 seconds			
Postprocessor tag type:	• Coupled • RSI Compatible • Advanced			
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches			
Postprocessor error page stop	0 to 50 pages			
Postprocessor verify alignment page stop	0 to 5000 pages			
Pre/postprocessor baud rate in Kbps	19.2 or 62.5			
Side 2 Verify	Yes / No		N/A	N/A

Simplex Configuration Work Sheet

Table 8-10. Configuration Work Sheet – Simplex Models

Item	Available Values	Selected Value
MESSAGE DISPLAY LANGUAGE:	• US English • Spanish • French • German • Japanese • Italian • Brazilian Portuguese • Chinese Simplified • Chinese Traditional	
CONFIGURE PRINTER:		
Autostart	Yes / No	
PQE boldness	15% to 85% **Note:** CE can set PQE boldness from 0% to 100% from the CE Diagnostics.	
Print counter	(CE Change Only) 0 to 2 000 000 000	N/A
Printhead resolution (not all values are supported on all printers)	240, 300 DPI	
Jam recovery type	• Use Normal Jam Repositioning • Suppress MICR Jam Repositioning • Suppress All Jam Repositioning	
Font usage	Low / Medium / High	
Page segment usage	Low / Medium / High	
Overlay usage	Low / Medium / High	
Overlay cache	Yes / No	
Input buffer size	Low / Medium / High	
Output buffer size	Low / Medium / High	
Direct attach	Yes / No	
NPRO length	0 to 1200 inches	
Auto NPRO at EOF	Yes / No	
Jam recovery point distance	0 to 500 inches	

Line mode enabled (In 240 DPI mode only) If line mode is set to YES, these items appear:
   Default lines per inch
   Pages with job separator mark
	Yes / No
	
	6 / 8 / 10 / 12
	1 – 9	

Logical page increment	0 to 20 pels	
Mark forms on more than one page	Yes / No	
Clear memory for security	Yes / No	
Screen saver timeout	0 to 60 minutes	
Alarm suppression	Yes / No	
Fuser inactivity timer	0 to 9 hours	
Eject to front facing enabled	Yes / No	

Table 8-10. Configuration Work Sheet – Simplex Models (continued)

Item	Available Values	Selected Value
Form definition order	Yes / No	
Stacker enabled	Yes / No	
Cut sheet emulation	None Normal Left-to-Right Normal Right-to-Left Inverted Left-to-Right Inverted Right-to-Left	
BTS installed	Yes / No	
BTS enabled	Yes / No	
Offsetter installed	Yes / No	
Offsetter enabled	Yes / No	
Offset on mark forms	Yes / No	
3130 bar code compatibility	Yes / No	
Contrast	(CE Change Only) 1 to 7	N/A
Preheat (Platen Temperature)	(CE Change Only) 1 to 100	N/A
Hot Roll (Temperature)	(CE Change Only) 1 to 100	N/A
Oil Rate	(CE Change Only)1 to 100	N/A
Oil Belt (Speed)	(CE Change Only) 1 to 100	N/A
Scan factory adjust	(CE Change Only)	N/A
Process factory adjust	(CE Change Only)	N/A
Beam 1 offset adjustment (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9	N/A
Beam 2 offset adjustment (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9	N/A
Beam 3 offset adjustment (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9	N/A
Beam 4 offset adjustment (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9	N/A
Beam 5 offset adjustment (only for printers with multi-beam printheads)	(CE Change Only) 0.0 to 15.9	N/A
Machine sequence	(CE Change Only)	N/A
Manufacturing plant	(CE Change Only)	N/A
Date and time	(CE Change Only)	N/A
HOST ATTACHMENTS CONFIGURATION:		
Parallel Channel		
Parallel link A installed	Yes / No	
Parallel link B installed	Yes / No	
Device address	00 to FF (hexadecimal)	
Second channel	Static / Dynamic	
Data transfer protocol	Interlocked / Data Streaming	
Data streaming rate	MCA bus: 1.9/2.7/3.4/4.5 MB/sec PCI bus: 3.0/4.5 MB/sec	

Table 8-10. Configuration Work Sheet – Simplex Models (continued)

Item	Available Values	Selected Value
Card 1 position	2 / 4 / Not Installed	Automatically set at power on, cannot be changed.
Card 2 position	2 / 4 / Not Installed	Automatically set at power on, cannot be changed.
ESCON Channel:		
ESCON link A installed	Yes / No	
ESCON link B installed	Yes / No	
Device address	00 to FF (Hexadecimal)	
Multi-host environment flag	True / False	
Card 1 position	2 / 4 / Not Installed	Automatically set at power on, cannot be changed.
Card 2 position	2 / 4 / Not Installed	Automatically set at power on, cannot be changed.
Token Ring TCP/IP Configuration:		
Installed	Yes / No	
TCP port	5001 to 65535	
IP address	X.X.X.X where X ≤ 255	
Subnet mask	X.X.X.X where X ≤ 255	
Default gateway address	X.X.X.X where X ≤ 255	
MTU size	60 to 4096	
Hardware address	cannot be changed	
Alternate address	X'0' to X'FFFF FFFF FFFF'	
Ring speed	4 or 16	
Confine broadcast	Yes / No	
Ethernet TCP/IP Configuration		
Installed	Yes / No	
TCP port	5001 to 65535	
IP address	X.X.X.X where X ≤ 255	
Subnet mask	X.X.X.X where X ≤ 255	
Default gateway address	X.X.X.X where X ≤ 255	
Standard MTU size	60 to 1500	
IEEE8023 MTU size	60 to 1492	
Ethernet type	Standard or IEEE8023	
Hardware address	cannot be changed	
Alternate address	X'0' to X'FFFF FFFF FFFF'	
Cable type (For MCA card only. Not available for PCI card.)	10Base2 or 10Base5	
Media Speed	Auto negotiate Speed and Duplex Mode 10 Mbit Half Duplex 10 Mbit Full Duplex 100 Mbit Half Duplex 100 Mbit Full Duplex	

Table 8-10. Configuration Work Sheet – Simplex Models (continued)

Item	Available Values	Selected Value
FDDI TCP/IP Configuration:		
Installed	Yes / No	
TCP port	5001 to 65535	
IP address	X.X.X.X where X ≤ 255	
Subnet mask	X.X.X.X where X ≤ 255	
Default gateway address	X.X.X.X where X ≤ 255	
MTU size	60 to 4096	
Hardware address	cannot be changed	
Alternate address	X'0' to X'FFFF FFFF FFFF'	
Ring speed	4 or 16	
Confine broadcast	Yes / No	
PRE-PROCESSING/POST-PROCESSING INTERFACE CONFIGURATIONS:		
DEVICE number_____		
Port number	1 / 2 / 3	
Enabled	Yes / No	
Name	1 to 12 alphanumeric characters (including spaces)	
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)	
Characteristics		
Pre/Postprocessor extended NPRO:	0 to 800 inches	
Pre/Postprocessor busy timer:	1 to 999 seconds	
Postprocessor tag type:	• Coupled • RSI Compatible	
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches	
Postprocessor error page stop	0 to 50 pages	
Postprocessor verify alignment page stop	0 to 5000 pages	
Pre/Postprocessor baud rate in Kbps	19.2 or 62.5	
DEVICE number_____		
Port number	1 / 2 / 3	
Enabled	Yes / No	
Name	1 to 12 alphanumeric characters (including spaces)	
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)	
Characteristics:		

Table 8-10. Configuration Work Sheet – Simplex Models (continued)

Item	Available Values	Selected Value
Pre/Postprocessor extended NPRO:	0 to 800 inches	
Pre/Postprocessor busy timer:	1 to 999 seconds	
Postprocessor tag type:	• Coupled • RSI Compatible • Advanced	
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches	
Postprocessor error page stop	0 to 50 pages	
Postprocessor verify alignment page stop	0 to 5000 pages	
Pre/Postprocessor baud rate in Kbps	19.2 or 62.5	
DEVICE number_____		
Port number	1 / 2 / 3	
Enabled	Yes / No	
Name	1 to 12 alphanumeric characters (including spaces)	
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)	
Characteristics:		
Pre/Postprocessor extended NPRO:	0 to 800 inches	
Pre/Postprocessor busy timer:	1 to 999 seconds	
Postprocessor tag type:	• Coupled • RSI Compatible	
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches	
Postprocessor error page stop	0 to 50 pages	
Postprocessor verify alignment page stop	0 to 5000 pages	
Pre/Postprocessor baud rate in Kbps	19.2 or 62.5	
DEVICE number_____		
Port number	1 / 2 / 3	
Enabled	Yes / No	
Name	1 to 12 alphanumeric characters (including spaces)	
Type	• Coupled Preprocessor • Coupled Postprocessor • Advanced Postprocessor - MICR • Advanced Postprocessor - SMM (Select Medium Modification)	
Characteristics:		
Pre/Postprocessor extended NPRO:	0 to 800 inches	
Pre/Postprocessor busy timer:	1 to 999 seconds	
Postprocessor tag type:	• Coupled • RSI Compatible	

Table 8-10. Configuration Work Sheet – Simplex Models (continued)

Item	Available Values	Selected Value
Distance to postprocessor	• 24 to 800 inches • 24 to 1200 inches	
Postprocessor error page stop	0 to 50 pages	
Postprocessor verify alignment page stop	0 to 5000 pages	
Pre/Postprocessor baud rate in Kbps	19.2 or 62.5	

Defining Forms

Note: See "Defining Forms" on page A-1 for the procedure to define forms if the printer has the automatic forms-based temperature adjustment feature.

Use this procedure for defining forms if the printer does not have the automatic forms-based temperature adjustment feature. You can add, change, or delete forms.

You must define forms to the printer before you can load them. You can define forms in advance as a separate procedure, or while you are actually loading the forms.

The printer can store 1024 form name definitions in duplex and simplex modes, and 1024 additional form name definitions for each printer in dual simplex mode for a total of 3072 form name definitions for the complete system. Five form names come standard with each system and appear on the **Define Forms** panel on the Operator Console.

Use the "Form Identification Work Sheet" on page 8-49 before installation of the printer to define the forms your installation is planning to use, and continue using them during the life of the system to add additional forms definitions.

Form Names defined and stored while the printer is in duplex mode are listed and available for assignment/change/deletion only in duplex mode. Likewise, a Form Name defined and stored in either Printer 1 simplex or Printer 2 simplex modes are listed and available for assignment/change/deletion only when the printer is in simplex mode.

To define new forms or delete existing forms, do the following:
1. Ensure that the printer is in Not Ready status.
2. **SELECT** the **Configure** pull-down menu on the main operator console window.
3. **SELECT** the **Define Forms** procedure. You see the **Define Forms** window, which lists the forms that are currently defined and information about the form name that is highlighted in the list.

   Note: The **Define Forms** function is not available if the **Assign Forms to Load** or **Print Adjust** screen is displayed. Only one of these three screens can be displayed at any time.
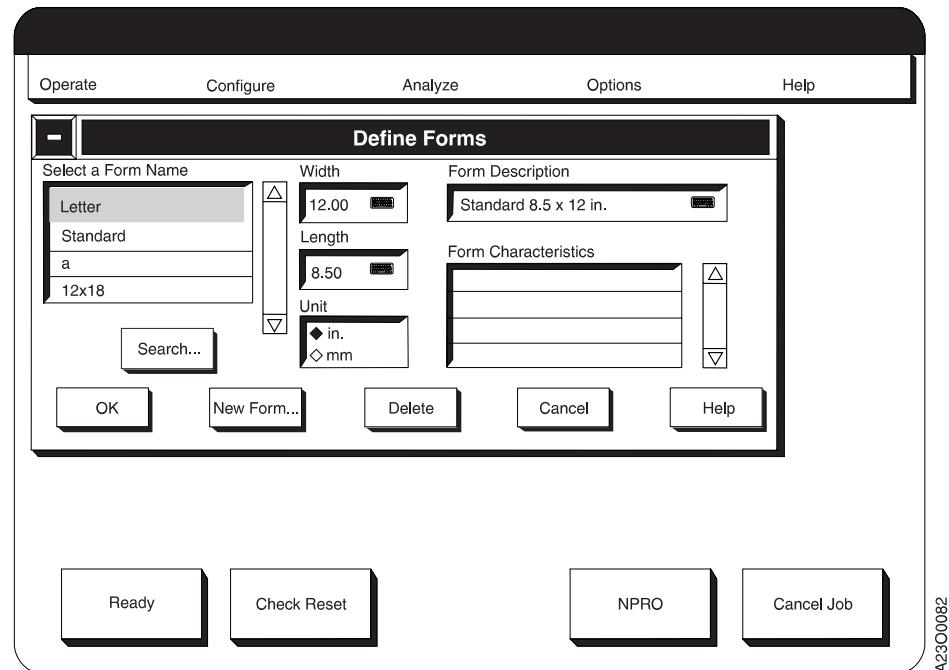
Figure 8-3. Define Forms Window - Duplex Mode

4. To **delete** a form, do the following:
   a. **SELECT** the form you want to delete from the list.
   b. **SELECT** the **Delete** pushbutton.

   Note: You cannot delete the last remaining Form Name or the loaded Form Name. To rename the last defined form, you must use the **New Form...** pushbutton to add a new Form Name, and then delete the old Form Name.

5. To **define** a new form, do the following:
   a. **SELECT** the **New Form...** pushbutton.
   b. Use the keyboard to enter the name you choose for the new form.
   c. **SELECT** the keyboard **OK** pushbutton.
   d. The new form is added to the list and is initially assigned the same values as the previous form.
   e. To change these values, see the next step.

6. To **change** a form definition, do the following:
   a. **SELECT** the form you want to change. The current definition appears.
   b. **SELECT** the field you want to change. You see either a pop-up window or a keypad window.
   c. **SELECT** the new value you want from the pop-up window, or enter data on the keypad window and **SELECT** the **OK** pushbutton.
   d. When you finish making all changes to forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.

The forms are then available for use in the **Assign Forms to Load** list.

Notes:

1. For form width, specify the total physical width including the 0.5 inch tractor hole carrier strips on both sides of the form.

   For Printer Models IS1, IS2, and ID1/ID2, the following form widths are allowed:

   - Simplex Mode: 8.0 to 18.0 in. (203 to 457 mm)
   - Duplex Mode: ID1/ID2 only — 9.0 to 18.0 in. (229 to 457 mm)

   For Printer Models DR1 and DR2, the following form widths are allowed:

   - Duplex Mode: DR1/DR2 — 12.0 to 18.0 in. (305 to 457 mm)

   Specify the width in inches or millimeters. If you use inches, fractions must use a decimal point (enter $13^1/_2$ as 13.5). If you use millimeters, do not use a decimal point.

2. For length, specify the length of the form in the process direction (parallel to the tractor holes). You can specify length in inches or millimeters and in lengths from 3 to 17 inches (77 to 432 mm).

   Specify the length either in inches to two decimal places or in millimeters as a whole number. The printer rounds the length you enter to the nearest one-sixth inch, and displays it on the screen.

   For related information see "Appendix C. Valid Form Lengths in Inches" on page C-1.

Form Identification Work Sheet

Use the "Form Identification Work Sheet" on page 8-50 to record form identification names with their associated lengths, widths, description, and characteristics. You can define up to 1024 different forms for duplex mode, and 1024 additional forms for each printer in simplex mode, for a total of 3072 form name definitions for the complete system. Make copies of the work sheets as necessary.

You may also find it helpful to make notes about loading techniques, adjusting print values, or other information that may be particular to certain forms.

