UNISYS

AP 9208 Printer

Installation and Operations Guide

July 1987

Printed in Japan
1190758

Priced Item

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Warning: This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measure may be required to correct the interference.

About this Guide

The AP 9208 laser printer is a low cost, microprocessor-based, desktop laser printer. Printing at a continuous-feed rate of eight pages per minute, the AP 9208 printer ideally serves as a high-quality output device for small to medium data processing systems.

The AP 9208 prints in a resolution of 300 dots per inch both vertically and horizontally. This high resolution provides a letter-quality image. The AP 9208 features modular design for fast, simple operation and maintenance; easy cut sheet paper loading (capacity 250 sheets); and face-down stacking for positive page collation of output.

Purpose

The AP 9208 printer can be installed by the customer. This guide describes printer installation, operation, and maintenance.

Scope

This guide includes step-by-step instructions for unpacking, setting up, operating, and maintaining the printer.

Audience

This guide is intended for use by those who will install the printer and operate it in the course of normal use.

How to Use this Document

The reader should use this guide for step-by-step installation of the AP 9208 printer. After installation, Sections 3, 4, and 5 can be consulted for operation, maintenance, and troubleshooting instructions. The appendixes contain reference information.

Organization

This guide contains five sections.

Section 1: Unpacking and Inventory

Explains the proper procedures for unpacking the printer and taking inventory.

Section 2: Setting Up Your Printer

Explains the procedures for setting up the printer at your workstation, including installing the paper tray, toner cartridge, and Organic Photoconductor (OPC) cartridge; loading the paper; setting the Dual Inline Pack (DIP) switches; plugging in the printer's power cord; and connecting the printer to your computer.

Section 3: Operating Your Printer

Describes the procedures for powering on the printer and using some of the features.

Section 4: Maintaining Your Printer

Describes the procedures for cleaning your printer, adding paper, replacing certain parts, and relocating your printer.

Section 5: Troubleshooting

Provides information for identifying and solving some common printer problems.

The appendixes provide information about printer specifications, default parameter values, supplies, resident fonts, and function control commands; using font cartridges with your printer; and configuring your printer with Unisys systems.

Related Product Information

The following reference manual is available for the AP 9208 printer:

AP 9208 Printer Programming Reference Manual (form 1190766)

The following guide provides information about the B 9968-41 sheet feeder, a dual-bin sheet feeder available for use with the AP 9208 printer:

B 9968-41 Sheet Feeder Installation and Operations Guide (form 1205390)

The following manual provides information about ordering font cartridges for use with the AP 9208 printer:

FC 9200 Font Cartridge Support Reference Manual (form 1205382)

The following documents provide information about using the AP 9208 printer and its features with the software program Secretarial Word Processing (SWP):

BTOS Secretarial Word Processing Installation, Configuration, and Administration Guide (form 5025372)

BTOS Secretarial Word Processing Operations Guide, Volume 2: Formatting Operations (form 5026032)

Conventions Used in this Guide

In this guide, a "Note" is used to direct the reader's attention to information that requires more emphasis than can be given in a normal paragraph.

A "Caution" directs the reader's attention to procedures or practices that must be followed correctly to prevent damage to or destruction of equipment or loss of data.

A "Warning" directs the reader's attention to procedures or practices that must be followed correctly to prevent personal injury or loss of life.

Contents

Illustrations

Tables

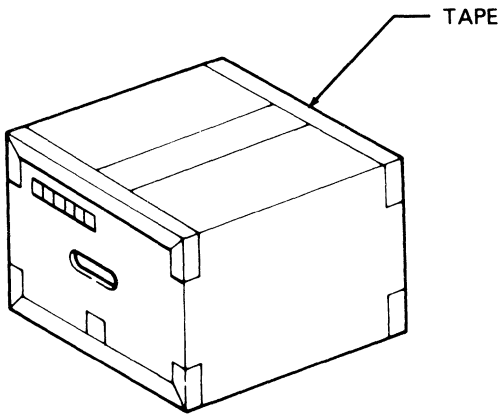
Unpacking and Inventory

Unpacking Your AP 9208 Printer

The following instructions will guide you through the proper procedure for unpacking your AP 9208 printer. Follow each step carefully to avoid accidental injury or damage to the equipment.

1 Verify that the shipping carton is right side up (see Figure 1-1). Remove the tape securing the carton flaps.

Figure 1-1 **Opening the Shipping Carton**



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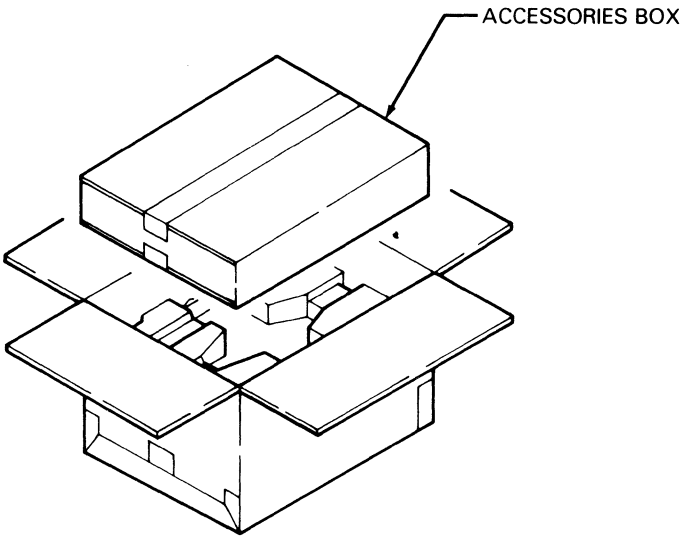
2 Remove the accessories box from the shipping carton.

Figure 1-2 **Removing the Accessories Box**



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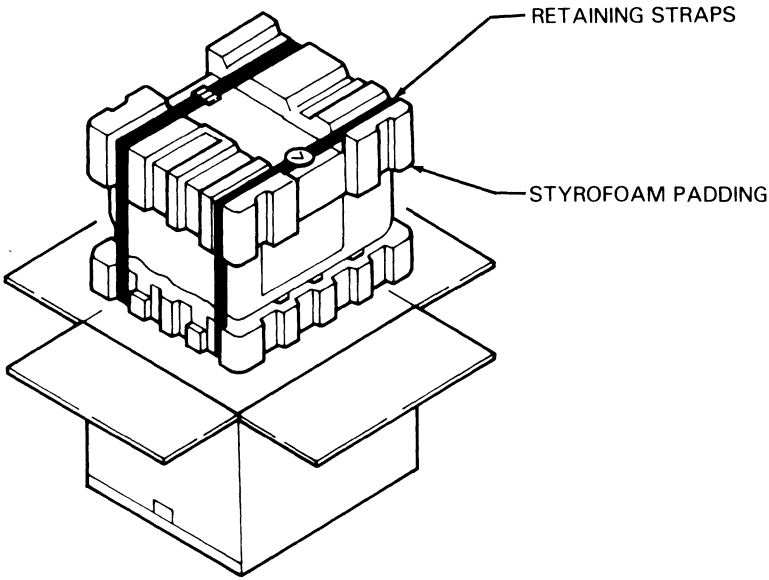
Warning: To avoid injury, two persons should lift the printer from the carton.

3 Remove the printer from the carton by grasping the retaining straps and lifting up and out.

Figure 1-3 **Removing the Printer from the Carton**



TC9043

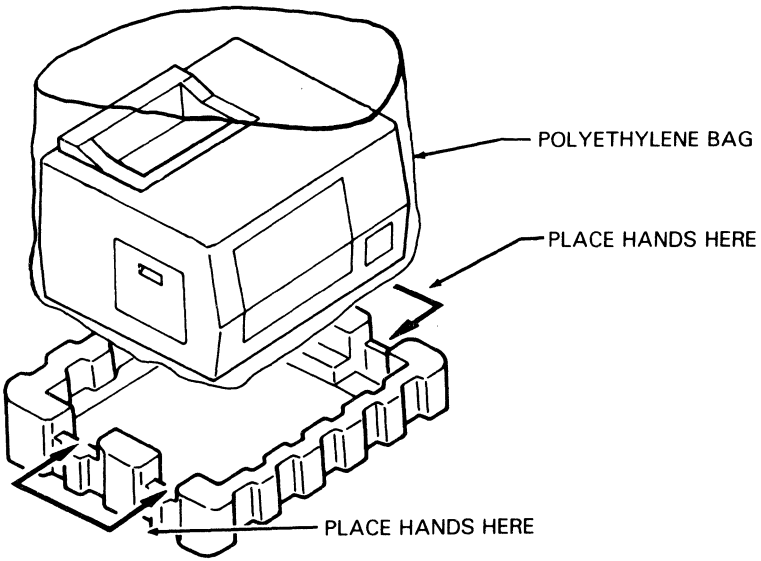
4 Place the printer on a table or other surface capable of supporting the printer securely.

5 Remove the retaining straps and the styrofoam padding on top of the printer. Do not cut the straps since you will need them if you move your printer.

6 Open the protective polyethylene bag that contains the printer.

7 Remove the printer from the bag by reaching inside the bag, placing your hands (two persons) on either side of the printer in the locations illustrated in Figure 1-4, and lifting the printer from the bag.

Figure 1-4 **Removing the Printer from the Bag**



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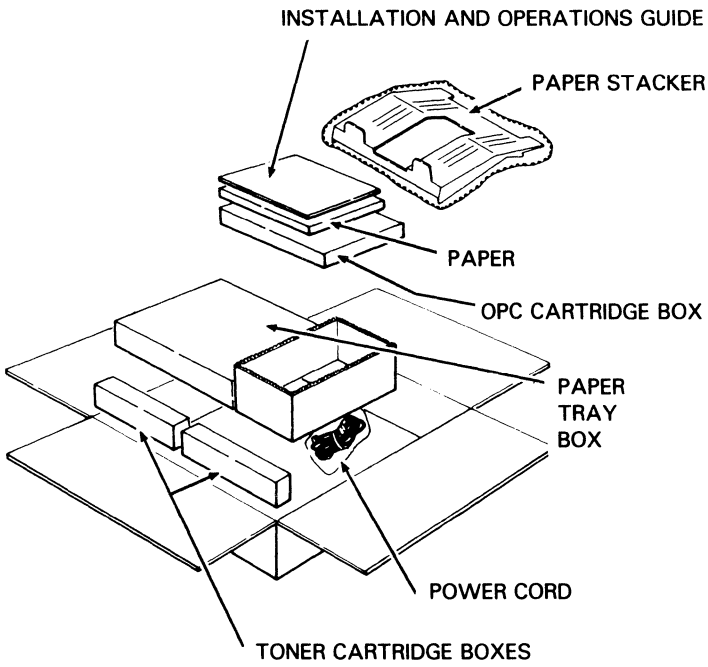
Inventory

After unpacking the printer and the accessories box, take an inventory of the equipment and material you have received. The accessories box should contain the following items (see Figure 1-5):

Figure 1-5 **Inventory of Accessories Box**



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- Paper stacker.
- Paper.
- Paper tray box.
- Power cord.
- This installation and operations guide.
- Two toner cartridge boxes.
- Organic Photoconductor (OPC) cartridge box.

Caution: Keep the OPC cartridge in its black vinyl bag until installation. Exposure to light can damage the cartridge.

In addition to the equipment mentioned above, you will also need an interface (I/F) cable to connect your host computer to the printer. If you ordered a cable when you ordered your printer, the cable should arrive with the printer in a separate container. If you have not yet ordered an I/F cable, or if you ordered one and it has not yet arrived, contact your Unisys sales representative.

If a piece of equipment is missing, or if you see any obvious damage, contact your Unisys sales representative.

After completing the checklist, place all the packing material back in the shipping carton. Save this material for safe storage or shipping of the printer in the future. Instructions for repacking the printer for shipping are in Section 4.

Setting Up Your Printer

Before beginning this section, you should have unpacked your printer and conducted an inventory of the equipment and material you have received. If your printer is not unpacked, refer to Section 1 of this guide.

In this section you will:

- Set up the printer in your work area.
- Install the paper tray.
- Install the paper stacker.
- Familiarize yourself with the printer's parts.
- Install the toner and OPC cartridges.
- Load the paper.
- Connect the printer's power cord.
- Connect the printer to your computer.
- Set the Dual Inline Pack (DIP) switches.
- Check the installation of the quenching lamp, toner collection bottle, transfer corona unit, charge corona unit, and shield glass.

Setting Up Your Work Area

Place your printer on a firm, level surface, such as a table or printer stand, near your host computer. Allow a minimum of one and one-half feet clearance on each side of the printer, one foot behind, and three feet in front.

Choose a location out of direct sunlight or other bright light. Exposure to bright light can damage the OPC cartridge.

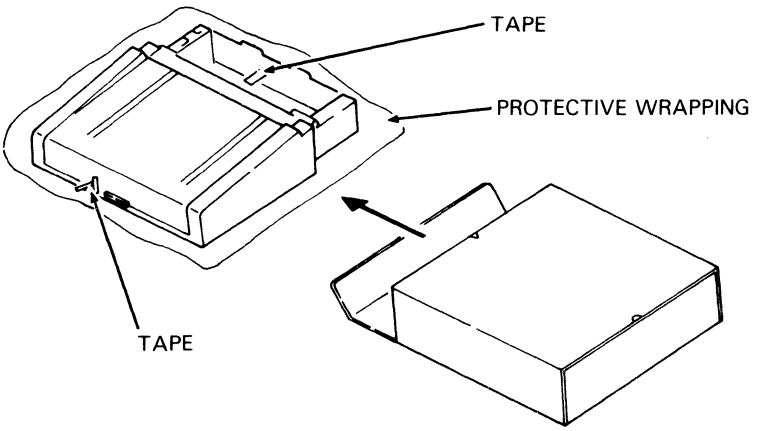
Avoid areas where the printer will be exposed to excessive heat, cold, humidity, drafts, or dust. Also avoid small spaces or areas with poor ventilation which can cause excessive printer temperatures.

Installing the Paper Tray

Your printer's paper tray is designed to be used with either letter or A4 size paper. Instructions for adjusting the paper tray to the size paper you will be using are in "Loading Paper" later in this section.

1 Take the paper tray out of its box and remove the protective wrapping.
2 Remove the two pieces of tape on each end of the tray.

Figure 2-1 **Unpacking the Paper Tray**



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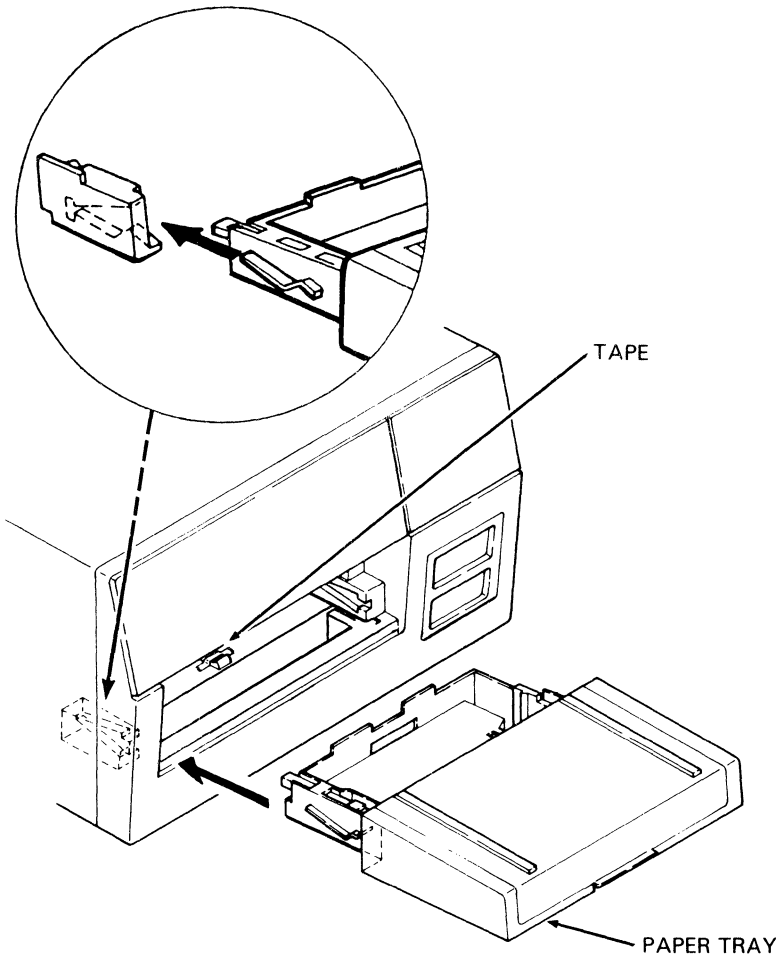
3 Remove the tape restraining the bottom plate drive arm.
4 Insert the paper tray into the printer (see Figure 2-2). Make sure the tray sits squarely all the way in the printer.

Figure 2-2 **Installing the Paper Tray**

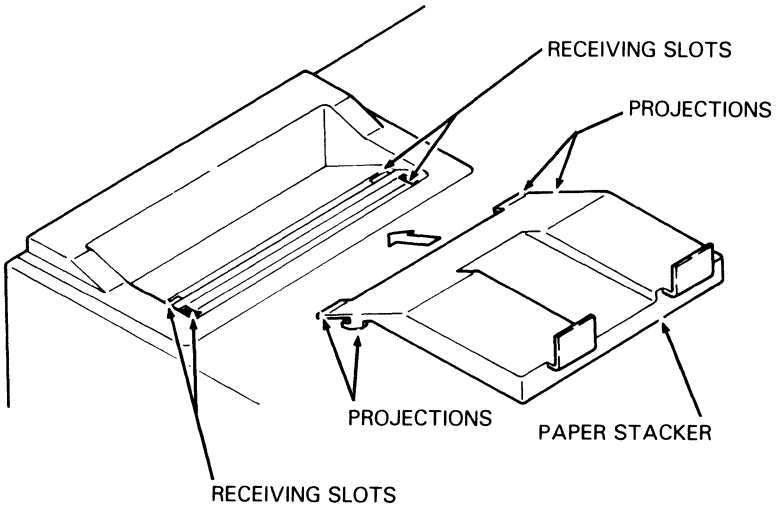


PL2136

Installing the Paper Stacker

1 Remove the bubble wrap from around the paper stacker.
2 Install the stacker on the printer by sliding the projections on the stacker into the receiving slots on the printer.

Figure 2-3 **Installing the Paper Stacker**



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Becoming Familiar with Your Printer

Figures 2-4 and 2-5 show some of the parts that you will need to be familiar with to properly operate and maintain your printer. Take a few minutes to locate these parts on the printer. We will describe them as we go along.

Figure 2-4 **Front View of the Printer**

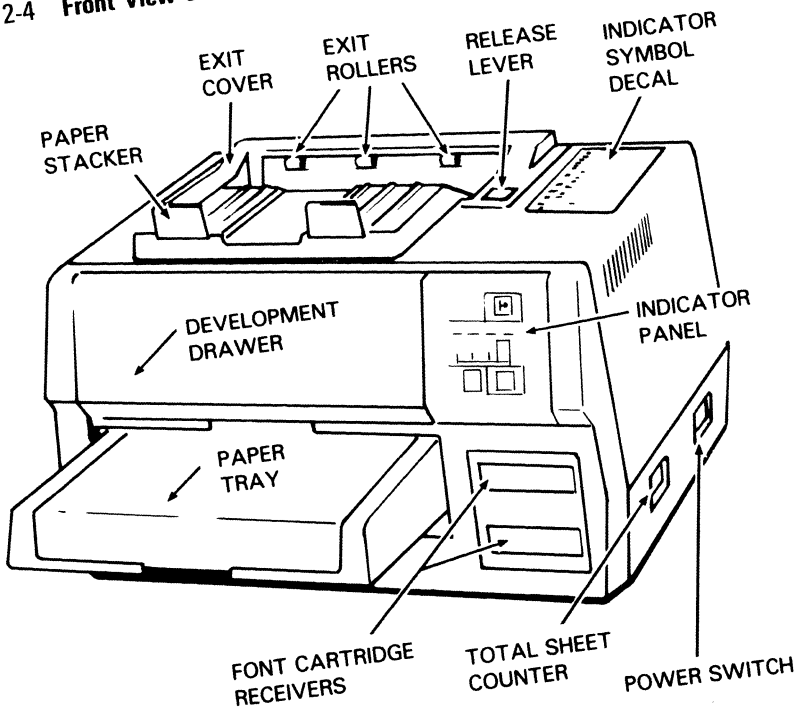

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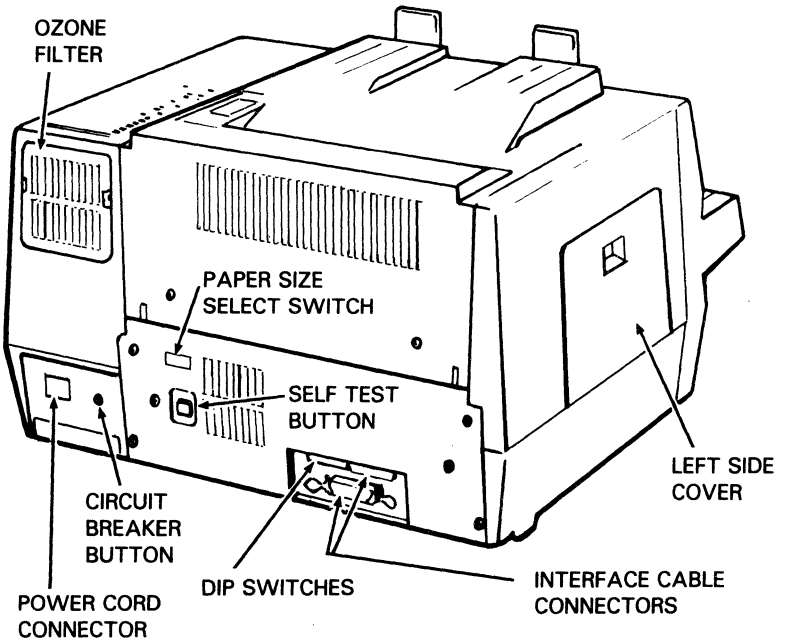
Figure 2-5 **Rear View of the Printer**



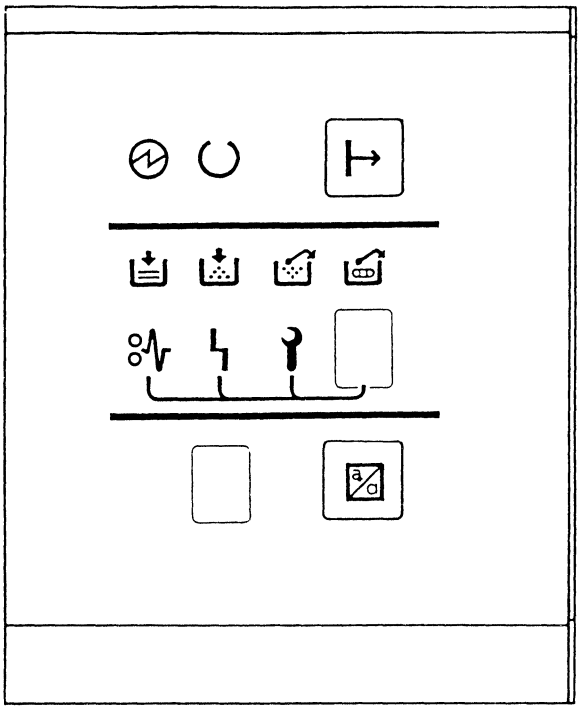
Note: Some versions of the printer have an internal ozone filter instead of the external filter shown in Figure 2-5.

Indicator Panel

Figure 2-6 shows the AP 9208 indicator panel, located on the front of the printer. The 11 indicators inform you of the printer's operational status or of a situation which may require your attention. The two control buttons, which also have indicator symbols, allow you to perform certain manual operations with the printer.

Nine of the indicators and the two control buttons depict symbols when activated. Two other indicators display alphanumeric characters, usually with a symbol.

Figure 2-6 **Indicator Panel**



TC9139

These indicators and controls are described in Table 2-1 below. Take a minute to become familiar with the displays on this panel before beginning printer operation. Many of these functions are discussed in more detail in Section 3, "Operating Your Printer."

Table 2-1 **Description of Indicator Panel Indicators and Controls**

	Power Indicator	This indicator lights when the power is on.
	Ready Indicator	This indicator flashes while the printer is warming up and then stays lit when the printer is ready to accept data from the host computer.

Table 2-1 **Description of Indicator Panel Indicators and Controls (continued)**

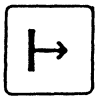
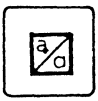
 On-Line Button/ Indicator	Pressing this control/indicator when the power is on brings the printer on-line (ready to receive data from the host computer). When the printer is on-line, the On-Line symbol lights. Pressing this control/indicator again causes the On-Line symbol to go out and takes the printer off-line (not ready to receive data from the host computer).
 Add Paper Indicator	This indicator flashes when the paper tray is empty.
 Change Toner Cartridge Indicator	This indicator flashes when the toner cartridge must be replaced.
 Replace Toner Collection Bottle Indicator	This indicator flashes when the toner collection bottle becomes full and must be replaced, or when the toner collection bottle is not installed.
 Change OPC Cartridge Indicator	This indicator flashes when the OPC cartridge must be replaced.
 Check Paper Path Indicator	This indicator and an alphanumeric character in the error display panel flash simultaneously when a paper misfeed occurs. For instructions for correcting paper misfeeds, consult Section 5, "Troubleshooting."
 Control Error Indicator	This indicator and an alphanumeric character in the error display panel flash simultaneously to indicate a printer error requiring operator attention. For a list of these errors and instructions for correcting them, consult Section 5, "Troubleshooting."
 Call Field Service Indicator	This indicator and an alphanumeric character in the error display panel flash simultaneously to indicate an abnormal printer condition requiring the assistance of a Unisys customer service engineer. For more information, consult Section 5, "Troubleshooting."

Table 2-1 **Description of Indicator Panel Indicators and Controls (continued)**

 Error Display Panel	This panel displays a "C" character when the development drawer, exit cover, left side cover, or paper tray cover is open. This panel also displays messages to supplement some of the indicators. For a complete list of error messages, consult Section 5, "Troubleshooting."
 Font Selection Display Panel	When the Font Selection button is pressed, this panel displays an alphanumeric character corresponding to a font (typeface) on the summary sheet. (For a list of the characters and their corresponding fonts, consult "Selecting the Font" in Section 3). When the font is selected by the host computer using software, OR when the printer receives data immediately after power up without a font selection command and goes to the default font (Courier 10), this panel displays an "n" character.
 Font Selection Button	Pressing this button changes the font (typeface). Each time the button is pressed, the font selection display panel displays an alphanumeric character corresponding to a font on the summary sheet. The printer must be off-line when performing this function. For more information about changing fonts, consult "Selecting the Font" in Section 3.

