UNISYS

AP 9215-1
Printer

Installation and
Operations Guide

Priced Item

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The statement below is included in this document to comply with a Federal Communications Commission (FCC) regulation. The FCC is an agency of the United States government; thus, the statement below applies to computing equipment installed in the United States of America. Unisys is taking appropriate steps to be in compliance with FCC regulations and similar regulations of other countries.

WARNING: This equipment has been certified to comply with the limits for a Class B computing device peripheral, pursuant to Subpart J of Part 15 of FCC Rules. Operation with noncertified equipment is likely to result in interference to radio and TV reception.

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been type tested and found to comply with the limits for a Class B computing device peripheral in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

☐ Reorient the receiving antenna.

☐ Relocate the computer with respect to the receiver.

☐ Move the computer away from the receiver.

☐ Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful:

How to Identify and Resolve Radio-TV Interference Problems

This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

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Publication
Change Notice (PCN)

This PCN replaces the previous version of this manual

Changes made are indicated by a black bar in the margin.

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About This Guide

The AP 9215-1 laser printer is a desktop, non-impact printer using a semiconductor laser and an electrophotographic process. The printer's high print density resolution of 300 dots per inch both vertically and horizontally provides a letter-quality image. The AP 9215-1 has two paper trays, a high capacity paper stacker, and a 16-character display panel for printer status messages.

Purpose

The AP 9215-1 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 during normal use.

How to Use this Document

The reader should use this guide for step-by-step installation of the AP 9215-1 printer. After installation, Sections 4, 5, and 6 can be consulted for operation, maintenance, and troubleshooting instructions. The appendixes contain reference information.

Organization

This guide contains six sections.

Section 1: Unpacking and Inventory

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

Section 2: Setting Up the Printer

Explains the procedures for setting up the printer at your
workstation, including installing the paper trays, toner
cartridge, and Organic Photoconductor (OPC) cartridge;
loading the paper; plugging in the printer's power cord;
connecting the printer to your computer; and selecting the
emulation.

Section 3: Setting the Printer's Modes

Describes the procedures for setting the printer's default
modes using the indicator panel and briefly explains each
mode.

Section 4: Operating the Printer

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

Section 5: Maintaining the Printer

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

Section 6: Troubleshooting

Provides information for identifying and solving some
common printer problems.

The appendixes provide information about printer
specifications, supplies, default values, resident fonts, and
ASCII character sets and control codes; installing the
printer with Unisys systems; and using optional font
cartridges with the printer.

Related Product Information

The following reference manuals are available for the AP
9215-1 printer:

*AP 9215-1 Printer Diablo® 630 Emulation Programming
Reference Manual, Volume 1: Text Mode* (form 1205721)

*AP 9215-1 Printer Diablo 630 Emulation Programming
Reference Manual, Volume 2: Vector Graphics Mode* (form
1205739)

Diablo® is a registered trademark of XEROX Corporation.

AP 9215-1 Printer LaserJet+™ Emulation Programming Reference Manual (form 1205713)

AP 9215-1 Printer FX-80™ Emulation Programming Reference Manual (form 1205705)

AP 9215-1 Printer Proprinter® Emulation Programming Reference Manual (form 1205747)

The following manuals provide information about font cartridges which can be ordered for use with the AP 9215-1 printer:

FC 9200 Font Cartridge Support Reference Manual (form 1205382)

FC 9200 Font Cartridge Installation and Operations Guide (form 1205374)

Software documentation cited in this guide includes the following:

BTOS Generic Print System (GPS) Installation and Administration Guide (form 5023989)

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

XE 500 BTOS Installation and Implementation Guide, Release Level B6.0 (form 1207727)

XE 500 BTOS System Software Installation Guide, Release Level B5.0 (form 1192259)

5000/70 CENTIX™ Installation and Implementation Guide, Release Level B6.1 (form 1207792)

XE 500 CENTIX Software Installation Guide, Release Level B5.0 (form 1192242)

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FX-80™ is a trademark of Epson Corporation.

Proprinter® is a registered trademark of International Business Machines Corporation.

CENTIX™ is a trademark of Unisys Corporation.

5000/70 CENTIX Administration Guide, Release Level
B6.1 (form 120776)

XE 500 CENTIX Administration Guide, Release Level B5.0
(form 1192176)

To order these manuals, contact your Unisys sales
representative.

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 the Printer

The following instructions will guide you through the proper procedure for unpacking your AP 9215-1 printer. Follow each step carefully to avoid accidental injury or damage to the equipment.

1 Verify 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**
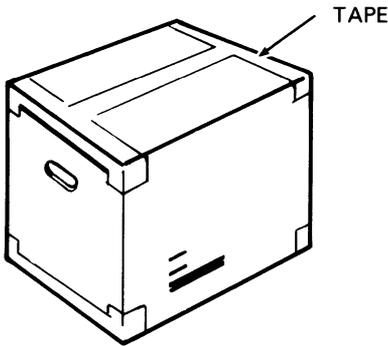
PL1771

2 Remove the accessories and paper tray boxes.

Figure 1-2 **Removing the Accessories and Paper Tray Boxes**
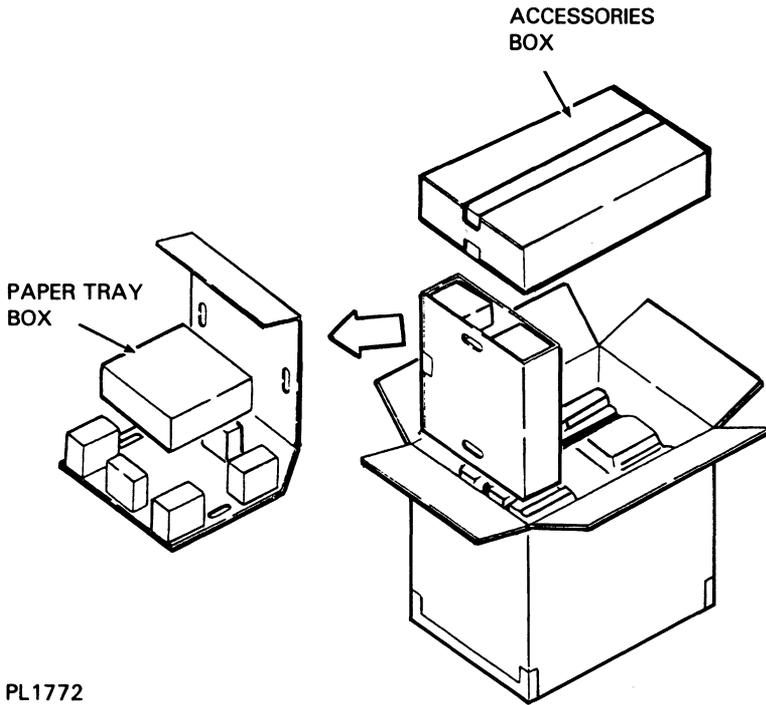
PL1772

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

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

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

BELT

INNER
PADDING
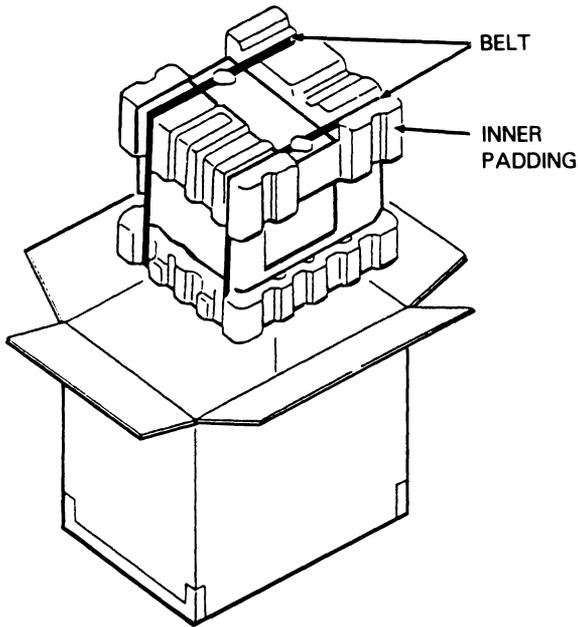
PL1729

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

5 Remove the retaining belts and the styrofoam padding
on top of the printer. Do not cut the belts 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, and lifting the
printer from the bag.