Form Identification Work Sheet

Table 8-11. Form Identification Work Sheet

Form Number	Definition	With This Value	Notes
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	
	Name Width (in millimeters or inches) Length (in millimeters or inches) Description	_____ _____ _____ _____	

Appendix A. Automatic Forms-Based Printer Adjustments

Defining Forms

Note: Use "Defining Forms" on page 8-46 if the printer does <u>not</u> have the automatic forms-based printer adjustment feature.

Use this procedure to define forms if the printer has the automatic forms-based printer adjustment feature. You can add, change, or delete form definitions.

You must define forms to the printer before you can load them. You can define forms in advance as a separate procedure. You can also define forms while you are actually loading the forms.

The printer can store 1024 form name definitions in duplex and simplex modes, and 1024 additional form name definitions for each printer in dual simplex mode for a total of 3072 form name definitions for the complete system. Five form names come standard with each system and appear on the **Define Forms** panel on the operator console.

Use the Table A-1 on page A-17 before installation of the printer to define the forms your installation is planning to use. Continue using the forms during the life of the system to add additional forms definitions.

Form names that are defined and stored while the printer is in duplex mode are listed and available for assignment/change/deletion only in duplex mode. Likewise, a form name that is defined and stored in either Printer 1 dual simplex or Printer 2 dual simplex mode are listed and available for assignment/change/deletion only when the printer is in simplex mode.

To define new forms or delete existing forms, do the following:
1. Ensure that the printer is in Not Ready status.
2. **SELECT** the **Configure** pull-down menu on the main operator console window.
3. **SELECT** the **Define Forms** procedure. You see the **Define Forms** window, which lists the forms that are currently defined and information about the form name that is highlighted in the list.

   Note: The **Define Forms** function is not available if the **Assign Forms to Load** or **Print Adjust** screen is displayed. Only one of these three screens appears at any time.
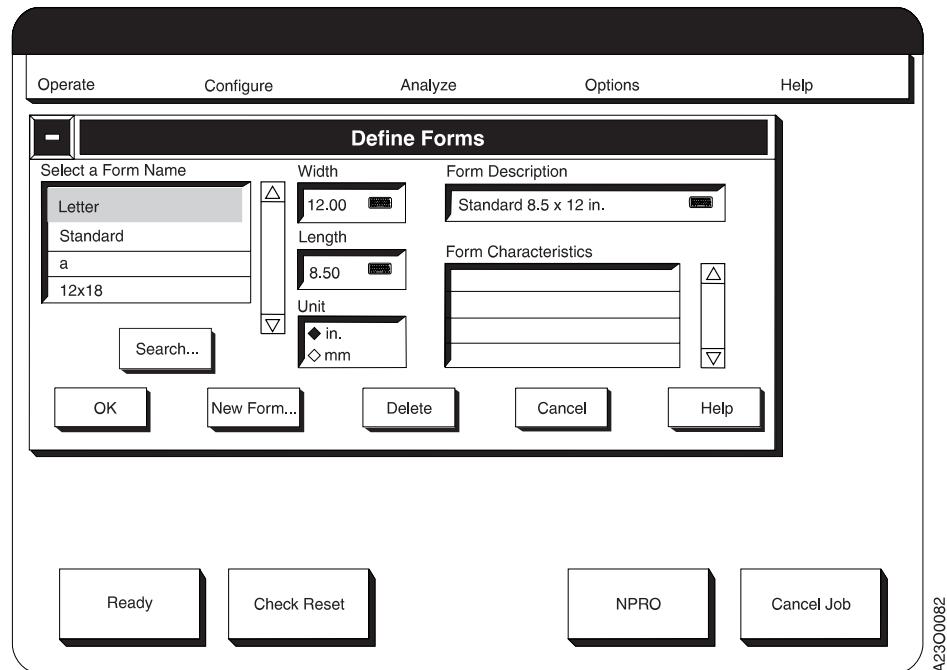
Figure A-1. Define Forms Window - Duplex Mode

4. To find a particular form name, **SELECT** the **Search** pushbutton. A keyboard appears so you can enter the form name.

   Note: Use care when you define a form name. Searching for form names is case sensitive; that is, if capitol letters are used to define the form, you must use them to enter the form name for a search.

5. With the form name selected, do one of the following:

   - **To delete a form, do the following:**
     a. **SELECT** the form you want to delete from the list.
     b. **SELECT** the **Delete** pushbutton.

       Note: You cannot delete the last remaining Form Name or the loaded Form Name. To rename the last defined form, you must use the **New Form...** pushbutton to add a new Form Name, and then delete the old Form Name.

   - **To define a new form, do the following:**
     a. **SELECT** the **New Form...** pushbutton.
     b. Use the keyboard to enter the name you choose for the new form.
     c. **SELECT** the keyboard **OK** pushbutton.
     d. The new form is added to the list and is initially assigned the same values as the previous form.
     e. To change these values, see the next step.

- **To change a form definition, do the following:**
  a. **SELECT** the form you want to change. The current definition appears.
  b. **SELECT** the field you want to change. You see either a pop-up window or a keypad window.
  c. **SELECT** the new value you want from the pop-up window, or enter data on the keypad window and **SELECT** the **OK** pushbutton.
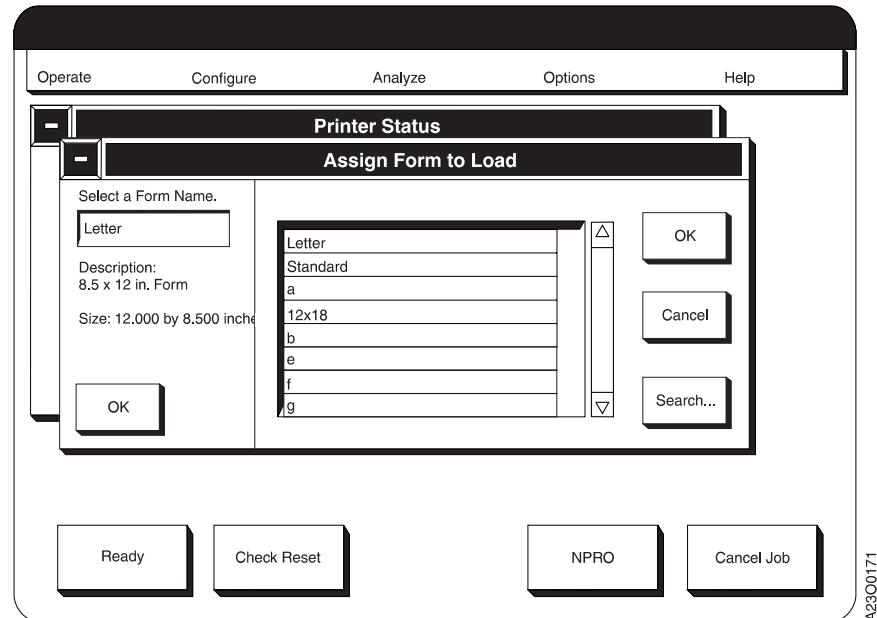
The forms are then available for the *Assign Forms to Load* window.

Notes:

1. The following items on the **Form Characteristics** pop-up window are grayed out and cannot be changed:
   - Pinless
   - Pinless mark
   - Printable width

2. For form width, specify the total physical width by including the 0.5 inch tractor hole carrier strips on both sides of the form.
   - For Models ID1/ID2 and ID3/ID4, the following form widths are allowed:
     – Dual Simplex Mode: 204 to 457 mm (8.0 to 18.0 in.)
     – Duplex Mode: 229 to 457 mm (9.0 to 18.0 in.).
   - For Models IS1 and IS2, the following form widths are allowed: 204 to 457 mm (8.0 to 18.0 in.).
   - For Models DR1/DR2 and IR1/IR2, the following form widths are allowed: 305 to 457 mm (12.0 to 18.0 in.).
   - For Models IR3/IR4, the following form widths are allowed: 229 to 457 mm (9.0 to 18.0 in.).

   Specify the width in millimeters or inches. If you use millimeters, do not use a decimal point. If you use inches, fractions must use a decimal point (enter 13½ as 13.5).

3. For length, specify the length of the form in the process direction (parallel to the tractor holes). You can specify length in millimeters or inches and in lengths from 77 to 432 mm (3 to 17 in.).

For 25- or 28-inch Forms:

You can define the forms length up to 28 in. by using the **Special Features** option on the **Options** pull-down menu.

For 25-in. forms length, **SELECT Feature 8B2929**.

For 28-in. forms length, **SELECT Feature 8B2930**.

After you have selected the feature you want, **SELECT** the **Install** pushbutton, then **SELECT** the **Enable** pushbutton.

Note: Using either of these features can cause an impact on performance.

Specify the length either in inches to two decimal places or in millimeters as a whole number. The printer rounds the length you enter to the nearest one-sixth inch, and displays it on the screen.

For related information, see "Appendix C. Valid Form Lengths in Inches" on page C-1.

Setting/Adjusting the Contrast

The **Contrast** selection in the **Forms Characteristics** box allows you to adjust toner density (darkness) of the print on the form. You can increase (darken) or decrease (lighten) the toner density of the print. A default value is set during printer configuration. This default value is used if you enter **0** (zero) or leave the field blank.

Operate	Configure	Analyze	Options	Help

Printer Status

Define Forms

Select a Form Name

| Letter |
| Standard |
| 2UpLetter |
| 12x18 |

Search...

Width

12.00

Length

8.50

Unit

● in.
○ mm

Form Description

Standard 8.5 x 12 in.

Form Characteristics

| Contrast: 0 |
| Preheat: 0 |
| Hot Roll: 0 |
| Oil Rate: 0 |

OK	New Form...	Delete	Cancel	Help

| Ready | Check Reset | NPRO | Cancel Job |

HC6OG082
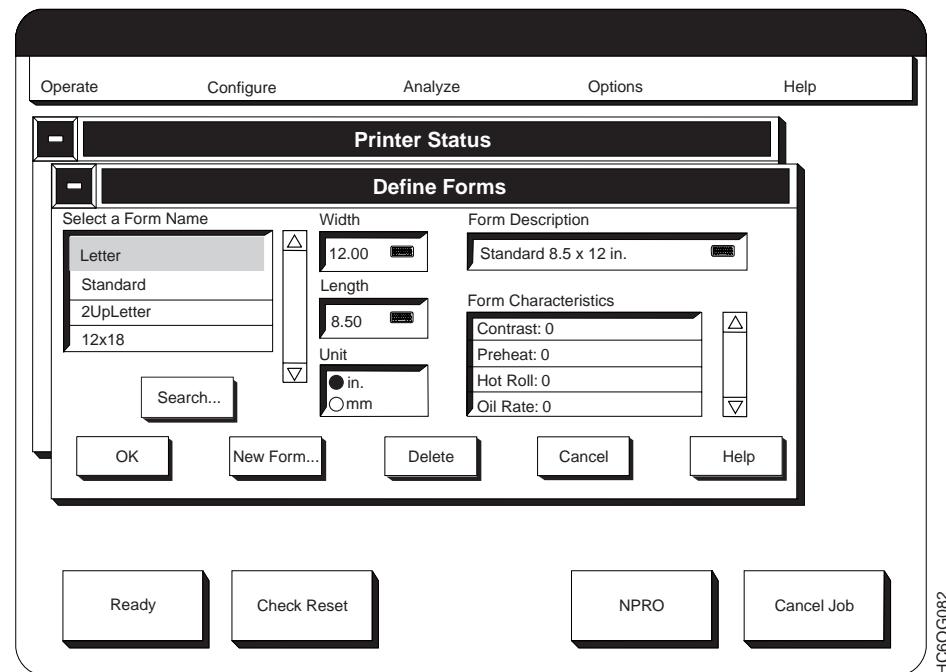
To set or change the contrast, do the following:

1. **SELECT** the **Contrast** field. A keypad window appears.

| Operate | Configure | Analyze | Options | Help |

Printer Status

Define Forms

Enter contrast. (Range: 1 to 7 or enter 0 for default)

Overwrite

7	8	9
4	5	6
1	2	3
0	

Home	End	Cancel
Insert	Delete	Backspace
Left	Right	Clear
OK		Help

| Ready | Check Reset | NPRO | Cancel Job |

HC6OG108
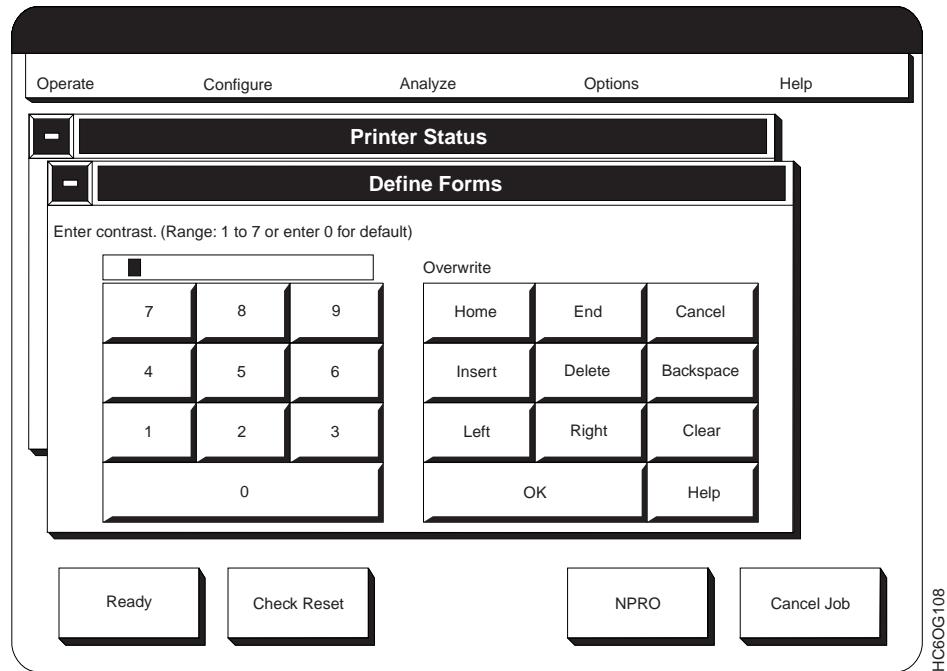
2. Do one of the following:
   - To use the *default* contrast value, enter **0** (zero) on the keypad. To determine the default value, look at **Contrast** in **Printer Configuration**.
   - Enter a number between **1** and **7** where 1 is lightest and 7 is darkest.
3. **SELECT** the **OK** pushbutton on the keypad.
4. When you finish making all changes to forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.
5. Print several hundred feet of forms to verify the new contrast setting.

Setting/Adjusting the Preheat Platen Temperature

The **Preheat** selection in the **Forms Characteristics** box allows you to adjust the temperature of the preheat platen for optimum fusing. The number you enter is a relative number, not a temperature measurement in degrees. A default value is set during printer configuration. This default value is used if you enter **0** (zero) or leave the field blank.

The number you enter is *not* a measure of temperature in degrees. It is a relative number ranging from 1 (coolest) to 100 (hottest).

When you are using regular (normal) forms, the temperature should be set to the default value, which is set in **Printer Configuration**.

Operate	Configure	Analyze	Options	Help

Printer Status

Define Forms

Select a Form Name

- Letter
- Standard
- 2UpLetter
- 12x18

Search...

Width
12.00

Length
8.50

Unit
● in.
○ mm

Form Description
Standard 8.5 x 12 in.