Installing the Toner Cartridge: Initial Installation

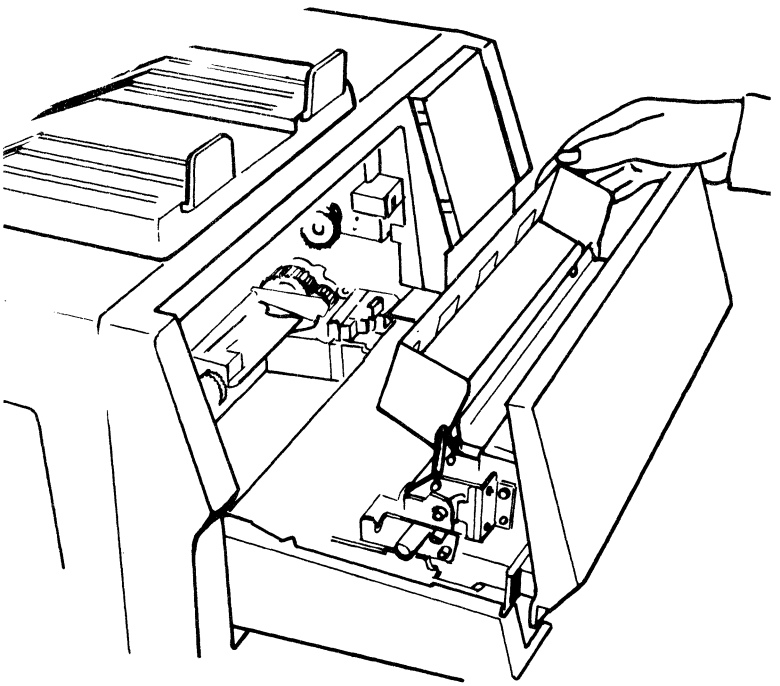
The AP 9208 printer uses a non-toxic toner, similar to the kind used in most photocopiers. For ease of installation, the toner is packaged in toner cartridges.

You must install two toner cartridges in the printer during the setup procedure. After initial installation, add one cartridge of toner when the Change Toner Cartridge indicator flashes.

The following instructions are for initial installation only. For normal toner replacement, consult "Replacing the Toner Cartridge" in Section 4.

1 Remove one of the two toner cartridges from its package and shake it vigorously twenty or more times.
2 With the paper tray in position, pull out the development drawer until it stops.
3 Open the toner cartridge cover to expose the development tank.

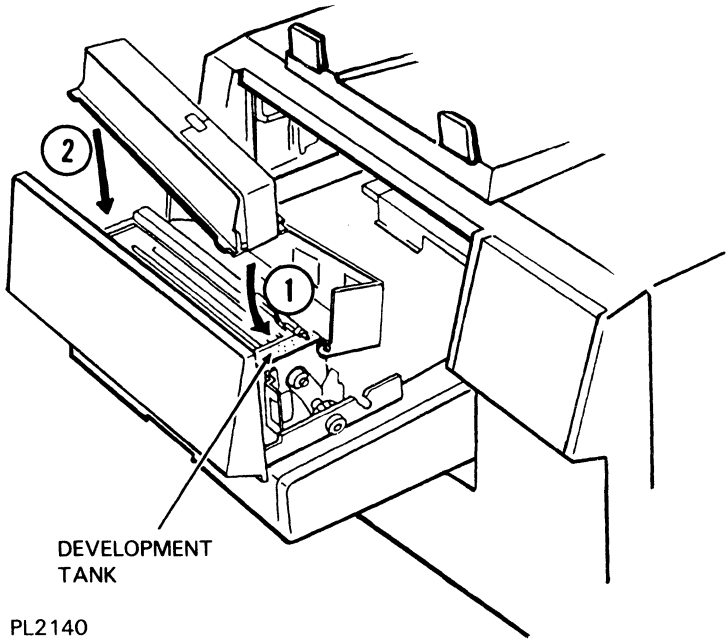
Figure 2-7 **Opening the Toner Cartridge Cover**



PL2139

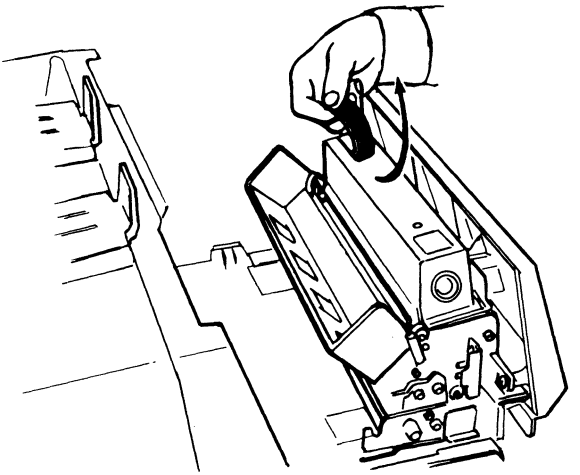
4 Hold the toner cartridge so the seal is on the right and the plastic plug is on the left. Align the projections on the cartridge with the notches on the development tank.
5 Set the toner cartridge on the development tank and insert the projections on the cartridge into the notches on the development tank. Slide the cartridge to the right to secure it on the tank.

Figure 2-8 **Installing the Toner Cartridge**



6 Peel down the end of the toner cartridge seal.

Figure 2-9 **Peeling the Toner Cartridge Seal**

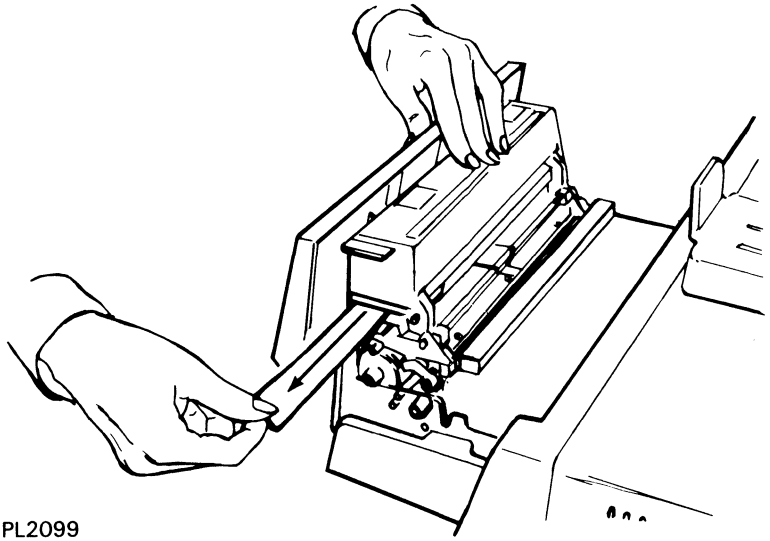


PL2141

7 Close the toner cartridge cover.

8 Press down gently on the toner cartridge cover with one hand and pull the seal horizontally until a green tab becomes visible.

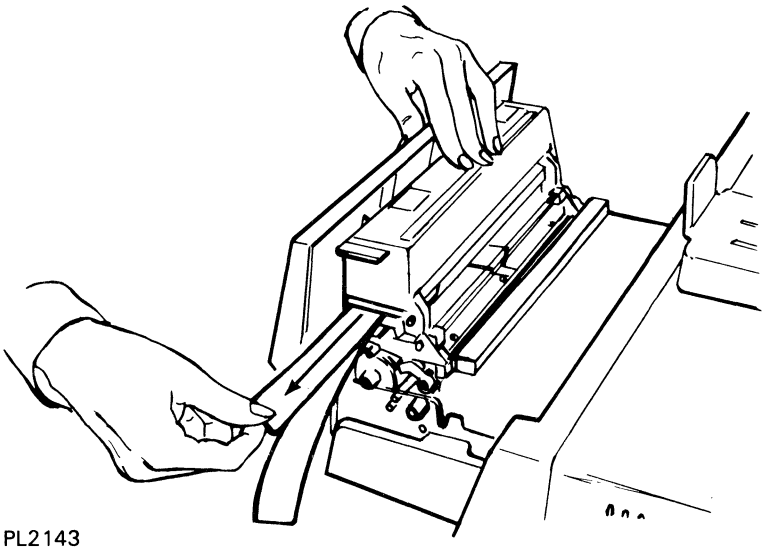
Figure 2-10 **Pulling the Seal**



PL2099

9 Hold the green tab and pull the seal further until it is out completely. Then peel off the tab.

Figure 2-11 **Pulling Out the Green Tab**



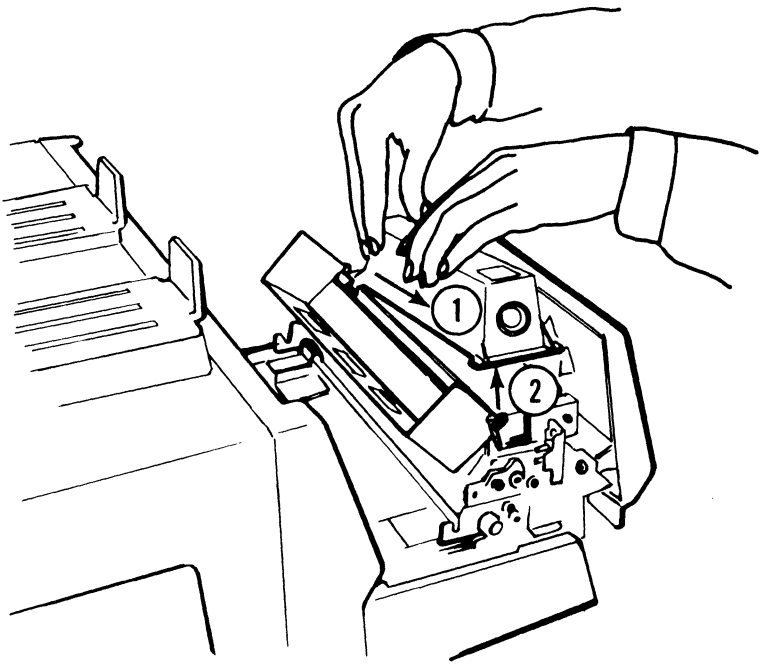
PL2143

10 Open the toner cartridge cover and tap gently on the toner cartridge with your fingers to loosen the toner and empty it into the development tank.

Note: Continue with these instructions and add a second toner cartridge only if this is the initial installation of the printer. For normal toner replacement, consult "Replacing the Toner Cartridge" in Section 4.

11 Remove the empty toner cartridge by sliding the cartridge to the left until the projections are clear of the notches on the tank. Then lift the empty cartridge out and discard it.

Figure 2-12 **Removing the Empty Toner Cartridge**



PL2144

12 Repeat Steps 4 through 10 with the second toner cartridge.

Caution: Do not remove the second toner cartridge. The development tank must be covered for clean and efficient printer operation.

13 Close the toner cartridge cover.

14 Slide the development drawer back to its operating (closed) position.

Installing the OPC Cartridge

Caution: The following procedure (Steps 1 through 9) must be accomplished within five minutes. If the OPC cartridge is exposed to light for more than five minutes, the OPC belt will deteriorate, affecting print quality.

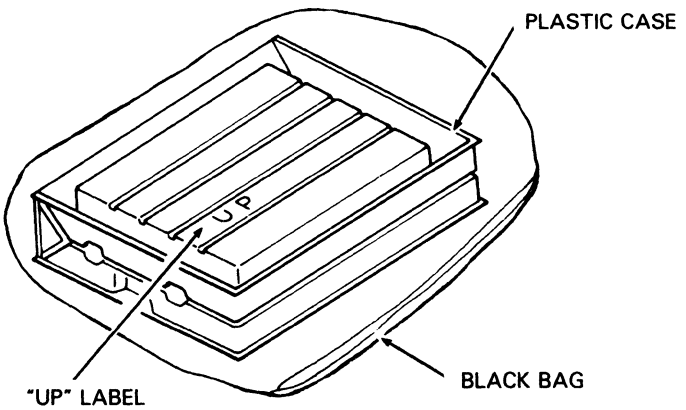
Note: Review the illustrations and instructions for installing the OPC cartridge before starting. If you are interrupted while performing this procedure, place the OPC cartridge back in its plastic case and then into the black vinyl bag. Close the bag until you are ready to resume installation.

1 Pull the development drawer out until it stops, sliding it on the tracks of the paper tray.

2 Remove the OPC cartridge case from its cardboard box.

3 Open the black vinyl bag, take out the plastic box containing the OPC cartridge, and set the case on a flat surface with the side labeled "UP" facing up.

Figure 2-13 **Packing of the OPC Cartridge**



PL2145

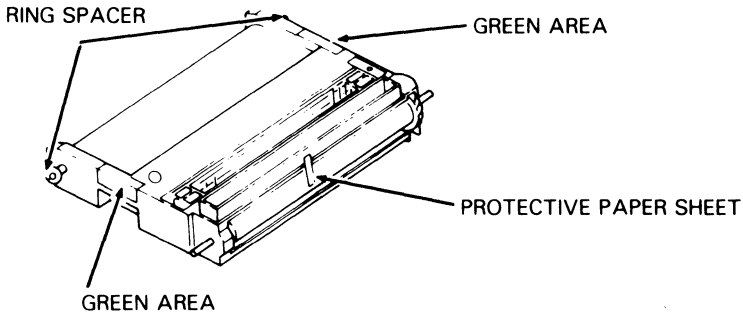
4 Remove the securing tape and open the plastic case.

Caution: When handling the OPC cartridge, touch only the green areas. Be careful not to touch the surface of the belt itself. Touching the belt could affect the print quality.

5 Remove the two green, ring-shaped spacers from the forward shaft of the cartridge.

6 Remove the protective sheet from the cartridge, gripping only the securing tape.

Figure 2-14 **Handling the OPC Cartridge**



PL2146

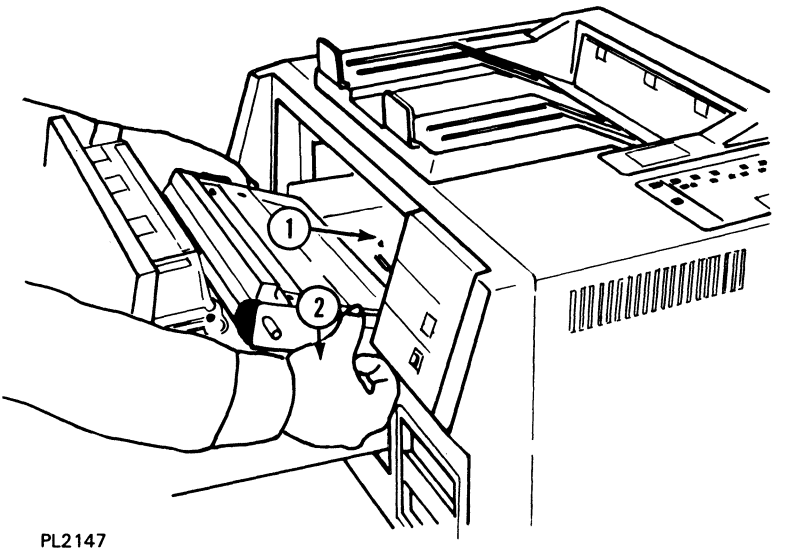
7 Grip the green area on each side of the OPC cartridge and lift the cartridge from the plastic box. The ridged side of the cartridge should be facing down.

8 Insert the OPC cartridge into the development drawer as follows:

a Tilt the rounded side of the OPC cartridge (opposite the gears) down into the drawer and place the forward two metal shafts into the tracks mounted on the drawer.

b Push down gently on the OPC cartridge so the rear two metal shafts settle into the U-shaped brackets.

Figure 2-15 **Inserting the OPC Cartridge**



9 Slide the development drawer back to its operating (closed) position.

Loading Paper

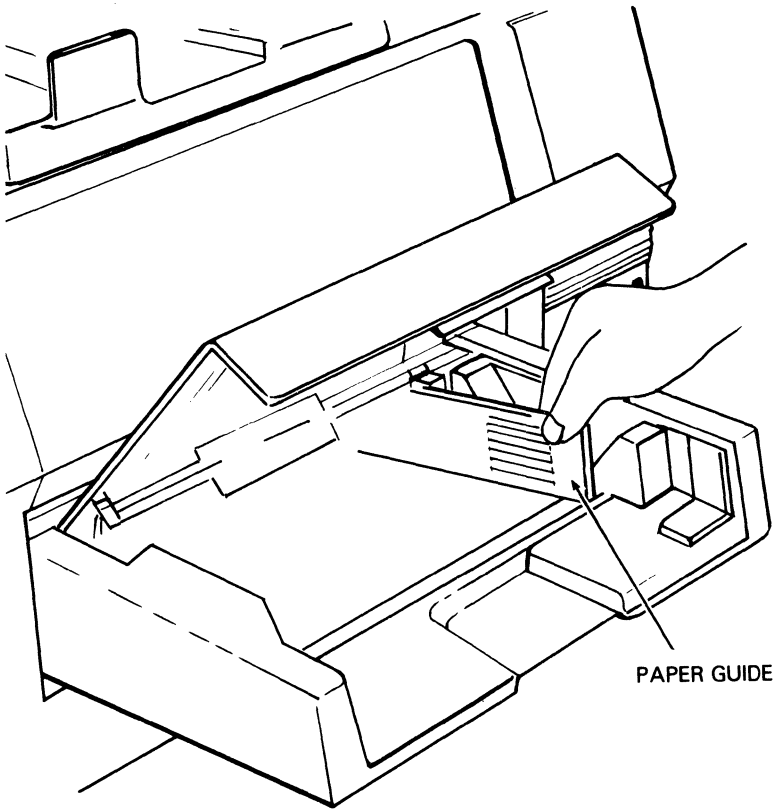
When loading paper into the paper tray,

- Do not add paper above the limit line.
- Load the paper with the printing surface facing up and the top of the page pointing toward the printer.
- You can print on the back side of paper that has already gone through the printer.

1 Open the paper tray cover.

2 Adjust the position of the paper guide in the paper tray to fit the size of the paper to be used (8 1/2 by 11 or A4).

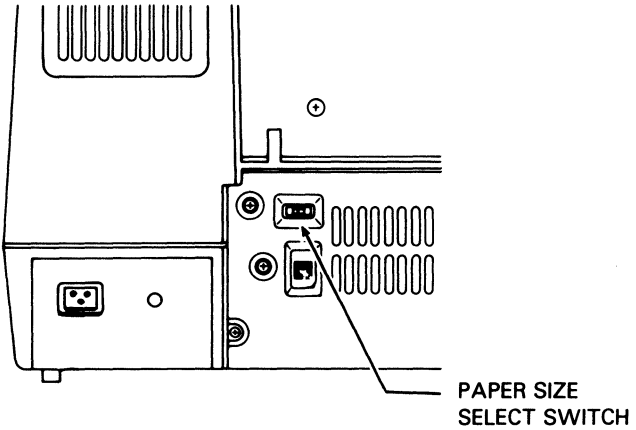
Figure 2-16 **Adjusting the Paper Guide**



PL2148

3 Set the paper size select switch on the rear of the printer to match the size of paper being loaded.

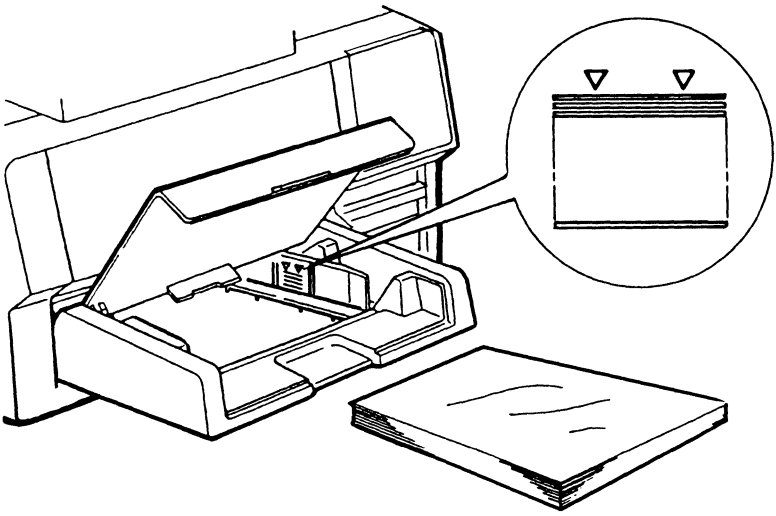
Figure 2-17 **Location of the Paper Size Select Switch**



PL2149

4 Add paper to the bottom of the paper tray along the guide plates, inserting the paper as far as it can go. Up to 250 sheets of 20 lb (75 g/m^2) paper can be loaded at one time. A supply of paper is included in the accessories box.

Figure 2-18 **Loading Paper into the Paper Tray**



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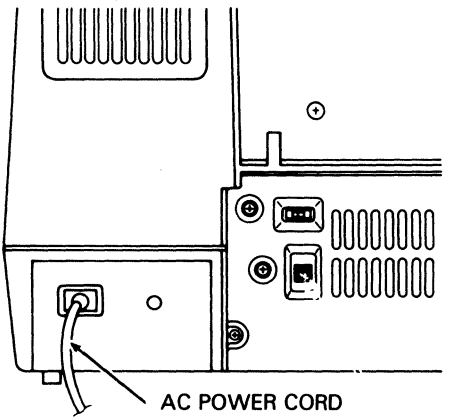
5 Close the paper tray cover.

Connecting the AC Power Cord

1 Make sure the power switch on the right side of the printer is set to the OFF (O) position.

2 Plug the AC power cord into the AC power receptacle on the printer's rear side (see Figure 2-19).

Figure 2-19 **Connecting the AC Power Cord**



PL2151

3 Insert the other end of the power cord into an AC power outlet which has power supplied to it and which is not supporting other equipment.

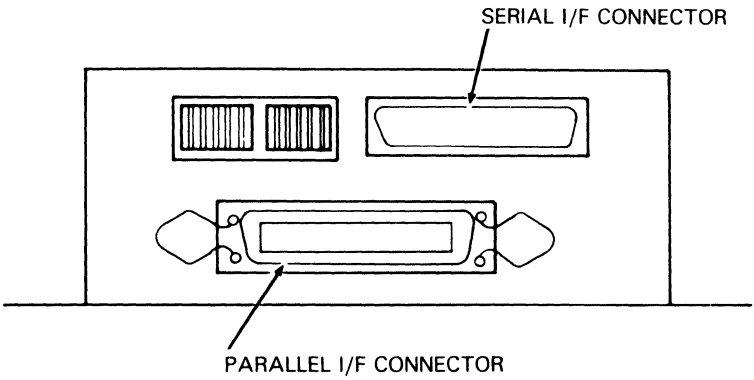
Connecting the Interface (I/F) Cable to the Computer

Note: You must order an interface (I/F) cable appropriate for your host computer. An I/F cable is not supplied with your printer. If you have not ordered an I/F cable, contact your Unisys sales representative.

1 Connect one end of the I/F cable to your host computer system. Check the operations manual for your host computer for information about connecting the I/F cable.

2 Identify the printer's serial and parallel I/F connectors as shown in Figure 2-20.

Figure 2-20 **Location of the Printer I/F Cable Connectors**



TC9135

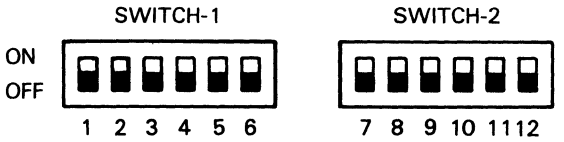
3 Connect the other end of the I/F cable to the appropriate connector on the rear of the printer. Note that there is only one way to install the I/F cable on the I/F connector.

Setting the DIP Switches

The printer's DIP switches control various format and data communications functions. Some of the switches control certain functions by default if the function is not otherwise controlled by the host computer software. You may need to adjust the DIP switches to configure your printer with your host computer system.

The following illustration and two tables describe the individual DIP switch settings and the functions they control. The DIP switches are located on the rear of the printer next to the interface cable connectors. There are two banks of six switches each. Refer to Figure 2-21 for the locations of the individual switches.

Figure 2-21 **DIP Switches**



PL2152

You can determine the current DIP switch settings by printing a test summary sheet. To do this, turn on the printer and wait for it to warm up. Then press the On-Line button to place the printer in off-line mode and press the Self Test button on the rear of the printer. The printer will produce a summary sheet that includes a graphic display of the current DIP switch settings and their meanings. For more information about the summary sheet, refer to "Printing a Test Summary Sheet" in Section 3 of this guide.

Set the DIP switches as required for your host computer, referring to Tables 2-2 and 2-3 and the switch descriptions for information about the function of each switch setting. Set the printer power switch to OFF (O) before setting the DIP switches. After setting the DIP switches, set the printer power switch to ON (I) to read the new switch settings into the printer's memory.

Notes:

1 On the printer itself, the DIP switches are in two sets, each numbered from left to right 1 through 6. For clarity in the tables that follow, we have numbered the switches sequentially left to right 1 through 12. Therefore, Switch 1 in the right set is called Switch 7, Switch 2 is called Switch 8, and so on.

2 For information about configuring the AP 9208 printer with Unisys B 20 and ET series computer systems, refer to Appendix F of this guide.

Table 2-2 **DIP Switch Settings and Functions (Serial Mode)**

SWITCH POSITION			FUNCTION	
SW1			Parallel/Serial	
ON			Parallel	
OFF			Serial	
SW2			Half Duplex/Full Duplex	
ON			Half Duplex	
OFF			Full Duplex	
SW3			Auto Line Feed	
ON			Auto Line Feed On	
OFF			Auto Line Feed Off	
SW4			Stop Bits	
ON			2 Stop Bits	
OFF			1 Stop Bit	
SW5			Data Bits	
ON			7 Bits	
OFF			8 Bits	
SW6	SW7		Protocol	
ON	ON		DTR	
ON	OFF		DTR	
OFF	ON		ETX/ACK	
OFF	OFF		XON/XOFF	
SW8	SW9		Parity	
			7 Bit:	8 Bit:
ON	ON		Even Parity	Even Parity
ON	OFF		Odd Parity	Odd Parity
OFF	ON		Space	No Parity
OFF	OFF		Mark	No Parity
SW10	SW11	SW12	Baud Rate	
OFF	OFF	ON	110	
OFF	ON	OFF	300	
OFF	ON	ON	600	
ON	OFF	OFF	1200	
ON	OFF	ON	2400	
ON	ON	OFF	4800	
OFF	OFF	OFF	9600	
ON	ON	ON	19200	

Table 2-3 **DIP Switch Settings and Functions (Parallel Mode)**

SWITCH POSITION		FUNCTION
SW1		Parallel/Serial
ON		Parallel
OFF		Serial
SW2		Command Set 630
ON		SW2 must be ON in parallel mode
SW3		Auto Line Feed
ON		Auto Line Feed On
OFF		Auto Line Feed Off
SW4		Line Spacing
ON		3 lines per inch (1/3 inch)
OFF		6 lines per inch (1/6 inch)
SW5		ACK In Busy/ACK Out Busy
ON		ACK In Busy
OFF		ACK Out Busy
SW6		No Function in Parallel Mode
SW7		Page Orientation
ON		Landscape
OFF		Portrait
SW8		No Function in Parallel Mode
SW9		No Function in Parallel Mode
SW10		No Function in Parallel Mode
SW11	SW12	Character Spacing
OFF	OFF	10 characters per inch
OFF	ON	12 characters per inch
ON	OFF	15 characters per inch
ON	ON	Proportional Spacing

Description of Switch Functions

Switch 1 - Serial/Parallel

This switch selects either parallel or serial communication with the host computer.