Figure 1-4   **Removing the Printer from the Bag**
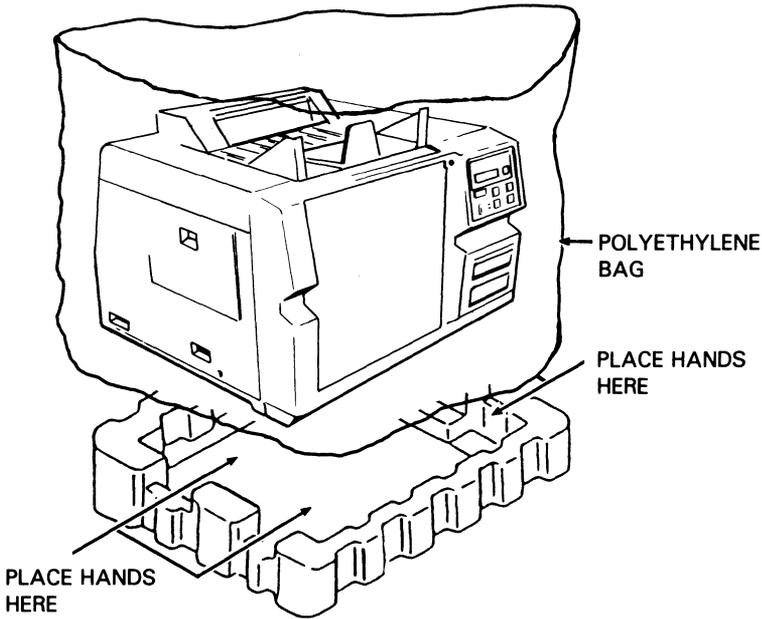
PL1801

Inventory

After unpacking the printer and the accessories and paper tray boxes, make an inventory of the equipment and material you have received. You should have the following (see Figure 1-5):

Figure 1-5 **Inventory**

PRINTER   POWER CORD
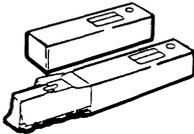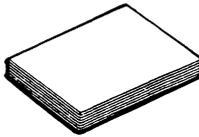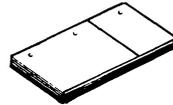
TONER CARTRIDGE,   PAPER, 250 SHEETS   INSTRUCTION MANUAL,
2 PCS   1 SET
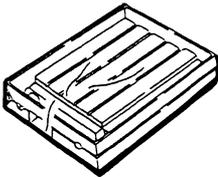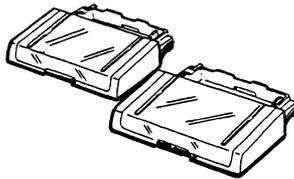
OPC CARTRIDGE   PAPER TRAYS

PL2071

☐ The printer.

☐ Power cord.

☐ This Installation and Operations Guide.

☐ Two paper trays.

> **Note:**   If you ordered a 100/120 V model printer, it will be shipped with
> two trays for letter (8 1/2 by 11) size paper. If you ordered a 220/240 V
> model printer, it will be shipped with two trays for A4 size paper. Trays for
> legal size paper must be ordered separately.

□ Paper.

□ Two toner cartridges.

□ Organic Photoconductor (OPC) cartridge.

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 5.

Setting Up the Printer

Before beginning this section, you should have unpacked the 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.

□ Familiarize yourself with the printer's parts.

□ Install the paper trays.

□ Install the toner and OPC cartridges.

□ Load the paper.

□ Check the quenching lamp, toner collection bottle, transfer corona unit, charge corona unit, and shield lens.

□ Plug in the printer's power cord.

□ Connect the printer to your computer.

□ Select the printer emulation you will work in.

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.

Becoming Familiar with the Printer

Figures 2-1 and 2-2 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 these parts as we go along.

Figure 2-1   **Front View of the Printer**
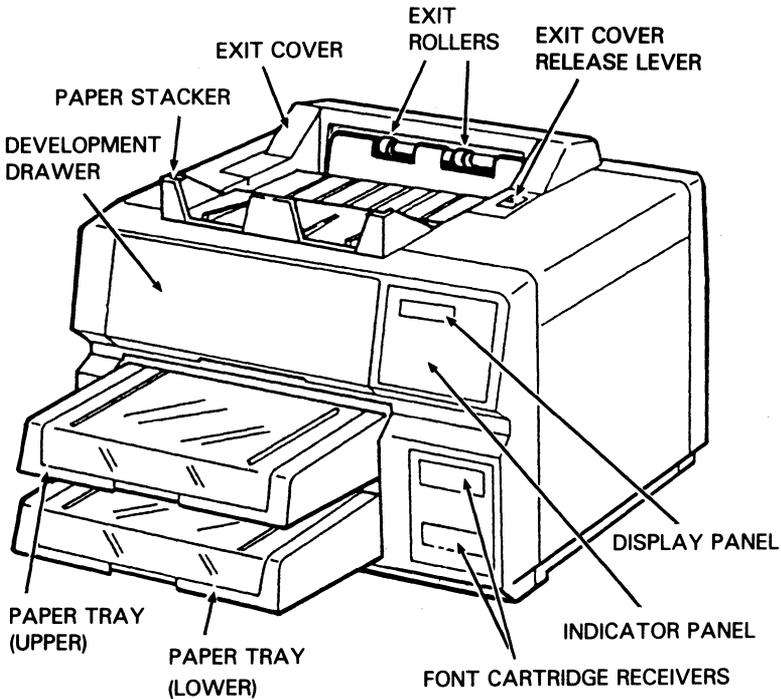
PL1760

Note: The printer is shown in Figure 2-1 with the paper trays installed.
Instructions for installing the paper trays are given later in this section.

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

INTERFACE CABLE
CONNECTORS

LEFT SIDE COVER

EMULATION CARD
RECEIVER

FUSE HOLDER

POWER CORD CONNECTOR

POWER SWITCH

TOTAL SHEET
COUNTER
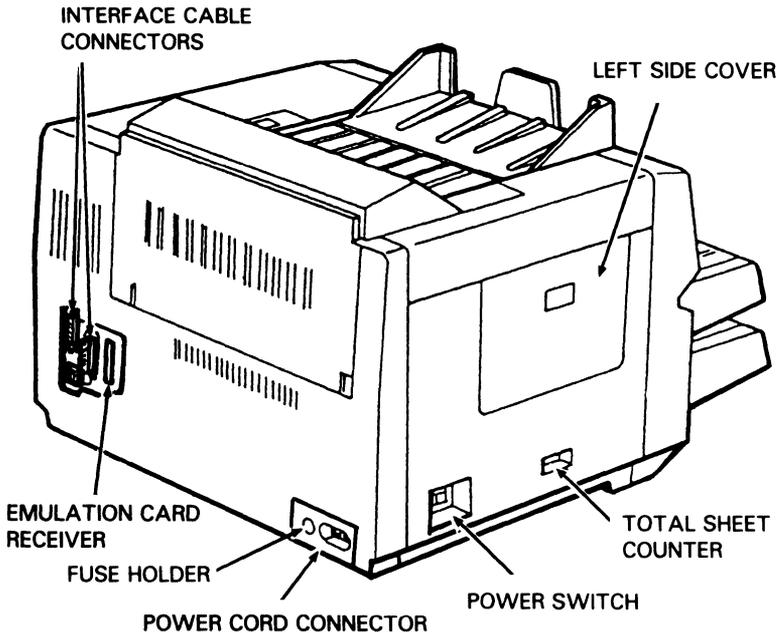
PL2440

Indicator Panel

Figure 2-3 shows the AP 9215-1 indicator panel, located on
the front of the printer. The indicators inform you of the
printer's operational status or of a situation which may
require your attention. The control buttons allow you to
perform certain manual operations with the printer.
Several of the buttons are able to perform two different
functions, one if pressed by itself and another if pressed
while pressing the Shift button. The Shift function is
shown in italics under the name of the first function.