Form Characteristics
- Contrast: 0
- Preheat: 0
- Hot Roll: 0
- Oil Rate: 0

OK	New Form...	Delete	Cancel	Help

Ready	Check Reset		NPRO	Cancel Job

HC6OG082
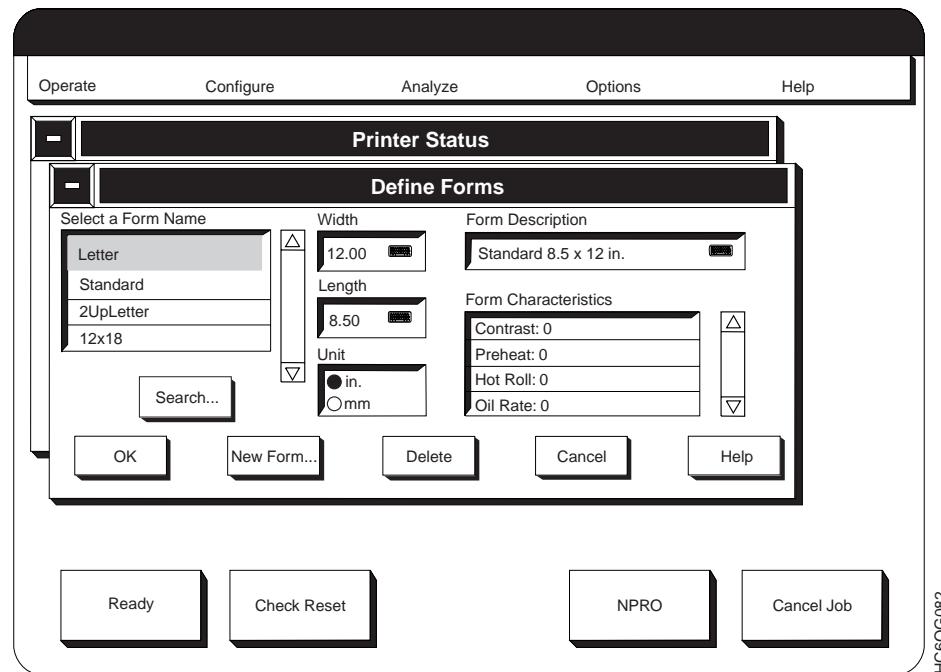
To set or change the preheat platen temperature, do the following:

1. **SELECT** the **Preheat** field. A keypad window appears.
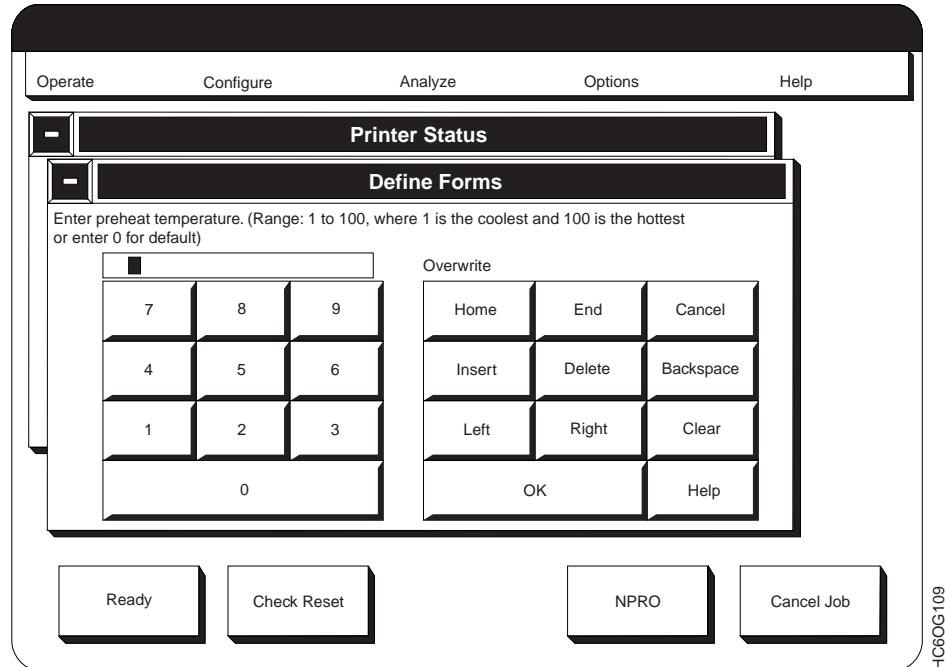
Operate	Configure	Analyze	Options	Help

Printer Status

Define Forms

Enter preheat temperature. (Range: 1 to 100, where 1 is the coolest and 100 is the hottest or enter 0 for default)

Overwrite

7	8	9
4	5	6
1	2	3
0		

Home	End	Cancel
Insert	Delete	Backspace
Left	Right	Clear
OK		Help

Ready	Check Reset		NPRO	Cancel Job

HC6OG109

2. Do one of the following:
   - To use the *default* temperature value, enter **0** (zero) on the keypad. To determine the default value, look at **Preheat Platen** in **Printer Configuration**.
   - Enter a number between **1** and **100** where 1 is for the coolest temperature and 100 is for the hottest temperature.

   Note: If you are adjusting the temperature setting, you may not see any significant difference if you change the value by a small amount. The first change you make should be to increase or decrease the value by **10** or a greater number.

3. **SELECT** the **OK** pushbutton on the keypad.
4. When you finish making all changes to forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.
5. Print several hundred feet of forms at the new temperature to verify that fusing is acceptable. If it is not, repeat the procedure.

Setting/Adjusting the Hot Roll Temperature

The **Hot Roll** selection in the **Forms Characteristics** box allows you to adjust the
temperature of the hot roll for optimum fusing. The number you enter is a relative
number, not a temperature measurement in degrees. A default value is set during
printer configuration. This default value is used if you enter **0** (zero) or leave the
field blank.

The number you enter is *not* a measure of temperature in degrees. It is a relative
number ranging from 1 (coolest) to 100 (hottest).

When you are using regular (normal) forms, the temperature should be set to the
default value, which is set in **Printer Configuration**.

Operate	Configure	Analyze	Options	Help

Printer Status

Define Forms

Select a Form Name

- Letter
- Standard
- 2UpLetter
- 12x18

Search...

Width

12.00

Length

8.50

Unit

● in.
○ mm

Form Description

Standard 8.5 x 12 in.

Form Characteristics

Contrast: 0
Preheat: 0
Hot Roll: 0
Oil Rate: 0

OK   New Form...   Delete   Cancel   Help

Ready   Check Reset   NPRO   Cancel Job

HC6OG082
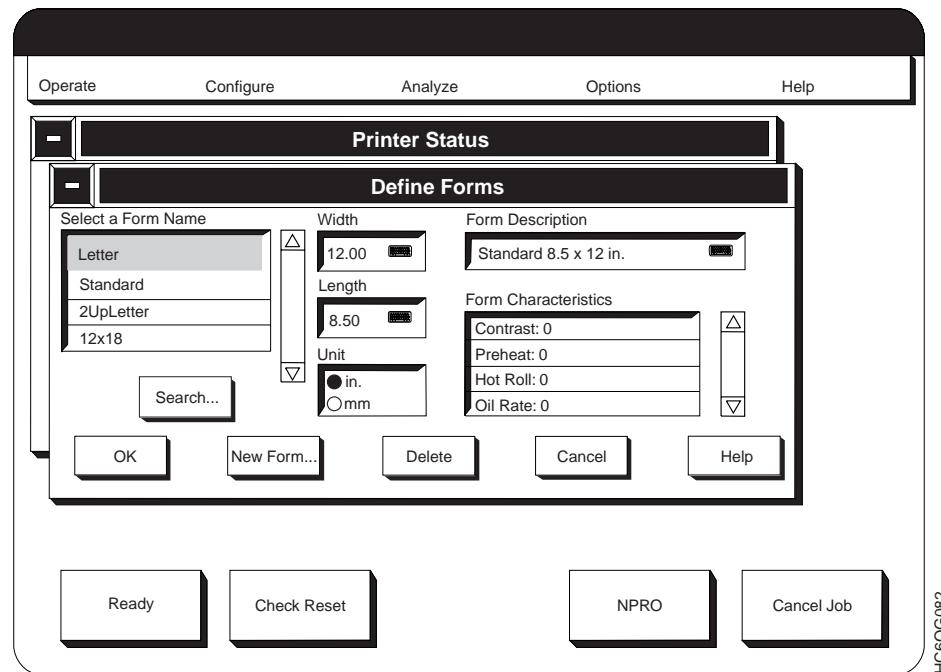
To set or change the hot roll temperature, do the following:

1. **SELECT** the **Hot Roll** field. A keypad window appears.
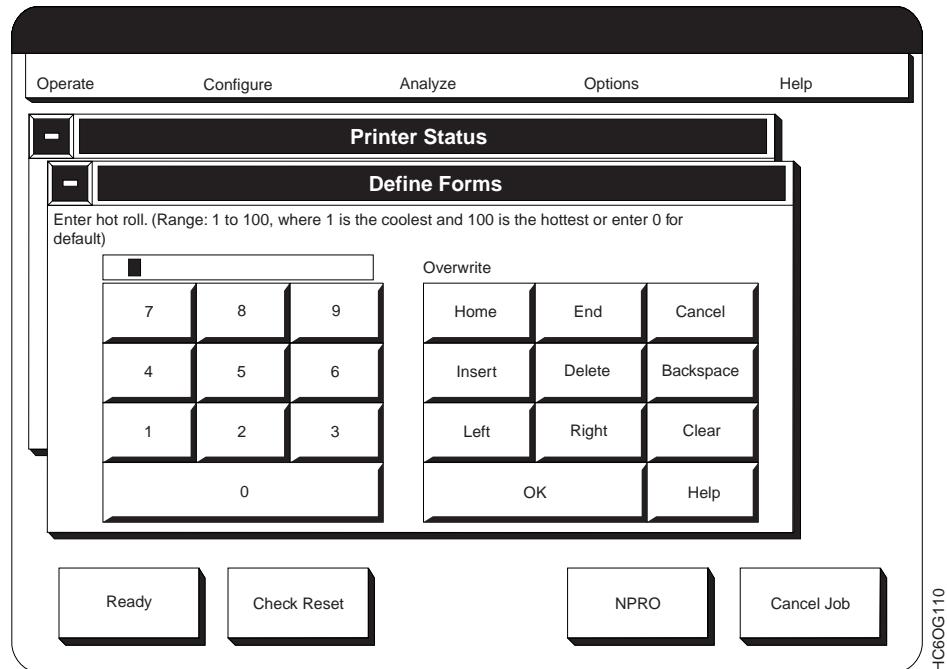
| Operate | Configure | Analyze | Options | Help |

Printer Status

Define Forms

Enter hot roll. (Range: 1 to 100, where 1 is the coolest and 100 is the hottest or enter 0 for default)

Overwrite

7	8	9		Home	End	Cancel
4	5	6		Insert	Delete	Backspace
1	2	3		Left	Right	Clear
0					OK	Help

| Ready | Check Reset | | NPRO | Cancel Job |

HC6OG110

2. Do one of the following:
   - To use the *default* temperature value, enter **0** (zero) on the keypad. To determine the default value, look at **Hot Roll** in **Printer Configuration**.
   - Enter a number between **1** and **100** where 1 is for the coolest temperature and 100 is for the hottest temperature.

     Currently only two temperatures are available. A value of 1 to 33 gives a lower temperature, while 34 to 100 gives the normal temperature.

3. **SELECT** the **OK** pushbutton on the keypad.

4. When you finish making all changes to forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.

5. Print several hundred feet of forms at the new temperature to verify that fusing is acceptable. If it is not, repeat the procedure.

Setting the Backup Idler Roll (BIR)

Note: This setting is available for Models ID2, IS2, and ID3/ID4 only.

The **Backup Idler Roll** selection in the **Forms Characteristics** box allows you to select using the backup idler roll for optimum fusing. Using the backup idler roll allows lower preheat platen temperatures. The choices are **Default**, **On**, or **Off**. A default value is set during printer configuration.

The default and optional settings for the models mentioned above are:

Model	BIR Default	BIR Control
ID2 (Duplex Printer 2 only)	On	On or Off
ID2 (Dual Simplex Printer 2 only)	Off	Off (no option)
IS2 (Simplex)	On	On or Off
ID3/ID4 (Duplex or Dual Simplex)	On	On or Off

Use the **Default** value when you are using regular forms. To determine the default value, look at **BIR** in **Printer Configuration**.

To set or change the BIR value, do the following:
1. **SELECT** the **BIR** field. A window appears with the choices.
2. **SELECT** the correct value and then **SELECT** the **OK** pushbutton.
3. When you finish making all the changes to the forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.

Setting/Adjusting the Oil Rate

The **Oil Rate** selection in the **Forms Characteristics** box allows you to adjust the flow of oil to the oil belt. The number you enter is a relative number, not a measurement of amount. A default value is set during printer configuration. This default value is used if you enter **0** (zero) or leave the field blank.

The number you enter is *not* a measure of amount. It is a relative number ranging from 1 (smallest amount) to 100 (greatest amount).

When you are using regular (normal) forms, the oil rate should be set to the default value, which is set in **Printer Configuration**.

Operate	Configure	Analyze	Options	Help

Printer Status

Define Forms

Select a Form Name
- Letter
- Standard
- 2UpLetter
- 12x18

Search...

Width: 12.00

Length: 8.50

Unit: ● in. ○ mm

Form Description: Standard 8.5 x 12 in.

Form Characteristics
- Contrast: 0
- Preheat: 0
- Hot Roll: 0
- Oil Rate: 0

OK   New Form...   Delete   Cancel   Help

Ready   Check Reset   NPRO   Cancel Job

HC6OG082
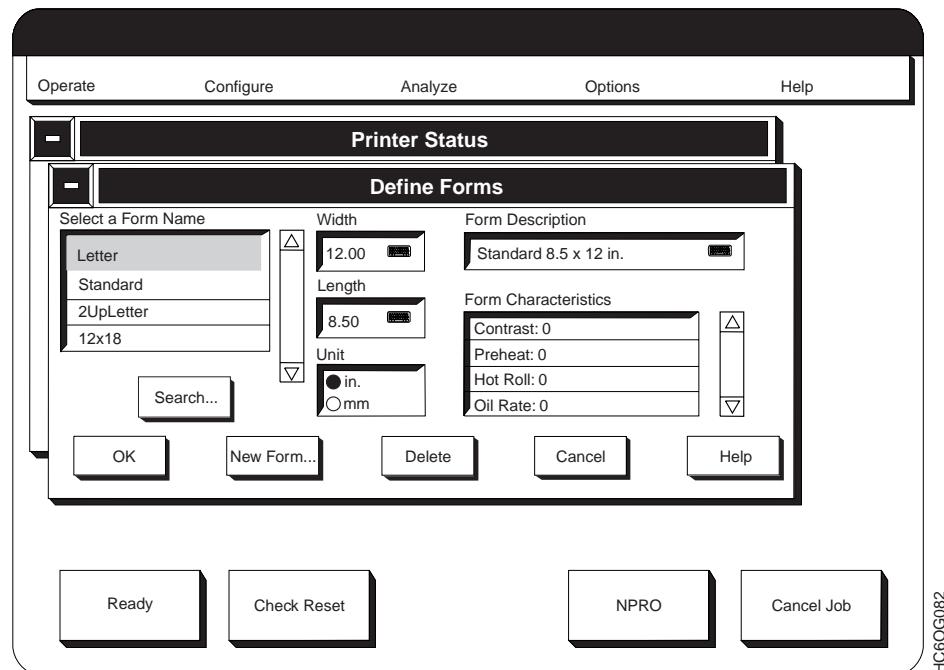
To set or change the oil flow rate, do the following:

1. **SELECT** the **Oil Rate** field. A keypad window appears.
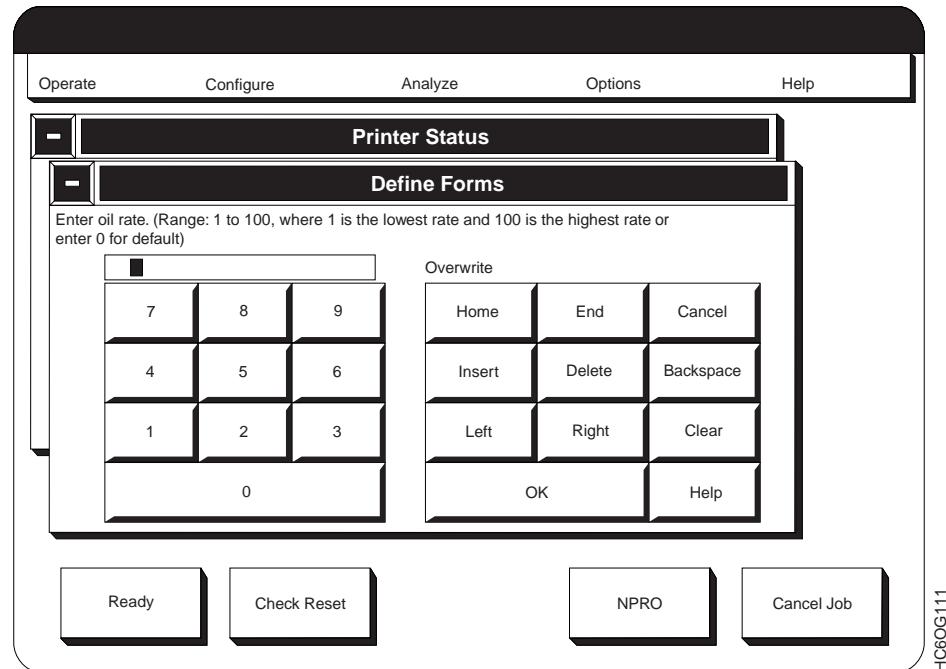
2. Do one of the following:
   - To use the *default* rate value, enter **0** (zero) on the keypad. To determine the default value, look at **Oil Rate** in **Printer Configuration**.
   - Enter a number between **1** and **100** where 1 is for the <u>lowest</u> flow rate and 100 is for the <u>greatest</u> flow rate.