Switch 2 (Serial) - Half Duplex/Full Duplex

Half duplex mode allows unidirectional (one way) transmission of data. Full duplex mode allows independent, simultaneous transmission and reception of data.

Switch 2 (Parallel) - Command Set 630

In parallel mode, this switch allows command set selection. Always select 630 (ON).

Switch 3 - Auto Line Feed On/Off

When some host computers send a line of characters to the printer, they end the line with only a carriage return. Unless a line feed is also issued, the paper does not advance. If your host computer sends only a carriage return, selecting Auto Line Feed ON will automatically generate a line feed at each carriage return. If you select Auto Line Feed OFF, a return will be generated and the carriage will return to the left margin, but it will remain on the same printing line. A separate Line Feed command will then be required if a new printing line is desired. Most host system software is set to provide the line feed, so this switch is usually OFF.

Switch 4 (Serial) - Stop Bits

When a host computer sends data in serial mode, it sends either 1 or 2 stop bits at the end of each data byte. The setting of this switch must conform with the setting for your host computer.

Switch 4 (Parallel) - Line Spacing

In parallel mode, this switch allows the operator to select the size of line feed increments, either 1/3 inch (three lines per vertical inch) or 1/6 inch (six lines per vertical inch).

Switch 5 (Serial) - Data Bits

This switch controls whether the data byte is seven or eight bits long.

Switch 5 (Parallel) - ACK In Busy/ACK Out Busy

In parallel mode, the normal setting for this switch is ACK In Busy (ON). Refer to the *AP 9208 Printer Programming Reference Manual* for more detailed information about these settings.

Switches 6 and 7 (Serial) - Protocol

In serial mode, these switches select the method for coordinating communication between your computer and printer. For more details about specific protocols, refer to the *AP 9208 Printer Programming Reference Manual.*

Switch 6 has no function in parallel mode.

Switch 7 (Parallel) - Portrait/Landscape

In parallel mode, this switch allows the operator to select either portrait or landscape as the default page orientation. Note that setting this switch to ON (landscape) selects only the print **direction** (that is, parallel to the long edge of the paper). Setting the page orientation with the DIP switch does **not** rotate the font. For information about rotating fonts, refer to the *AP 9208 Printer Programming Reference Manual* or the manual for your applications software.

Switches 8 and 9 (Serial) - Parity

Parity is an error checking method used to detect if bits have been lost or changed during transmission. Set these switches to correspond with the type of parity used by your host computer.

Switches 8 and 9 have no function in parallel mode.

Switches 10, 11, and 12 (Serial) - Baud Rate

In serial mode, these three switches select the speed at which data is received and transmitted between the host computer and the printer. You must select a baud rate which matches the speed at which your host computer transmits data.

Switch 10 has no function in parallel mode.

Switches 11 and 12 (Parallel) - Character Spacing

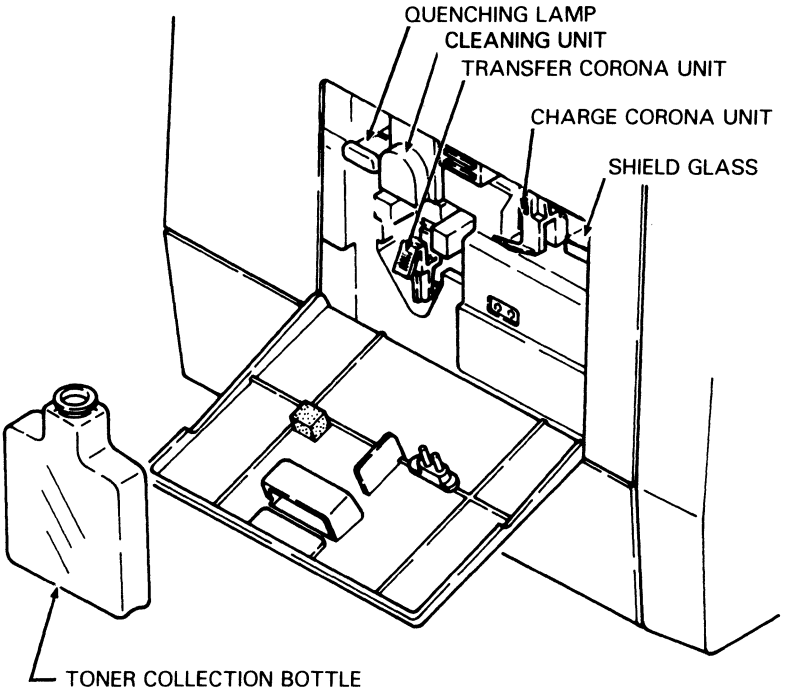
In parallel mode, these switches allow the operator to select the character spacing.

Checking the Quenching Lamp, Toner Collection Bottle, Transfer Corona Unit, Charge Corona Unit, and Shield Glass Installation

Note: In some machines, the shield glass is called a shield lens.

1 Open the left side cover and pull out the toner collection bottle. If the bottle's cap is on, remove it.

Figure 2-22 **Checking the Quenching Lamp, Toner Collection Bottle, Transfer Corona Unit, Charge Corona Unit, and Shield Glass**



PL2153

2 Verify that the quenching lamp, located to the left of the toner collection bottle, is properly installed by pushing the visible end (green tab) of the unit in as far as it will go.

3 Verify that the transfer corona unit, located in the toner collection bottle recess, is properly installed by pushing the visible end (green tab) of the unit in as far as it will go.

4 Verify that the charge corona unit, located to the right of the toner collection bottle, is properly installed by pushing the visible end of the unit (green tab) in as far as it will go.

5 Verify that the shield glass, located to the right of the charge corona unit, is properly installed by pushing the visible end of the unit (green tab) in as far as it will go.

6 Replace the toner collection bottle by inserting it in the recess and pushing down and in. Make sure the neck of the bottle lines up with the cleaning unit spigot.

7 Close the left side cover.

Operating Your Printer

To begin this section, your printer should be unpacked, set up, and ready to operate. If your printer is not yet installed, refer to Sections 1 and 2 for unpacking and installation instructions.

This section includes information about:

- Powering on the printer.
- Printing a test summary sheet.
- Selecting fonts.
- Using multiple fonts in a single document.
- Changing the page orientation.
- Manual feeding.

Operator Safety

Warning: Laser light can be dangerous. Using controls or adjustments or performing procedures other than those specified in this guide may expose the operator to hazardous laser light.

The AP 9208 printer contains a 5 milliwatt, 760-810 nanometer wavelength, GaA2As laser diode. Direct, or indirect reflected, eye contact with the laser beam may cause serious eye damage. Safety precautions and interlock mechanisms have been designed into the printer to prevent any possible laser beam exposure to the operator when the printer is operated according to the procedures in this guide.

Powering On the Printer

Note: If you are operating in serial mode, turn on the printer **before** sending data from the host computer. If you send data to the printer from the host computer and then power on the printer, you may lose the first few characters of data.

1 Set the power switch on the right side of the printer to the ON (I) position. This action will cause the following events to occur:

   a The fan motor starts rotating.

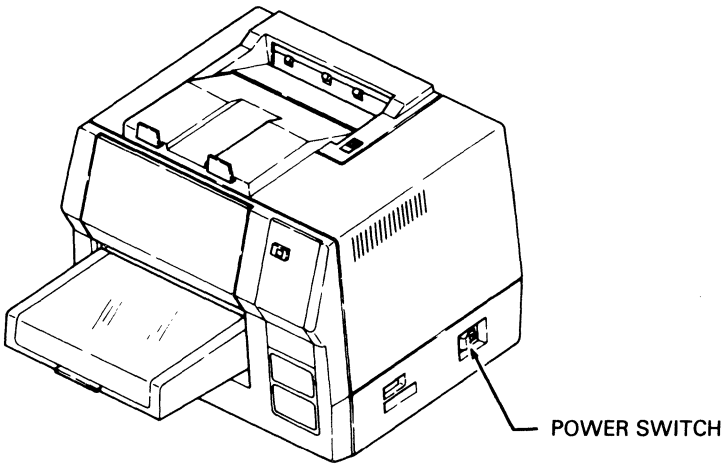
   b The bottom plate of the paper tray rises.

   c The Power indicator lights.

d The Ready indicator flashes.

e The number "8" displays in the Font Selection display panel, indicating that the printer is conducting a diagnostic test.

Figure 3-1 **Location of the Power Switch**



TC9215

2 After approximately 90 seconds, the Ready indicator will stop flashing and remain lit. The printer is now ready for operation.

When the power is turned on, the printer comes up in on-line mode. The printer is set to print using the Courier 10 font. Some of the other parameters match the default values established by the DIP switches. To determine the DIP switch settings, print a test summary sheet (see "Printing a Test Summary Sheet"). A table listing all default values is in Appendix B.

Printing a Test Summary Sheet

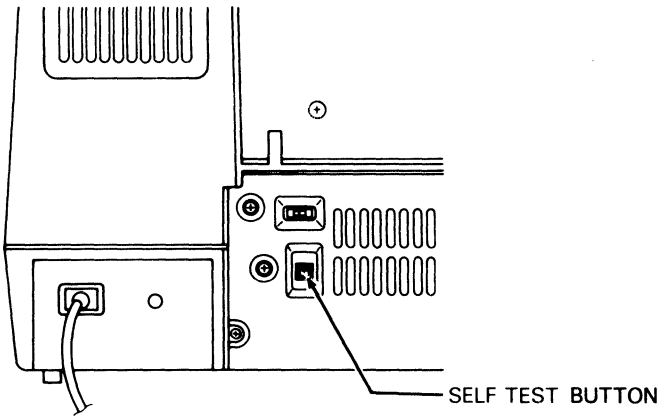
Printing a summary sheet provides important information about the printer, such as the current DIP switch settings. A sample of this form is shown in Figure 3-3.

Note: All switch settings are read into the printer's memory when the printer is powered on. Therefore, if you changed any switch settings after powering on, the new settings will not be in the printer's memory and not depicted on the summary sheet.

1 Press the On-Line button/indicator to place the printer in the off-line mode. The indicator light will go out.

2 Press the Self Test button located on the rear of the printer (see Figure 3-2).

Figure 3-2 **Location of the Self Test Button**



PL2154

3 The printer will print a summary sheet (see Figure 3-3). This summary sheet includes the following information:

a The revision level of the printer's firmware.

b The paper size as indicated by the paper size select switch on the back of the printer.

c The total printer memory available to the user and the amount of unused memory at the time the summary sheet was printed. This printer memory is used for such things as storing downloaded fonts (the resident fonts have their own portion of printer

memory) and graphics. For more information about downloading fonts and storing graphics, consult the *AP 9208 Printer Programming Reference Manual.*

d A graphic depiction of the current DIP switch settings with a description of their meanings. DIP switch settings are described in more detail in Section 2.

e The names of the available typefaces, including typefaces that have been downloaded or installed using font cartridges and assigned to the printer for use. For more information about assigning fonts, consult the *AP 9208 Printer Programming Reference Manual.*

f Statistics provided for use by Unisys customer service engineers.

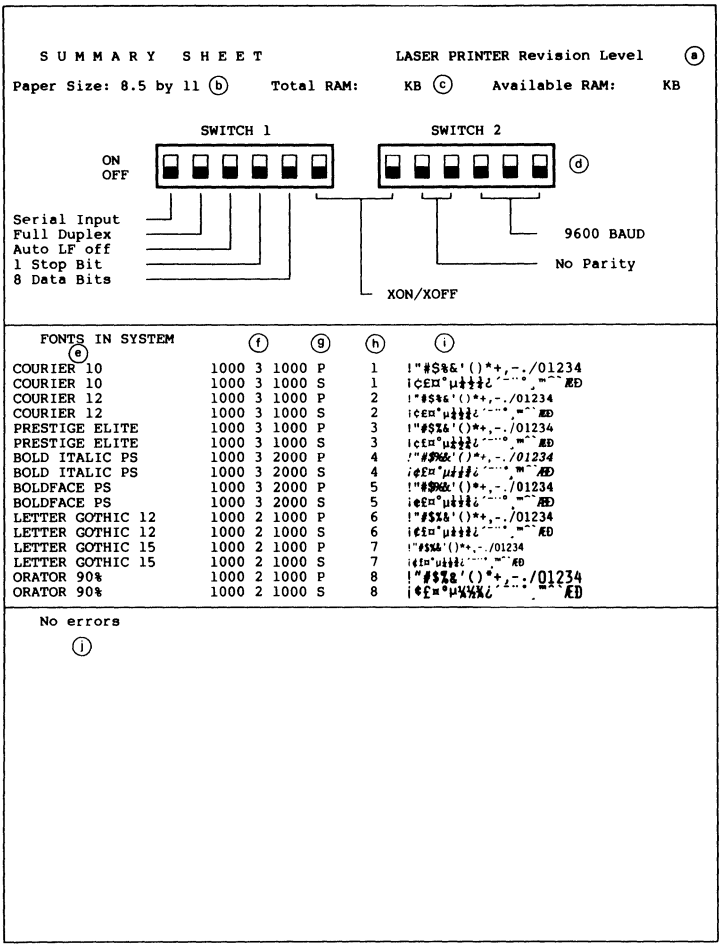
g An indication of whether a typeface is a primary (P) or secondary (S) character set. The primary set usually consists of the standard alphabet in both upper and lower case letters, the numbers 0 through 9, and standard symbols, such as the asterisk (*) and ampersand (&). More unusual symbols, accents, and diacritical marks are in the secondary set.

h The assignment number of each typeface.

i A partial sample of the indicated typeface.

j A list of printer errors, if any.

Figure 3-3 **Sample Test Summary Sheet**



PL2155

4 Press the On-Line button/indicator to return the printer to on-line mode. The indicator light will light.

Selecting the Font

The AP 9208 printer comes with eight typefaces, or fonts, resident in its memory. These resident fonts are shown in Appendix D of this guide. You can add extra fonts to your printer with font cartridges. For more information about font cartridges, consult Appendix E of this guide. To

obtain a list of the fonts currently available on your printer, print a test summary sheet (described earlier in this section).

When you turn your printer on, it defaults to the primary character set of the first resident font, Courier 10. To select a different font, follow the procedure below. For information about using software codes to select fonts, consult the *AP 9208 Printer Programming Reference Manual* or the manual for your application software.

Note: With the following procedure, you can only select a font's primary character set. To select a font's secondary character set, you must use software codes.

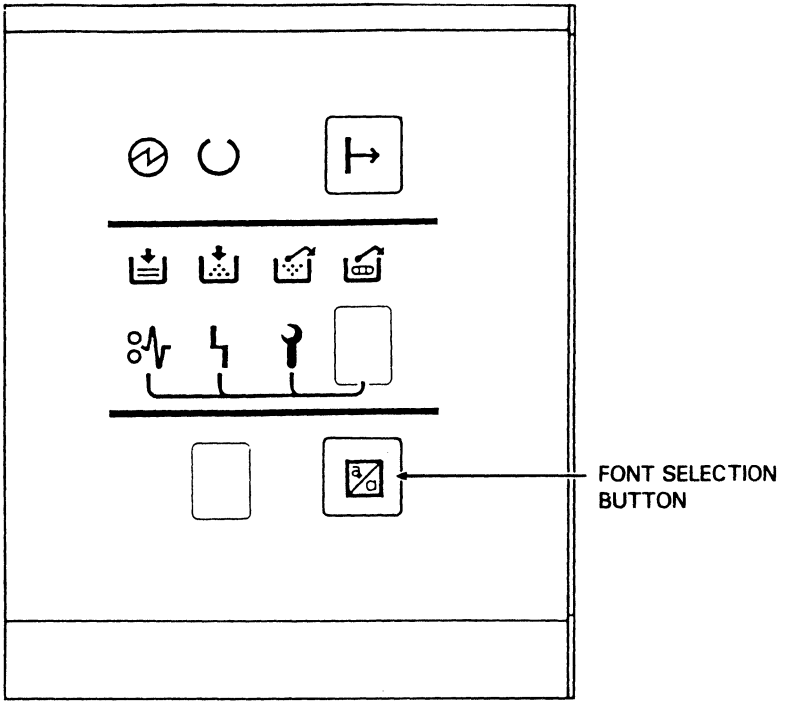
1 Press the On-Line button/indicator to place the printer in the off-line mode. The indicator light will go out.

2 Press the Font Selection button until the alphanumeric character for the font you require is displayed in the Font Selection display panel. Table 3-1 lists resident font selection codes and their corresponding fonts.

Table 3-1 **Resident Font Selection Codes**

Display	Font
1	Courier 10
2	Courier 12
3	Prestige Elite
4	Bold Italic PS
5	Boldface PS
6	Letter Gothic 12
7	Letter Gothic 15
8	Orator 90%

Figure 3-4 **Location of the Font Selection Button**



PL2156

3 Press the On-Line button/indicator to return the printer to on-line mode. The On-line indicator will light.

Using Multiple Fonts in a Single Document

Note: This procedure uses BTOS Secretarial Word Processing (SWP) Release Level 1.4 and a B 20 Series computer configured for use with an "AP92Laser" printer. For more information, consult the *BTOS Secretarial Word Processing Installation, Configuration, and Administration Guide* and the *BTOS Secretarial Word Processing Guide, Volume 2: Formatting Operations*. If you are using a different application software package, consult its manual for information about changing fonts.

1 The AP 9208 printer's resident fonts are already configured for SWP Release Level 1.4. If you are using downloaded fonts or fonts from a font cartridge, configure each font as described in the *BTOS Secretarial Word Processing Installation, Configuration, and Administration Guide*.

Notes:

1 You must enter the font name exactly as it appears on the printer's test summary sheet.

2 Signature and logo fonts should be configured at 10 pitch.

3 The character widths of font cartridge characters are measured in 240ths of an inch. Therefore, when you configure a proportional table for a font, you are able to use the widths as is.

2 Open your document and put the cursor at the point where you want the font to change. If the text you want in a different font is already typed, select the text.

3 At Home Base, press the **Home** (F1) key.

4 Press the **Print** (F2) key.

5 Press the **Wheel** (F5) key.

6 If the font you want is not named on the first screen, type *W* to display more choices. Then, press the number specifying the font.

7 If you selected existing text, the text will now be set for the new font. To verify this:

a Position the cursor in the selected text.

b At Home Base, press the **Attribt** (F10) key.

c Press the **Current** (F5) key.

d A screen will appear listing the attributes of the text where the cursor is positioned. These attributes should include the name of the new font. If not, repeat Steps 2 through 6.

8 If the font you selected is for new text, type the text to be printed in the new font. To return to the original font, repeat Steps 5 and 6.

9 When you are ready to print your document, first insert the required font cartridge(s) and print a test summary sheet (see "Inserting and Removing a Font Cartridge" in Appendix E of this guide). Then send your document to the printer.

Changing the Page Orientation

Your printer can print pages in two page orientations: portrait (lines of type are parallel to the short side of the page) and landscape (lines of type are parallel to the long side of the page). Your printer defaults to one of these orientations each time you turn the power on. If you are

operating in serial mode, the default page orientation is portrait. If you are operating in parallel mode, the default page orientation is set with the printer DIP switches as described in Section 2. To determine the default setting, print a test summary sheet as described earlier in this section.

You can change the default page orientation in one of two ways:

- If you are in parallel mode, you can change the DIP switch setting as described in Section 2.
- You can change the page orientation using software commands. For more information, consult the *AP 9208 Printer Programming Reference Manual* or the manual for your application software.

Changing the page orientation with the DIP switch changes only the print direction, **not** the font rotation. For example, selecting "Landscape" with the DIP switch produces lines of print that are parallel to the long side of the paper; but, unless you rotate the font using software commands, the characters will be sideways in relation to the lines of print. To change both the print direction **and** the font rotation, you must use software commands.

Manual Feeding

If you need to print on a stock other than ordinary paper, such as gummed labels or transparencies, you should manually feed such items into the printer.

1. Open the paper tray cover.
2. Insert one sheet of the special stock into the paper tray as far as it will go. Make sure that the special stock sheet rests on top of any other paper in the tray, that the top of the sheet faces into the printer, and the side to be printed faces up.
3. Close the paper tray cover.
4. From the host computer, command the printer to print one page only.

Maintaining Your Printer

This section describes the procedures necessary to maintain the highest print quality from your AP 9208 printer, as well as instructions for relocating your printer. These procedures include:

- Cleaning your printer.
- Adding paper.
- Replacing the toner collection bottle.
- Replacing the toner cartridge and cleaning pad.
- Replacing the OPC cartridge, shield glass, charge corona unit, and transfer corona unit.
- Cleaning the quenching lamp.
- Cleaning the separation pawls.
- Replacing the ozone filter.
- Replacing the separation and feed rollers.
- Moving your printer.

The AP 9208 indicator panel has several indicators to warn you when most of the maintenance procedures need to occur. Table 4-1 shows the indicator or other signal and the associated procedure(s).

Table 4-1 **Maintenance Schedule**

Indicator/ Other Signal	**Meaning**	**Procedure(s)**
	Paper tray is empty.	Add paper.
	Toner collection bottle is full.	Replace toner collection bottle.
	Toner level is low.	Replace toner cartridge. Replace cleaning pad.
	OPC cartridge needs to be replaced.	Replace OPC cartridge. Replace shield glass. Replace charge corona unit. Replace transfer corona unit. Clean quenching lamp. Clean separation pawls. Replace ozone filter.
150,000 pages		Replace separation and feed rollers.

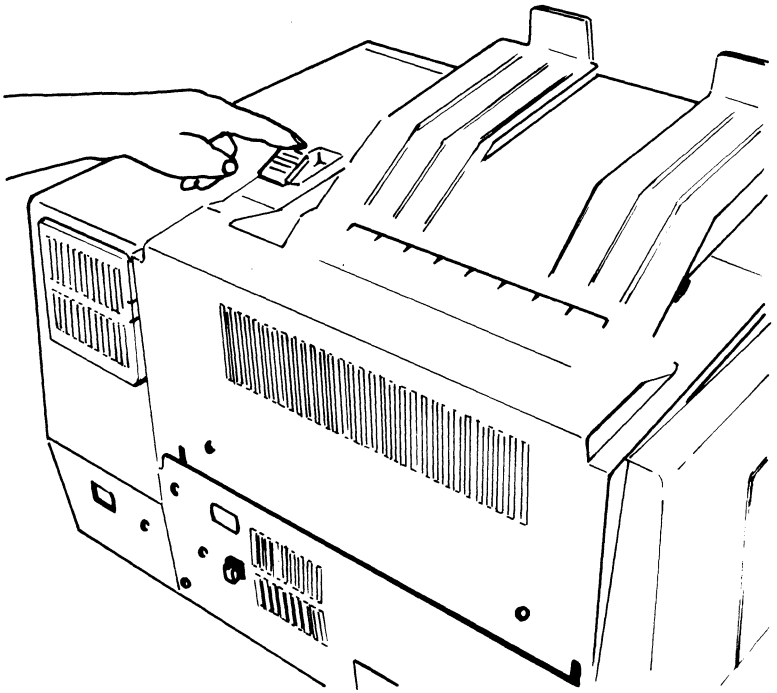
Cleaning Your Printer

You should not clean the interior of the printer beyond performing the maintenance procedures given in this section.

Clean the exterior of your printer on an "as needed" basis. Clean the paper tray and printer cover with a mild detergent or spray cleaner made for use on hard plastic. To clean the exit rollers, open the exit cover with the release lever and close it again. This will cause the rollers to turn. Then, hold a soft, damp cloth against the rollers while they are turning.

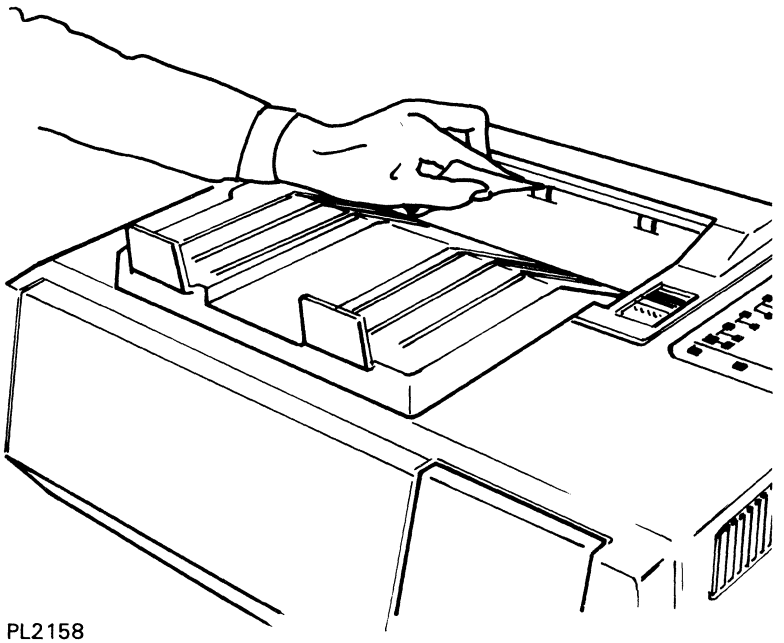
Caution: Do not spill or drip any cleaning fluids into the printer.

Figure 4-1 **Opening the Exit Cover**



PL2157

Figure 4-2 **Cleaning the Exit Rollers**



PL2158

Adding Paper

When adding paper to the paper tray,

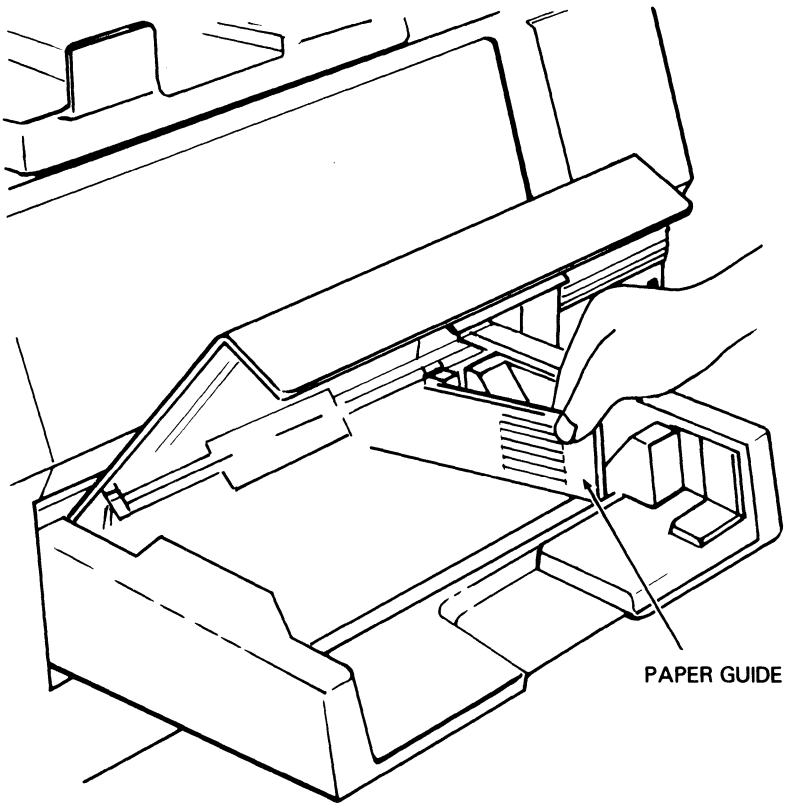
- Do not turn off the printer. If you turn off the printer, any data stored in the printer's memory that has not yet printed will be lost.
- Make sure the setting of the paper size select switch is the same as the paper size (8 1/2 by 11 or A4).
- Do not add paper above the limit line.
- Load the paper with the printing surface facing up and the top of the paper pointing into the printer.
- You can print on the back side of paper that has already gone through the printer.