Figure 2-3 **Indicator Panel**
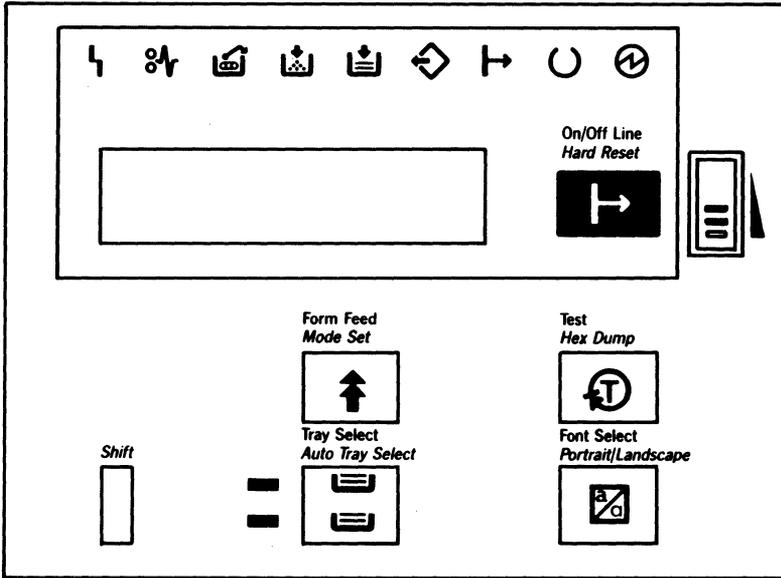
PL2459

These indicators and controls are described in Table 2-1.
Take time to become familiar with the displays on this
panel before beginning printer operation. These functions
are discussed in more detail elsewhere in this guide.

Note: When you perform a function using one of the indicator panel control
buttons, you must return the printer to on-line mode before performing the next
function. Returning to on-line mode reads the function into the printer's memory.
If you perform two or more functions before returning to on-line mode, the
printer will only recognize the last function.

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

Indicator or Control	Meaning	Description
┑	Error	This indicator flashes if an error occurs. The error condition is indicated on the display panel.
⊶⅄	Paper Jam	This indicator flashes if a paper jam occurs. The paper jam location is indicated on the display panel.
⊑⊙⊒	OPC Cartridge Change	This indicator lights when the OPC cartridge needs replacement.
⊾⊡⊿	Toner Empty	This indicator lights when the toner cartridge needs replacement.
⊾⊒⊿	Paper Empty	This indicator flashes when the selected paper tray is empty.
◇	Data In Buffer	This indicator lights when data to be printed is present in the controller memory.
├▸	On-Line	This indicator is on when the printer is ready to receive data from the host computer and print (on-line) and off when the printer is not ready to receive data from the host computer (off-line).
○	Ready	This indicator is off while the printer is warming up and while it is printing. When the printer is ready to accept data from the host computer, the indicator lights.
⊘	Power	This indicator lights when the power is on.
	Display Panel	This panel displays "READY" when the printer is on-line and ready to receive data. This panel displays "DATA PRESENT" when the printer is receiving data. This panel also displays messages to supplement the indicators. For a list of error messages, consult Section 6.
├▸	On/Off Line/*Hard Reset*	Pressing this button puts the printer in on-line mode (ready to receive data from the host computer and print) or off-line mode (not ready to receive data from the host computer). Pressing this button while pressing the Shift button resets the printer.

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

Indicator or Control	Meaning	Description
I	Brightness Adjustment	Sliding this switch adjusts the display panel contrast.
	Form Feed/*Mode Set*	Pressing this button while data is in the printer's buffer prints out that data. (The printer must be off-line when performing this function.) If this button is pressed when data is not present in the buffer, this function is ignored.
		Pressing this button while pressing the Shift button allows you to set the printer's default modes. (The printer must be off-line when performing this function.) For more information, consult Section 3, "Setting the Printer's Modes."
		While you are setting the printer's default modes, pressing this button displays the next mode. (The printer must be off-line when performing this function.) For more information, consult Section 3, "Setting the Printer's Modes."
	Test/*Hex Dump*	Pressing this button produces a test summary sheet. (The printer must be off-line when performing this test.)
		Pressing this button while pressing the Shift button causes the printer to print out any data in its buffer in hexadecimal form. (The printer must be off-line when performing this function.) This form is useful to programmers and customer service engineers for diagnosing printer problems.
		While you are setting the printer's default modes, pressing this button displays the next option within a mode. (The printer must be off-line when performing this function.) For more information, consult Section 3, "Setting the Printer's Modes."

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

Indicator or Control	Meaning	Description
[ ]	*Shift*	Pressing this button while pressing the On/Off Line button resets the printer.
		Pressing this button while pressing the Font Select button switches the page orientation between portrait and landscape. (The printer must be off-line when performing this function.)
		Pressing this button while pressing the Tray Select button puts the printer in Endless Feed mode. (The printer must be off-line when performing this function.)
		Pressing this button while pressing the Form Feed button allows you to set the printer modes' default values. (The printer must be off-line when performing this function.)
		Pressing this button while pressing the Test button causes the printer to print out any data in its buffer in hexadecimal form. (The printer must be off-line when performing this function.)
▬ ▬	Tray Select Indicators	These indicators light to show which paper tray has been selected.
		When the printer is in Endless Feed mode, both indicators light and the indicator for the tray that is currently being used for printing flashes.

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

Indicator or Control	Meaning	Description
⊟⊟ (Tray Select icon)	Tray Select/ *Auto Tray Select*	Pressing this button selects either the upper or lower paper tray. (The printer must be off-line when performing this function.) Pressing this button while pressing the Shift button puts the printer in Endless Feed mode. (The printer must be off-line when performing this function.) While you are setting the printer's default modes, pressing this button displays the previous mode (The printer must be off-line when performing this function.) For more information, consult Section 3, "Setting the Printer's Modes."
(Font Select icon)	Font Select/ *Portrait/ Landscape*	Pressing this button changes the font. (The printer must be off-line when performing this function.) Pressing this button while pressing the Shift button switches the page orientation between portrait and landscape. (The printer must be off-line when performing this function.) While you are setting the printer's default modes, pressing this button displays the previous option within a mode. (The printer must be off-line when performing this function.) For more information, consult Section 3 "Setting the Printer's Modes."
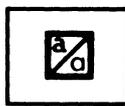
Installing the Paper Trays

Your printer comes with two paper trays, as noted in Section 1. Each tray is designed to be used with one size of paper: letter, A4, or legal size. If the paper size does not match the paper tray, the paper may misfeed or jam the printer. If you need paper trays in addition to the ones you received with your printer, contact your Unisys sales representative.

1 Remove the protective wrapping from the paper trays.

2 Remove the two pieces of tape on each end of the paper trays.

3 Remove the styrofoam blocks from inside the paper trays.

4 Remove the tape restraining the bottom plate drive arms (upper and lower).

5 Insert one paper tray into the lower part of the printer (see Figure 2-4). Make sure the tray sits squarely all the way in the printer.

Note: The paper trays are interchangeable. Either tray can fit in either the lower or upper opening.

Figure 2-4 **Installing the Lower Paper Tray**

BOTTOM PLATE DRIVE ARM (UPPER)

BOTTOM PLATE DRIVE ARM (LOWER)
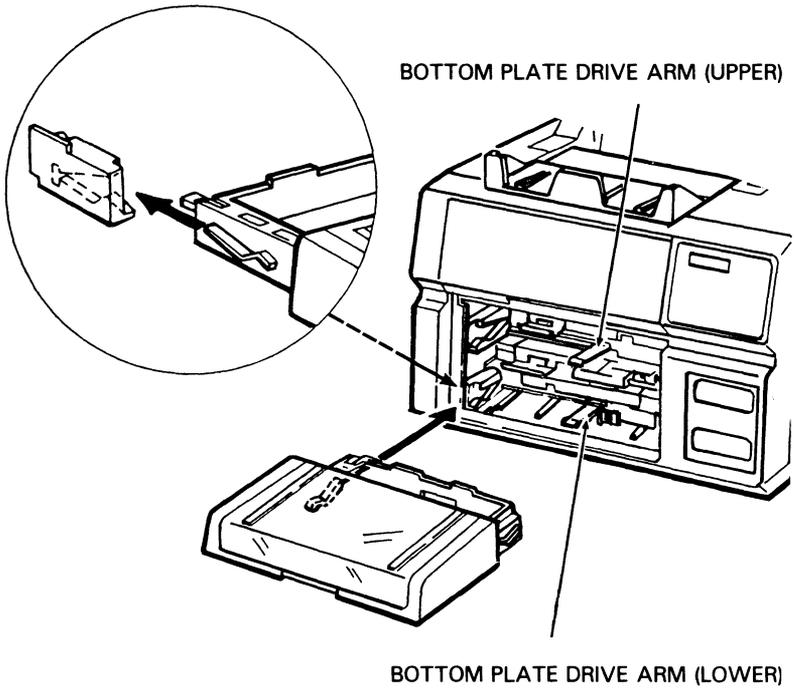
PL1780

6 Insert the other paper tray into the upper part of the
printer (see Figure 2-5). Make sure the tray sits
squarely all the way in the printer.