     Currently, only two oil rates are available. A value of 1 to 66 gives the normal oil rate, while 67 to 100 gives a higher rate.

3. **SELECT** the **OK** pushbutton on the keypad.

4. When you finish making all changes to forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.

5. Print several hundred feet of forms at the new oil rate to verify that fusing is acceptable. If it is not, repeat the procedure.

Setting/Adjusting the Oil Belt Speed

The **Oil Belt** selection in the **Forms Characteristics** box allows you to adjust the speed of the oil belt. The number you enter is a relative number, not a measurement of speed. A default value is set during printer configuration. This default value is used if you enter **0** (zero) or leave the field blank.

The number you enter is *not* a measure of speed. It is a relative number ranging from 1 (slowest) to 100 (fastest).

When you are using regular (normal) forms, the oil belt speed should be set to the default value, which is set in **Printer Configuration**.
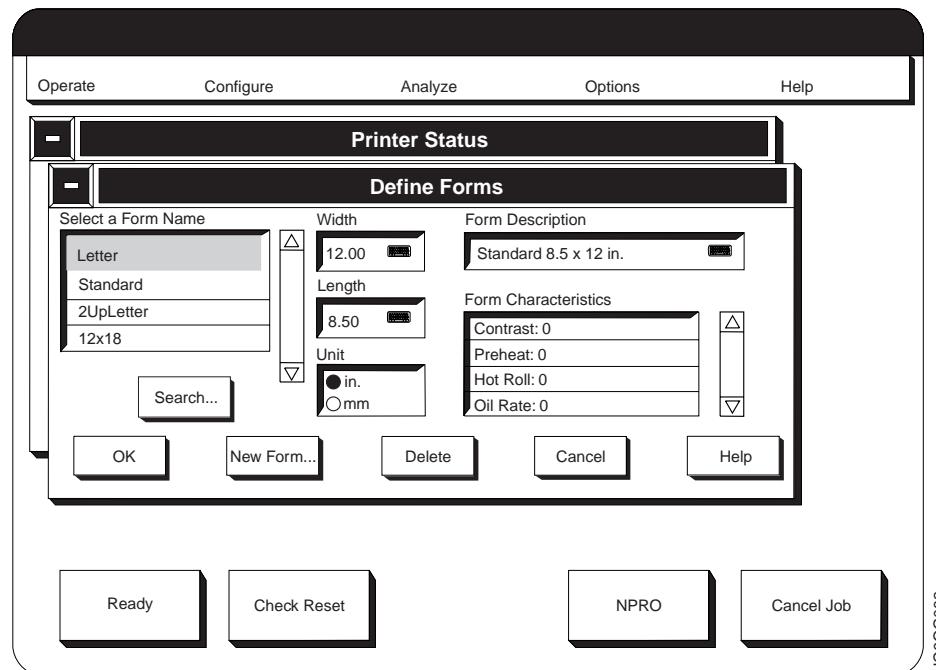
To set or change the oil belt speed, do the following:

1. **SELECT** the **Oil Belt** field. A keypad window appears.

| Operate | Configure | Analyze | Options | Help |

Printer Status

Define Forms

Enter oil belt. (Range: 1 to 100, where 1 is the slowest rate and 100 is the fastest rate or enter 0 for default)

Overwrite

7	8	9		Home	End	Cancel
4	5	6		Insert	Delete	Backspace
1	2	3		Left	Right	Clear
	0				OK	Help

| Ready | Check Reset | | NPRO | Cancel Job |

HC6OG112
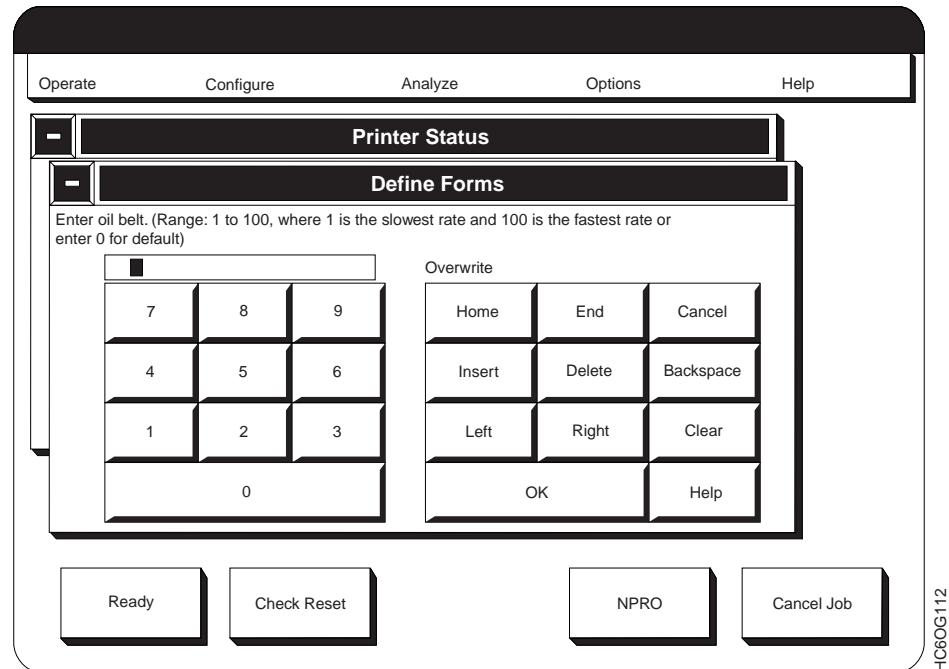
2. Enter a number between **1** and **100** where 1 is for the slowest speed and 100 is for the fastest speed.

   Note: You may not see any significant difference if you change the value by a small amount. The first change you make should be to increase or decrease the value by **15** or a greater number.

or

3. To use the *default* speed value, enter **0** (zero) on the keypad. To determine the default value, look at **Oil Belt** in **Printer Configuration**.

4. **SELECT** the **OK** pushbutton on the keypad.

5. When you finish making all changes to forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.

Setting the Paper Weight

The **Paper Weight** selection in the **Forms Characteristics** box allows you to select a paper weight for the type of form being defined. This enables the printer to compensate for the paper weight during printing. The choices are **Normal** for 16–22 pound (51–71 kg or 60–80 g) forms or **Heavy** for 23–42 pound (61–135 kg or 83–157 g) forms.

To set or change the paper weight, do the following:

1. **SELECT** the **Paper Weight** field. A window appears with the choices.
2. **SELECT** the correct value (**Normal** or **Heavy**) and then **SELECT** the **OK** pushbutton.
3. When you finish making all the changes to the forms, **SELECT** the **OK** pushbutton on the **Define Forms** window.

Form Identification Work Sheet

Use the "Form Identification Work Sheet" to record form identification names with their associated lengths, widths, description, and characteristics. You can define up to 256 different forms for duplex mode, and 256 additional forms for each printer in simplex mode, for a total of 768 form name definitions for the complete system. Make copies of the work sheets as necessary.

You may also find it helpful to make notes about loading techniques, adjusting print values, or other information that may be particular to certain forms.

Table A-1. Form Identification Work Sheet (For Automatic Forms-Based Printer Adjustments)

Form Number:	Definition	With This Value:	Notes:
	Name **Width (in millimeters or inches)** **Length (in millimeters or inches)** **Description** **Contrast** **Preheat (platen temperature)** **Hot Roll (temperature)** **Oil Rate** **Oil Belt (speed)**	_____ _____ _____ _____ _____ _____ _____ _____ _____	
	Name **Width (in millimeters or inches)** **Length (in millimeters or inches)** **Description** **Contrast** **Preheat (platen temperature)** **Hot Roll (temperature)** **Oil Rate** **Oil Belt (speed)**	_____ _____ _____ _____ _____ _____ _____ _____ _____	
	Name **Width (in millimeters or inches)** **Length (in millimeters or inches)** **Description** **Contrast** **Preheat (platen temperature)** **Hot Roll (temperature)** **Oil Rate** **Oil Belt (speed)**	_____ _____ _____ _____ _____ _____ _____ _____ _____	
	Name **Width (in millimeters or inches)** **Length (in millimeters or inches)** **Description** **Contrast** **Preheat (platen temperature)** **Hot Roll (temperature)** **Oil Rate** **Oil Belt (speed)**	_____ _____ _____ _____ _____ _____ _____ _____ _____	
	Name **Width (in millimeters or inches)** **Length (in millimeters or inches)** **Description** **Contrast** **Preheat (platen temperature)** **Hot Roll (temperature)** **Oil Rate** **Oil Belt (speed)**	_____ _____ _____ _____ _____ _____ _____ _____ _____	

Appendix B. Physical System Layouts

Simplex Models

The dimensions of the Infoprint 4000 simplex printers, the service clearance around the allowable configurations of these units, and the power cable and channel cable locations are shown in Figure B-1.

Note: The minimum size of the Channel Cable Access opening is 200 x 200 mm (8 x 8 in.).
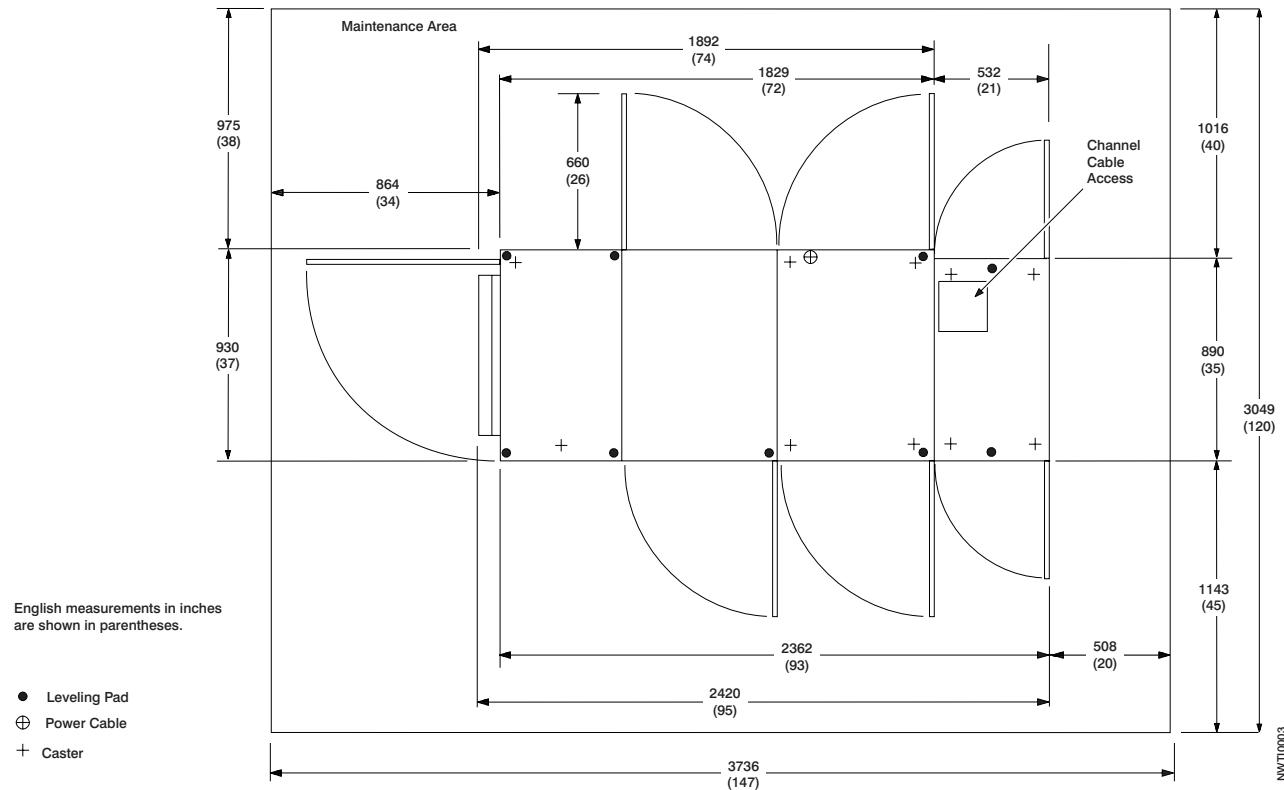
Figure B-1. Simplex Configuration

Duplex Models

The dimensions of the Infoprint 4000 duplex printers, and the Buffer/Flipper Unit **1**, the optimum separation of the units, the service clearance around the allowable configurations of these units, and the power cable and channel cable locations are shown in Figure B-2, Figure B-4 on page B-3, and Figure B-6 on page B-5.