1 Open the paper tray cover.

2 If the paper size is to be changed, do the following:

a Move the paper guide in the paper tray to the position corresponding to the desired size (8 1/2 by 11 or A4).

Figure 4-3 **Adjusting the Paper Tray Guide**



PL2148

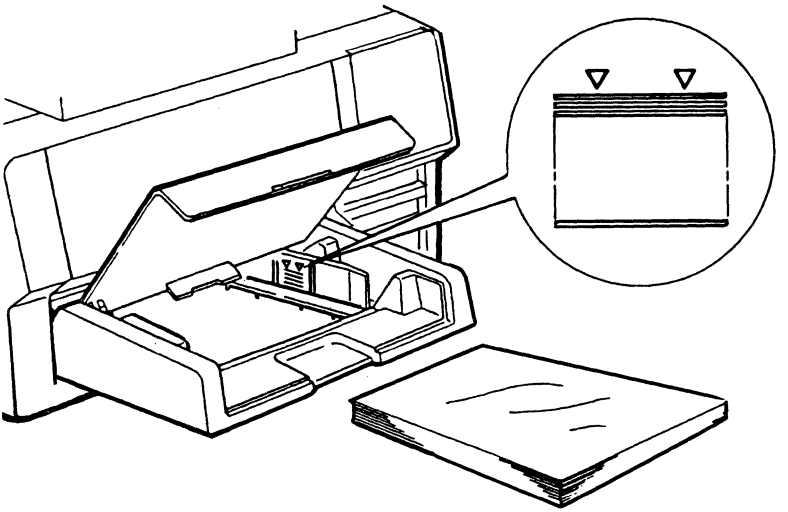
b Set the printer power switch to OFF (O).

c Change the position of the paper size select switch on the rear of the printer to correspond with the new paper size.

d Set the printer power switch to ON (I) to read the new paper size select switch setting into the printer's memory.

3 Place the paper into the tray as far as it can go. Up to 250 sheets of 20 lb paper can be loaded at one time.

Figure 4-4 **Adding Paper to the Paper Tray**



PL2150

4 Close the paper tray cover.

Replacing the Toner Collection Bottle

When the Replace Toner Collection Bottle indicator flashes, replace the used (filled) toner collection bottle. A replacement toner collection bottle is in Kit A. (Refer to Appendix C for a description of the supply kits and the items they contain.) The bottle will need to be replaced approximately every 6,000 pages.

Notes:

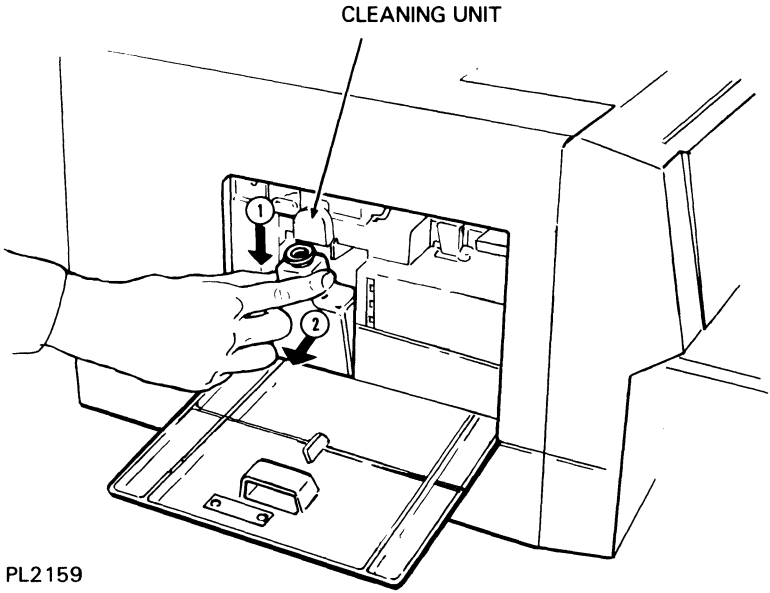
1 Concurrent illustrated instructions for replacing the toner collection bottle are displayed on the inside of the left side cover.

2 It is not necessary to set the power switch to OFF while performing this procedure.

1 Open the left side cover.

2 Press down on the toner collection bottle and carefully remove it.

Figure 4-5 **Removing the Toner Collection Bottle**



3 Cap the removed bottle with the cap in the supply kit.

4 Install the replacement toner collection bottle by pressing down on the bottle and pushing it in toward the printer. Make sure the neck of the bottle lines up with the cleaning unit spigot.

5 Close the left side cover.

6 Dispose of the removed bottle as noncombustible waste.

Caution: Do not reuse the toner in the bottle. The used toner contains paper lint and other impurities that could damage your printer.

Replacing the Toner Cartridge

When the Change Toner Cartridge indicator flashes, there is insufficient toner for proper printing. If you are in the middle of printing a document, you can complete printing, if you like, to avoid the loss of data. Then, replace the toner cartridge with a new cartridge from Kit A. (Refer to Appendix C for a description of the supply kits and the

items they contain.) The toner cartridge will need to be replaced approximately every 3,000 pages.

Warning: Disconnect the power cord before performing this procedure.

Caution: The following procedure exposes the OPC cartridge to light and so must be accomplished within five minutes. If the OPC cartridge is exposed to light for more than five minutes, the OPC belt will deteriorate, affecting print quality.

Notes:

1 Review the illustrations and instructions for replacing the toner cartridge before starting. If you are interrupted while performing this procedure, slide the development drawer back into place and leave it closed until you are ready to resume.

2 Concurrent illustrated instructions for changing the toner cartridge are located on the top of and inside the toner cartridge cover.

1 Remove one of the toner cartridges from Kit A and shake it vigorously twenty or more times to loosen the toner.

2 With the paper tray in position, pull out the development drawer.

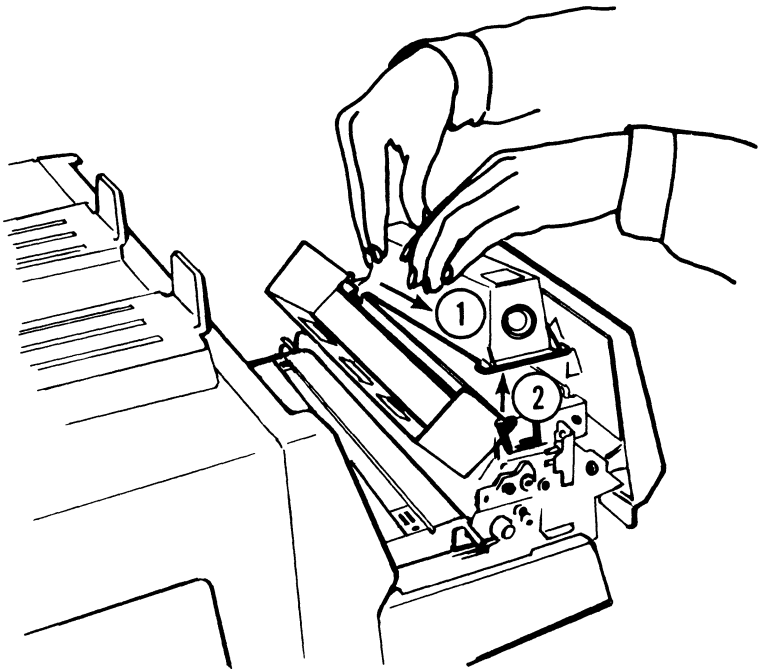
3 Open the toner cartridge cover.

4 Remove the empty toner cartridge as follows:

   a Slide the toner cartridge to the left until the projections on the cartridge are clear of the notches on the tank.

   b Lift the empty toner cartridge out of the development drawer and discard it.

Figure 4-6 **Removing the Toner Cartridge**

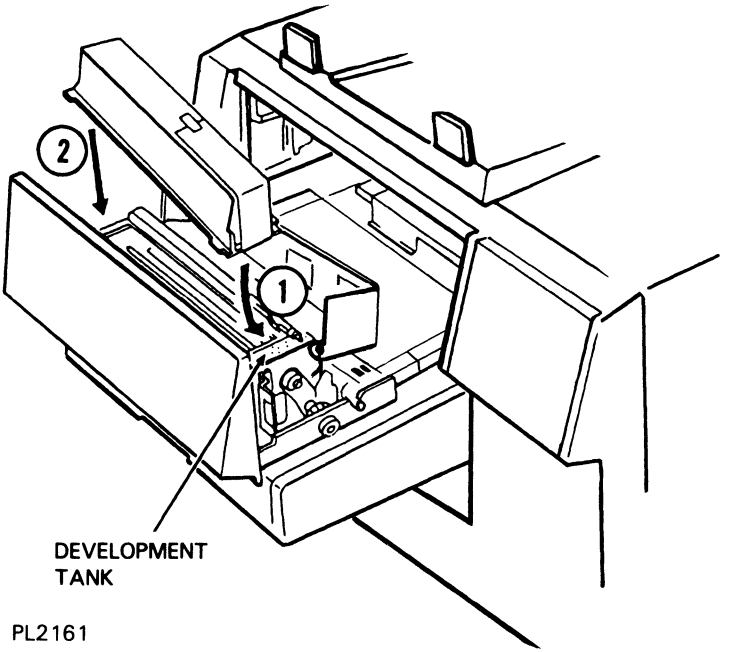


PL2160

5 Hold the toner cartridge so the seal is on the right and the plastic plug is on the left. Align the projections on the cartridge with the notches on the development tank.

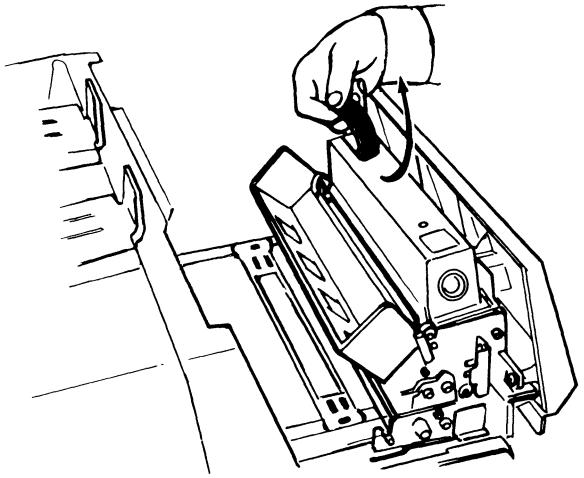
6 Set the toner cartridge on the development tank and insert the projections on the cartridge into the notches on the development tank. Slide the cartridge to the right to secure it on the tank.

Figure 4-7 **Installing the Toner Cartridge**



7 Peel down the end of the toner cartridge seal.

Figure 4-8 **Peeling the Toner Cartridge Seal**

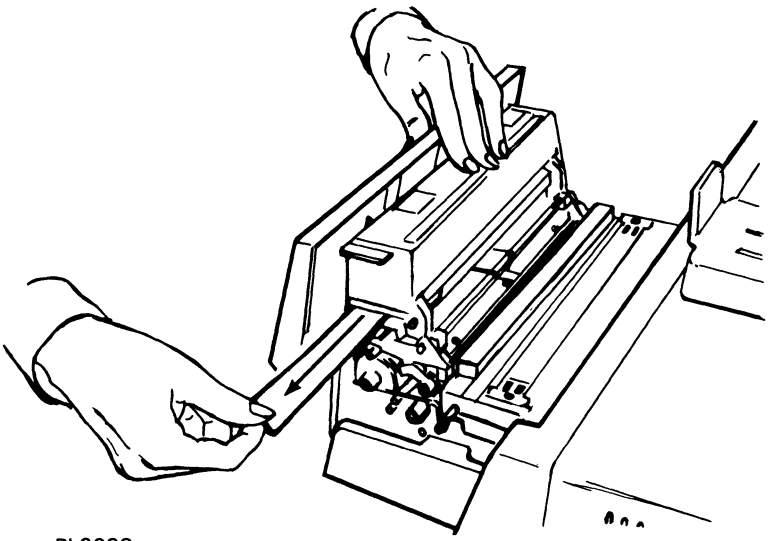


PL2247

8 Close the toner cartridge cover.

9 Press down gently on the toner cartridge cover with one hand and pull the seal horizontally until a green tab becomes visible.

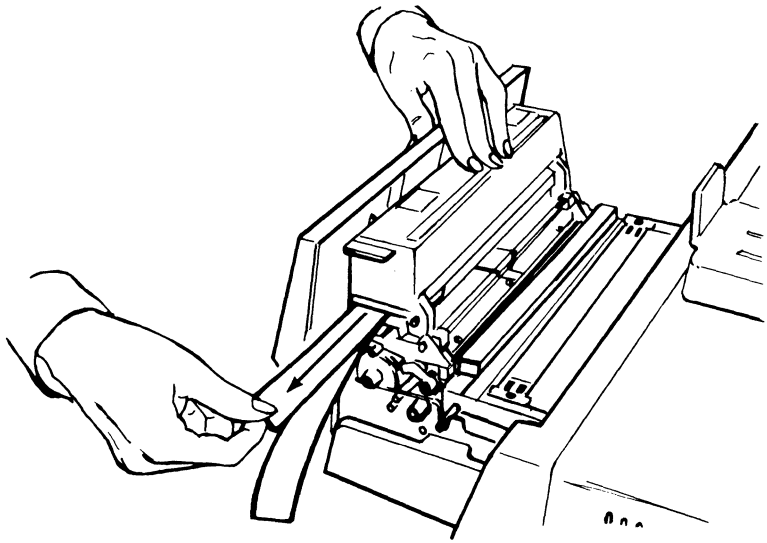
Figure 4-9 **Pulling the Seal**



PL2098

10 Hold the green tab and pull the seal further until it is out completely. Then peel off the tab.

Figure 4-10 **Pulling Out the Green Tab**



PL2337

11 Slide the development drawer back to its operating (closed) position.

Replacing the Cleaning Pad

When the Change Toner Cartridge indicator flashes, in addition to the toner cartridge, the cleaning pad needs to be replaced. A new cleaning pad is in Kit A. (Refer to Appendix C for a list of printer supplies.)

Warning: Disconnect the power cord before performing this procedure. To avoid burns, wait at least 40 minutes until the printer is completely cooled before touching the fusing unit. Touch only the green colored areas.

Caution: The following procedure exposes the OPC cartridge to light and so must be accomplished within five minutes. If the OPC cartridge is exposed to light for more than five minutes, the OPC belt will deteriorate, affecting print quality.

Notes:

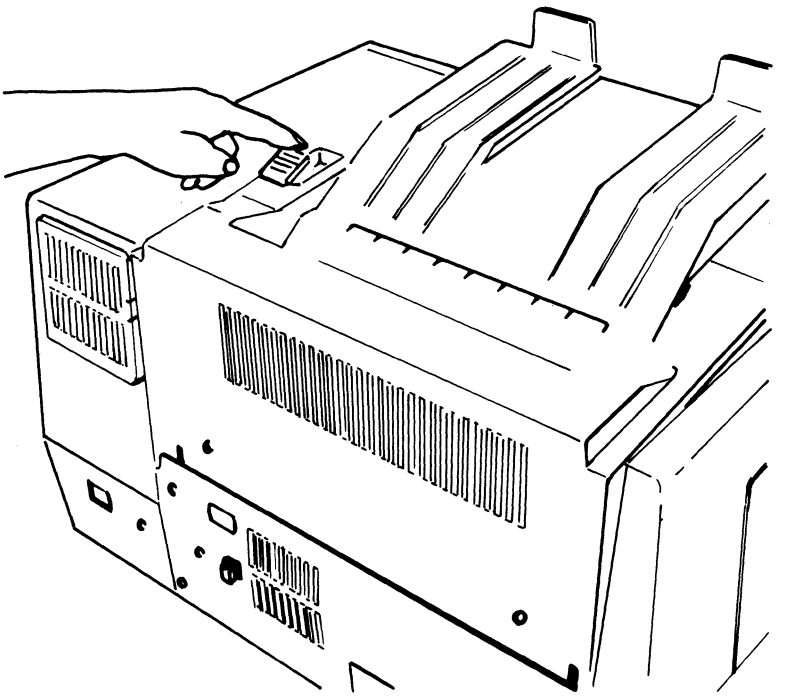
1 Review the illustrations and instructions for replacing the cleaning pad before starting. If you are interrupted while performing this procedure, close the fusing unit until you are ready to resume.

2 Concurrent illustrated instructions for replacing the cleaning pad are displayed under the exit cover.

1 Make sure the printer power switch is positioned to OFF (O) and the power cord is disconnected from the power outlet. Also make sure the printer is sufficiently cooled.

2 Lift the release lever and open the exit cover.

Figure 4-11 **Unlocking the Exit Cover**



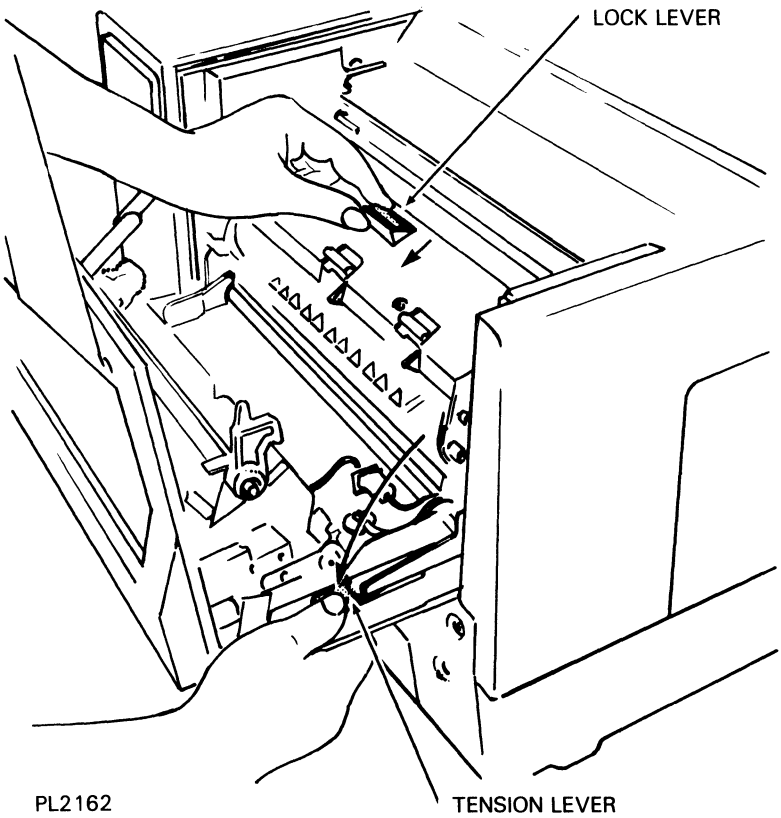
PL2157

3 Unlock the fusing unit as follows:

a Push down on the tension lever (if your printer is so equipped) and, at the same time, push back on the fusing lock lever.

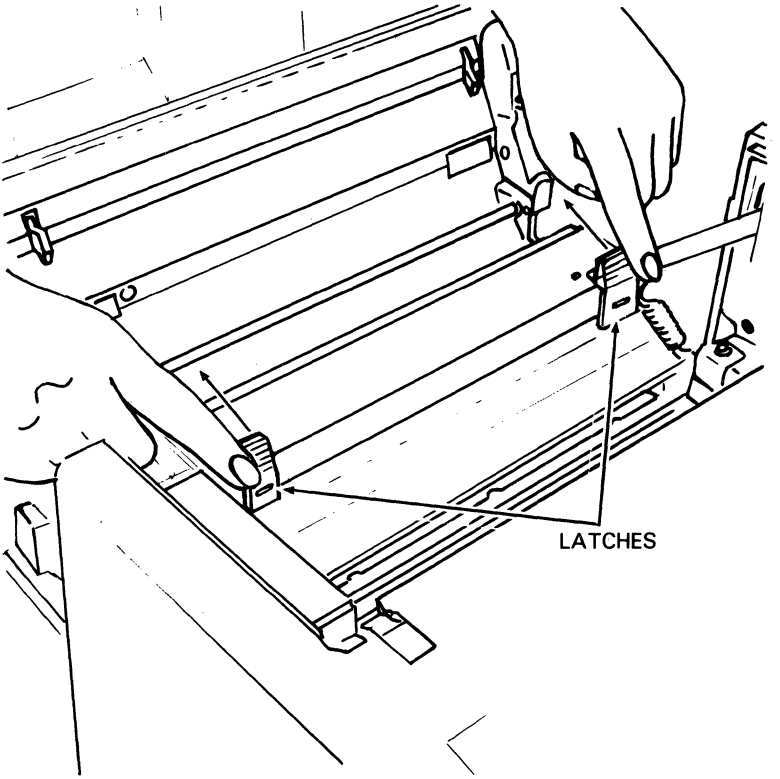
b Swing the fusing unit out toward the exit cover.

Figure 4-12 **Unlocking the Fusing Unit**



4 Push back on the two ridged latches to the left and right of the fusing unit cover and swing the cover toward the exit cover.

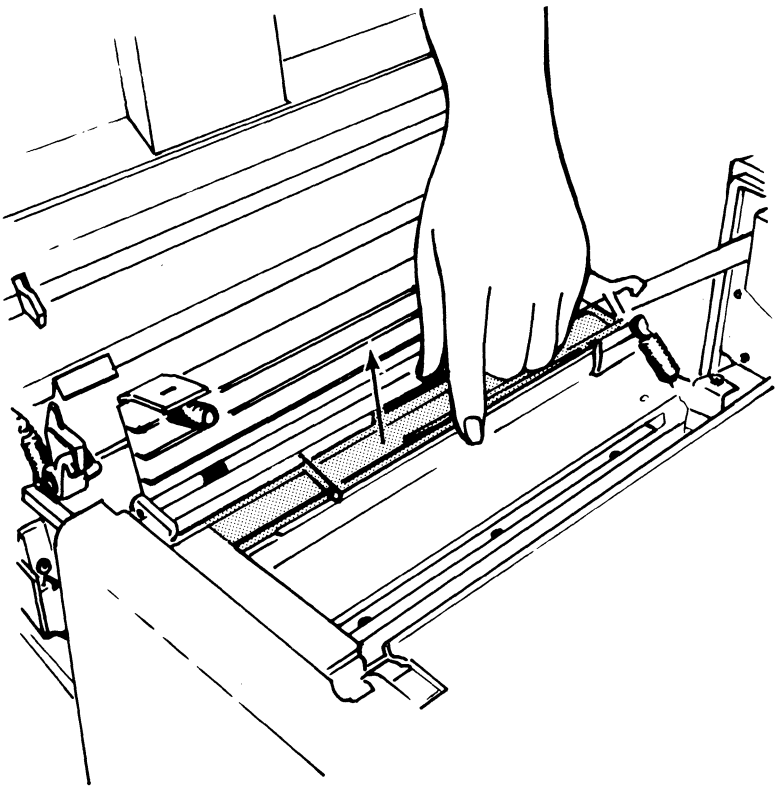
Figure 4-13 **Opening the Fusing Unit Cover**



PL2163

5 Grip the raised edges of the cleaning pad and lift the pad up and out. Underneath the cleaning pad in the fusing unit you will see the fusing unit roller.

Figure 4-14 **Removing the Cleaning Pad**



PL2164

Warning: To avoid burns, do not attempt to clean the fusing unit roller until the printer has been off at least 40 minutes and is completely cooled.

6 If you notice an accumulation of paper lint and/or excess toner on the fusing unit roller, wipe the residue from the roller with a soft, clean, dry cloth.

7 Remove a new cleaning pad from Kit A and place it in the fusing unit with the pad facing down on the roller.

8 Close the fusing unit cover by pressing down on the two ridged latches until the cover clicks into place.

9 Lock the fusing unit by pulling forward on the locking lever until the unit clicks into place.

10 Close the exit cover by pushing it forward until it clicks into place.

Replacing the OPC Cartridge

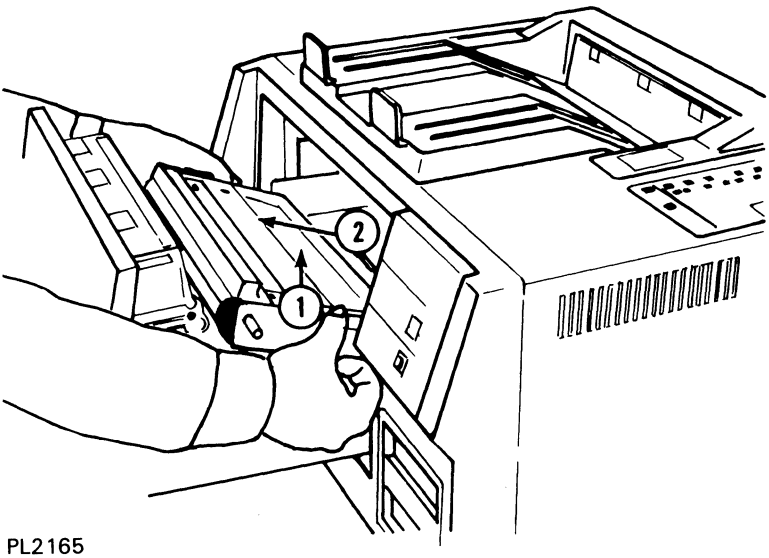
When the Change OPC Cartridge indicator flashes, replace the OPC cartridge and clean or replace the following parts: the shield glass, charge corona unit, transfer corona unit, quenching lamp, separation pawls, and ozone filter. These procedures will need to be done approximately every 10,000 pages.

All new parts required for these procedures are in Kits B or C. (Refer to Appendix C for a description of the supply kits and the items they contain.) The instruction label under the exit cover will tell you which kit to use with your printer.

Warning: Disconnect the power cord before performing this procedure.

1 With the paper tray in position, pull out the development drawer until it stops.
2 Grip the green colored areas on both sides of the OPC cartridge.
3 Tilt the front side of the OPC cartridge up and lift it out of the development drawer.

Figure 4-15 **Removing the Old OPC Cartridge**



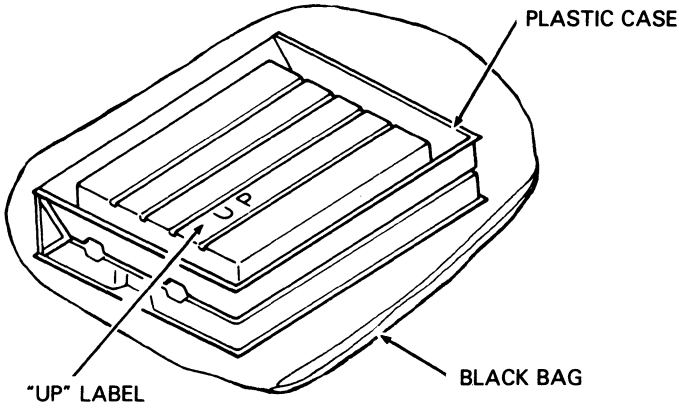
PL2165

Caution: The remainder of this procedure (Steps 4 through 10) must be accomplished within five minutes. If the OPC cartridge is exposed to light for more than five minutes, the OPC belt will deteriorate, affecting print quality.