1205796

Figure 2-5 **Installing the Upper Paper Tray**
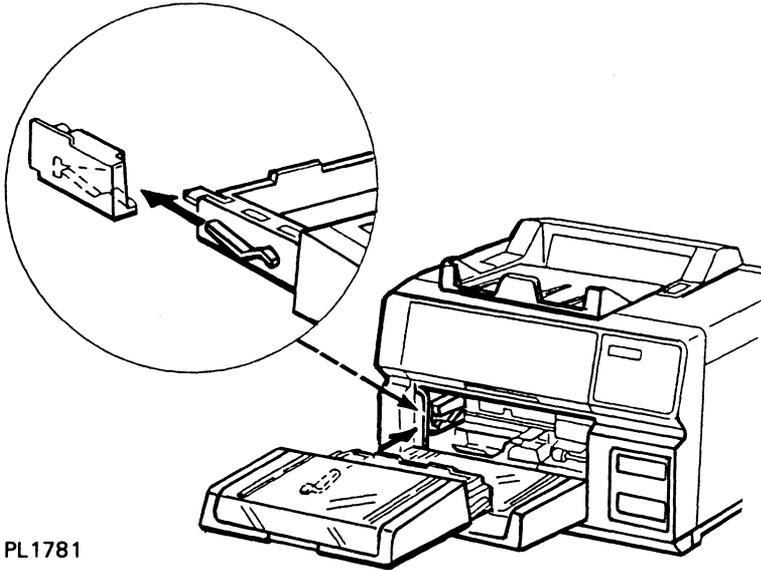
PL1781

Installing the Toner Cartridge: Initial Installation

The AP 9215-1 printer uses a non-toxic toner, similar to the toner 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 Toner Empty indicator lights. The following instructions are for initial installation only. For normal toner replacement, consult "Replacing the Toner Cartridge" in Section 5.

1 Remove one of the two toner cartridges from its package and shake it vigorously twenty or more times.

2 With the upper paper tray in position, pull out the development drawer until it stops.

3 Hold the toner cartridge so the seal is on the right and align the projections on the cartridge with the notches on the development tank.

4 Push the toner cartridge down into the toner cartridge holder. Check that the cartridge is firmly fitted to the holder.

Figure 2-6 **Installing the Toner Cartridge**

DEVELOPMENT
TANK
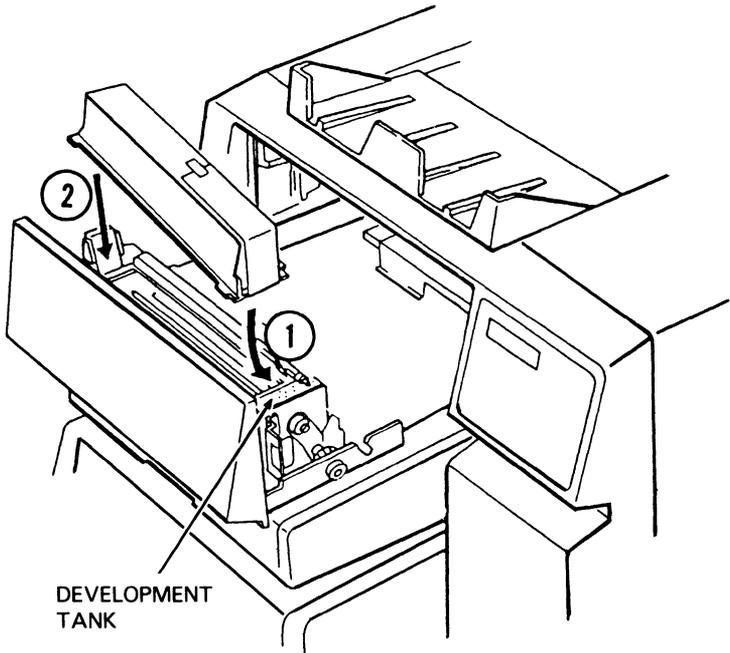
PL1628

5 Peel down the end of the toner cartridge seal.

Figure 2-7   Peeling the Toner Cartridge Seal
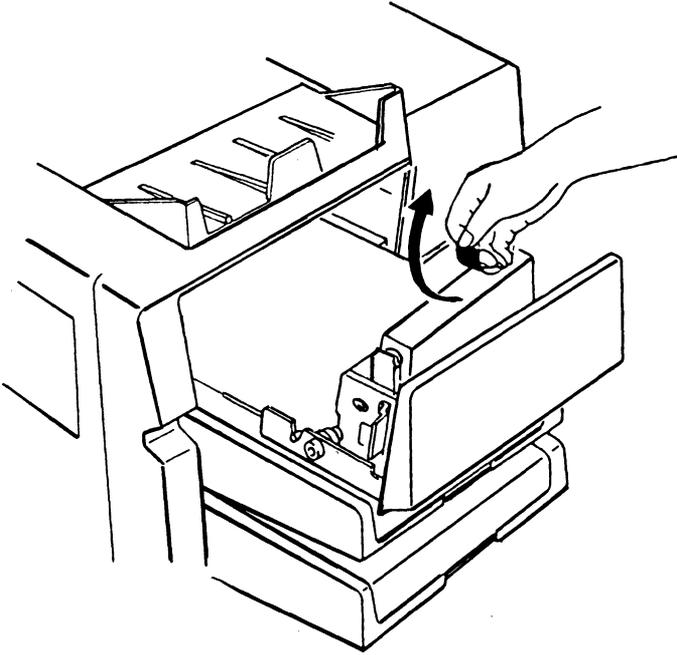
PL1630

6 Hold the toner cartridge with one hand and pull the seal horizontally until a green tab becomes visible.

Figure 2-8 **Pulling the Seal**
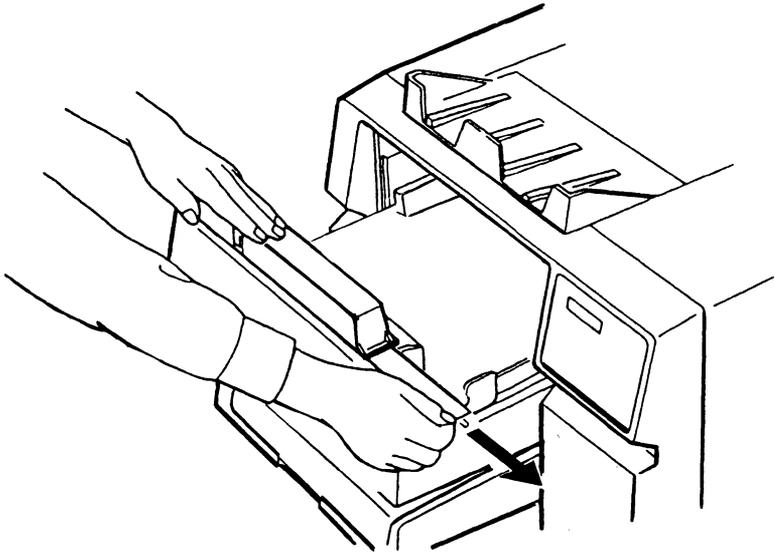
PL1623

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

Figure 2-9   **Peeling Off the Tab**
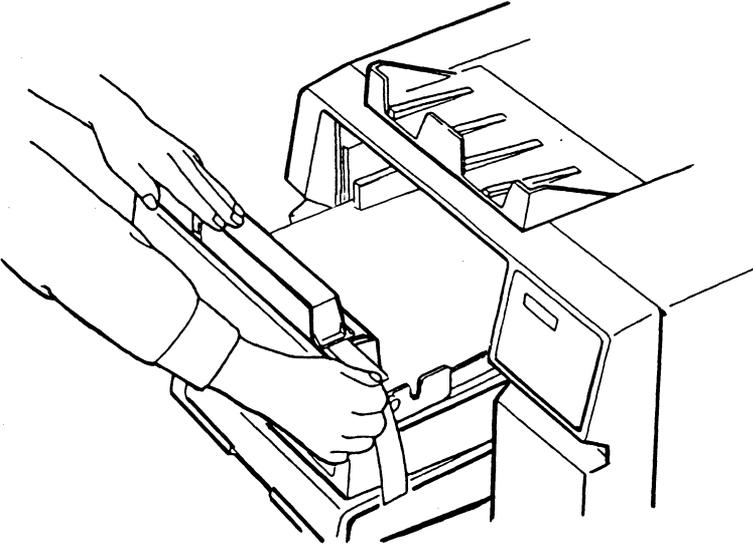
PL1625

8 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 5.