Note: The minimum size for Channel Cable Access opening is 200 x 200 mm (8 x 8 in.).
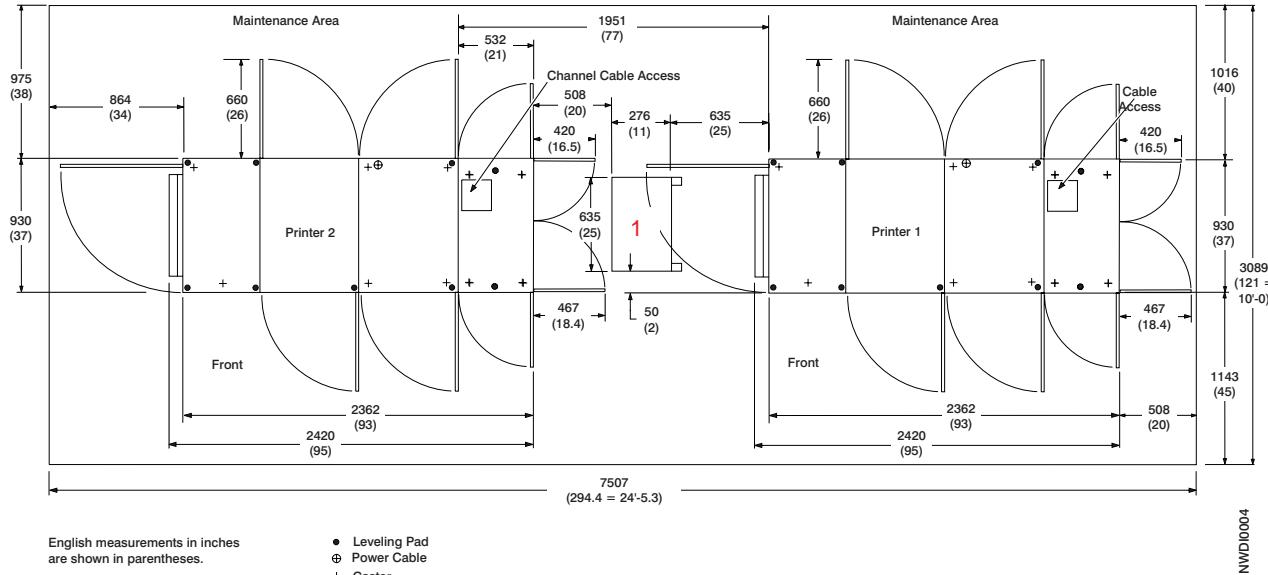
Figure B-2. Duplex Inline Configuration except Models ID3/ID4
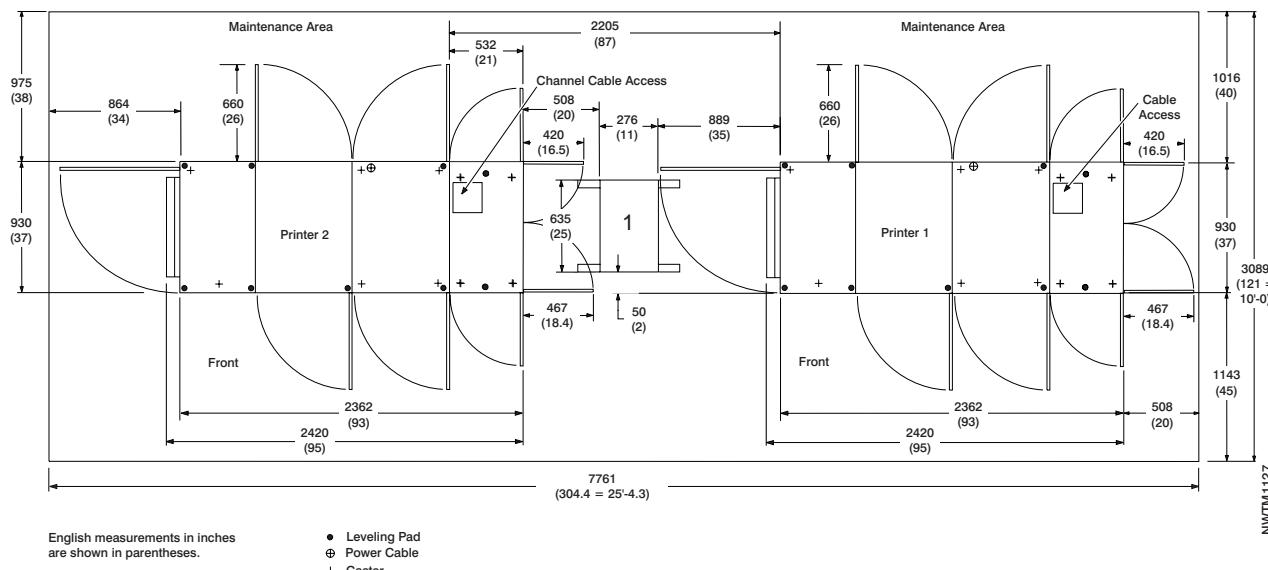
Figure B-3. ID3/ID4 Inline Configuration
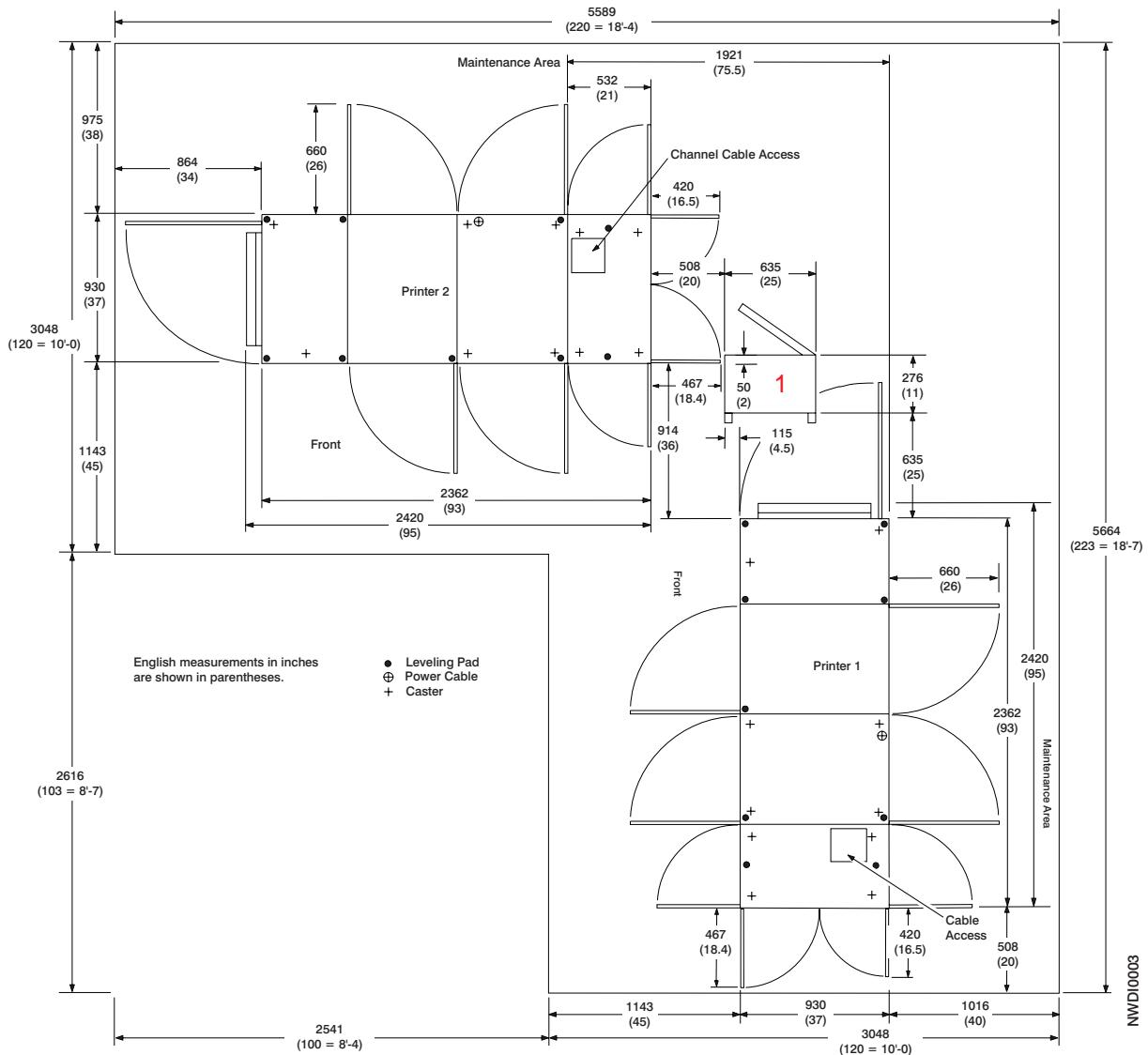
Figure B-4. Duplex Left Angle Configuration except Models ID3/ID4

NWDI0003
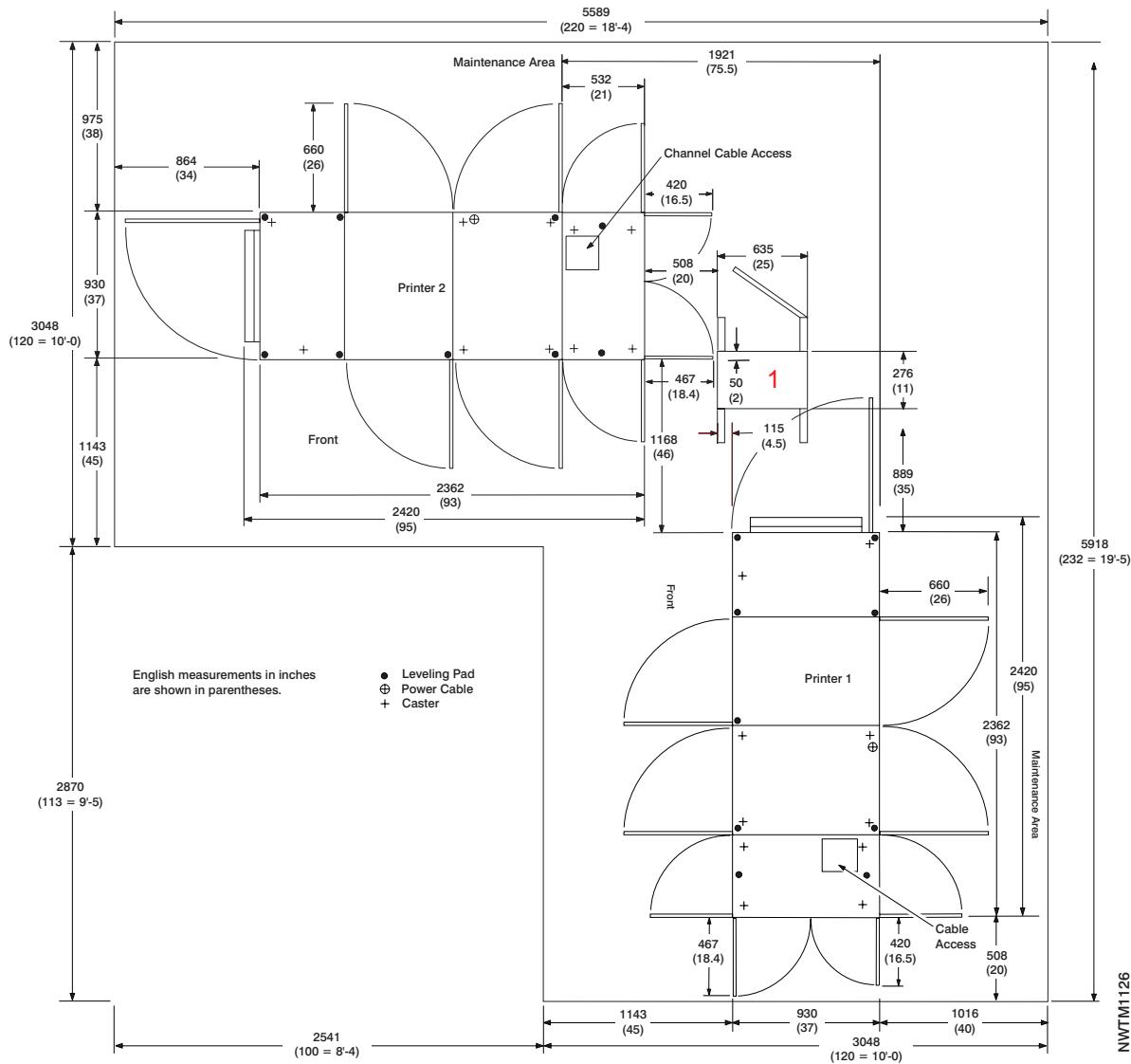
Figure B-5. ID3/ID4 Left Angle Configuration

Printer 1

Printer 2

Front

Front

Maintenance Area

Maintenance Area

806
(32)

4201
(165" + 13'-10")

660
(26)

2420
(95)

2362
(93)

975
(38)

Cable
Access

Cable
Access

467
(18.4)

420
(16.5)

1143
(45)

930
(37)

2100
(83)

930
(37)

975
(38)

6078
(240" - 20'-0")

NWTI0016
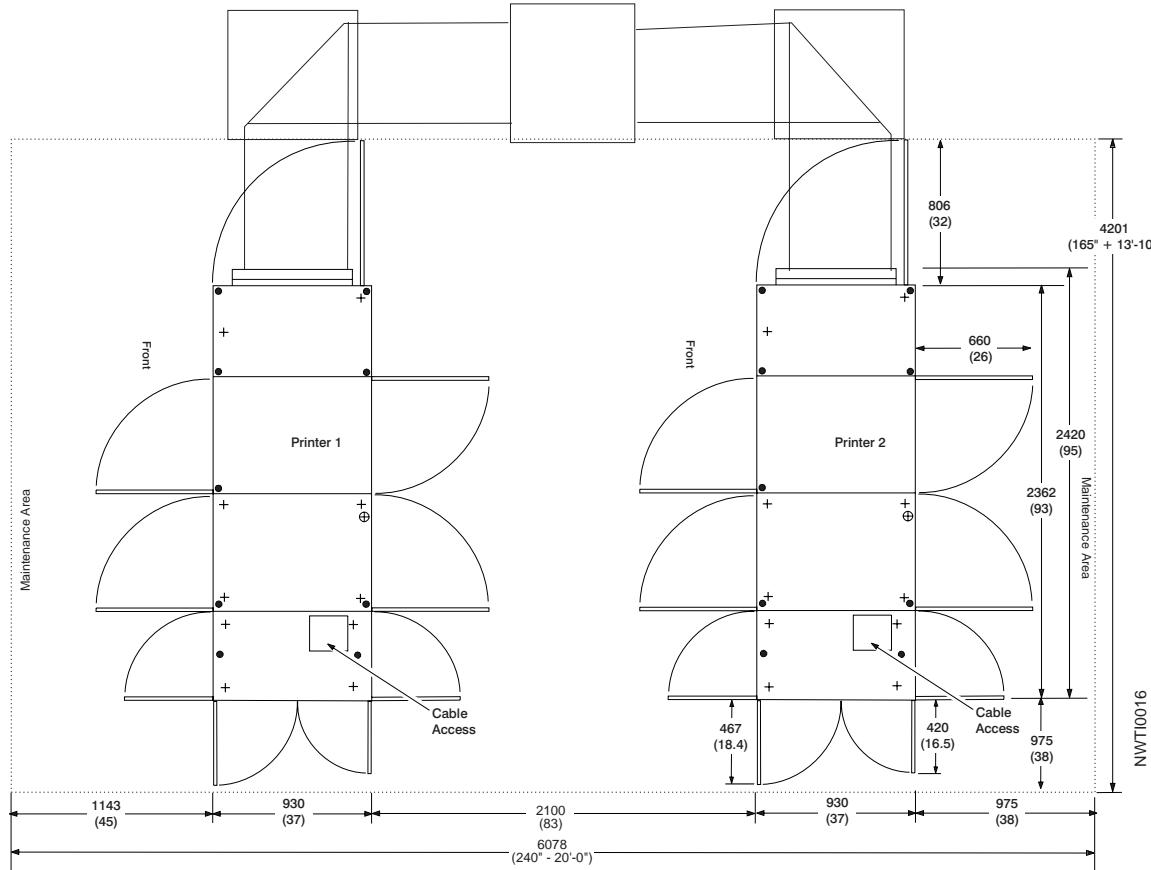
Figure B-6. 'h' Configuration

For the 'h' configuration, in which the printers are parallel, the IBM-supplied
Buffer/Flipper Unit is placed next to Printer 1. The turnbar/flipper device
supplied by your company is placed next to Printer 2.