Note: Review the illustrations and instructions for replacing the OPC cartridge before starting Step 4. If you are interrupted while performing the remainder of this procedure, place the OPC cartridge back in its plastic case and then into the black vinyl bag. Close the bag until you are ready to resume.

4 Remove the black vinyl OPC cartridge bag from the supply kit, open the bag, take out the plastic case containing the OPC cartridge, and set the case on a flat surface with the side labeled "UP" facing up.

Figure 4-16 **Packing of the OPC Cartridge**



PL2145

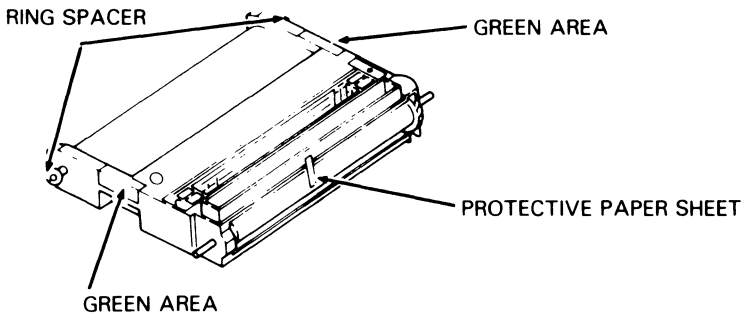
5 Remove the securing tape and open the plastic case.

Caution: When handling the OPC cartridge, touch only the green areas. Be careful not to touch the surface of the belt itself. Touching the belt could affect the print quality.

6 Remove the two green, ring-shaped spacers from the forward shaft of the cartridge.

7 Remove the protective sheet from the cartridge, gripping only the securing tape.

Figure 4-17 **Handling the OPC Cartridge**



PL2146

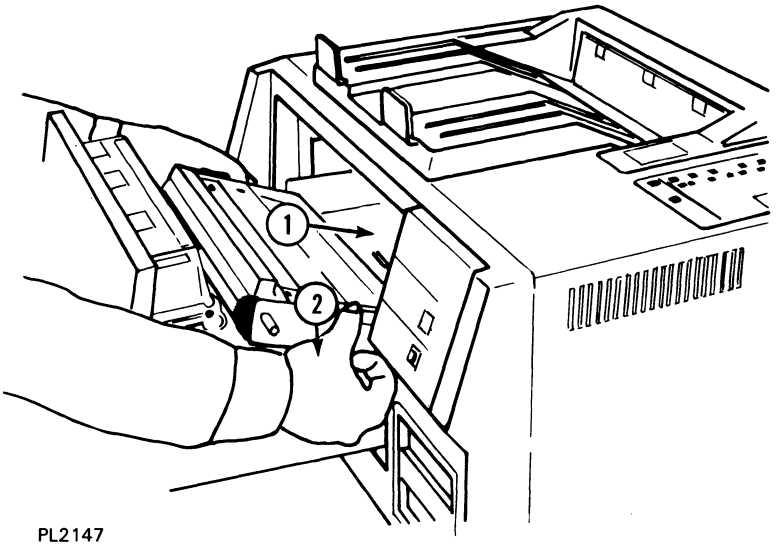
8 Grip the green area on each side of the OPC cartridge and lift the cartridge from the plastic box. The ridged side of the cartridge should be facing down.

9 Insert the OPC cartridge into the development drawer as follows:

a Tilt the rounded side of the OPC cartridge (opposite the gears) down into the drawer.

b Push down gently on the OPC cartridge so the rear two metal shafts settle into the U-shaped brackets.

Figure 4-18 **Inserting the OPC Cartridge**



10 Slide the development drawer back to its operating (closed) position.

Replacing the Shield Glass

Note: In some machines, this unit is called a shield lens.

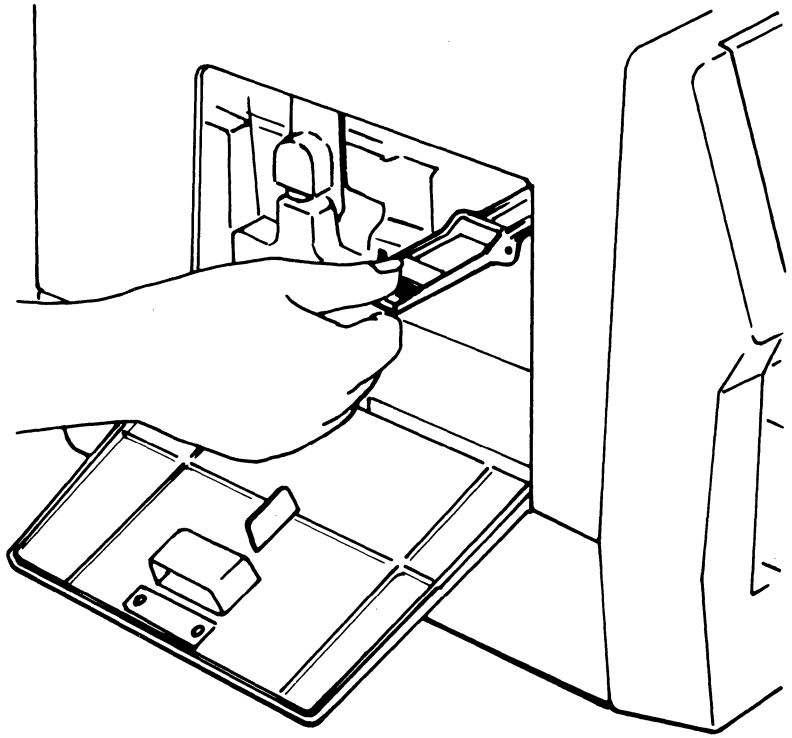
Warning: Disconnect the power cord before performing this procedure.

1 Open the left side cover.

2 Grip the shield glass by the green, ridged end (with arrow) and slide it out from the printer.

3 Remove the new shield glass from the supply kit, hold the glass by the green ridged end with the arrow facing up, and slide the glass into the printer as far as possible until the glass is securely in place.

Figure 4-19 **Replacing the Shield Glass**



PL2166

Replacing the Charge Corona Unit

Warning: Disconnect the power cord before performing this procedure.

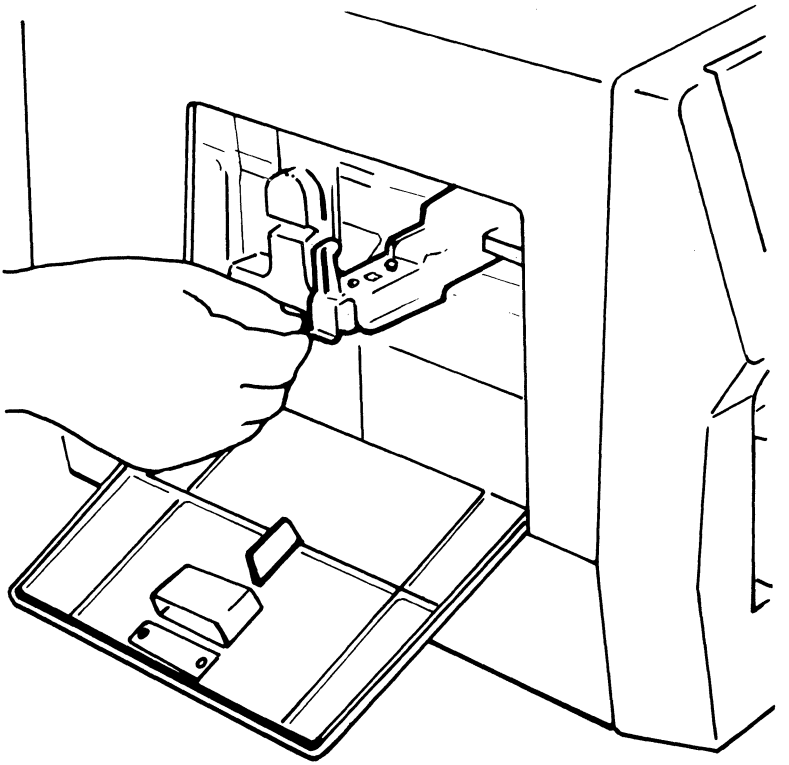
Note: The charge and transfer corona units are identical, interchangeable parts.

1 Grip the green, ridged tab of the charge corona unit, located to the left of the shield glass, and slide the unit from the printer.

2 Hold the end tab of the new charge corona unit and slide it into the printer as far as possible until it clicks.

Caution: Insert this unit firmly. When installation of the unit is faulty, print quality may be poor.

Figure 4-20 **Replacing the Charge Corona Unit**



PL2167

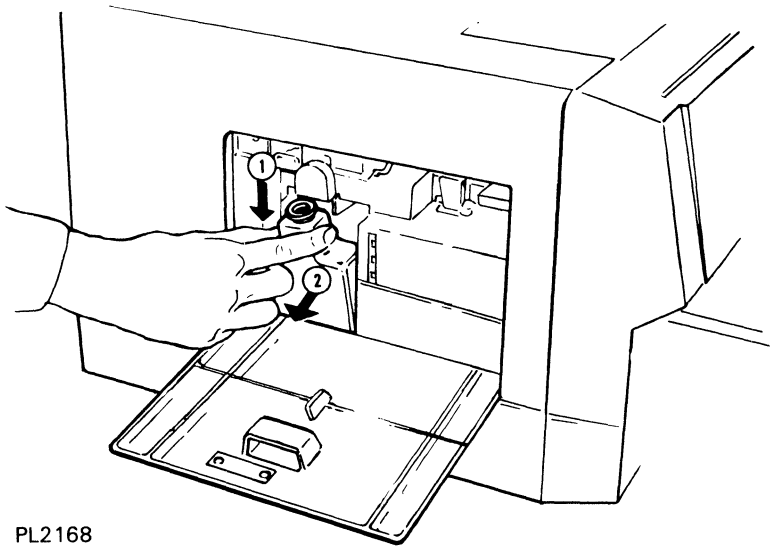
Replacing the Transfer Corona Unit

Warning: Disconnect the power cord before performing this procedure.

Note: The charge and transfer corona units are identical, interchangeable parts.

1 Carefully remove the toner collection bottle from the printer.

Figure 4-21 **Removing the Toner Collection Bottle**

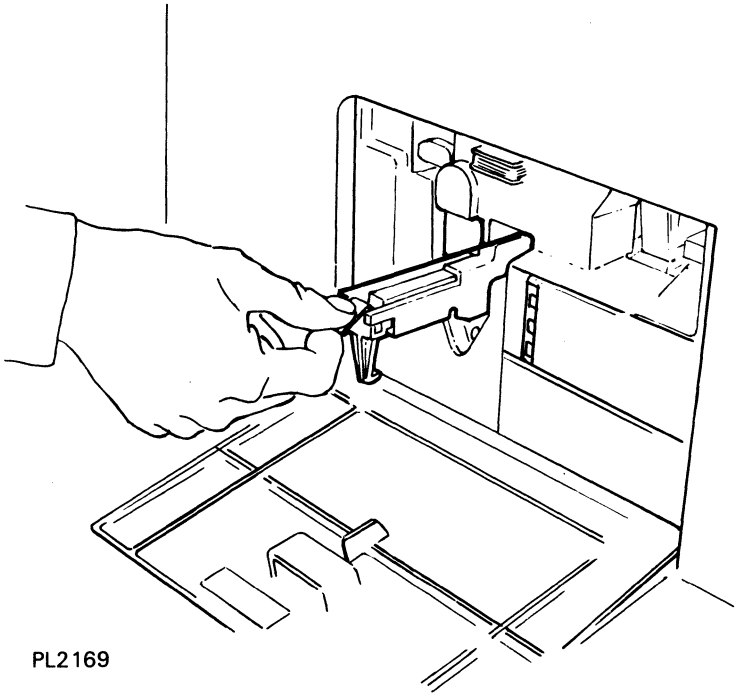


2 Grip the green, ridged tab of the transfer corona unit, located in the toner collection bottle recess, and slide the unit from the printer.

3 Hold the end tab of the new transfer corona unit and slide it into the printer as far as possible until it clicks.

Caution: Insert this unit firmly. When installation of the unit is faulty, print quality may be poor.

Figure 4-22 **Replacing the Transfer Corona Unit**



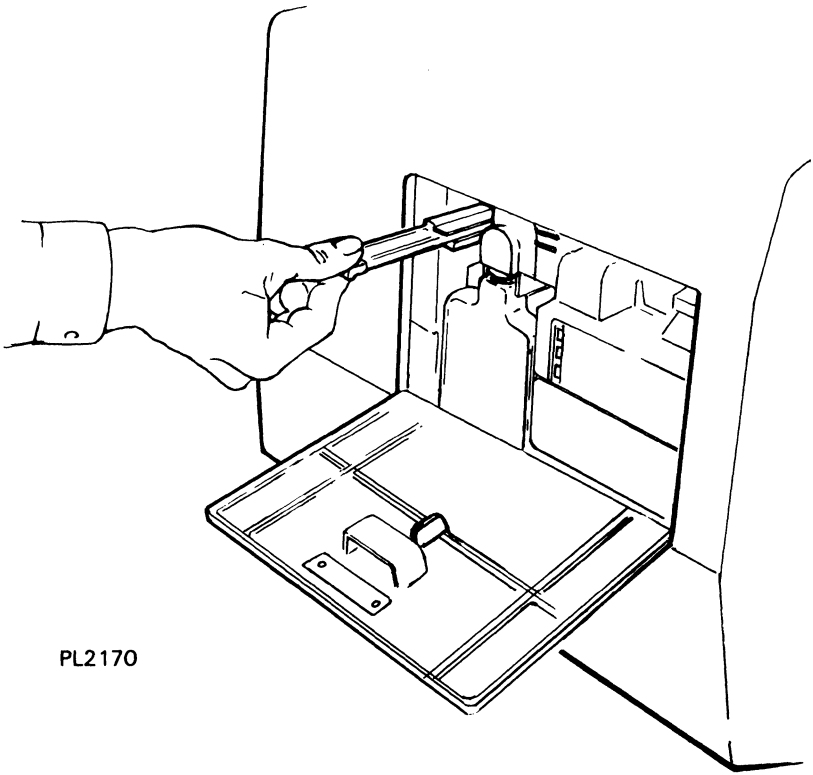
4 Replace the toner collection bottle, making sure the neck of the bottle lines up with the cleaning unit spigot.

Cleaning the Quenching Lamp

Warning: Disconnect the power cord before performing this procedure.

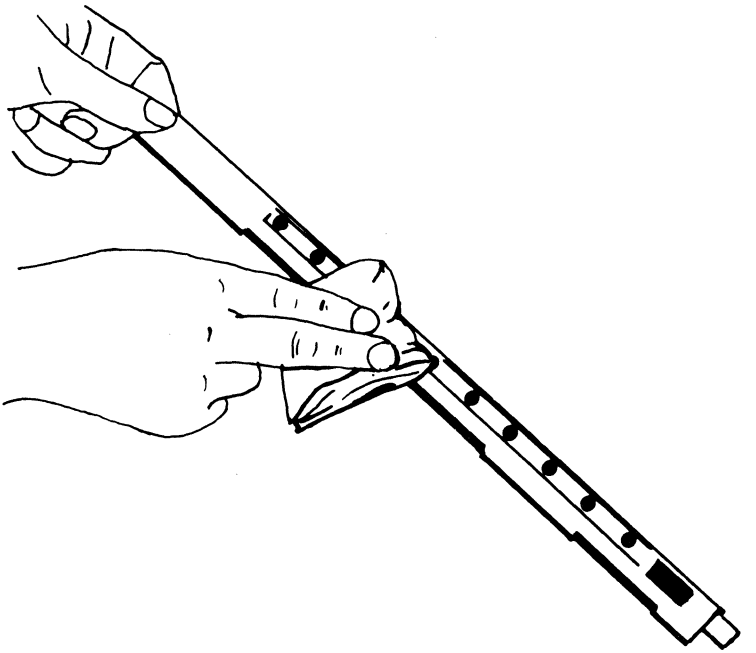
1 Grip the green end tab of the quenching lamp, located just left of the toner collection bottle, and slide the lamp out of the printer.

Figure 4-23 **Removing the Quenching Lamp**



2 Wipe the clear, plastic surface of the quenching lamp cover with a damp cloth. If toner has fused to the surface of the quenching lamp, clean the surface with a cloth dampened with isopropyl alcohol.

Figure 4-24 **Cleaning the Quenching Lamp**



PL1303

3 Slide the quenching lamp back into the printer as far as possible.

4 Close the left side cover.

Cleaning the Separation Pawls

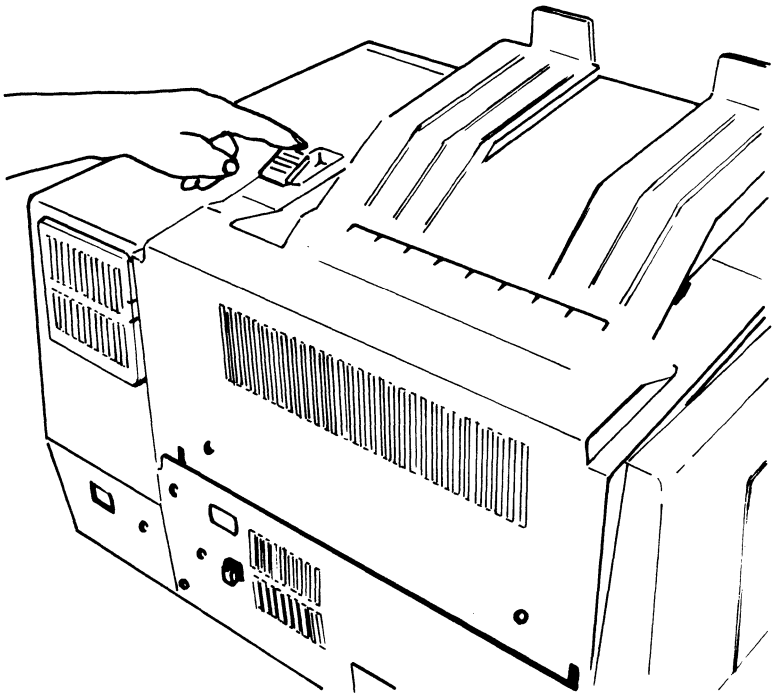
Warning: Disconnect the power cord before performing this procedure. To avoid burns, wait at least 40 minutes until the printer is completely cooled before touching the fusing unit. Touch only the green colored areas.

Note: Concurrent illustrated instructions for cleaning the separation pawls are displayed under the exit cover.

1 Make sure the printer power switch is positioned to OFF (O) and the power cord is disconnected from the power outlet. Also make sure the printer is sufficiently cooled.

2 Lift the release lever and open the exit cover.

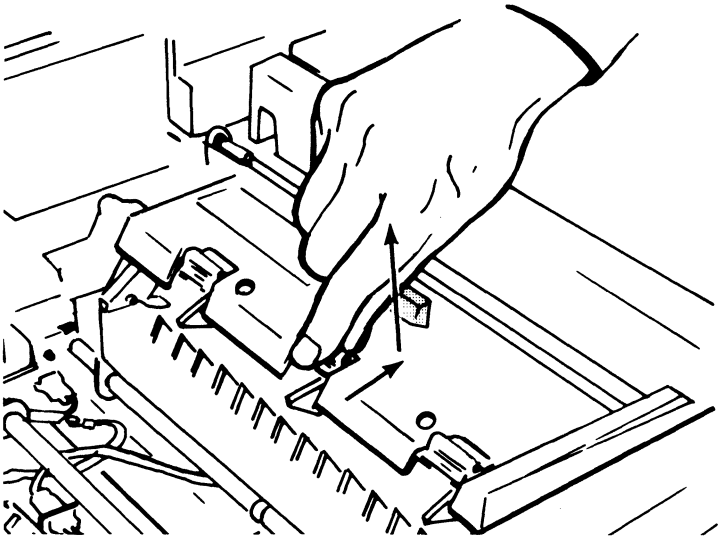
Figure 4-25 **Unlocking the Exit Cover**



PL2157

3 Remove the three separation pawls by gripping the raised edge of the pawl, pushing in the direction of the arrow (see Figure 4-26), and lifting the pawl out.

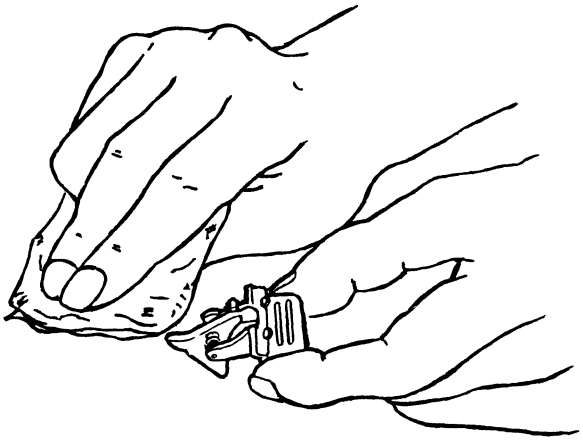
Figure 4-26 **Removing the Separation Pawls**



PL1812

4 Wipe each pawl clean with a soft, lint-free cloth or tissue paper.

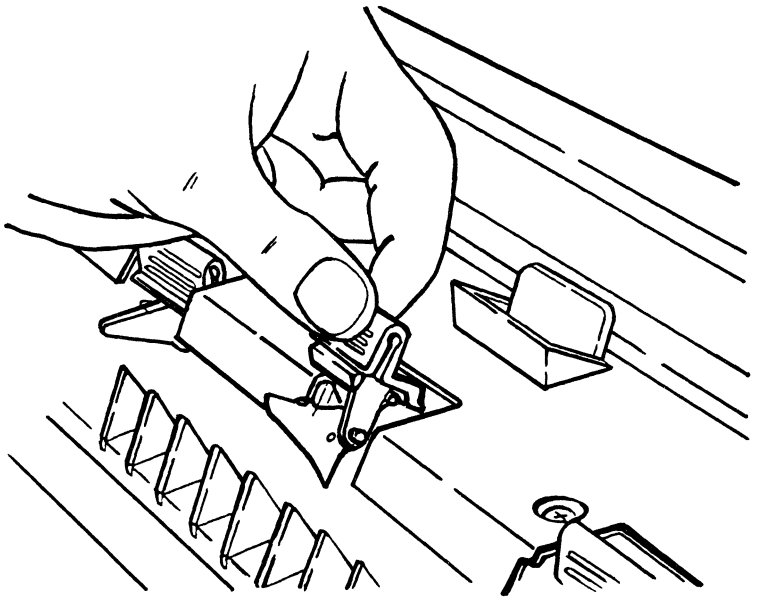
Figure 4-27 **Cleaning the Separation Pawls**



PL1769

5 Reinsert the three separation pawls by pressing them down into their slots until they lock into place.

Figure 4-28 **Reinserting the Separation Pawls**



PL1770

6 Close the exit cover.

Replacing the Ozone Filter

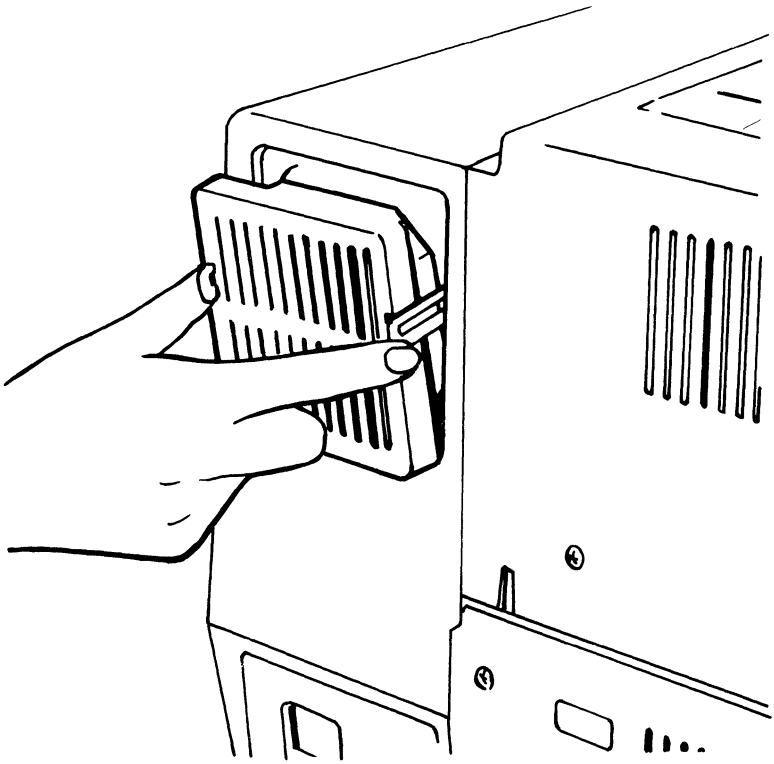
Notes:

1 Some versions of the printer have an internal ozone filter instead of the external filter shown in Figure 4-29. The internal filter is designed to last for the life of the printer.

2 The ozone filter is not marked with green handling areas.

1 Locate the ozone filter on the rear of the printer. Grip the raised clips on both sides of the filter, push in on the clips, and pull the filter out.

Figure 4-29 **Removing the Ozone Filter**



PL2171

2 Grip the clips of the new ozone filter and insert the filter into the printer until the clips lock into place.

Replacing the Separation and Feed Rollers

When the total sheet counter indicates that 150,000 pages have been printed, replace the separation and feed rollers.

Notes:

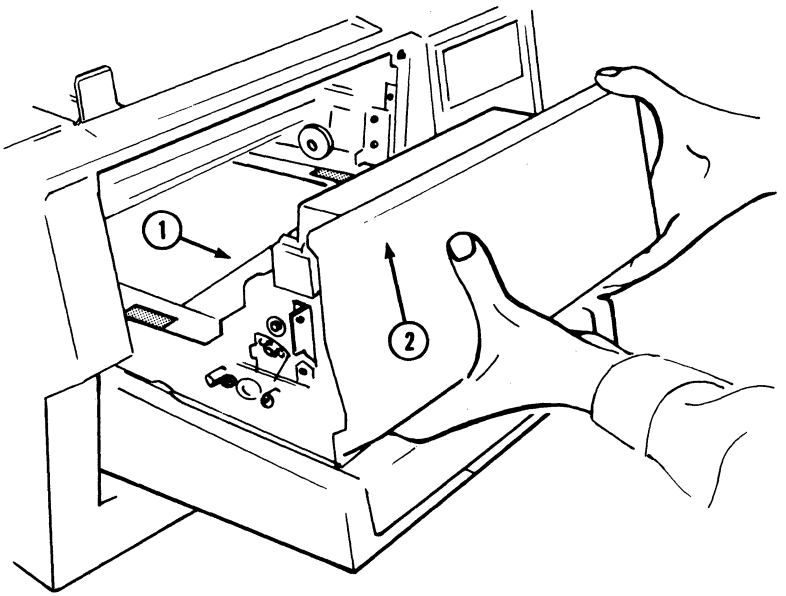
1 Before performing this procedure, contact your local Unisys sales representative to order replacement separation and feed rollers.