9 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 2-10 **Removing the Empty Toner Cartridge**
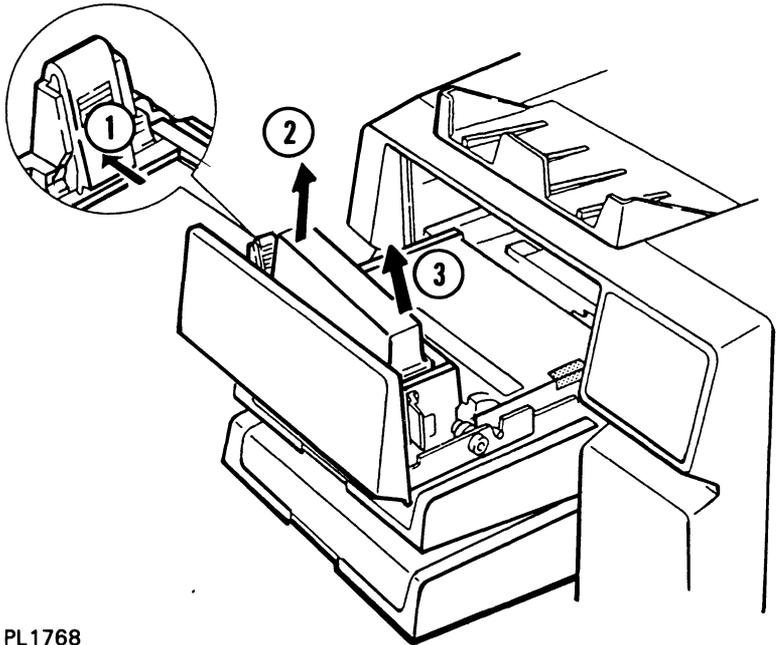
PL1768

10 Repeat Steps 3 through 7 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.

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

Installing the OPC Cartridge

Caution: The following procedure (Steps 1 through 8) 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 upper paper tray.

2 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 2-11 **Packing of the OPC Cartridge**

"UP" INDICATION

PLASTIC BOX

VINYL BAG
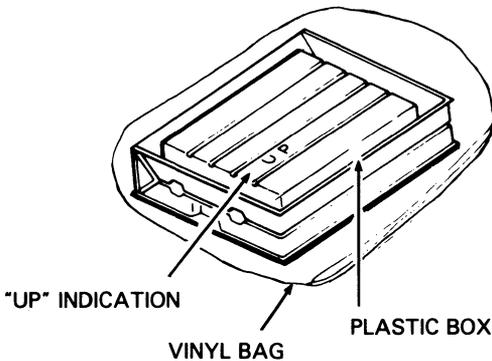
PL1763

3 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.

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

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

Figure 2-12   **Handling the OPC Cartridge**

SPACER (GREEN)

GREEN MARK

PROTECTIVE SHEET

GREEN MARK
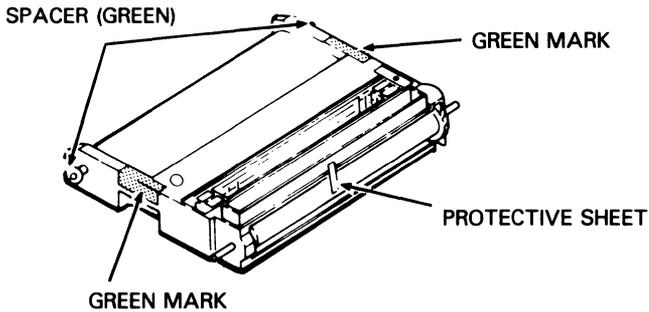
PL1764

6 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.

7 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 2-13   **Inserting the OPC Cartridge**
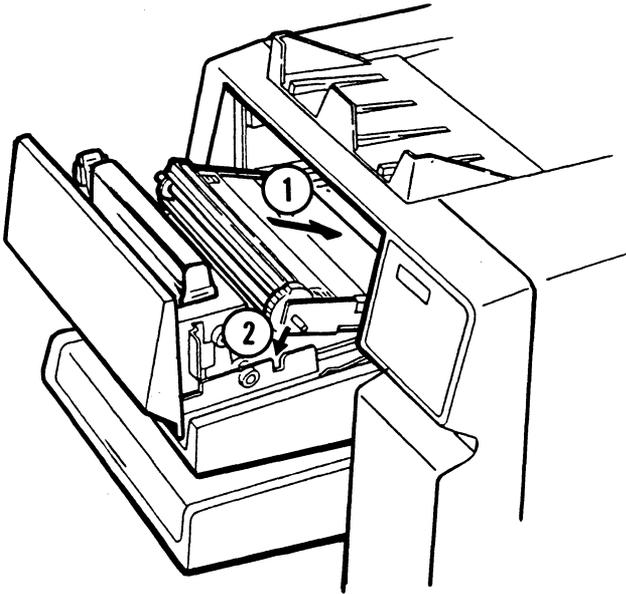
PL1765

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

Loading Paper

When loading paper into the paper trays,

□ Make sure the paper size is the same as the paper tray
size (letter, A4, or legal). If the paper size and paper
tray size are different, the paper will jam at the exit.

□ 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.

Loading Paper into the Upper Paper Tray

1 Open the paper tray cover.

2 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. A supply of paper is included in the accessories box.

Figure 2-14 **Loading Paper into the Upper Paper Tray**
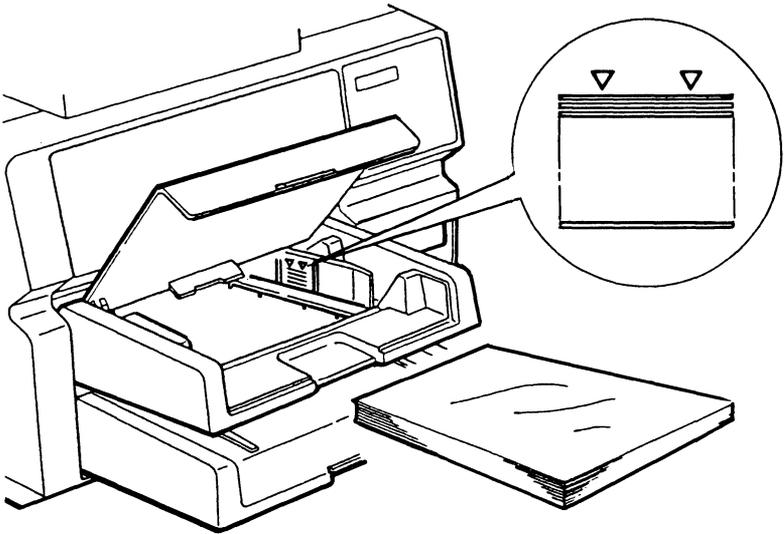
PL1066

3 Close the paper tray cover.

Loading Paper into the Lower Paper Tray

1 Remove the lower paper tray by lifting it up and pulling it out.

2 Open the paper tray cover.

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. A supply of paper is included in the accessories box.