Appendix C. Valid Form Lengths in Inches

Table C-1. Examples of Some Valid Form Lengths in Inches

If the Form Length is:	Use this value at the operator console:	Use this value at the Stacker Control Panel:
3.0	3.0	See note 2
$3^1/_2$	3.5	See note 2
4.0	4.0	See note 2
$4^1/_2$	4.5	See note 2
5.0	5.0	See note 2
$5^1/_2$	5.5	See note 2
6.0	6.0	See note 2
$6^1/_2$	6.5	See note 2
7.0	7.0	7.0
$7^1/_2$	7.5	$7^1/_2$
8.0	8.0	8.0
$8^1/_6$	8.1	See note 3
$8^1/_3$	8.3	$8^1/_3$
$8^1/_2$	8.5	8
$8^2/_3$	8.6	$8^2/_3$
See note 3	8.8	$8^5/_6$
9.0	9.0	9.0
$9^1/_2$	9.5	$9^1/_2$
10.0	10.0	10.0
$10^1/_2$	10.5	$10^1/_2$
11.0	11.0	11.0
$11^1/_2$	11.5	$11^1/_2$
12.0	12.0	12.0
$12^1/_2$	12.5	$12^1/_2$
13.0	13.0	13.0
$13^1/_2$	13.5	$13^1/_2$
14.0	14.0	14.0

Notes:

1. The form lengths shown are examples only. You can enter form lengths in one-sixth of an inch increments at the operator console and stacker control panel. For reference, see $8^1/_3$ and $8^2/_3$ above.

2. Setting equals forms length *as measured from fold perforation to fold perforation*. See Loading Forms—Auto Load (Simplex Mode), step 27 on page 5-12.

3. Form lengths as prefolded greater than 14.0 inches up to 17.0 inches are permissible if the stacker is disabled and a Post-processing device is installed and enabled.

4. The stacker control panel does not allow form lengths in one-sixth of an inch. The smallest increment allowed on the stacker control panel is one-third of an inch.

C-1

Warranty Statements

Statement of Warranty - Z1255697-01 11/97

This statement of warranty is valid in all countries with the exception of:

- United States of America (see page D-16)
- Canada (see page D-16)
- Puerto Rico (see page D-16)
- Turkiye (see page D-9)

Part 1 - General Terms

This Statement of Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. **The terms of Part 2 may replace or modify those of Part 1**

The warranties provided by IBM in this Statement of Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

Machine - Infoprint 4000

Warranty Period* - 3 months

*Contact your place of purchase for warranty service information. Some IBM Machines are eligible for On-site warranty service depending on the country where service is performed.

The IBM Warranty for Machines
IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, without charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty
The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED,

INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.**

Items Not Covered by Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT WARRANTIES OF ANY KIND.**

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for the Machine, contact your reseller or IBM. You may be required to present proof of purchase.

IBM or your reseller provides certain types of repair and exchange service, either at your location or at a service center, to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. IBM may repair the failing Machine or exchange it at its discretion.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

Any feature, conversion, or upgrade IBM or your reseller services must be installed on a Machine which is 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to
1. Ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. Obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. Where applicable, before service is provided

a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides,

b. secure all programs, data, and funds contained in a Machine,

c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations, and

d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status

Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable for no more than:

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and

2. the amount of any other actual direct damages, up to the greater of U.S. $100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

   This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Statement of Warranty Part 2 - Country-unique Terms

ASIA PACIFIC

AUSTRALIA: The IBM Warranty for Machines: The following paragraph is added to this Section: The warranties specified in this Section are in addition to

any rights you may have under the Trade Practices Act 1974 or other legislation and are only limited to the extent permitted by the applicable legislation.

Extent of Warranty: The following replaces the first and second sentences of this Section: The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, operation in other than the Specified Operating Environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible.

Limitation of Liability: The following is added to this Section: Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

PEOPLE'S REPUBLIC OF CHINA: Governing Law: The following is added to this Statement: The laws of the State of New York govern this Statement.

INDIA: Limitation of Liability: The following replaces items 1 and 2 of this Section: 1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence; 2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

NEW ZEALAND: The IBM Warranty for Machines: The following paragraph is added to this Section: The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: The following is added to this Section: Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

EUROPE, MIDDLE EAST, AFRICA (EMEA)
The following terms apply to all EMEA countries.

The terms of this Statement of Warranty apply to Machines purchased from an IBM reseller. If you purchased this Machine from IBM, the terms and conditions of the applicable IBM agreement prevail over this warranty statement.

Warranty Service: If you purchased an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchased an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

The applicable laws, Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided. However, the laws of Austria govern this Statement if the warranty service is provided in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Federal Republic of Yugoslavia, Georgia, Hungary, Kazakhstan, Kirghizia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, and Ukraine.

The following terms apply to the country specified:

EGYPT: Limitation of Liability: The following replaces item 2 in this Section: 2. as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

FRANCE: Limitation of Liability: The following replaces the second sentence of the first paragraph of this Section: In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

GERMANY: The IBM Warranty for Machines: The following replaces the first sentence of the first paragraph of this Section: The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section: The minimum warranty period for Machines is six months.

In case IBM or your reseller are unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: The second paragraph does not apply.

Warranty Service: The following is added to this Section: During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Production Status: The following paragraph replaces this Section: Each Machine is newly manufactured. It may incorporate in addition to new parts, re-used parts as well.

Limitation of Liability: The following is added to this Section: The limitations and exclusions specified in the Statement of Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

In item 2, replace "U.S. $100,000" with "1.000.000 DEM."

The following sentence is added to the end of the first paragraph of item 2: IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

IRELAND: Extent of Warranty: The following is added to this Section: Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: The following replaces items one and two of the first paragraph of this Section: 1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and 2. the amount of any other actual direct damages, up to the greater of Irish Pounds 75,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY: Limitation of Liability: The following replaces the second sentence in the first paragraph: In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: (item 1 unchanged) 2) as to any other actual damage arising in all situations involving non-performance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

The following replaces the second paragraph of this Section:

Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: (items 1 and 2 unchanged) 3) indirect damages, even if IBM or your reseller is informed of their possibility.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND: Limitation of Liability: The following is added to this Section: IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

TURKIYE: Production Status: The following replaces this Section: IBM fulfills customer orders for IBM Machines as newly manufactured in accordance with IBM's production standards.

UNITED KINGDOM: Limitation of Liability: The following replaces items 1 and 2 of the first paragraph of this Section: 1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; 2. the amount of any other actual direct damages or loss, up to the greater of Pounds Sterling

150,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

The following item is added to this paragraph: 3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default will be limited to damages.

NORTH AMERICA

CANADA: **Warranty Service:** The following is added to this Section: To obtain warranty service from IBM, call **1-800-465-6666**.

UNITED STATES OF AMERICA: **Warranty Service:** The following is added to this Section: To obtain warranty service from IBM, call **1-800-IBM-SERV**.

Statement of Warranty - Z1255698-01 11/97

This statement of warranty is valid in Turkiye.

Part 1 - General Terms

This Statement of Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. **The terms of Part 2 may replace or modify those of Part 1**

The warranties provided by IBM in this Statement of Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

Machine - Infoprint 4000

Warranty Period* - 3 months

*Contact your place of purchase for warranty service information. Some IBM Machines are eligible for On-site warranty service depending on the country where service is performed.

The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, without charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT

ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED
WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT
APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN
DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER
THAT PERIOD.

Items Not Covered by Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT
WARRANTIES OF ANY KIND.**

Any technical or other support provided for a Machine under warranty, such as
assistance via telephone with ″how-to″ questions and those regarding Machine
set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY
KIND.**

Warranty Service

To obtain warranty service for the Machine, contact your reseller or IBM. You may
be required to present proof of purchase.

IBM or your reseller provides certain types of repair and exchange service, either
at your location or at a service center, to keep Machines in, or restore them to,
conformance with their Specifications. IBM or your reseller will inform you of the
available types of service for a Machine based on its country of installation. IBM
may repair the failing Machine or exchange it at its discretion.

When warranty service involves the exchange of a Machine or part, the item IBM
or your reseller replaces becomes its property and the replacement becomes yours.
You represent that all removed items are genuine and unaltered. The replacement
may not be new, but will be in good working order and at least functionally
equivalent to the item replaced. The replacement assumes the warranty service
status of the replaced item.

Any feature, conversion, or upgrade IBM or your reseller services must be installed
on a Machine which is 1) for certain Machines, the designated, serial-numbered
Machine and 2) at an engineering-change level compatible with the feature,
conversion, or upgrade. Many features, conversions, or upgrades involve the
removal of parts and their return to IBM. A part that replaces a removed part will
assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all
features, parts, options, alterations, and attachments not under warranty service.

You also agree to
1. Ensure that the Machine is free of any legal obligations or restrictions that
   prevent its exchange;
2. Obtain authorization from the owner to have IBM or your reseller service a
   Machine that you do not own; and
3. Where applicable, before service is provided
   a. follow the problem determination, problem analysis, and service request
      procedures that IBM or your reseller provides,
   b. secure all programs, data, and funds contained in a Machine,
   c. provide IBM or your reseller with sufficient, free, and safe access to your
      facilities to permit them to fulfill their obligations, and

d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status
IBM fulfills customer orders for IBM Machines as newly manufactured in accordance with IBM's production standards.

Limitation of Liability
Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable for no more than:

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and

2. the amount of any other actual direct damages, up to the greater of U.S. $100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

   This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Statement of Warranty Part 2 - Country-unique Terms

Production Status
The following applies to all countries except Germany and Turkiye:

Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

ASIA PACIFIC

AUSTRALIA: The IBM Warranty for Machines: The following paragraph is added to this Section: The warranties specified in this Section are in addition to

any rights you may have under the Trade Practices Act 1974 or other legislation and are only limited to the extent permitted by the applicable legislation.

Extent of Warranty: The following replaces the first and second sentences of this Section: The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, operation in other than the Specified Operating Environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible.

Limitation of Liability: The following is added to this Section: Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

PEOPLE'S REPUBLIC OF CHINA: Governing Law: The following is added to this Statement: The laws of the State of New York govern this Statement.

INDIA: Limitation of Liability: The following replaces items 1 and 2 of this Section: 1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence; 2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

NEW ZEALAND: The IBM Warranty for Machines: The following paragraph is added to this Section: The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: The following is added to this Section: Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

EUROPE, MIDDLE EAST, AFRICA (EMEA)
The following terms apply to all EMEA countries.

The terms of this Statement of Warranty apply to Machines purchased from an IBM reseller. If you purchased this Machine from IBM, the terms and conditions of the applicable IBM agreement prevail over this warranty statement.

Warranty Service: If you purchased an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchased an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

The applicable laws, Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided. However, the laws of Austria govern this Statement if the warranty service is provided in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Federal Republic of Yugoslavia, Georgia, Hungary, Kazakhstan, Kirghizia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, and Ukraine.

The following terms apply to the country specified:

EGYPT: Limitation of Liability: The following replaces item 2 in this Section: 2. as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

FRANCE: Limitation of Liability: The following replaces the second sentence of the first paragraph of this Section: In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

GERMANY: The IBM Warranty for Machines: The following replaces the first sentence of the first paragraph of this Section: The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section: The minimum warranty period for Machines is six months.

In case IBM or your reseller are unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: The second paragraph does not apply.

Warranty Service: The following is added to this Section: During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Production Status: The following paragraph replaces this Section: Each Machine is newly manufactured. It may incorporate in addition to new parts, re-used parts as well.

Limitation of Liability: The following is added to this Section: The limitations and exclusions specified in the Statement of Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

In item 2, replace "U.S. $100,000" with "1.000.000 DEM."

The following sentence is added to the end of the first paragraph of item 2: IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

IRELAND: Extent of Warranty: The following is added to this Section: Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

Limitation of Liability: The following replaces items one and two of the first paragraph of this Section: 1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; and 2. the amount of any other actual direct damages, up to the greater of Irish Pounds 75,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

Applicability of suppliers and resellers (unchanged).

The following paragraph is added at the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default shall be limited to damages.

ITALY: Limitation of Liability: The following replaces the second sentence in the first paragraph: In each such instance unless otherwise provided by mandatory law, IBM is liable for no more than: (item 1 unchanged) 2) as to any other actual damage arising in all situations involving non-performance by IBM pursuant to, or in any way related to the subject matter of this Statement of Warranty, IBM's liability, will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

The following replaces the second paragraph of this Section:

Unless otherwise provided by mandatory law, IBM and your reseller are not liable for any of the following: (items 1 and 2 unchanged) 3) indirect damages, even if IBM or your reseller is informed of their possibility.

SOUTH AFRICA, NAMIBIA, BOTSWANA, LESOTHO AND SWAZILAND: Limitation of Liability: The following is added to this Section: IBM's entire liability to you for actual damages arising in all situations involving nonperformance by IBM in respect of the subject matter of this Statement of Warranty will be limited to the charge paid by you for the individual Machine that is the subject of your claim from IBM.

UNITED KINGDOM: Limitation of Liability: The following replaces items 1 and 2 of the first paragraph of this Section: 1. death or personal injury or physical damage to your real property solely caused by IBM's negligence; 2. the amount of any other actual direct damages or loss, up to the greater of Pounds Sterling 150,000 or 125 percent of the charges (if recurring, the 12 months' charges apply) for the Machine that is the subject of the claim or which otherwise gives rise to the claim.

The following item is added to this paragraph: 3. breach of IBM's obligations implied by Section 12 of the Sale of Goods Act 1979 or Section 2 of the Supply of Goods and Services Act 1982.

Applicability of suppliers and resellers (unchanged).

The following is added to the end of this Section: IBM's entire liability and your sole remedy, whether in contract or in tort, in respect of any default will be limited to damages.

NORTH AMERICA

CANADA: Warranty Service: The following is added to this Section: To obtain warranty service from IBM, call **1-800-465-6666**.

UNITED STATES OF AMERICA: Warranty Service: The following is added to this Section: To obtain warranty service from IBM, call **1-800-IBM-SERV**.

Statement of Limited Warranty - Z1254753-01 11/97

This statement of warranty is valid in the following countries:

- United States of America
- Canada
- Puerto Rico

Part 1 - General Terms

This Statement of Limited Warranty includes Part 1 - General Terms and Part 2 - Country-unique Terms. **The terms of Part 2 may replace or modify those of Part 1**

The warranties provided by IBM in this Statement of Limited Warranty apply only to Machines you purchase for your use, and not for resale, from IBM or your reseller. The term "Machine" means an IBM machine, its features, conversions, upgrades, elements, or accessories, or any combination of them. The term "Machine" does not include any software programs, whether pre-loaded with the Machine, installed subsequently or otherwise. Unless IBM specifies otherwise, the following warranties apply only in the country where you acquire the Machine. Nothing in this Statement of Warranty affects any statutory rights of consumers that cannot be waived or limited by contract. If you have any questions, contact IBM or your reseller.

> **Machine -** Infoprint 4000
>
> **Warranty Period* -** 3 months
>
> **Contact your place of purchase for warranty service information. Some IBM Machines are eligible for On-site warranty service depending on the country where service is performed.*

The IBM Warranty for Machines

IBM warrants that each Machine 1) is free from defects in materials and workmanship and 2) conforms to IBM's Official Published Specifications. The warranty period for a Machine is a specified, fixed period commencing on its Date of Installation. The date on your sales receipt is the Date of Installation, unless IBM or your reseller informs you otherwise.

During the warranty period IBM or your reseller, if approved by IBM to provide warranty service, will provide repair and exchange service for the Machine, without charge, under the type of service designated for the Machine and will manage and install engineering changes that apply to the Machine.