2 If you have a maintenace agreement, the cost of the rollers will be covered by the agreement, and, if you prefer, a Unisys customer service engineer will perform this operation for you.

1 Check the total sheet counter on the left side of the printer to verify the total sheet count has reached 150,000 pages.

2 Slide the development drawer out, then lift it and remove it completely from the printer.

Figure 4-30 **Removing the Development Drawer**



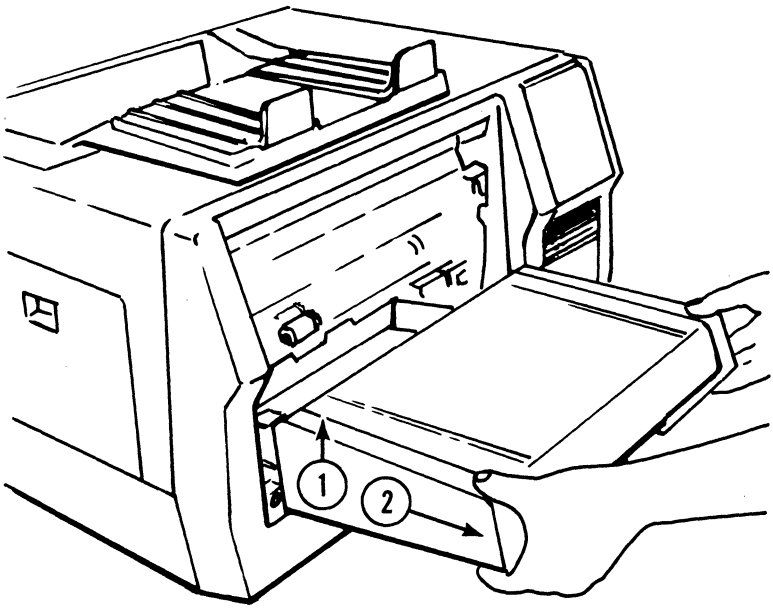
PL2172

3 Set the development drawer to one side out of direct light.

Caution: If the OPC cartridge is exposed to light for more than five minutes, the OPC belt will deteriorate, affecting print quality. Cover the OPC cartridge in the development drawer with two or three sheets of paper to protect the cartridge from overexposure.

4 Remove the paper tray by lifting up on the front end and pulling the tray out of the printer.

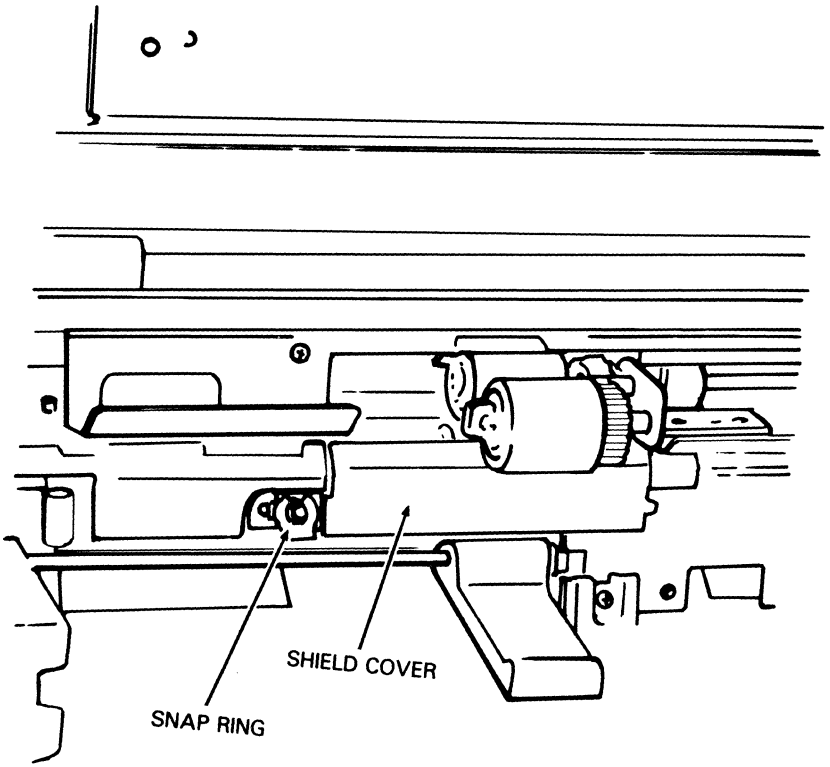
Figure 4-31 **Removing the Paper Tray**



PL2173

5 Remove the plastic snap ring securing the shield cover.

Figure 4-32 **Location of the Snap Ring and Shield Cover**

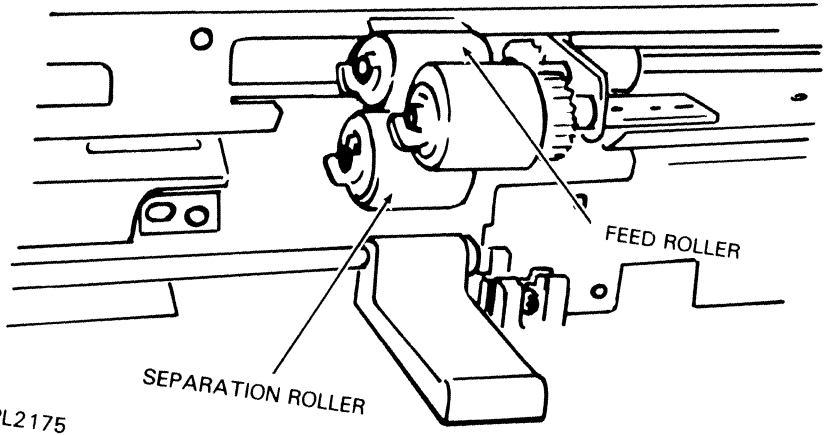


PL2174

6 Remove the shield cover by lifting the left end off the post and sliding the cover to the left.

7 Remove the plastic snap ring on the separation roller shaft. (The separation roller is the lowest roller of the three.)

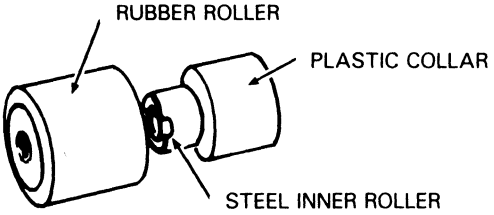
Figure 4-33 **Location of the Separation and Feed Rollers**



PL2175

8 Slide the separation roller assembly to the left and remove it from the shaft. The roller assembly consists of two parts: a steel inner roller (with coil) covered by a white, plastic collar; and the rubber roller.

Figure 4-34 **Separation Roller Assembly**



PL2176

9 Replace the feed roller as follows:

- **a** Remove the plastic snap ring from the feed roller shaft. (The feed roller is the upper rear roller in the set of three. See Figure 4-33.)
- **b** Slide the feed roller to the left and off the shaft.
- **c** Slide the replacement feed roller onto the shaft. Make sure the end with the solid white plastic cover is to the left.
- **d** Replace the snap ring on the feed roller shaft.

10 Install a new separation roller assembly as follows:

- **a** Slide the new steel inner roller (with the white cover in place over the coil end) onto the shaft. Make sure the narrow end of the steel inner roller is on the left.
- **b** Make sure the two notches on the steel inner roller fit onto the two pins on the roller shaft.
- **c** Slide the new rubber roller onto the roller shaft, making sure the end of the roller with the larger center hole is to the right, abutting the white cover on the inner roller.
- **d** Rotate the rubber roller until you feel its two teeth (inside) fit into the two notches on the inner roller.
- **e** Push the snap rings onto the separation roller shafts. Make sure the snap rings lock in place.

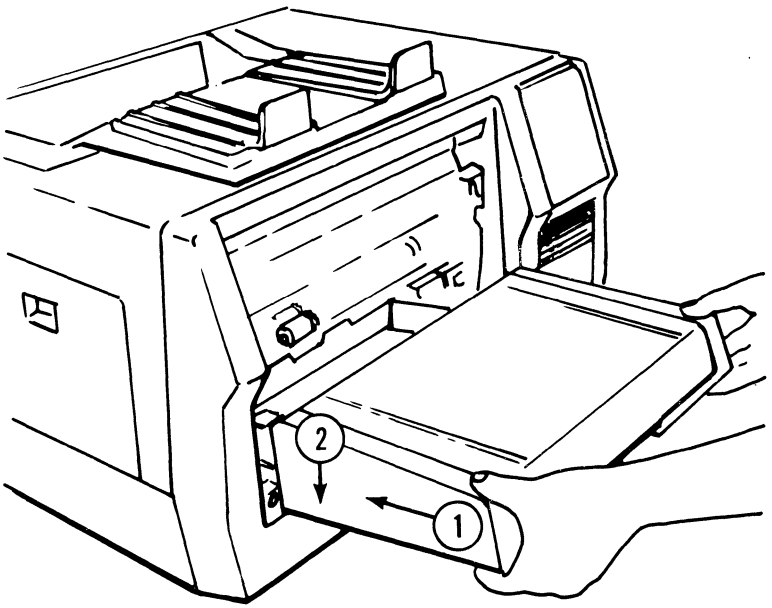
11 Replace the shield cover as follows:

a Insert the right end tab of the cover into the hole and position the left end hole of the cover on the post.

b Push the snap ring onto the post. Make sure the snap ring locks in place.

12 Replace the paper tray by matching the tray guides with the grooves on the printer, sliding the tray in, and pushing down on the tray.

Figure 4-35 **Reinserting the Paper Tray**

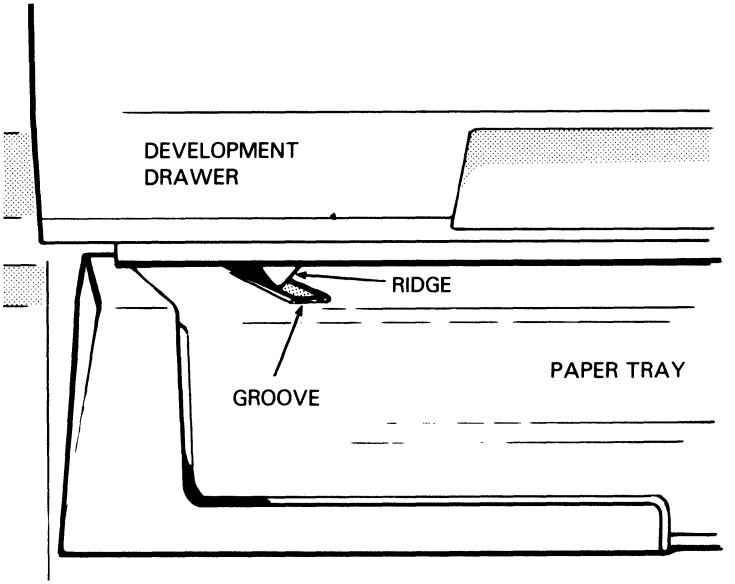


PL2188

13 Remove the paper covering the OPC cartridge.

14 Position the development drawer on the paper tray so the ridges on the drawer fit exactly into the grooves between the rails on the paper tray.

Figure 4-36 **Replacing the Development Drawer**



PL2178

16 Slide the development drawer along the rails back to its operating (closed) position.

Moving Your Printer

To move your printer a short distance (for example, within an office or a building), simply disconnect your printer from its power source and the host computer and transfer it to a cart for moving.

Warning: To avoid injury, two people should lift the printer.

Caution: Do not tilt the printer. Toner from the toner cartridge, development tank, toner collection bottle, or cleaning unit could come in contact with the electrical components in the printer's interior and seriously damage the printer.

If you need to ship your printer, clean it and pack it securely to prevent damage.

1 Remove the OPC cartridge and place it in its plastic storage box and black vinyl bag.

Caution: Remove as much toner from the printer as possible. If toner comes in contact with the electrical components in the printer's interior, the printer can be seriously damaged.

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2 Remove the toner cartridge and empty the toner from the development tank.

3 With a vacuum cleaner, clean the development tank and the area around it.

Warning: Use a vacuum cleaner equipped with a special filter and bag for vacuuming the toner. Because toner is very fine, it cannot be contained by most regular vacuum cleaner bags and filters and may escape into the air. If the toner comes in contact with your vacuum cleaner motor, it can damage the motor and/or conduct an electrical charge back to the operator. You can equip a vacuum cleaner such as Hoover model S-1015-030 with a specially designed bag which can be ordered by contacting your Unisys sales representative.

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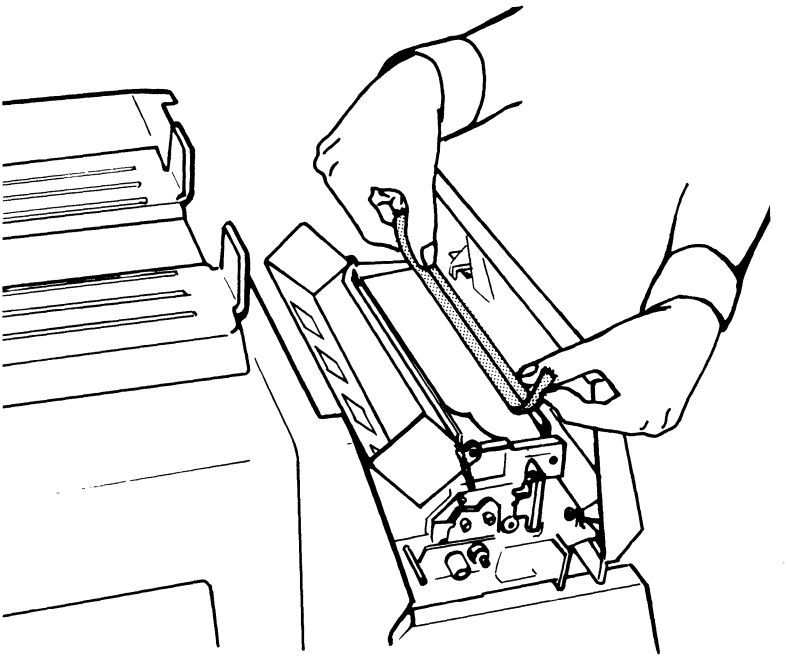
4 To avoid possible contamination from any remaining toner, remove the development drawer from the printer, place it in a plastic bag, and ship it in a carton separate from the printer.

5 If it is not possible to ship the development drawer separately, do the following:

   a Cut a piece of paper, 20 lb or heavier, into a rectangle approximately 2 by 9 3/4 inches.

   b Place the paper over the opening to the development tank and tape it in on all four sides with cellophane tape.

Figure 4-37 **Sealing the Development Tank Opening**



PL2179

c Reinsert the empty toner cartridge over the paper.

d Close the toner cartridge cover

e Replace the development drawer in the printer.

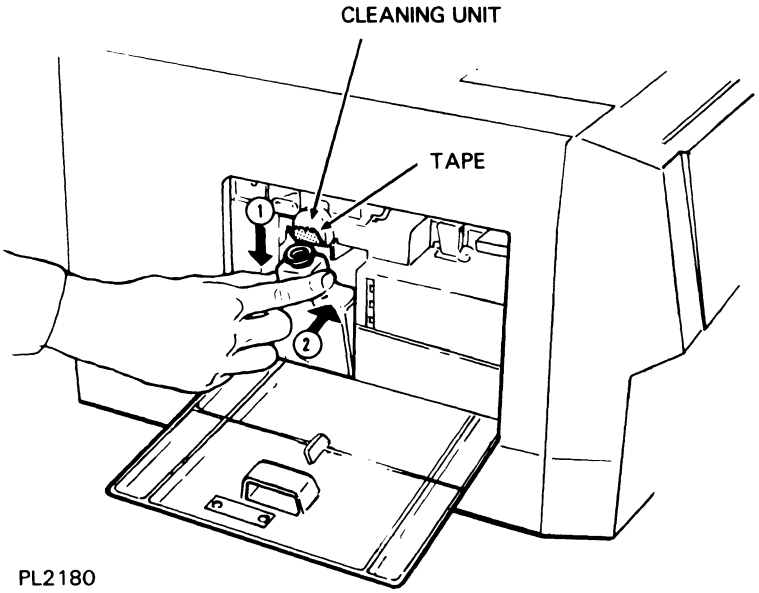
6 Seal off the cleaning unit as follows:

a Remove the toner collection bottle and place tape over the cleaning unit spigot.

b If you have a clean, empty toner bottle, insert this bottle in the printer, making sure the neck of the bottle fits snugly against the taped spigot.

c If you do not have a clean toner bottle, empty the toner from the used toner bottle. Then, if you still have the bottle cap that came in Kit A, cap the bottle and reinsert it in the printer. If the cap is not available, place tape over the bottle opening and reinsert the bottle in the printer, making sure the neck of the bottle fits snugly against the taped spigot.

Figure 4-38 **Sealing the Cleaning Unit Spigot**



7 Use the original shipping materials to repack the printer and accessories, reversing the unpacking instructions in Section 1. If the original shipping materials are not available, use a large, strong carton capable of holding the printer and accessories securely. Be sure to cushion the printer against damage during shipping.

Troubleshooting

This section provides information to help you answer questions you may have about the operation of your AP 9208 printer. Included are instructions for:

- Reading error messages on the error display panel.
- Clearing paper jams.
- Correcting printing problems.
- Correcting other problems you may encounter.

Check this information before calling for service. If you are still unable to resolve the problem, contact a Unisys customer service engineer or your Unisys Service Center.

Reading the Error Display Panel

The error display panel shows no information when the printer and controller are in the ready status. If an error occurs, the panel displays a one- or two-digit error code. Two-digit error codes are displayed cyclically as follows:

(display)(display)(blank)(display)(display)(blank)...

All error codes, except the flashing "C", are accompanied by one of three indicators:

- The Check Paper Path indicator ()
- The Control Error indicator ( )
- The Call Field Service indicator ()

The operator can usually correct errors accompanied by the Check Paper Path or Control Error indicator. Table 5-1 lists these errors, their meanings, and corrective measures you can take to resolve the problem. If after taking these measures you are unable to resolve your problem, note the indicator and numerical code and contact a Unisys customer service engineer or your Unisys Service Center.

Errors accompanied by the Call Field Service indicator must be handled by a Unisys customer service engineer. An error accompanied by both the Control Error and Call Field Service indicators should also be handled by a Unisys customer service engineer. Table 5-2 lists these errors and their meanings. If such an error occurs, note this information and contact a Unisys customer service engineer.

If two or more errors occur simultaneously, the printer will display the error code for the last or highest priority error only. Once that error is cleared, the printer will display the code for the next error, and so on. To get a list of all errors, print a test summary sheet as described in Section 3.

Note: Actions in Table 5-1 marked with an asterisk (*) are described in detail in the *AP 9208 Printer Programming Reference Manual*.

Table 5-1 **Printer Error Codes**

Display	Code	Description	Action
(No Indicator)	Flashing C	Cover left open	Check the development drawer, exit cover, left side cover, and paper tray cover. If any of these covers is open, close it.
	Flashing E	Paper jam inside printer or at exit	See "Clearing Paper Jams" later in this section.
	Flashing F	Paper jam in feed unit	See "Clearing Paper Jams" later in this section.
	1	Data present in buffer.	Transmit a Form Feed character to print the data.* OR Press the On-Line button to put the printer in off-line mode, press the Self Test button to print a test summary sheet, and press the On-Line button again to return the printer to on-line mode.
	12	Communication line error	Make sure the printer's DIP switch settings match the host computer's communication configuration. Restart data communication; if any data was lost, resend data.
	13	Input buffer overflow	Make sure the printer's DIP switch settings match the host computer's communication configuration. Restart data communication; if any data was lost, resend data. Make sure I/F cable is installed correctly.

Table 5-1 **Printer Error Codes (continued)**

Display	Code	Description	Action
	14	Font cartridge has been removed while printing.	Set the power switch to OFF (O), reinsert the font cartridge, set the power switch to ON (I), and resend the data. If font cartridge has not been removed, make sure the font cartridge is set properly in the receiver. Then resend the data.
	15	Band too complex to print	Reduce the number of characters per line and resend the data.
	16	Page exceeds page buffer memory	Reduce the number of characters per page and resend the data.
	21	Not enough memory to rotate font	Delete unnecessary fonts and/or form overlays from memory and resend the command.*
	23	Not enough memory to download font	Delete unnecessary fonts and/or form overlays from memory and resend the command.*
	24	Bad data in downloaded font	Check the download font file for errors, correct any errors, and resend the data.*
	25	Character not in selected font	Make sure the desired character exists in the selected font. Make sure the printer's DIP switch settings match the host computer's communication configuration.

Table 5-1 **Printer Error Codes (continued)**

Display	Code	Description	Action
	26	Cannot select required font	If assigning fonts, make sure the required font's name exists in the printer.* If selecting fonts, make sure the required font's assignment number exists in the printer.*
	27	No font present	Contact a Unisys customer service engineer.
	31	Nonfatal lower RAM error	Set the power switch to OFF (O) and then back to ON (I). If error persists, contact a Unisys customer service engineer.
	32	Trying to load too many fonts for table	Delete unnecessary downloaded or rotated fonts and restart the printer.*
	34	Font table has been damaged	Set the power switch to OFF (O) and back to ON (I). Then reload the font table.*
	35	Downloading middle without beginning	Check the download font file for errors, correct any errors, and resend the data.*
	36	Downloading code outside index range	Check the download font file for errors, correct any errors, and resend the data.*
	41	Parallel device failure	Set the printer power switch to OFF (O) and back to ON (I). Do not attempt to take the printer off-line or send commands until the printer power-up sequence is complete. If the error persists, contact a Unisys customer service engineer.

Table 5-1 **Printer Error Codes (continued)**

Display	Code	Description	Action
	42	Serial device failure	Set the printer power switch to OFF (O) and back to ON (I). Do not attempt to take the printer off-line or send commands until the printer power-up sequence is complete. If the error persists, contact a Unisys customer service engineer.
	43	Glyph exceeds buffer size	Define smaller glyphs.*

Table 5-2 **Printer Errors Requiring Field Service**

Display	Code	Description
	1	Fusing error
	2	Optical system error
	3	1 and 3
	4	OPC synchronous mark error
	5	1 and 4
	6	2 and 4
	7	1, 2, and 4
	8	Main motor error
	9	1 and 8

Table 5-2 **Printer Errors Requiring Field Service (continued)**

Display	Code	Description
	A	2 and 8
	B	1, 2, and 8
	F	Engine CPU error
	41	Memory unavailable during memory reorganization
	42	Loopback test failure
	71	Fatal lower RAM error
	73	CRC error on firmware ROM
	74	Error in one of the system timers

After correcting paper jam or open cover error conditions, the error code should clear automatically from the error display panel. After correcting other error conditions, you will have to clear the error code from the panel by doing one of the following:

- Set the printer power switch to OFF (O) and back to ON (I).

  Note: Using this reset method will result in the loss of any data that has been sent to the printer, but not yet printed.

- Press the On-Line button to put the printer in off-line mode, press the Self Test button to print a test summary sheet, and press the On-Line button again to return the printer to on-line mode.
- Send a Remote Error Reset command (ESC SUB R) to the printer.

- Send a Remote Restore (Soft) command (ESC CR P) to the printer.
- Send a Remote Restore (Hard) command (ESC SUB I) to the printer.

For more information about the software commands, consult the *AP 9208 Printer Programming Reference Manual.*

Clearing Paper Jams

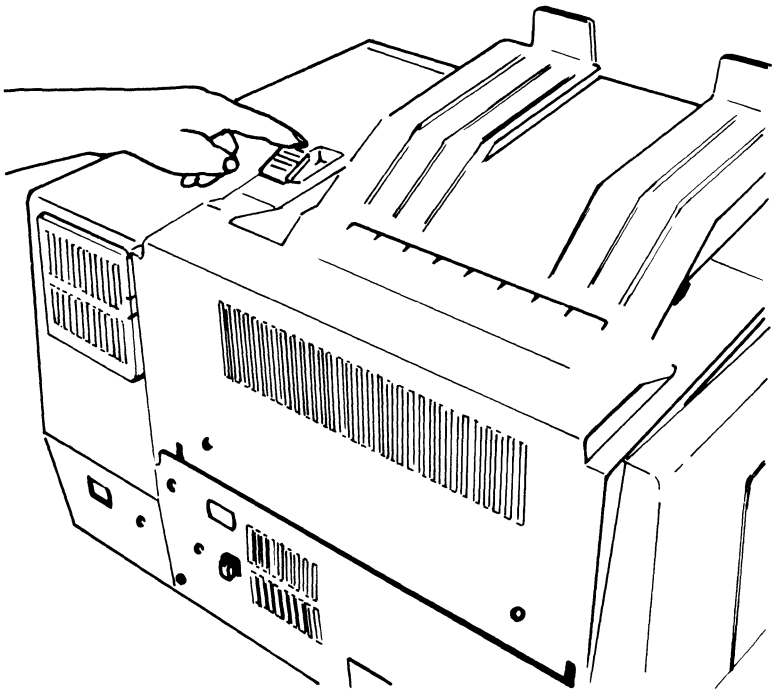
Note: When clearing a paper jam, do not turn off the printer. If you turn off the printer, any data stored in the printer's memory that has not yet printed will be lost.

Clearing Paper from the Eject Unit

When the Check Paper Path indicator and an "E" character flash simultaneously, paper has misfed in the eject unit. Clear the misfed paper as follows:

1 Lift the release lever and open the exit cover.

Figure 5-1 **Unlocking the Exit Cover**



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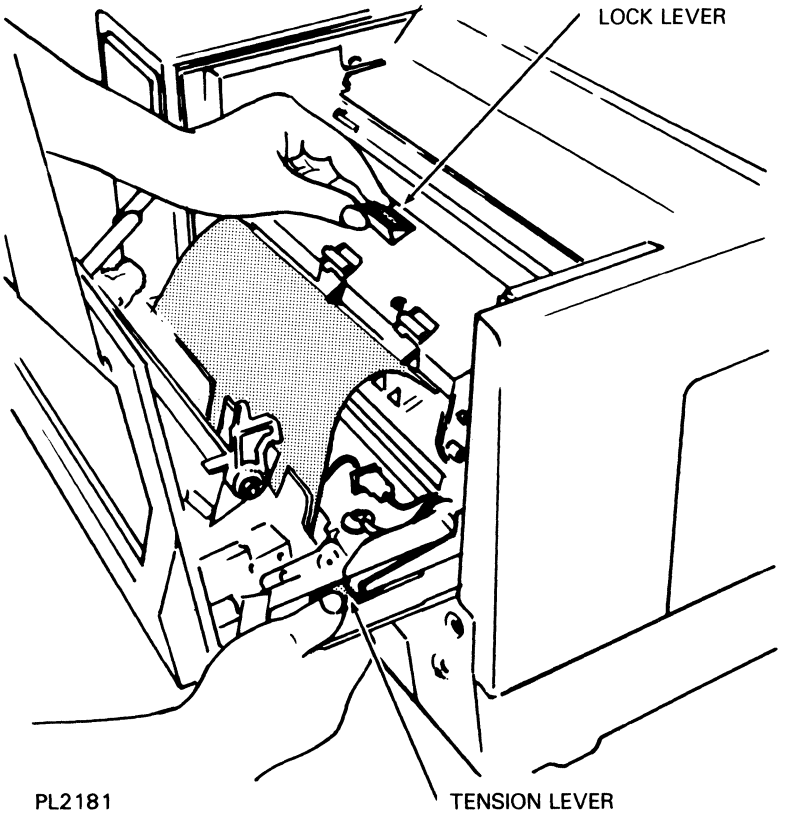
Warning: The fusing unit is extremely hot. Take care to touch only the green colored areas. Do not touch the unit itself.