Figure 2-15   **Loading Paper into the Lower Paper Tray**
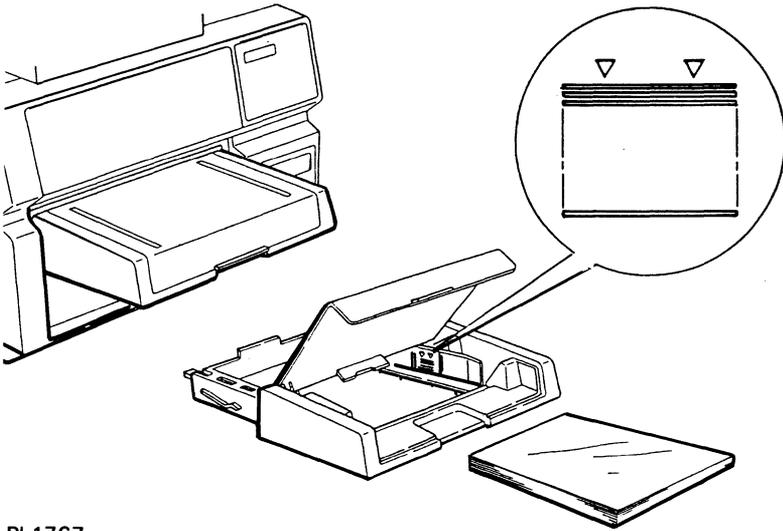
PL1767

4 Close the paper tray cover.
5 Replace the lower paper tray. Make sure the tray sits squarely all the way in the printer.

Checking the Quenching Lamp, Toner Collection Bottle, Transfer Corona Unit, Charge Corona Unit, and 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 2-16   **Checking the Quenching Lamp, Toner Collection Bottle, Transfer Corona Unit, Charge Corona Unit, and Shield Lens**

QUENCHING
LAMP

CLEANING UNIT   CHARGE CORONA UNIT

SHIELD LENS

TRANSFER CORONA
UNIT

TONER COLLECTION BOTTLE
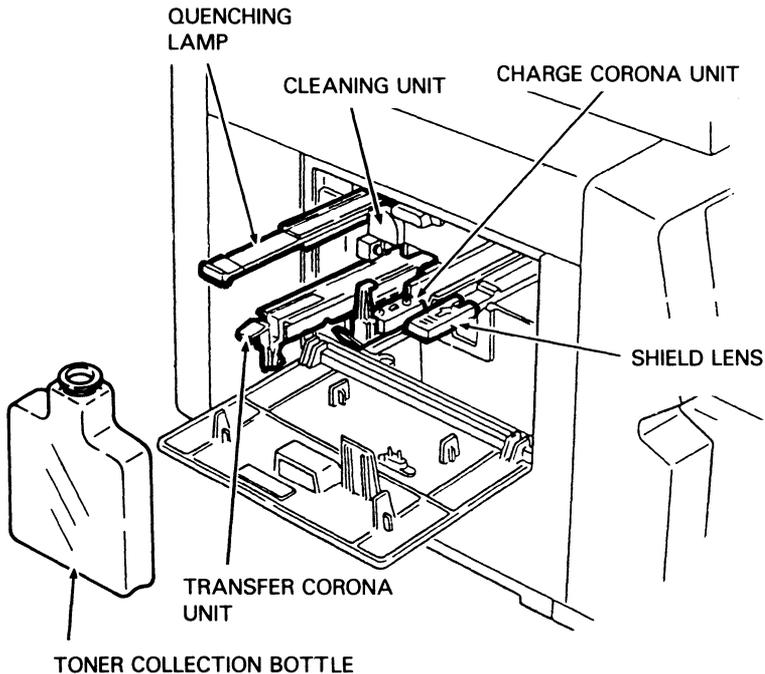
PL1791

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.

1205796

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 lens, 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.

Connecting the AC Power Cord

1 Make sure the power switch on the left 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 2-17).

Figure 2-17   **Connecting the AC Power Cord**
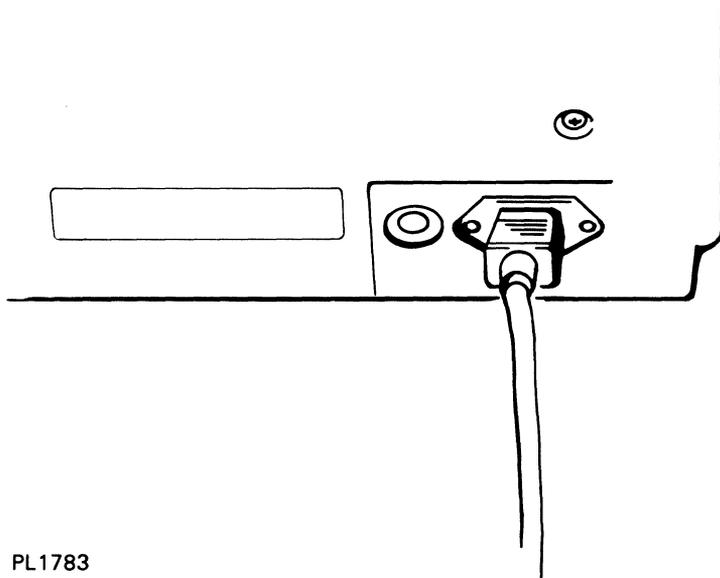
PL1783

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 Host Computer

Caution: Set the printer power switch to the OFF (O) position before plugging in the interface (I/F) cable.

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 2-18.

Figure 2-18   **Location of the Printer Interface Cable Connectors**

SERIAL INTERFACE
CABLE CONNECTOR

PARALLEL INTERFACE
CABLE CONNECTOR
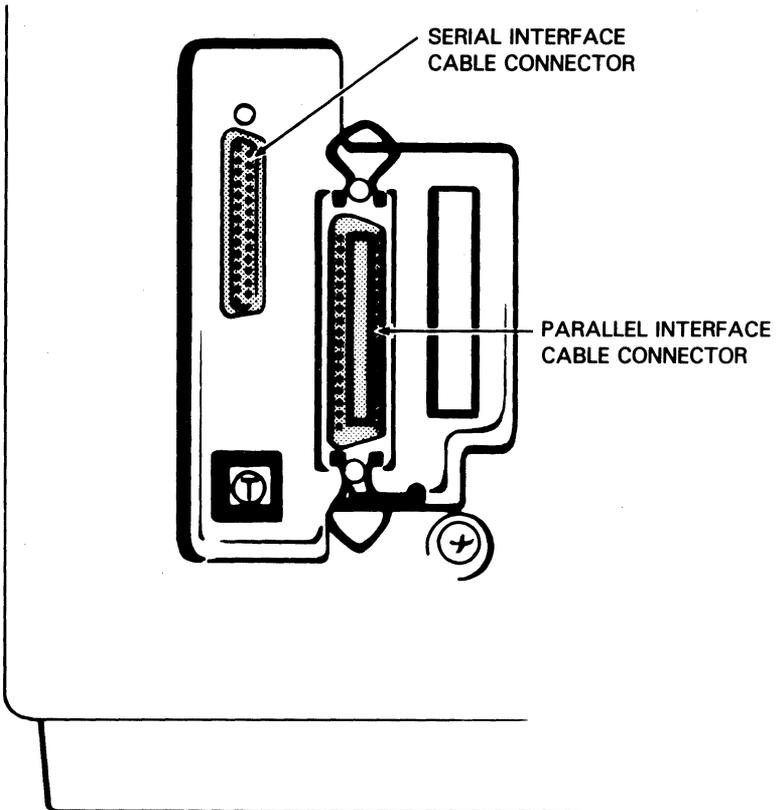
PL2458

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 the I/F cable can be installed
on the I/F connector.

Selecting the Emulation

The AP 9215-1 printer's command set is designed to imitate, or emulate, a Diablo 630 daisy wheel printer. Many host computers and their software are able to communicate with printers using the Diablo 630 commands. If your computer and software are among them, then you can use the AP 9215-1 printer with its resident emulation.

You can make your AP 9215-1 emulate some other printers by using an emulation card. When the emulation card for a particular printer is installed, that printer's command set is available to the AP 9215-1 printer. You then use the indicator panel to select the command set you want to use (see Section 3, "Setting the Printer's Modes"). For information about the emulations that are currently available and to order emulation cards, contact your Unisys sales representative.