If a Machine does not function as warranted during the warranty period, and IBM or your reseller are unable to either 1) make it do so or 2) replace it with one that is at least functionally equivalent, you may return it to your place of purchase and your money will be refunded. The replacement may not be new, but will be in good working order.

Extent of Warranty

The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible. The warranty is voided by removal or alteration of Machine or parts identification labels.

THESE WARRANTIES ARE YOUR EXCLUSIVE WARRANTIES AND REPLACE ALL OTHER WARRANTIES OR CONDITIONS, EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR

CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM JURISDICTION TO JURISDICTION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF EXPRESS OR IMPLIED WARRANTIES, SO THE ABOVE EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU. IN THAT EVENT, SUCH WARRANTIES ARE LIMITED IN DURATION TO THE WARRANTY PERIOD. NO WARRANTIES APPLY AFTER THAT PERIOD.

Items Not Covered by Warranty

IBM does not warrant uninterrupted or error-free operation of a Machine.

Unless specified otherwise, IBM provides non-IBM machines **WITHOUT WARRANTIES OF ANY KIND.**

Any technical or other support provided for a Machine under warranty, such as assistance via telephone with "how-to" questions and those regarding Machine set-up and installation, will be provided **WITHOUT WARRANTIES OF ANY KIND.**

Warranty Service

To obtain warranty service for the Machine, contact your reseller or IBM. In the United States call IBM at 1-800-IBM-SERV (426-7378). In Canada call IBM at 1-800-465-6666. You may be required to present proof of purchase.

IBM or your reseller provides certain types of repair and exchange service, either at your location or at a service center, to keep Machines in, or restore them to, conformance with their Specifications. IBM or your reseller will inform you of the available types of service for a Machine based on its country of installation. IBM may repair the failing Machine or exchange it at its discretion.

When warranty service involves the exchange of a Machine or part, the item IBM or your reseller replaces becomes its property and the replacement becomes yours. You represent that all removed items are genuine and unaltered. The replacement may not be new, but will be in good working order and at least functionally equivalent to the item replaced. The replacement assumes the warranty service status of the replaced item.

Any feature, conversion, or upgrade IBM or your reseller services must be installed on a Machine which is 1) for certain Machines, the designated, serial-numbered Machine and 2) at an engineering-change level compatible with the feature, conversion, or upgrade. Many features, conversions, or upgrades involve the removal of parts and their return to IBM. A part that replaces a removed part will assume the warranty service status of the removed part.

Before IBM or your reseller exchanges a Machine or part, you agree to remove all features, parts, options, alterations, and attachments not under warranty service.

You also agree to

1. Ensure that the Machine is free of any legal obligations or restrictions that prevent its exchange;
2. Obtain authorization from the owner to have IBM or your reseller service a Machine that you do not own; and
3. Where applicable, before service is provided

a. follow the problem determination, problem analysis, and service request procedures that IBM or your reseller provides,

b. secure all programs, data, and funds contained in a Machine,

c. provide IBM or your reseller with sufficient, free, and safe access to your facilities to permit them to fulfill their obligations, and

d. inform IBM or your reseller of changes in a Machine's location.

IBM is responsible for loss of, or damage to, your Machine while it is 1) in IBM's possession or 2) in transit in those cases where IBM is responsible for the transportation charges.

Neither IBM nor your reseller is responsible for any of your confidential, proprietary or personal information contained in a Machine which you return to IBM or your reseller for any reason. You should remove all such information from the Machine prior to its return.

Production Status

Each IBM Machine is manufactured from new parts, or new and used parts. In some cases, the Machine may not be new and may have been previously installed. Regardless of the Machine's production status, IBM's appropriate warranty terms apply.

Limitation of Liability

Circumstances may arise where, because of a default on IBM's part or other liability, you are entitled to recover damages from IBM. In each such instance, regardless of the basis on which you are entitled to claim damages from IBM (including fundamental breach, negligence, misrepresentation, or other contract or tort claim), IBM is liable for no more than:

1. damages for bodily injury (including death) and damage to real property and tangible personal property; and

2. the amount of any other actual direct damages, up to the greater of U.S. $100,000 (or equivalent in local currency) or the charges (if recurring, 12 months' charges apply) for the Machine that is the subject of the claim.

   This limit also applies to IBM's suppliers and your reseller. It is the maximum for which IBM, its suppliers, and your reseller are collectively responsible.

UNDER NO CIRCUMSTANCES IS IBM LIABLE FOR ANY OF THE FOLLOWING: 1) THIRD-PARTY CLAIMS AGAINST YOU FOR DAMAGES (OTHER THAN THOSE UNDER THE FIRST ITEM LISTED ABOVE); 2) LOSS OF, OR DAMAGE TO, YOUR RECORDS OR DATA; OR 3) SPECIAL, INCIDENTAL, OR INDIRECT DAMAGES OR FOR ANY ECONOMIC CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS OR SAVINGS), EVEN IF IBM, ITS SUPPLIERS OR YOUR RESELLER IS INFORMED OF THEIR POSSIBILITY. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Statement of Warranty Part 2 - Country-unique Terms

ASIA PACIFIC

AUSTRALIA: The IBM Warranty for Machines: The following paragraph is added to this Section: The warranties specified in this Section are in addition to

any rights you may have under the Trade Practices Act 1974 or other legislation and are only limited to the extent permitted by the applicable legislation.

Extent of Warranty: The following replaces the first and second sentences of this Section: The warranty does not cover the repair or exchange of a Machine resulting from misuse, accident, modification, unsuitable physical or operating environment, operation in other than the Specified Operating Environment, improper maintenance by you, or failure caused by a product for which IBM is not responsible.

Limitation of Liability: The following is added to this Section: Where IBM is in breach of a condition or warranty implied by the Trade Practices Act 1974, IBM's liability is limited to the repair or replacement of the goods or the supply of equivalent goods. Where that condition or warranty relates to right to sell, quiet possession or clear title, or the goods are of a kind ordinarily acquired for personal, domestic or household use or consumption, then none of the limitations in this paragraph apply.

PEOPLE'S REPUBLIC OF CHINA: Governing Law: The following is added to this Statement: The laws of the State of New York govern this Statement.

INDIA: Limitation of Liability: The following replaces items 1 and 2 of this Section: 1. liability for bodily injury (including death) or damage to real property and tangible personal property will be limited to that caused by IBM's negligence; 2. as to any other actual damage arising in any situation involving nonperformance by IBM pursuant to, or in any way related to the subject of this Statement of Warranty, IBM's liability will be limited to the charge paid by you for the individual Machine that is the subject of the claim.

NEW ZEALAND: The IBM Warranty for Machines: The following paragraph is added to this Section: The warranties specified in this Section are in addition to any rights you may have under the Consumer Guarantees Act 1993 or other legislation which cannot be excluded or limited. The Consumer Guarantees Act 1993 will not apply in respect of any goods which IBM provides, if you require the goods for the purposes of a business as defined in that Act.

Limitation of Liability: The following is added to this Section: Where Machines are not acquired for the purposes of a business as defined in the Consumer Guarantees Act 1993, the limitations in this Section are subject to the limitations in that Act.

EUROPE, MIDDLE EAST, AFRICA (EMEA)
The following terms apply to all EMEA countries.

The terms of this Statement of Warranty apply to Machines purchased from an IBM reseller. If you purchased this Machine from IBM, the terms and conditions of the applicable IBM agreement prevail over this warranty statement.

Warranty Service: If you purchased an IBM Machine in Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland or United Kingdom, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

If you purchased an IBM Personal Computer Machine in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Georgia, Hungary, Kazakhstan, Kirghizia, Federal Republic of Yugoslavia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, or Ukraine, you may obtain warranty service for that Machine in any of those countries from either (1) an IBM reseller approved to perform warranty service or (2) from IBM.

The applicable laws, Country-unique terms and competent court for this Statement are those of the country in which the warranty service is being provided. However, the laws of Austria govern this Statement if the warranty service is provided in Albania, Armenia, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Federal Republic of Yugoslavia, Georgia, Hungary, Kazakhstan, Kirghizia, Former Yugoslav Republic of Macedonia (FYROM), Moldova, Poland, Romania, Russia, Slovak Republic, Slovenia, and Ukraine.

The following terms apply to the country specified:

EGYPT: Limitation of Liability: The following replaces item 2 in this Section: 2. as to any other actual direct damages, IBM's liability will be limited to the total amount you paid for the Machine that is the subject of the claim.

Applicability of suppliers and resellers (unchanged).

FRANCE: Limitation of Liability: The following replaces the second sentence of the first paragraph of this Section: In such instances, regardless of the basis on which you are entitled to claim damages from IBM, IBM is liable for no more than: (items 1 and 2 unchanged).

GERMANY: The IBM Warranty for Machines: The following replaces the first sentence of the first paragraph of this Section: The warranty for an IBM Machine covers the functionality of the Machine for its normal use and the Machine's conformity to its Specifications.

The following paragraphs are added to this Section: The minimum warranty period for Machines is six months.

In case IBM or your reseller are unable to repair an IBM Machine, you can alternatively ask for a partial refund as far as justified by the reduced value of the unrepaired Machine or ask for a cancellation of the respective agreement for such Machine and get your money refunded.

Extent of Warranty: The second paragraph does not apply.

Warranty Service: The following is added to this Section: During the warranty period, transportation for delivery of the failing Machine to IBM will be at IBM's expense.

Production Status: The following paragraph replaces this Section: Each Machine is newly manufactured. It may incorporate in addition to new parts, re-used parts as well.

Limitation of Liability: The following is added to this Section: The limitations and exclusions specified in the Statement of Warranty will not apply to damages caused by IBM with fraud or gross negligence and for express warranty.

In item 2, replace ″U.S. $100,000″ with ″1.000.000 DEM.″

The following sentence is added to the end of the first paragraph of item 2: IBM's liability under this item is limited to the violation of essential contractual terms in cases of ordinary negligence.

IRELAND: Extent of Warranty: The following is added to this Section: Except as expressly provided in these terms and conditions, all statutory conditions, including all warranties implied, but without prejudice to the generality of the foregoing all warranties implied by the Sale of Goods Act 1893 or the Sale of Goods and Supply of Services Act 1980 are hereby excluded.

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Applicability of suppliers and resellers (unchanged).

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Dieses Gerät ist berechtigt in Übereinstimmung mit dem deutschen das
EG-Konformitätszeichen — CE — zu führen.

Der Außteller der Konformitätserklärung ist die IBM ....(1)

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

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This product is equipped with a 3-wire power cord and plug for the user's safety. Use this power cord in conjunction with a properly grounded electrical outlet to avoid electrical shock.

The following statement applies to this IBM product. The statement for other IBM products intended for use with this product will appear in their accompanying manuals.

Glossary

The following terms are defined as they are used in Infoprint 4000 documentation. If you do not find the term you need, refer to the index or to the *IBM Dictionary of Computing*, SC20-1699.

The following cross-references are used in this glossary:

- Contrast with. This refers to a term that has an opposed or substantively different meaning.
- Synonym for. This indicates that the term has the same meaning as another term, which is defined.
- Synonymous with. This identifies terms that are synonyms for the term that is defined.
- See. This refers to multiple-word terms that have the same last word.
- See also. This refers to related terms that have a similar, but not synonymous, meaning.

A

adhesive label.   Special-application material; typically consists of paper labels coated on one side with an adhesive mixture temporarily affixed to backing material. See also *carrier*.

Advanced Function Common Control Unit (AFCCU).   An IBM RISC-based control unit with code common to all printers that use the AFCCU.

Advanced Function Image and Graphics RPQ.   An optional feature for adding the capability for the Infoprint 4000 to directly process IO1 image and DR2 vector graphics data streams.

all-points addressability.   The capability to address, reference, and position text, overlays, and images at any defined point on the printable area of a page.

application.   The use to which an information processing system is put; for example, a payroll application, an airline reservation application, a network application.

application program.   A program written for or by a user that applies to the user's work, such as a program that does inventory control or payroll.

application programmer.   A person who develops application programs. Contrast with *system programmer*.

auto load.   In the Infoprint 4000, the automatic forms threading facility.

B

bar code.   A code representing characters by sets of parallel bars of varying thickness and separation that are read optically by transverse scanning.

basis weight.   The weight in pounds of a ream (500 sheets) of paper cut to a given standard size for that grade; for example, 25 x 38 inches for book papers, 17 x 22 inches 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.

binder holes.   A series of holes or slots punched at set intervals that allows the form to be inserted in a loose-leaf or ring binder.

bond (paper).   Paper formulated with at least 80% wood pulp. Bond-paper forms work best in the Infoprint 4000.

C

calender.   A process to make paper smooth or glossy by passing it through a series of metal rollers during the last steps of a paper-making machine.

calender cut.   Slits, glazed lines, or discolored lines across the paper caused when wrinkles pass through the calender rollers.

caliper.   The thickness of forms. This is usually expressed in thousandths of an inch.

carrier.   The backing material for labels. Labels consist of the printable material, the adhesive, and the carrier.

chad.   (1) The material separated from a data medium when punching a hole. (2) The residue separated from the carrier holes in continuous forms.

change.   As used in Infoprint 4000 action messages, instructs the printer operator to remove and discard a used component and then install a new one. For example, the CHANGE TONER COLLECTOR message indicates that the operator should take out the toner-collector bottle, throw it away, and put in a new one.

channel command.   An instruction directing a data channel, control unit, or device to perform an operation or set of operations.

character.   A letter, number, punctuation mark, or special graphic used for the production of text.

character set. (1) A finite set of different characters that is complete for a given purpose; for example, the character set in ISO Standard 646, "7-bit Coded Character Set of Information Processing Interchange." (2) A group of characters used for a specific reason; for example, the set of characters a printer can print.

check. As used in Infoprint 4000 action messages, instructs the printer operator to inspect a component. For example, the CHECK TONER COLLECTOR message indicates that the operator should look at the toner-collector bottle and ensure that it is physically present, in the proper place, and correctly installed.

clear. As used in Infoprint 4000 action messages, instructs the printer operator to remove crumpled forms, paper scraps, and other debris from the printer. For example, the CLEAR UPPER TRACTOR message indicates that forms are wedged in the transfer station area, and the operator must remove them before the printer can operate.

coated paper. Paper that has had a surface coating applied to produce smoothness.

configuration. (1) The arrangement of a computer system or network as defined by the nature, the number, and the chief characteristics of its functional units. More specifically, the term configuration may refer to a hardware configuration or a software configuration. (2) The devices and programs that make up a system, subsystem, or network.

configure. The procedure used to customize the Infoprint 4000 to a specific operating and communication environment.

connector. A means of establishing electrical flow.

constant data. Data that does not change; for example, the company letterhead and standard text in form letters, or the headings and boxes on a preprinted form. Contrast with *variable data*.

continuous forms. A series of connected forms that feed continuously through a printing device. The connection between the forms is perforated to allow the user to tear them apart.

controlled-access area. An area where access is limited to authorized personnel.

controlling computer. The processing unit to which the Infoprint 4000 are attached through a channel interface.

controlling computer system. The data-processing system to which a network is connected and with which the system can communicate.

corner cut. In a form, a cut or opening of any size containing one or more right angles.

corona. 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.

cure. The process of drying ink sufficiently for minimum transfer of the ink to any parts of the printer it contacts.

cut. The severed part of a perforation. Cuts are separated by ties. See also *perforation*.

cutout. A part of the form that has been eliminated or perforated for subsequent removal; for example, corner cuts and binder holes.