2 Different versions of the AP 9208 printer use slightly different procedures to open the paper path to clear paper jams. One version requires you to push back the fusing unit lock lever to release pressure on the fusing roller. The other version requires you to push simultaneously on the fusing unit lock lever **and** a tension lever. **The instruction label under the paper stacker will show you which procedure to use for your printer.**

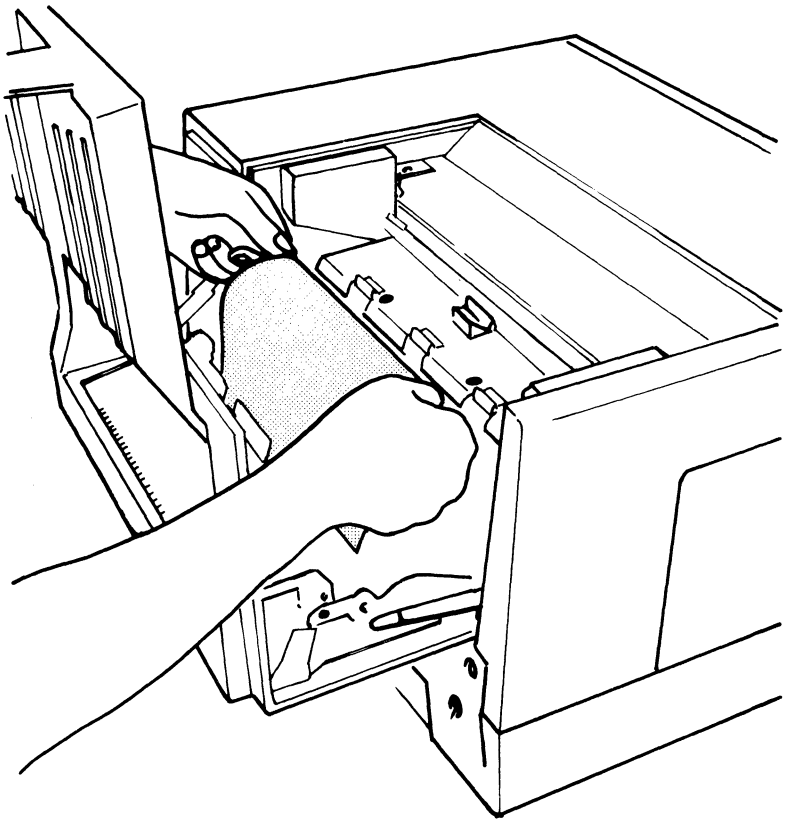
Figure 5-2 **Unlocking the Fusing Unit**



Caution: Pull out the development drawer as far as it can go before attempting to remove misfed paper from the eject unit. This will prevent the misfed paper from dragging across the OPC belt and possibly damaging it.

3 Remove any misfed paper, taking care not to leave any paper scraps.

Figure 5-3 **Removing Misfed Paper from the Eject Unit**

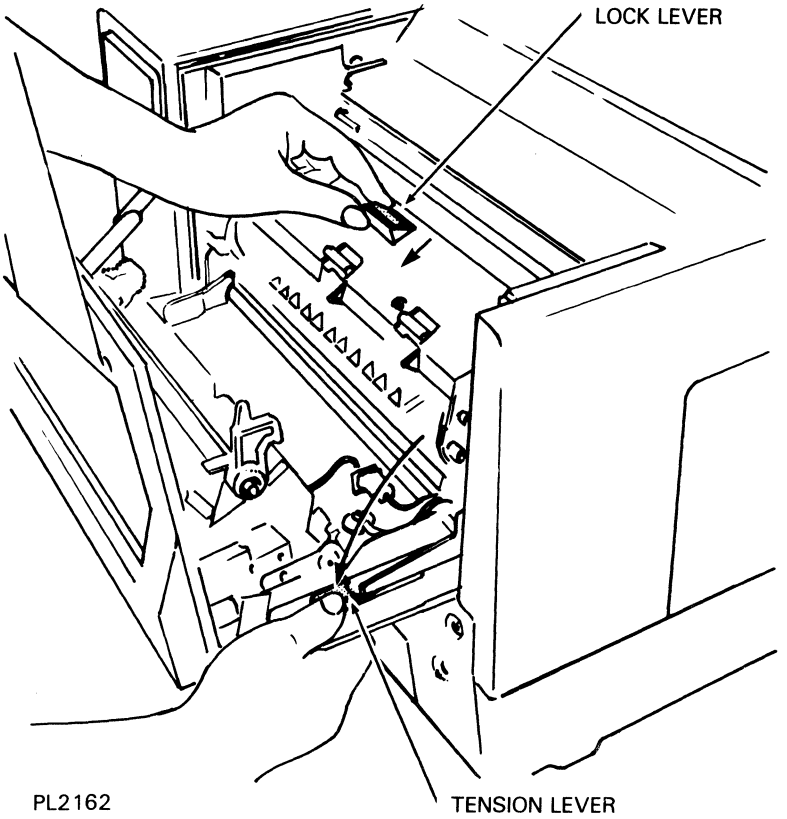


PL2182

Note: If no paper is found or the leading edge of the paper is in the fusing unit, continue with the following instructions. Concurrent illustrated instructions are under the exit cover.

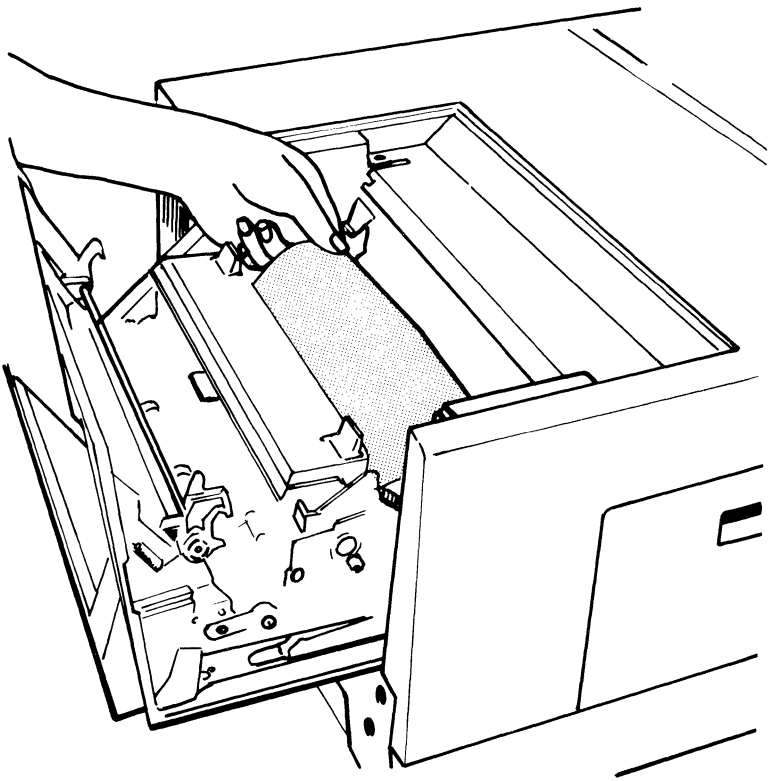
4 Push back the fusing unit lock lever and tilt the fusing unit toward the exit cover.

Figure 5-4 **Opening the Fusing Unit**



5 Remove any misfed paper, taking care not to leave any paper scraps.

Figure 5-5 **Removing Misfed Paper from the Fusing Unit**



PL2183

6 Lock the fusing unit by pulling forward on the locking lever until the unit clicks into place.

7 Close the exit cover by pushing it forward until it clicks into place.

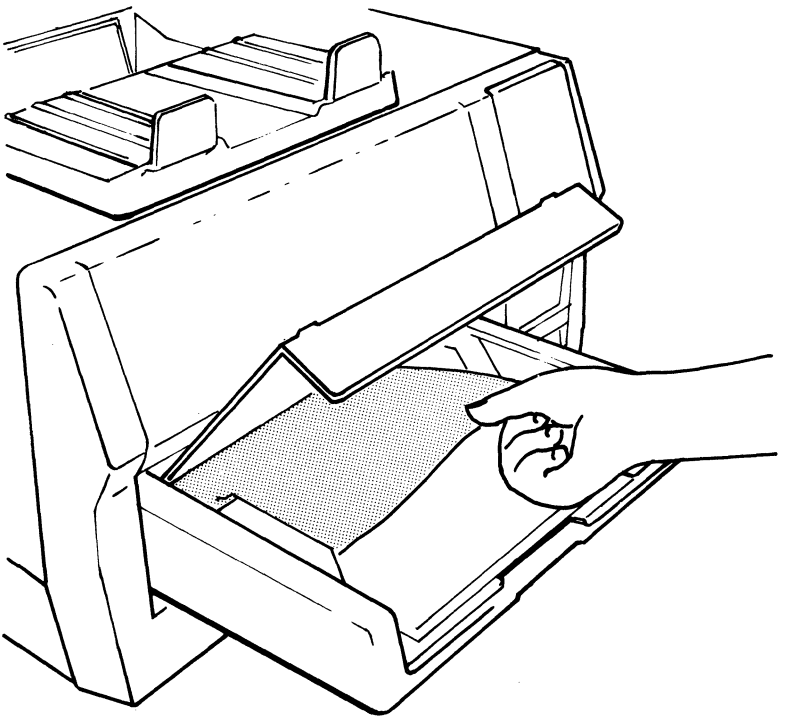
Clearing Paper from the Feed Unit

When the Check Paper Path indicator and an "F" character flash simultaneously, no paper is being fed or the paper is being fed improperly. Clear the misfed paper as follows:

1 Lift open the paper tray cover.

2 Remove any misfed paper by pulling the paper toward you. Take care not to tear the paper.

Figure 5-6 **Clearing Misfed Paper from the Paper Tray**



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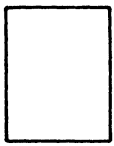
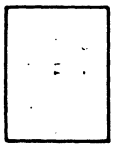
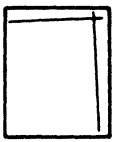
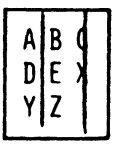
3 Close the paper tray cover.

Correcting Printing Problems

Table 5-3 shows problems you may occasionally encounter with the printed output from your printer and possible solutions to these problems. After taking the suggested actions, if the problem persists, contact a Unisys customer service engineer or your Unisys Service Center.

Table 5-3 **Printing Troubleshooting Chart**

Sample	Problem	Corrective Action
	Printed paper comes out blank.	Replace the charge corona unit.
	Printing is blurred or too light.	Check the toner level. Check the installation of the shield glass. Replace the charge corona unit. Replace the transfer corona unit. Replace the OPC cartridge. Replace the shield lens.
	Black spots (stray toner) are on the printed pages.	Clean the quenching lamp. Clean the exit rollers. Replace the cleaning pad. Replace the OPC cartridge.
	Streaks appear from the leading edge of the printed paper.	Clean the separation pawls. Replace the OPC cartridge.
	"Ghosts" of characters printed on previous sheets appear in the same location on subsequent sheets.	Clean the quenching lamp. Replace the OPC cartridge.
	The print is skewed on the page.	Check paper alignment in the paper tray. Make sure the paper and paper tray are the same size. Replace the feed roller.
	Black line(s) appear at the same location on every page.	Replace the shield glass. Replace the OPC cartridge.

Correcting Other Problems

You may encounter problems with your printer other than those mentioned above. Many of these problems can be easily solved. Consult Table 5-4 for a list of possible problems and suggested solutions. After taking the suggested actions, if the problem persists, contact a Unisys customer service engineer or your Unisys Service Center.

Table 5-4 **General Troubleshooting Chart**

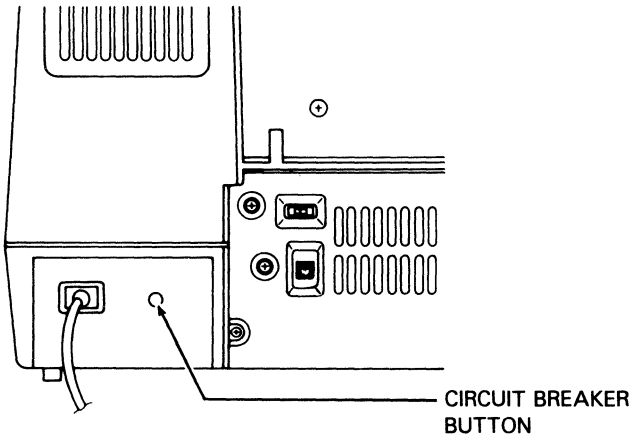
Problem	Corrective Action
Power indicator is off and printer does not operate.	Make sure the power cord is plugged into a live electrical outlet. Make sure the power switch is in the ON (I) position. Make sure the circuit breaker button on the rear of the printer is in. If it has popped out, reset the circuit breaker (see "Resetting the Circuit Breaker" later in this section).
Power and Ready indicators are on, but printer does not operate.	Make sure the interface (I/F) cable is installed properly. Make sure the printer's DIP switch settings match the host computer configuration.
Paper misfeeds frequently with two or more sheets feeding at the same time.	Make sure you are using undamaged paper suitable for the printer. (See Appendix A for paper specifications.) Clean the separation roller. Replace the separation roller.
Printer operation interferes with radio or television reception.	See "Correcting Radio or Television Interference" later in this section.

Resetting the Circuit Breaker

If the printer is plugged into a live electrical circuit and the power switch is set to ON (I) but none of the indicator panel lights are on and the printer is not operating, check the circuit breaker button located on the rear of the printer. If the button has popped out, the circuit breaker has opened.

Caution: If your printer's circuit breaker is open, it could mean that there is an overload in your electrical system. It is important to locate and correct the source of the overload before resetting the circuit breaker.

Figure 5-7 **Location of the Circuit Breaker Button**



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To reset the circuit breaker, set the printer power switch to OFF (O), disconnect the printer power cord, and push the circuit breaker button in. Then reconnect the power cord and set the printer power switch to ON (I).

Correcting Radio or Television Interference

AP 9208 printer operation may cause interference to radio or television reception in some installations. To correct an interference problem, take one or more of the following actions:

- Use only shielded Unisys computer cables that have been approved for your system.
- Reorient the receiving antenna of the device experiencing the interference.
- Move the printer in relation to the receiver.
- Plug the printer and the radio or television into different power outlets so the devices are on different branch circuits.

Printer Specifications

Printer Dimensions

- Height: 14.5 inches (368 mm) with paper stacker
- Width: 20.9 inches (530 mm)
- Depth:
  - 16.5 inches (420 mm) without paper tray
  - 23.2 inches (589 mm) with paper tray
- Weight: 81.5 pounds (37 kg)

Development Process

The development process in the AP 9208 printer is dry electrophotography.

Print Speed

Note: To achieve these print speeds, a data transfer rate from the host computer of 9600 baud must be maintained. Printing complex text or graphics may result in reduced print speeds.

Print speed for a single sheet of A4 or letter size paper is a maximum of 20 seconds.

Print speed during continuous printing of text is a maximum of 8 sheets per minute.

Printer warm-up time is less than 3 minutes, typically 90 seconds.

Electrical Environment

Power Requirements

- 115 V model: 90 to 128 V, 50/60 Hz
- 220 V model: 191 to 256 V, 50 Hz

Power Consumption

Power consumption of the AP 9208 printer is 1K VA (maximum).

Environmental Conditions

Operating

The AP 9208 should be operated in a normal office with the following conditions:

- Temperature:
  - Dry-bulb: 50° to 90°F (10° to 32°C)
  - Wet-bulb: 77°F (25°C) maximum
- Relative Humidity: 20 to 80 percent RH
- Illumination: less than 2000 Lux
- Altitude: 8,250 feet (2,500 m) or lower
- Horizontal Level: The surface supporting the printer should not be tilted more than 5 mm from a horizontal position.

Nonoperating

The nonoperating environment of the AP 9208 printer is the same as the operating environment with the following exceptions:

- Temperature, dry-bulb: -20° to 110°F (-29° to 43°C)
- Relative Humidity: 80 percent RH (maximum)

Paper

The AP 9208 printer uses plain, cut sheet paper. Usable paper sizes are A4 (8.27 by 11.69 inches) and letter (8 1/2 by 11 inches). Usable paper weights are 16 to 24 pound (60 to 90 g/m^2). When fed manually, the AP 9208 printer can also use transparencies and sheets of gummed labels designed for photocopiers and printers using a heat fusing process.

All materials used in this printer must be able to withstand fusing temperatures up to 400°F (204°C), fusing pressures up to 140 pounds per square inch (9.8 kg/cm^2), a pressure dwell time of approximately 50 milliseconds, and exposure to silicon oil from the pressure roller's cleaning

pad. If your material is able to be used in a photocopier using a high-pressure, high-temperature fusing process, the material should be suitable for use in this printer.

Caution: The following paper types are not recommended as they may cause problems in the printer:

- Paper with staples, paper clips, or other metal attached.
- Paper with an exposed pasted surface.
- Torn paper.
- Creased, wavy, or peeled paper.
- Clipped or windowed paper.
- Embossed, relief, or rough-textured paper.
- Forms preprinted with ink that cannot withstand high temperatures, high pressures, or exposure to silicon oil.

Paper Tray Capacity

The paper tray capacity is 250 sheets of 20 pound paper (75 g/m^2).

Paper Stacker Capacity

Paper ejects from the printer face down to provide positive page collation in the stacker. Capacity is 250 sheets of 20 pound paper (75 g/m^2).

Maximum Effective Printing Area

The maximum effective printing area on a sheet is less than the full paper size to allow for mechanical tolerances in the printer and for sheet to sheet variation in the paper itself.

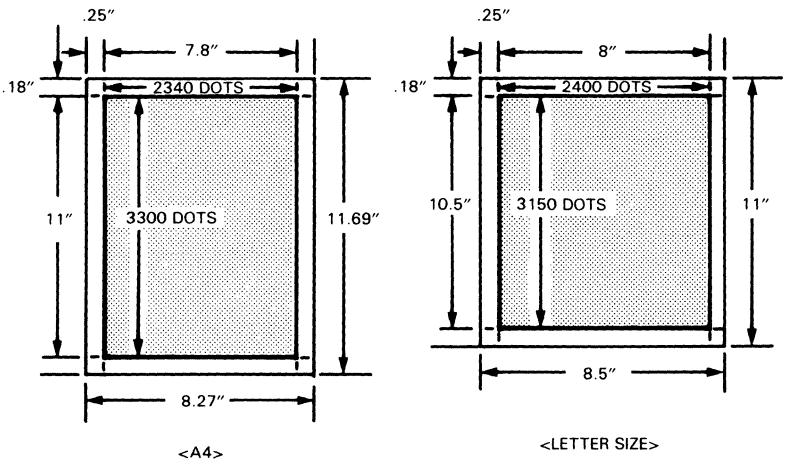
Table A-1 details the dimensions of the maximum effective printing area for letter and A4 size paper. PW denotes page width and PL denotes page length.

Table A-1 **Dimensions of Maximum Effective Printing Areas**

	PW		PL	
Paper Size	**Portrait**	**Landscape**	**Portrait**	**Landscape**
Letter	8 inches (2400 dots)	10.5 inches (3150 dots)	10.5 inches (3150 dots)	8 inches (2400 dots)
A4	7.8 inches (2340 dots)	11 inches (3300 dots)	11 inches (3300 dots)	7.8 inches (2340 dots)

The maximum effective printing area begins approximately .18 inch from the leading edge of the sheet (that is, the edge of the sheet to come out of the printer first) and .25 inch from the left edge of the sheet. Figure A-1 depicts the maximum effective printing area and the approximate resulting page margins for A4 and letter size paper.

Figure A-1 **Maximum Effective Printing Areas**



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Default Parameter Values

Table B-1 shows the AP 9208 printer's default parameter values after turning the printer on. Some of these parameters must be set using software commands. For a detailed explanation of the software commands that can be used with the AP 9208, consult the *AP 9208 Printer Programming Reference Manual.*

Table B-1 **Default Parameter Values**

	Defaults Paper Size	
Parameter Description	**Letter**	**A4**
Printing Area (Width)	8 inches	7.8 inches
Printing Area (Height)	10.5 inches	11 inches
Line Spacing (Serial)	6 lines per inch (lpi)	6 lpi
Line Spacing (Parallel)	Set by DIP switch	Set by DIP switch
Character Spacing (Serial)	10 characters per inch (cpi)	10 cpi
Character Spacing (Parallel)	Set by DIP switch	Set by DIP switch
Page Orientation (Serial)	Portrait	Portrait
Page Orientation (Parallel)	Set by DIP switch	Set by DIP switch
Page Length (Serial)	63 lines per page (lpp)	66 lpp
Page Length (Parallel, Portrait, 3 lpi)	32 lpp	33 lpp
Page Length (Parallel, Portrait, 6 lpi)	63 lpp	66 lpp
Page Length (Parallel, Landscape, 3 lpi)	24 lpp	24 lpp
Page Length (Parallel, Landscape, 6 lpi)	48 lpp	47 lpp
Left Margin	Left edge of maximum printing area	Left edge of maximum printing area
Right Margin	Right edge of maximum printing area	Right edge of maximum printing area
Top Margin	Top edge of maximum printing area	Top edge of maximum printing area
Bottom Margin	Bottom edge of maximum printing area	Bottom edge of maximum printing area
Font Assignments	Resident and font cartridge fonts, if any	Resident and font cartridge fonts, if any

Table B-1 **Default Parameter Values (continued)**

	Defaults Paper Size	
Parameter Description	**Letter**	**A4**
Selected Font	Courier 10	Courier 10
Duplex (Serial)	Set by DIP switches	Set by DIP switches
Auto Line Feed upon receipt of Carriage Return (Serial and Parallel)	Set by DIP switches	Set by DIP switches
Data Bits (Serial)	Set by DIP switches	Set by DIP switches
Stop Bits (Serial)	Set by DIP switches	Set by DIP switches
Data Bits (Parallel)	8 data bits	8 data bits
Communication Protocol (Serial)	Set by DIP switches	Set by DIP switches
ACK Signal Relative to Busy (Parallel)	Set by DIP switches	Set by DIP switches
Parity (Serial)	Set by DIP switches	Set by DIP switches
Baud Rate (Serial)	Set by DIP switches	Set by DIP switches
Data Communication Rate (Parallel)	Set by host computer	Set by host computer
Horizontal Tab Settings	Cleared	Cleared
Vertical Tab Settings	Cleared	Cleared
Word Processing Modes	All disabled	All disabled
Number of Copies	One	One
Reverse Print Mode	Disabled	Disabled
Backward Print Mode	Disabled	Disabled
Graphics Mode	Disabled	Disabled

Supplies

These and other supplies can be ordered by contacting your Unisys sales representative.

Kit A

Reorder Number 81-6000-855

Toner Cartridge	2*
Toner Collection Bottle	1
Toner Collection Bottle Cap	1
Cleaning Pad	2

* 150 g/cartridge

All AP 9208 printers use Kit A for toner supplies. Kit A contains supplies sufficient for changing the toner cartridge and cleaning pad twice and the toner collection bottle once. You will need to order a Kit A approximately every 6,000 pages.

Kit B

Reorder Number 81-6001-853

OPC Cartridge	1
Shield Glass	1
Corona Unit	2
Ozone Filter	1

If your printer has an external ozone filter, you should order Kit B when you need to replace the OPC cartridge. (See Figure 2-5 in Section 2 for the location of the external ozone filter.) Kit B contains supplies sufficient for replacing the OPC cartridge, shield glass, charge and transfer corona units, and external ozone filter once. You will need to order a Kit B approximately every 10,000 to 15,000 pages.

Kit C

Reorder Number 81-6003-859

OPC Cartridge	**1**
Shield Lens	**1**
Corona Unit	**2**

If your printer does not have an external ozone filter, you should order Kit C when you need to replace the OPC cartridge. (See Figure 2-5 in Section 2 for the location of the external ozone filter.) Kit C contains supplies sufficient for replacing the OPC cartridge, shield lens, and charge and transfer corona units once. You will need to order a Kit C approximately every 10,000 to 15,000 pages.

Paper

Weight: 16 to 24 pound (60 to 90 g/m^2)

For detailed paper specifications, consult Appendix A.