The emulation card is contained in a small, flat plastic package about the size of a credit card. At one end of the package is a connector. To install an emulation card, follow these instructions:

Caution: Make sure the power to your printer is completely off before installing an emulation card. Installing an emulation card while the power is on may damage the card.

---

1 Make sure the power switch on the left side of the printer is set to the OFF (O) position and the indicator panel lights are completely off.

2 Slide the emulation card into the slot in the back of the printer (see Figure 2-19). Make sure that the label side of the card is facing right. The end of the card will protrude slightly from the slot.

Figure 2-19 **Installing the Emulation Card**
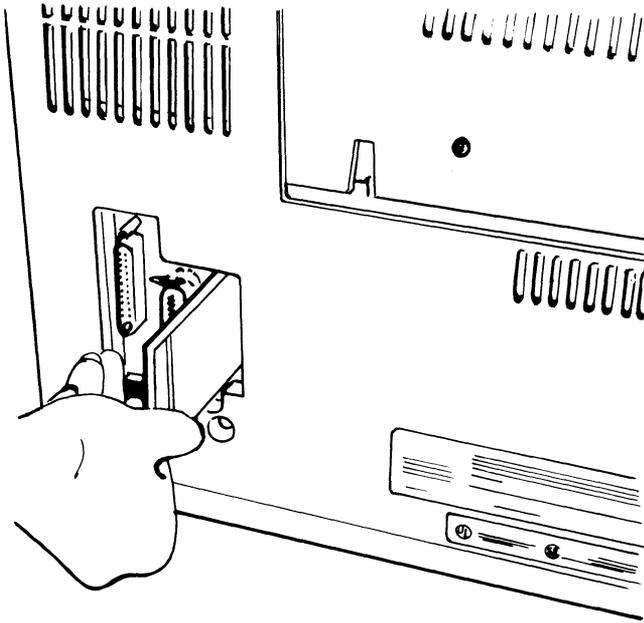
PL2444

After installing the emulation card, you should set the printer so it will automatically use the command set for your emulation card whenever you turn it on. Instructions for setting this default are in Section 3, "Setting the Printer's Modes."

For more information about the printer commands, consult the Unisys programming reference manual for the appropriate emulation. For a list of the available manuals, see "Related Product Information" in the introduction to this guide.

Setting the Printer's Modes

Before beginning this section, you should have unpacked and set up the printer. If you have not yet completed set up, refer to the instructions in Sections 1 and 2.

The printer's mode settings control various format and data communications functions, such as line spacing, character pitch, and the interface (parallel or serial). These settings become effective automatically when the printer's power is turned on or when the printer is reset.

In the AP 9215-1 printer, many of the modes are set using the indicator panel. For your printer to operate properly, the printer's modes set by the indicator panel must be compatible with the host system's configuration file parameters. This section describes how to:

□ Power on the printer.

□ Print a test summary sheet to determine the printer's current mode settings.

□ Change the printer's mode settings.

This section also includes a brief description of the indicator panel modes and the options for each.

For a list of all the values to which the printer returns after power on or a hard reset, for both those modes set with the indicator panel and others, consult Appendix D, "Default Values."

For a description of typical settings used with certain Unisys systems, consult Appendix E, "Installing the AP 9215-1 Printer with Unisys Systems."

Powering On the Printer

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

a The fan motor starts rotating.

b The bottom plates of the paper trays rise.

c The Power indicator lights.

d The Ready indicator remains OFF.

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

POWER SWITCH
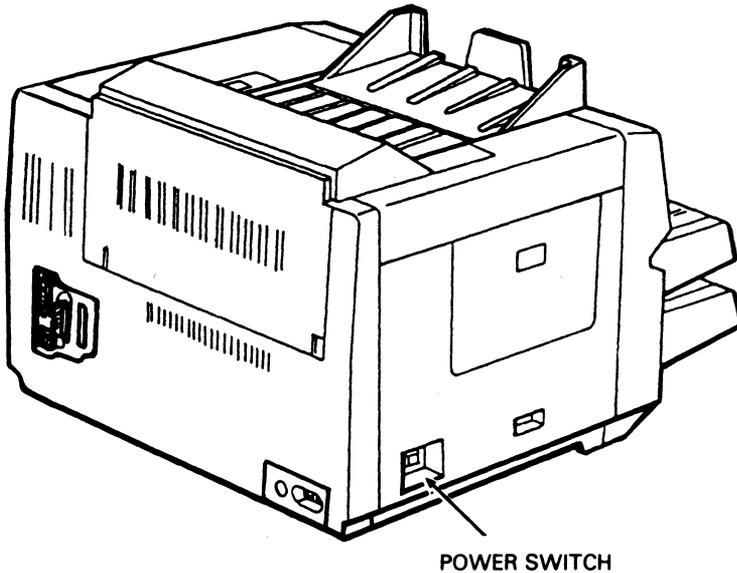
PL2457

2 After approximately 90 seconds, the Ready indicator
will light and the display panel will show the message
"READY". The printer is now ready for operation.

Printing a Test Summary Sheet

Conducting a print test produces a summary sheet that
provides important information about the printer, such as
the current mode settings. A sample of this form is shown
in Figure 3-2. Instructions for printing a test summary
sheet follow.

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

2 Press the Test button located on the indicator panel.

   Note: Do not confuse the Test button and its functions with the Self Test
   button on the back of the printer. Pressing the Self Test button tests the
   engine drive system. This test is normally performed by a Unisys customer
   service engineer to check print alignment and is not needed during normal
   printer operation.

3 The printer will print a summary sheet (see Figure 3-2). This summary sheet includes the following information:

a The revision level of the printer's firmware. If an emulation card is installed and the Emulation Mode is set to "Option," the summary sheet will also show the revision level of the installed emulation card.

b 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 Unisys programming reference manual for your emulation.

c The type of paper tray located in the upper and lower paper tray slots. The paper tray currently selected for printing is marked "(Selected)".

d The printer's current and default mode settings.

e The names of the available fonts, including fonts that have been downloaded or installed using font cartridges and assigned to the printer for use. For more information about assigning fonts, consult the Unisys programming reference manual for your emulation.

> **Note:** The same font name will appear more that once if both the primary and secondary character sets are present or if the font has been rotated.

f The assignment number of each font.

g The height of each font in 1/100 point units (1000 = 10 points, 1200 = 12 points, and so on).

h The weight, or boldness, of each font (500 = light, 1000 = normal, 1500 = heavy).

i An indication of whether a font 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.

j A partial sample of the indicated font.

k A list of printer errors, if any.

Figure 3-2   **Sample Test Summary Sheet**

```
S U M M A R Y   S H E E T   Product/Style AP9215-1   FIRMWARE REV. ⓐ
Total RAM: 1184 Kb      ⓑ Available RAM: 1120 Kb
Upper Tray: Letter (Selected) ⓒ
Lower Tray: Not Used
```

	Current Values:	Default Values:
Parameters: ⓓ	(Temporary)	(Saved)
Host Interface	Ser. XON/XOFF	Ser. XON/XOFF
Emulation Mode	Internal (D630)	Option
Printer Mode	WP-portrait	WP-portrait
Line Termination	CR=CR, LF=NL	CR=CR, LF=NL
Auto Wrap Around	Disable	Disable
Current LPI	6 LPI	6 LPI
Current CPI	10 CPI	10 CPI
Current Font	COURIER 10	Cartridge
Nationality	U.S.A	U.S.A
Serial Baud Rate	9600 Baud	9600 Baud
Serial Data Form	8Bit 1Stop None	8Bit 1Stop None
Serial I/F Mode	Full Duplex Mode	Full Duplex Mode
Page Origin	Printable Area	Printable Area
Endless Feed	Disable	Disable

Fonts in System: ⓔ	No. ⓕ	Height ⓖ	Weight ⓗ	Set ⓘ	Font Style Example ⓙ
COURIER 10	1	1200	1000	P	!"#$%&'()*+,-./0123
COURIER 10	1	1200	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
COURIER 12	2	984	1000	P	!"#$%&'()*+,-./0123
COURIER 12	2	984	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
PRESTIGE ELITE	3	984	1000	P	!"#$%&'()*+,-./0123
PRESTIGE ELITE	3	984	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
BOLD ITALIC PS	4	984	1000	P	!"#$%&'()*+,-./0123
BOLD ITALIC PS	4	984	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
BOLDFACE PS	5	984	1000	P	!"#$%&'()*+,-./0123
BOLDFACE PS	5	984	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
LETTER GOTHIC 12	6	1200	1000	P	!"#$%&'()*+,-./0123
LETTER GOTHIC 12	6	1200	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
LETTER GOTHIC 15	7	984	1000	P	!"#$%&'()*+,-./0123
LETTER GOTHIC 15	7	984	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ
ORATOR 90%	8	1200	1000	P	!"#$%&'()*+,-./01234
ORATOR 90%	8	1200	1000	S	¡¢£¤°µ¼½¾¿´¨˜¯˘˙™ˆ˚˝ÆÐ

```
No Errors ⓚ
```

PL2519

Note: The summary sheet prints in portrait orientation, even if the page orientation is set to landscape. Printing a summary sheet does not change the page orientation for subsequent printed sheets.