D

data streaming. A noninterlocked method of data transfer used by the printer channel to decrease data transfer time during write operations.

developed image. The image that has been exposed onto the photoconductor and covered with toner by the developer.

developer mix. A combination of carrier beads and toner in which the beads electrically charge the toner.

diagnostic. Pertaining to the detection and isolation of errors in programs and faults in equipment.

diagnostic mode. The operational mode in which the printer can check itself in case of a malfunction. When the Infoprint 4000 is in diagnostic mode, it is not accepting information from the attached controlling computer system. In the Infoprint 4000, only service representatives can use diagnostic mode. Contrast with *print mode* and *test mode*.

direct attach. The environment in which an application program directly allocates the Infoprint 4000 printing subsystem.

dishing. The curve a stack of forms takes when folded or refolded at the fold perforation.

diskette. A thin, flexible, magnetic disk enclosed in a protective jacket.

Document Composition Facility (DCF). An IBM licensed program that provides text formatting for the Infoprint 4000.

down fold. Fanfold forms are alternately folded. When fanfold forms are unfolded and held horizontally, a fold is a down fold if it points down from the horizontal surface.

drag. The resistance to forms feeding freely into the printer; for example, the form rubbing against the carton.

duplex printing. A mode of printing on both sides of a form. Contrast with *simplex printing*.

E

electronic overlay. A collection of constant data electronically composed in the controlling computer. Can be merged with variable data on a page during printing. An electronic overlay defines its own environment. It can be in coded form or raster pattern form. See also *preprinted form*.

electrophotographic process. The creation of an image on forms by uniformly charging the photoconductor, creating an electrostatic image on the photoconductor, attracting negatively charged toner to the discharged areas of the photoconductor, and transferring and fusing the toner to forms.

emboss. To press and raise the surface of paper into a design. Embossed paper appears thicker than nonembossed paper, can increase printer wear, and can degrade print quality.

end-of-forms sensor. A sensor that detects when the last sheet of a form enters the printer.

error log. (1) A data set or file in a product or system where error information is stored for later access. (2) A record of machine checks, device errors, and volume statistical data.

ESCON channel. A channel having an Enterprise Systems Connection channel-to-control unit I/O interface that uses optical cable as a transmission medium.

Ethernet. A local area network that allows attachments to transmit on the network without prior coordination.

F

fanfold. Continuous forms that are alternately folded at regular intervals, usually on a perforation.

Fiber Distributed Data Interface (FDDI). An ANSI standard for a 100Mbps LAN using optical fiber cables.

fold memory. The ability of a form to refold at the fold perforation after exposure to heat during the fusing process.

fold perforation. The perforation on which a form is folded during manufacture and refolded after printing. See also *page perforation*.

Font Library Service Facility (FLSF). A licensed program that provides a way to make changes to a font while retaining its correct format, as defined by the architecture and as required by Print Services Facility.

format. (1) The arrangement or layout of data on a data medium. (2) The size, style, type of page, margins, printing requirements, and so on, of a printed page.

forms. The material on which output data is printed, such as paper or adhesive labels. The area between perforations on continuous printer forms. See *electronic overlay* and *preprinted form*.

forms path. The entire route that forms travel during processing. The forms path usually begins where the forms are loaded and ends at the stacker. Synonym for *paper path*.

form definition (FORMDEF). A statement that specifies the attributes of a physical page, such as the number of copies and one-sided or two-sided printing.

fuse. To use heat and pressure to blend toner onto forms to make a permanent bond.

G

graphic. A symbol produced by a process such as handwriting, drawing, or printing. See also *vector graphics*.

Graphical Data Display Manager (GDDM). An IBM licensed program that allows pictures to be defined and displayed through function routines.

I

IBM branch office. The local IBM sales office.

IBM installation planning representative. An IBM representative who assists customers in planning and meeting the requirements for installing hardware.

IBM marketing representative. An IBM representative who takes your order.

IBM service representative. An IBM representative who services IBM products in the field.

IBM World Trade Corporation. A subsidiary of IBM that manufactures and markets IBM products outside of the United States of America.

impact printer. A printer in which printing is the result of mechanical impacts. Contrast with *nonimpact printer*.

installation. (1) In system development, preparing and placing a functional unit in position for use. (2) A particular computing system, including the work it does and the people who manage it, operate it, apply it to problems, service it, and use the results it produces.

installation verification procedure. A procedure distributed with IBM licensed programs that tests the

newly installed IBM programs to verify that the basic facilities of the programs are functioning correctly.

Intelligent Printer Data Stream (IPDS). Information the system sends to printers that contains decision-making capability. Generally, this information contains basic formatting, error recovery, and character data.

IPM. Impressions Per Minute

ISO sizes. Pertaining to a set of paper sizes selected from those standardized by the International Organization for Standardization (ISO) for use in data processing.

J

jam. In a printer, a condition where forms have become blocked or wedged in the forms path so the printer cannot operate.

JES2. An MVS subsystem that receives jobs into the system, converts them to internal format, selects them for running, processes their output, and purges them from the system. In an installation with more than one processor, each JES2 processor independently controls its job input, scheduling, and output processing. See also *JES3*.

JES3. An MVS subsystem that receives jobs into the system, converts them to internal format, selects them for running, processes their output, and purges them from the system. In complexes that have several loosely coupled processing units, the JES3 program manages processors so that the global processor exercises centralized control over the local processors and distributes jobs to them via a common job queue. See also *JES2*.

L

landscape orientation. Text and images that are printed parallel to the longer side of the forms. Contrast with *portrait orientation*.

laser (light amplification by stimulated emission of radiation). A device that emits a beam of coherent light.

latent image. In a printer, the invisible image that exists in the sensitized material after exposure but before development.

layout plan. A list of requirements, such as electrical and space, that must be considered before installing the IBM Infoprint 4000.

library. A collection of related files. For example, one line of an invoice may form an item, a complete invoice may form a file, and the collection of inventory control

files may form a library. The libraries used by an organization are known as the data bank.

licensed program. A separately priced program that bears an IBM copyright and is offered to customers under the terms and conditions of the Agreement for IBM Licensed Programs.

line printer. A printer that prints a line of characters as a unit. Contrast with *page printer*.

logical page. The print on the page, such as composed text, graphics, and fonts within defined margins. Contrast with *physical page*.

logo. An identifying emblem, statement, or motto of a company.

M

microcode. In the Infoprint 4000, refers to the microprogramming stored on the microcode (or EC) diskette. Microcode is used by the control unit to manage the printer and its functions.

microperforation. Extremely small perforations. After forms are separated, those with microperforations typically have smoother edges than those with regular perforations.

Multiple Virtual Storage/System Product (MVS/SP). Consisting of MVS/System Product Version 1 and the MVS/370 Data Facility Product operating on a System/370 processor.

N

nonimpact printer. A printer in which printing is not the result of mechanical impacts. Contrast with *impact printer*.

nonprocess runout (NPRO). An operation that moves forms through the forms path without printing.

O

offset paper. A grade of paper to which sizing is added to resist moisture and surface during printing by ink presses.

operating environment. The physical environment; for example, temperature, humidity, layout, or power requirements.

operating requirements. A list of requirements, such as environmental, electrical, and space, that must be satisfied before the IBM Infoprint 4000 can be installed.

Operating System/Virtual Storage (OS/VS).
A compatible extension of the IBM System/360 Operating System that supports hardware and the extended control facilities of System/370

optical character recognition (OCR). Character recognition that uses optical means to identify graphic characters.

orientation. The number of degrees an object is rotated relative to a reference; for example, the orientation of an overlay relative to the page point of origin. See also *text orientation*.

overlay. See *electronic overlay*.

Overlay Generation Language/370 (OGL/370). The licensed program that is used to create electronic overlays.

P

page. A printed form. See also *logical page* and *physical page*.

page definition (PAGEDEF). A statement that specifies attributes of a logical page, such as the width of its margins and the orientation of text.

page perforation. The perforation that defines the page of a form. It may or may not be at a fold in the form. A form may have several pages between each fold. See also *fold perforation*.

page printer. A device that prints one page as a unit. Contrast with *line printer*.

Page Printer Formatting Aid (PPFA). A licensed program that creates form definitions (FORMDEFs) and page definitions (PAGEDEFs).

pallet. A portable platform for handling, storing, or moving materials.

paper break. A separation, either at a perforation or from a tear, of the continuous-forms paper.

paper path. The entire route that forms travel while they are being processed. The paper path usually begins where the forms are loaded and ends at the stacker. Because not all forms are paper, the term *forms path* is preferred.

parallel channel. A channel having a System/360 or System/370 channel-to-control unit interface that uses bus-and-tag cables as a transmission medium. Contrast with *ESCON channel*.

parameter. A variable that is given a constant value for a specified application and that may denote the application.

PC drum. A hollow cylinder that is covered with photoconductive material.

pel (picture element). (1) An element of a raster pattern; a point where a toned area on the photoconductor may appear. (2) On an all-points-addressable output medium, each pel is an addressable unit. On a row-column addressable output medium, the only pel addressable is the beginning of a character cell.

perforation. A linear series of unconnected cuts in the continuous-forms paper. The interval between cuts is referred to as a tie. The perforation defines either a fold or page boundary. See also *cut*, *fold perforation*, *microperforation*, and *page perforation*.

photoconductor. The material that is wrapped about the drum. The medium for transferring images to paper.

physical page. The form on which the printer is printing, such as an $8^1/_2$ x 11-inch sheet of paper. Contrast with *logical page*.

physical planner. The person in an organization who plans the environmental, electrical, and space requirements for your facility.

planning coordinator. The person in your organization who is responsible for coordinating all the planning and installation activities for the Infoprint 4000.

plant. A manufacturing location.

point of origin. The location of the first print position on a logical page. The point of origin is usually stated in terms of X and Y coordinates. The point of origin used by a printer can be affected by factors such as printable area and forms orientation.

portrait orientation. Pertaining to a display or hard copy with greater height than width. Contrast with *landscape orientation*.

preprinted form. A sheet of forms containing a preprinted design of constant data with which variable data can be combined. See also *electronic overlay*.

Print Management Facility (PMF). An interactive menu-driven program that can be used to create and modify fonts and to define output formatting for data printed on the IBM Infoprint 4000.

print mode. The operational mode in which information is received from the attached controlling computer system and printed output is produced. Contrast with *test mode* and *diagnostic mode*.

print position. The physical positions of the characters constituting a print line relative to the form.

print quality. The quality of printed output relative to existing standards and in comparison with jobs printed earlier.

Print Quality Enhancement (PQE). A printer facility that provides edge smoothing along diagonal lines, fine fidelity protection, and independent boldness control.

Print Services Access Facility (PSAF). A menu-driven, print-parameter selection program for page printers controlled by PSF.

print surface. The side of a form that receives the printed image.

printer utility module (PUM). A section of Printer 1 in a duplex configuration. It includes:
- Operator alert assembly
- Power control panel
- System interconnection electronics
- Pre-processing/post-processing device interfaces

R

raster. (1) In computer graphics, a predetermined pattern of lines that provides uniform coverage of a display space. (2) The coordinate grid that divides the display area of a display device. (3) In the Infoprint 4000 Printer Subsystem, an on/off pattern of electrostatic images produced by the laser print head under control of the character generator.

raster pattern. A series of picture elements (pels) arranged in scan lines to form an image.

registration. In printing, refers to the relative print positions of images that are printed at different times. For example, when you process preprinted forms, the registration is good if the new image printed by the Infoprint 4000 aligns correctly with the preprinted image. Print that extends beyond box edges and text that overlaps other text are examples of poor registration.

resource. (1) People, equipment, or material used to perform a task or a project. (2) Any facility of a computing system or operating system required by a job or task, including main storage, input/output devices, processing units, data sets, and controller processing programs; for example, page printers use resources such as form definitions, page definitions, and fonts.

reverse heading. A heading where each character is highlighted by reversing the color of the character with its background; for example, changing a black character on a white background to a white character on a black background.

S

scanner. A device that examines OCR, graphics, MICR, or bar-code patterns and generates electrical signals corresponding to the pattern. It sends the signals to a computing device for processing.

screen or screening. In document printing, a sheet of material, usually film, carrying a regular pattern of small dots. When printing, ink adheres only to the dots, and many dots close together appear solid. This method prints large areas of ink on paper but uses much less ink than printing the same area with solid ink.

security paper. Specially formulated paper used for negotiable documents, such as checks, which improves the anti-fraud characteristics of the document.

shift. A scheduled work period. For example, a 24-hour day is often divided into three 8-hour shifts.

simplex printing. Pertaining to printing on only one side of a form. Contrast with *duplex printing*.

sizing. A process where paper is treated to give it resistance against penetration of liquids.

special-purpose materials. Printable items other than blank forms; for example, adhesive labels and preprinted forms.

stack lean. A measurable slope from the vertical of a stack of forms. Excessive stack lean can cause failures when feeding and refolding forms.

Synchronous Data Link Control (SDLC). For managing synchronous, code-transparent, serial-by-bit, information transfer over a link connection.

system reference code. A code that contains information, such as a failing field-replaceable unit, for a customer engineer.

system programmer. A programmer who plans, generates, maintains, extends, and controls the use of an operating system, with the aim of improving overall productivity of an installation. Contrast with *application programmer*.

System/370. An upward-compatible extension of the IBM System/360. A large collection of computing system devices that can be combined to produce a wide range of computing systems that share many characteristics, including a common machine language.

T

task. A basic unit of work to be accomplished by a device or an operator.

TCP/IP. Transmission Control Protocol/Internet Protocol. A set of communication protocols that support peer-to-peer connectivity functions for both local and wide area networks.

tensile strength. A measure of the force that the paper forms can withstand without tearing.

test mode. The operational mode in which the printer can produce print samples, accept configuration changes, and control traces. When the Infoprint 4000 are in test mode, they is not accepting information from the attached controlling computer system. Contrast with *print mode* and *diagnostic mode*.

text orientation. The position of text as a combination of print direction and baseline direction.

tie. The interval between cuts of a perforation. See also *perforation*.

Token. In a local area network, a particular message or bit pattern passed successively from one attaching device to another to indicate which attachment has permission to transmit.

Token ring. A network with a ring topology that passes tokens from one attaching device to another.

toner. The material that forms the image on the paper.

trace. (1) A record of the running of a computer program. It exhibits the sequences in which the instructions were executed. (2) To record a series of events as they occur. (3) In the Infoprint 4000, a customer engineer and customer analysis procedure.

tractor. The mechanism that controls movement of continuous forms by way of holes (see *tractor holes*).

tractor holes. The holes in the side margins on continuous forms. When placed on the tractor pins, the holes maintain printer alignment and registration, and control the movement of the paper.

Two-Channel Switch. A hardware facility that allows an input or output device to be attached to two channels. In a 3900 Advanced Function Printing System, this facility is automatically supplied when two System/370 Parallel channels are installed.

U

up fold. Fanfold forms are alternately folded. When fanfold forms are unfolded and held horizontally, a fold is an up fold if it points up from the horizontal surface.

V

variable data. The data that can vary; for example, the names and addresses in form letters.

vector graphics. Computer graphics in which display images are generated from display commands and coordinate data. Contrast with *raster pattern*.

Virtual Storage Extended (VSE). An operating system that is an extension of Disk Operating System/Virtual Storage.

Virtual Storage Extended/Advanced Functions (VSE/AF). The minimum operating system support for a VSE-controlled installation.

void. (1) A missing part of the printed character. (2) A missing piece of a continuous form.

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Operator's Guide

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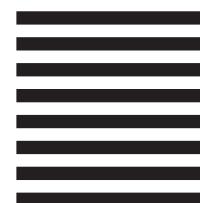
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