Figure D-1 **Resident Fonts**

COURIER 10 Font No. 1

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆĐªĲØºŉæđıĳøß~

COURIER 12 Font No. 2

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆĐªĲØºŉæđıĳøß~

PRESTIGE ELITE Font No. 3

 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆĐªĲØºŉæđıĳøß~

BOLD ITALIC PS Font No. 4

BOLDFACE PS Font No. 5

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆÐªIJØºþæðıijøßˇ˘
```

LETTER GOTHIC 12 Font No. 6

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆÐªIJØºþæðıijøßˇ˘
```

LETTER GOTHIC 15 Font No. 7

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`abcdefghijklmnopqrstuvwxyz{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆÐªIJØºþæðıijøßˇ˘
```

ORATOR 90% FONT NO. 8

```
 !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_
`ABCDEFGHIJKLMNOPQRSTUVWXYZ{|}~¡¢£¤°µ¼½¾¿´¯¨°¸™^`ÆÐIJØÞÆÐIJØß˜
```

Using Font Cartridges

Font cartridges allow you to increase the number of typefaces, or fonts, available to your printer. Signatures, company logos, and product bar codes can also be loaded into your printer using font cartridges.

This section includes instructions for:

- Inserting font cartridges into and removing them from your printer.
- Caring for font cartridges.
- Reading the font cartridge label.
- Printing signatures and logos.
- Printing 3 of 9 bar codes.

For information about selecting fonts using the AP 9208 indicator panel and using multiple fonts in a single document, refer to Section 3 of this guide. For information about selecting fonts using software codes, consult the *AP 9208 Printer Programming Reference Manual* or the manual for your application software.

For more information about typeface availability and ordering font cartridges, contact your Unisys sales representative.

Inserting and Removing Font Cartridges

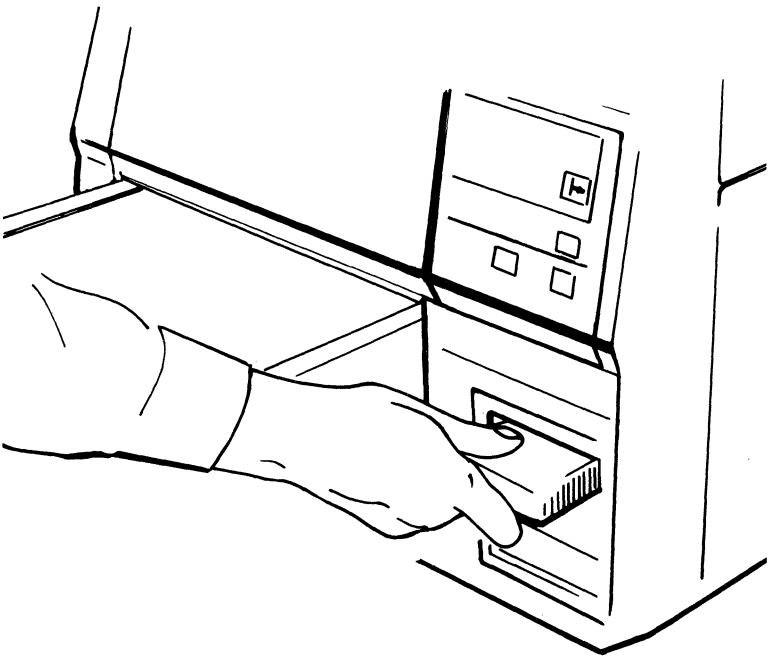
Caution: Make sure the power to your printer is completely off before inserting or removing a font cartridge. Inserting or removing a font cartridge while the power is on may damage the cartridge.

1. Set the power switch on the right side of the printer to the OFF (O) position. Wait until the indicator panel lights are completely off.
2. Remove the font cartridge from its bag. This bag is designed to prevent the cartridge from building up a static electric charge. Save this bag for storing your cartridge when it is not in use.

3 Hold the font cartridge so the metal connectors are toward the printer and the label is facing up. Insert the cartridge into one of the font cartridge receivers. Gently but firmly push the font cartridge in as far as it will go. The end of the font cartridge will protrude from the receiver.

Caution: To prevent damage to the connectors, avoid using too much force when inserting the cartridge.

Figure E-1 **Inserting the Font Cartridge**



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4 If desired, insert another font cartridge into the other receiver, following the instructions in Steps 2 and 3.

5 With the font cartridge(s) in place, set the power switch to the ON (I) position.

6 After the printer has warmed up, print a test summary sheet as described in Section 3. The summary sheet will list the names and position numbers of the eight resident fonts and the fonts on the font cartridge(s).

7 To remove a font cartridge, set the power switch to the OFF (O) position. Wait until the indicator panel lights are completely off.

8 Pull the font cartridge straight back and out of the receiver.

9 Return the font cartridge to its bag for storage.

Notes:

1 The fonts on a font cartridge are only available for use while the font cartridge is inserted in a receiver.

2 To minimize wear and prolong the life of the connectors, leave frequently-used cartridges plugged into the printer, when possible.

Caring for Font Cartridges

Caution: Static electricity can seriously damage the font cartridge. Do not allow the metal on the cartridge to come into contact with a table, desktop, or other surface to which static electricity could be discharged.

To avoid static electric buildup, store your font cartridges in the specially designed bags in which they were shipped. Remove a cartridge from its bag only when you are ready to insert it into the printer.

When the font cartridge is out of its bag, it can pick up static electricity very easily, especially in an environment with low humidity. Even carrying the cartridge from one place to another can cause it to pick up a static charge. Before setting a font cartridge on a table or other surface, hold the cartridge in one hand, touching the metal plate, and touch the table with your other hand. This action will release any static charge from the cartridge. Then set the cartridge on the table.

The plastic case of the font cartridge can be wiped clean with a damp cloth. Avoid dripping water onto the font cartridge connectors.

Reading the Font Cartridge Label

The label on your font cartridge lists the fonts that are stored on that cartridge. Each item in the list contains the following information:

- The place of the font on the cartridge (1 for first, 2 for second, etc.).
- The name of the font.
- The point size of the font.
- WS or STD. WS (workstation) identifies character sets to use with the B 20 computer series. STD (standard) identifies character sets to use with all other Unisys computers.
- The character set number.
- A **P** if only the primary character set for the font is on the cartridge. If both the primary and secondary character sets are on the cartridge, the space after the character set number is left blank.

Logos and signatures are identified by the name of the logo or signature and the word LOGO or SIG.

At the top of the font cartridge label is a four-digit date code indicating when the cartridge was created. For example, December 1986 would be indicated by the code 1286.

Printing Signatures and Logos

When you ordered your signature or logo, you pasted the image onto a block. There were three block sizes available, 1 by 5 1/4 inches, 1 1/2 by 3 1/2 inches, and 2 1/4 by 2 1/4 inches. When your font cartridge was created, the entire block was copied into the cartridge, both the image and the white space around it.

To print your signature or logo, you must first place the cursor where you want the signature or logo block to be located in your document. You then select the signature or logo as you would any other font. Finally, you type a series of keystrokes, each of which corresponds to a 1/10-inch wide "slice" of your block. The steps for printing a signature or logo are given below.

Note: The following instructions use Secretarial Word Processing (SWP) Release Level 1.4, a B 20 workstation configured for use with an "AP92LASER" printer, and a printer set to print six lines per inch. For more information, consult the *BTOS Secretarial Word Processing Installation, Configuration, and Administration Guide*. If you are using different application software, consult your software manual for information about changing fonts. If your printer is set for a different number of lines per inch, adjust the given figures accordingly.

1 Press the RETURN key.

2 Select the font for your signature or logo (see "Using Multiple Fonts in a Single Document" in Section 3 of this guide).

3 If your signature or logo is in a 1 by 5-1/4-inch block or a 1-1/2 by 3-1/2-inch block, continue with Step 4. If your signature or logo is in a 2-1/4 by 2-1/4-inch block, continue with Step 8.

4 Move the cursor to the lower left corner of the area where you want the signature or logo to print. Do this by pressing the RETURN key while holding down the SHIFT key.

   a For a 1-inch high block, press the RETURN key while holding down the SHIFT key five times to leave six lines.

   b For a 1-1/2-inch high block, press the RETURN key while holding down the SHIFT key eight times to leave nine lines.

   Note: If you do not want the lower left corner of the signature or logo block to print at the left margin, move the cursor to the place where you want the lower left corner to print.

5 Type a series of keystrokes, each of which is assigned to a 1/10-inch wide slice of your signature or logo block.

   a For a 5-1/4-inch wide block, type the keys assigned to hex 21 through 55. On the keyboard commonly used in the United States, these codes are equivalent to the following characters:

   !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGH IJKLMNOPQRSTU

   b For a 3-1/2-inch wide block, type the keys assigned to hex 21 through 43. On the keyboard commonly used in the United States, these codes are equivalent to the following characters:

   !"#$%&'()*+,-./0123456789:;<=>?@ABC

6 Press the RETURN key.

7 Select a new font and reset the pitch to meet the requirements of the new font.

8 For a 2-1/4 by 2-1/4-inch signature or logo block, move the cursor to 1 inch **above** the lower left corner of the area where you want the signature or logo to print. Do this by pressing the RETURN key seven times while holding down the SHIFT key to leave eight lines.

Note: If you do not want the left edge of the signature or logo block to print at the left margin, move the cursor to the place where you want the left edge to print.

9 Type the keys assigned to hex 21 through 37. On the keyboard commonly used in the United States, these codes are equivalent to the following characters:

!"#$%&'()*+,-./01234567

10 Move the cursor to the lower left corner of the area where you want your signature or logo block to print by pressing the RETURN key six times while holding down the SHIFT key.

Note: At this point, your cursor must be in the same column of your document as it was in Step 8. If your cursor is not in the same column, the upper and lower parts of your signature or logo will not align correctly.

11 Type the keys assigned to hex 38 through 4E. On the keyboard commonly used in the United States, these codes are equivalent to the following characters:

89:;<=>?@ABCDEFGHIJKLMN

12 Press the RETURN key.

13 Select a new font and reset the pitch to meet the requirements of the new font.

You may want to practice placing your signature or logo on the page and printing it before using it in an actual document. If you have extra white space on either end of your signature or logo, simply leave out those characters when typing. For example, if there is one inch of white space before the start of your signature and you would like to eliminate it, start typing your signature with the eleventh character, +.

Some application programs will allow you to assign a series of characters required for a signature or logo to a single keystroke. For more information, consult the manual for your applications software. You can also use the printer's Forms Overlay commands to store and recall the signature or logo character string. For more information,

consult the *AP 9208 Printer Programming Reference Manual.*

Printing 3 of 9 Bar Codes

The 3 of 9 bar code is a variable-length, alphanumeric bar code. Its data character set contains 43 characters: 0 to 9, A to Z, -, ., /, +, %, and space. A common character (*) is used exclusively as a stop and start character. Each character is composed of nine elements: five bars and four spaces. Three of the nine elements are wide and six are narrow.

To print a 3 of 9 bar code, first select the 3 of 9 bar code as you would any other font. (See "Using Multiple Fonts in a Single Document" in Section 3 for details about selecting a font.) Then, type the letters and/or symbols that you want encoded. When you print your document, those letters and symbols will appear in their corresponding bar code patterns.

The 3 of 9 bar codes are printed at a height of 1/6 inch. To print taller bar codes, repeat the bar code on successive lines. For example, to print a half-inch high bar code, repeat the bar code on three successive lines with the printer set to print at 6 lines per inch.

Installing the AP 9208 Printer with B 20 and ET Series Systems

For your printer to operate properly with your B 20 or ET Series computer system, the printer parameters set by the DIP switches located at the rear of the printer must match the system's configuration file parameters. In this appendix you will learn to:

- Determine the printer's current DIP switch settings.
- Configure the printer for B 20 Series systems in parallel mode.
- Configure the printer for B 20 Series systems in serial mode.
- Configure the printer for ET Series systems in serial mode.

The explanations that follow describe only **typical** configurations of the AP 9208 printer. Other configurations of the systems software are possible and may even be desirable for your applications. Consult your computer operations manual, your systems software manual, and your applications software manual for more information.

Determining the Current DIP Switch Settings

To determine the printer's current DIP switch settings, print a test summary sheet. To do this, turn on the printer and wait for it to warm up. Then press the On-Line button/indicator to place the printer in off-line mode and press the Self Test button on the rear of the printer. The printer will produce a printout that includes a graphic display of the current settings of the DIP switches. For more information about the test summary sheet, refer to "Printing a Test Summary Sheet" in Section 3 of this guide.

For a detailed description of the functions of each DIP switch, see "Setting the DIP Switches" in Section 2.

Configuring the Printer for B 20 Series Systems

With B 20 Series systems, your printer can operate in either parallel or serial mode. The modes are mutually exclusive.

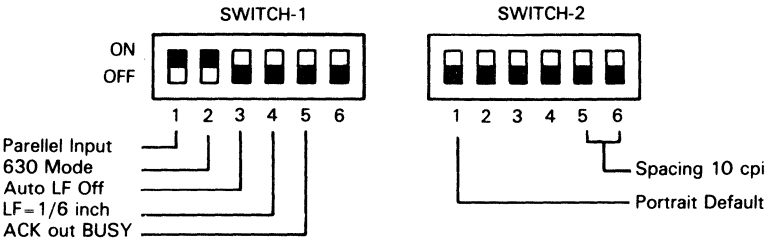
Parallel Mode

1 Set the printer power switch to the OFF (O) position.

2 Connect the parallel port of the printer to the parallel port of the host computer, using a cable appropriate to the host. For information about appropriate cables, consult your Unisys sales representative.

3 Set the DIP switches as shown in Figure F-1.

Figure F-1 **Parallel Mode DIP Switch Settings**



4 Set the power switch to the ON (I) position to read the new switch settings into the printer's memory.

5 Access the B 20 Series Printer Configuration Files as follows:

a In the Executive mode, type the following on the Command line:

CREATE CONFIGURATION FILE

b Press the **RETURN** key. The following form will appear:

Create Configuration File

Configuration file name ----------

Device type (comm, parallel lpt, or serial ptr)
----

c Enter the Configuration File Name as follows:

1 If using the spooler, type the following and press the **RETURN** key:

[SYS]<SYS>SPLCONFIG.SYS

2 If printing directly without using the spooler, type the following and press the **RETURN** key:

[SYS]<SYS>LPTCONFIG.SYS

Note: SPLCONFIG.SYS and LPTCONFIG.SYS are the default configuration file names. You can create and substitute your own unique file names to fit your configuration.

d On the Device Type line, type the following and press the **GO** key:

PARALLEL

e The printer parameter list will appear. Enter (or verify) the system printer configuration file parameters listed in Table F-1. This is a typical configuration and will match the DIP switch settings shown in Figure F-1.

Table F-1 **B 20/25 System Parallel Printer Configuration File Parameters**

New line mapping mode (binary, CR, or CR/LF; default = CR/LF)	CR/LF
Tab expansion size (default = 8)	8
Number of characters per line (default = 132)	255
Transmission time out (number of seconds; default = wait forever)	60
Addition ACK delay (units of 100 microseconds; default = 0)	0
Translation file (default = none)	(Leave Blank)

f Press the **GO** key when finished to save the Configuration File and return to the Executive.

g If you are using spooled printing, press the computer's **RESET** button to reboot the system. This is necessary for the system to read the Configuration File parameters into memory.

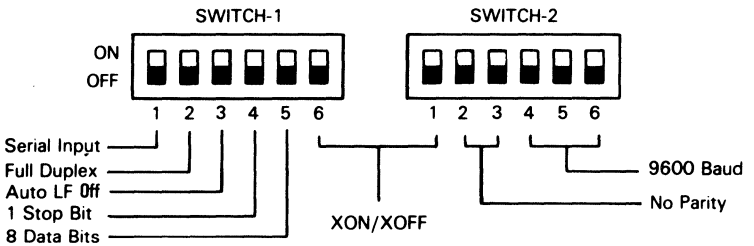
Note: If you are using direct printing, you do not need to reboot the system.

6 If you are using SWP Release Level 1.3.3 or earlier, specify *Diablo 630* in the SYS.PRINTER file as the printer type for the AP 9208 printer. If you are using SWP Release Level 1.4 or later, specify *AP92LASER* in the SYS.PRINTER file. If you are using other application software, consult your software manual for the appropriate printer designation.

Serial Mode

1 Set the printer power switch to the OFF (O) position.
2 Connect the serial port of the printer to the serial port of the host computer, using a cable appropriate to the host. For information about appropriate cables, consult your Unisys sales representative.
3 Set the DIP switches as shown in Figure F-2.

Figure F-2 **Serial Mode DIP Switch Settings (B 20 Series)**



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4 Set the power switch to the ON (I) position to read the new switch settings into the printer's memory.
5 Access the B 20 Series Printer Configuration Files as follows:
   a In the Executive mode, type the following on the Command line:
   CREATE CONFIGURATION FILE
   b Press the **RETURN** key. The following form will appear:
   Create Configuration File
   Configuration file name ----------
   Device type (comm, parallel lpt, or serial ptr)
   ----

c Enter the Configuration File Name as follows:

1 If using the spooler, type the following and press the **RETURN** key:

[SYS]<SYS>SPLBCONFIG.SYS

2 If printing directly without using the spooler, type the following and press the **RETURN** key:

[SYS]<SYS>PTRBCONFIG.SYS

Note: SPLBCONFIG.SYS and PTRBCONFIG.SYS are the default configuration file names. You can create and substitute your own unique file names to fit your configuration.

d On the Device Type line, type the following and press the **GO** key:

SERIAL

e The printer parameter list will appear. Enter (or verify) the system printer configuration file parameters listed in Table F-2. This is a typical configuration and will match the DIP switch settings shown in Figure F-2.

Table F-2 **B 20/25 System Serial Printer Configuration File Parameters**

Data bits (5,6,7, or 8; default = 7)	8
Parity (none, even, odd, 0, or 1; default = 0)	none
Baud rate (up to 19200; default = 9600)	9600
Stop bits (1 or 2; default = 1)	1
Transmit time out (number of seconds; default = wait forever)	90
New line mapping mode (binary, CR, or CR/LF; default = CR/LF)	CR/LF
Line control (none, XON/XOFF, CTS, or both; default = XON/XOFF)	XON/XOFF
Tab expansion size (default = 8)	8
Number of characters per line (default = 132)	255
Translation file (default = none)	(Leave Blank)

f Press the **GO** key when finished to save the Configuration File and return to the Executive.

g If you are using spooled printing, press the computer's **RESET** button to reboot the system. This is necessary for the system to read the Configuration File parameters into memory.

Note: If you are using direct printing, you do not need to reboot the system.

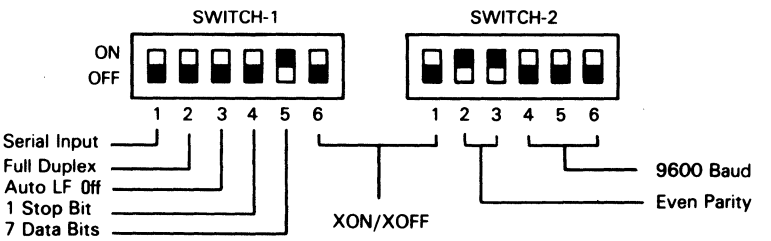
6 If you are using SWP Release Level 1.3.3 or earlier, specify *Diablo 630* in the SYS.PRINTER file as the printer type for the AP 9208 printer. If you are using SWP Release Level 1.4 or later, specify *AP92LASER* in the SYS.PRINTER file. If you are using other application software, consult your software manual for the appropriate printer designation.

Configuring the Printer for ET Series Systems

With the ET Series systems, your printer operates in the serial mode. In the WORDSTAR™ word processing program, this printer uses the Diablo 630 configuration. Wherever there is the option in the menus, specify *Diablo 630* as the printer.

1 Set the printer power switch to the OFF (O) position.
2 Connect the serial port of the printer to the serial port of the ET system, using a cable appropriate to the system. For information about appropriate cables, consult your Unisys sales representative.
3 Set the DIP switches as shown in Figure F-3.

Figure F-3 **Serial Mode DIP Switch Settings (ET Series)**



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WORDSTAR™ is a trademark of MicroPro International Corporation.

4 Set the power switch to the ON (I) position to read the new switch settings into the printer's memory.

5 Boot the system with the MS-DOS™ system disk in Drive A.

6 Install the printer as follows:

a For 200 KB systems:

1 Insert the Configuration disk into Drive B and switch to Drive B.

2 At the A> prompt, type the following and press the **RETURN** key:

B:

3 When the B> prompt appears, type the following and press the **RETURN** key:

PRNINSTL <SPACE> (Port Number) <SPACE> AP 1302

Notes:

1 For Port Number, enter either "1" for RS-232-1 or "2" for RS-232-2. Do not enter the parentheses.

2 The AP 9208 is called the AP 1302 for data communication purposes.

b For 800 KB systems, at the A> prompt, type the following and press the **RETURN** key:

PRNINSTL <SPACE> (Port Number) <SPACE> AP 1302

Notes:

1 For Port Number, enter either "1" for RS-232-1 or "2" for RS-232-2. Do not enter the parentheses.

2 The AP 9208 is called the AP 1302 for data communication purposes.

7 To load the configuration file, type the following at the prompt and press the **RETURN** key:

CONFIG

Note: For 800 KB systems, load the configuration file into Drive A. For 200 KB systems, load the file into Drive B.

MS-DOS™ is a trademark of Microsoft Corporation.

8 The screen will display the BIOS Configurator menu. To verify the serial interface configuration file parameters:

   a Enter *1* or *2* from the numeric keypad. This is the number of the port your printer is connected to and should match the port number you entered in Step 6 above.

   b The screen will display the parameter values. Verify that these values match the printer parameters as determined by the DIP switch settings. Consult your ET series software manuals for further information about these values and the options available to you.

   c Make changes in the settings, if necessary.

9 When finished, choose the "Save as System" option by pressing the F1 key, typing *Y* and pressing the **RETURN** key.

Function Control Commands

These commands are used by your computer to control the functions of your printer. For more information about these codes, consult the *AP 9208 Programming Reference Manual.*

Table G-1 **AP 9208 Commands**

Font Commands	**Sequence**
Assign Font	ESC DC2 A m1, m2 @ *font-name* ESC SP
Select Font	ESC DC2 S m SP
Load/Delete Font	1. To delete a specific font: ESC [m1, m2 @ *font-name* ESC] 2. To delete all fonts: ESC [@ ESC] 3. To define a font: ESC [m1, m2 @ *font-name* ESC [*header* ESC SP *spoke-table-data* ESC SP ESC ∧ m11, m12, m13, m14, m15, m15, m17 @ *glyphdata-1* ESC ∧ m21, m22, m23, m24, m25, m26, m27 @ *glyphdata-2* . . . ESC ∧ mk1, mk2, mk3, mk4, mk5, mk6, mk7 @ *glyphdata-k* ESC]
Page Format Commands	**Sequence**
Set Lines Per Page to (n)	ESC FF n
Print Orientation	ESC DC2 D m SP
Set Left Margin	1. ESC 9 Sets the left margin at the current AP position. 2. ESC DC4 9 n Sets the left margin at (n-1) HMI from the left page edge. 3. ESC DC2 9 m SP Sets the left margin at m x 1/120 inch from the left page edge.

Table G-1 **AP 9208 Commands (continued)**

Page Format Commands	**Sequence**
Set Right Margin	1. ESC 0 Sets the right margin at the current horizontal AP position. 2. ESC DC4 0 n Sets the right margin at (n-1) HMI from the left page edge. 3. ESC DC2 0 m SP Sets the right margin at m x 1/120 inch from the left page edge.
Set Top Margin	1. ESC T Sets the top margin at the current AP position. 2. ESC DC4 T n Sets the top margin at (n-1) VMI from the top of page. 3. ESC DC2 T m SP Sets the top margin at m x 1/48 inch from the top of page.
Set Bottom Margin	1. ESC L Sets the bottom margin at the current AP position. 2. ESC DC4 L n Sets the bottom margin at (n-1) VMI from the top of page. 3. ESC DC2 L m SP Sets the bottom margin at m x 1/48 inch from the top of page.
Clear Margins	ESC C
Movement Commands	**Sequence**
Set HMI to (n-1)	ESC US n
Set Default HMI	ESC S
Set Absolute Horizontal Position	1. ESC HT n 2. ESC DC4 H n Moves AP to (n-1) HMI from left page edge. 3. ESC DC2 H m SP Moves AP to m x 1/120 inch from left page edge.
Set Relative Horizontal Position	1. ESC DC4 SP <±> n Moves AP right (+) or left (-) by (n-1) x HMI. 2. ESC DC2 SP <±> m SP Moves AP right (+) or left (-) by m x 1/120 inch.
Space (One HMI)	SP
Horizontal Tab	HT
Carriage Return	CR
Backspace	BS
Backspace 1/120-Inch	ESC BS

Table G-1 **AP 9208 Commands (continued)**

Movement Commands	**Sequence**
Set VMI to (n-1)	ESC RS n
Set Absolute Vertical Position	1. ESC VT n Moves AP to (n-1) VMI from the top limit (top of page). 2. ESC DC4 V n 3. ESC DC2 V m SP Moves AP to m x 1/48 inch from the top limit (top of page).
Set Relative Vertical Position	1. ESC DC4 LF <±> n Moves AP down (+) or up (-) by (n-1) x VMI. 2. ESC DC2 LF <±> m SP Moves AP down (+) or up (-) by m x 1/48 inch.
Line Feed	LF
Form Feed	FF
Vertical Tab	VT
Half-Line Feed	ESC U
Negative Line Feed	ESC LF
Negative Half-Line Feed	ESC D
Define CR, LF, and FF	ESC DC2 M m SP
Auto New Line Mode On	ESC ?
Auto New Line Mode Off	ESC !
Enter Reverse Printing Mode	ESC <
Exit Reverse Printing Mode	ESC >
Forward Print Mode On	ESC 5
Backward Print Mode On	ESC 6
Word Processing Commands	**Sequence**
Proportional Space On	ESC P
Offset Selection	ESC DC1 n
Proportional Space Off	ESC Q
Auto Underscore On	ESC E
Auto Underscore Off	ESC R
Bold Print On	ESC O
Shadow Print On	ESC W
Bold/Shadow Print Off	ESC &
Enable Auto Justification	ESC M
Auto Center On	ESC =
Print Suppression On	ESC 7

Table G-1 **AP 9208 Commands (continued)**

Word Processing Commands	**Sequence**
Print Special Characters	1. ESC Y Prints character assigned to <20>. 2. ESC Z Prints character assigned to <7F>.
Cancel Word Processing Modes Except Proportional Spacing	ESC X
Enter Program Mode	ESC SO M
Tab Commands	**Sequence**
Set Horizontal Tab Stop at Current Horizontal Position	ESC 1
Absolute Horizontal Tab Stop	1. ESC DC4 HT c1 n1...nk Sets tab position at (n-1) x HMI from the page left side. 2. ESC DC2 HT m1,...,mk SP Sets tab position at m x 1/120 inch from the page left side.
Set Vertical Tab Stop at Current Print Position	ESC -
Absolute Vertical Tab Stop	1. ESC DC4 VT c1 n1...nk SP Sets tab position at (n-1) x VMI from the page top. 2. ESC DC2 VT m1,...,mk SP Sets tab position at m x 1/48 inch from the page top.
Clear Tabs	ESC 2
Clear Horizontal Tab at Current Position	ESC 8
Graphics Commands	**Sequence**
Transfer Graphic Data	ESC DC2 G m1, m2, m3, m4, m5, m6, m7 @
Draw Ruling	ESC DC2 R m1, m2, m3, m4 SP
Draw Box	ESC DC2 B m1, m2, m3, m4, m5 SP
Enter Graphics Mode	ESC 3
Exit Graphics Mode	ESC 4
Enter Hyplot Absolute Mode	1. ESC G "Vect" 2. ESC G BEL "Vect" Includes the first vector.
Enter Hyplot Relative Mode	1. ESC V "Vect" 2. ESC V BEL "Vect" Includes the first vector.
Set Plot Character to "Character"	ESC . (char)

Table G-1 **AP 9208 Commands (continued)**

Graphics Commands	**Sequence**
Set Plot Precision	ESC , hv
Exit Hyplot Mode	ESC 4
Remote Diagnostic Commands	**Sequence**
Remote Restore (Hard)	ESC SUB I
Remote Error Reset	ESC SUB R
Request Status Byte 1	ESC SUB 1
Request Status Byte 3	ESC SUB 3
Request Printer Status	ESC SUB # 1 SP
Request Paper Size Status	ESC SUB # 2 SP
Request Download Memory Status	ESC SUB # 4 SP
Request Font Status	ESC SUB # 5 SP
Request Selected Font Information	ESC SUB # 6 SP
Miscellaneous Commands	**Sequence**
Remote Restore (Soft)	ESC CR P
Select Number of Copies	ESC DC2 N m SP
Transmit Form Overlay Data	ESC DC2 O m SP *text* ESC DC2 O SP
Delete Form Overlay Data	ESC DC2 O m SP ESC DC2 O SP
Select Form Overlay Data	ESC DC2 U m SP

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U

W

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