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

Compare the printer's mode settings on the test summary sheet with the settings required by your host computer. If the settings are not compatible, adjust the printer's settings as indicated in the next procedure, "Changing the Printer's Mode Settings."

Changing the Printer's Mode Settings

You may need to adjust the default mode settings to meet the requirements of your host computer. You can make either temporary or permanent changes to the settings.

❑ Temporary changes become effective immediately, but will return to the original default mode settings after you turn the printer off, reset the printer using the indicator panel, or, in the Diablo 630 emulation, send a Hard Reset command to the printer from the host computer.

❑ Permanent changes become effective immediately; if later temporary changes are made, the permanent settings are restored whenever you turn the printer off, reset the printer using the indicator panel, or, in the Diablo 630 emulation, send a Hard Reset command to the printer from the host computer.

When you are first setting the printer modes to be compatible with your host computer, you should make **permanent** changes to the modes. If you are changing just a few modes to meet the requirements of a particular document, make **temporary** changes to the modes.

Making Permanent Changes to the Mode Values

1 Set the printer power switch to the ON (I) position.

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

3 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET" will appear in the display panel.

4 Press the Shift and Hard Reset buttons simultaneously. The name of one of the modes will appear in the display panel. If you then press the Mode Set button, the name of the next mode in the list will appear in the display panel. If you press the Tray Select button, the name of the previous mode in the list will appear in the display panel. Consult Table 3-1 for a list of all the modes which can be set using the indicator panel. A description of these modes appears later in this section.

Table 3-1   Indicator Panel Modes and Values

Mode	Values
Host Interface	Parallel, ACK In Busy Parallel, ACK Out Busy Serial, XON/XOFF Serial, ETX/ACK Serial, DTR Serial, DTR + XON/XOFF
Emulation Mode	Internal (D630) Option
Printer Mode	WP-Portrait WP-Landscape DP-Portrait DP-Landscape
Line Termination	CR=CR, LF=LF CR=NL, LF=LF CR=CR, LF=NL CR=NL, LF=NL
Auto Wrap Around	Disable Enable
Current LPI (Lines per Inch)	6 LPI 3 LPI 8 LPI Depends on font
Current CPI (Characters per Inch)	10 CPI 12 CPI 15 CPI Depends on font
Current Font	Courier 10 Courier 12 Prestige Elite Bold Italic PS Boldface PS Letter Gothic 12 Letter Gothic 15 Orator 90% Cartridge
Serial Baud Rate	9600 baud 19200 baud 150 baud 300 baud 600 baud 1200 baud 2400 baud 4800 baud

Table 3-1   Indicator Panel Modes and Values (continued)

Mode	Values
Serial Data Form	8 bits 1 stop none
	8 bits 1 stop odd
	8 bits 1 stop even
	8 bits 2 stop none
	8 bits 2 stop odd
	8 bits 2 stop even
	7 bits 1 stop none
	7 bits 1 stop odd
	7 bits 1 stop even
	7 bits 1 stop mark
	7 bits 1 stop space
	7 bits 2 stop none
	7 bits 2 stop odd
	7 bits 2 stop even
	7 bits 2 stop mark
	7 bits 2 stop space
Serial I/F Mode	Full duplex mode
	Half duplex mode
Page Origin	Printable area
	Paper edge
Endless Feed	Disable
	Enable

5 Press the Mode Set button or the Tray Select button repeatedly until the name of a mode whose default value you want to change appears in the display panel.

6 Press the Test button once; the name of one of the values for the mode will appear in the display panel. If you then press the Test button, the name of the next value in the list will appear in the display panel. If you press the Font Select button, the name of the previous value in the list will appear in the display panel. Consult Table 3-1 for a list of the available values for each mode.

7 Press the Test button or the Font Select button until the new default value that you want for the mode appears in the display panel.

8 Press the Mode Set button to return to the list of default modes.

9 Repeat Steps 5 through 8 until you have made all the necessary changes to the default modes and the name of one of the default modes appears in the display panel.

10 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET: SAVED" will appear in the display panel.

11 Press the On/Off Line button to return the printer to on-line mode. The On-line indicator will light. The changes you made to each default value will take effect immediately.

Example

To permanently change the default host interface to Serial, XON/XOFF:

1 Set the printer's power switch to the ON (I) position.

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

3 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET" will appear in the display panel.

4 Press the Shift and Hard Reset buttons simultaneously. The name of one of the default modes will appear in the display panel.

5 Press the Mode Set button or the Tray Select button until "HOST INTERFACE" appears in the display panel.

6 Press the Test button once; the name of one of the values for the Host Interface mode will appear in the display panel. Then, press the Test button or the Font Select button until "SER. XON/XOFF" appears in the display panel.

7 Press the Mode Set button to return to the list of default modes.

8 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET: SAVED" will appear in the display panel.

9 Press the On/Off Line button to return the printer to on-line mode. The On-line indicator will light and the change will be permanently saved.

Making Temporary Changes to the Mode Values

Note: It is also possible to make temporary changes to some of the modes, such as the font, using other keys on the printer's indicator panel. In addition, you may be able to make temporary changes using your application software. Temporary changes made with other indicator panel keys are described in Section 4, "Operating the Printer." To determine what changes may be made with your application software, consult the manual for that software.

1 Follow Steps 1 through 3 of the procedure for making permanent changes to the mode values.

2 Press the Mode Set button. The name of one of the modes will appear in the display panel. If you press the Mode Set button, the name of the next mode in the list will appear in the display panel. If you press the Tray Select button, the name of the previous mode in the list will appear in the display panel. Consult Table 3-1 for a list of all the modes which can be set using the indicator panel. A description of these modes appears later in this section.

3 Continue with Steps 5 through 9 of the procedure for making permanent changes to the mode values.

4 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET: TEMP" will appear in the display panel.

5 Press the On/Off Line button to return the printer to on-line mode. The On-line indicator will light. The changes you made to each default value will take effect immediately. If you turn off or reset the printer, however, the temporary changes will be lost and the printer will restore the permanent default values.

Example

To temporarily change the default page origin from the printable area to the paper edge:

1 Set the printer's power switch to the ON (I) position.

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

3 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET" will appear in the display panel.

4 Press the Mode Set button once; the name of one of the modes will appear in the display panel. Then, press the Mode Set button or the Tray Select button repeatedly until "PAGE ORIGIN" appears in the display panel.

5 Press the Test button until "PAPER EDGE" appears in the display panel.

6 Press the Mode Set button to return to the list of default modes.

7 Press the Shift and Mode Set buttons simultaneously. The message "MODE SET: TEMP" will appear in the display panel.

8 Press the On/Off Line button to return the printer to on-line mode. The On-line indicator will light. The change will take effect immediately, but will be lost when the printer is turned off or reset.

Description of Indicator Panel Modes

Host Interface

This setting determines the type of interface used, parallel or serial.

With the parallel interface, it determines whether the timing of the interface's ACKnowledge signal lies inside or outside of the BUSY signal timing.

With the serial interface, this setting determines the protocol for coordinating communication between your host computer and the printer.

Emulation Mode

This setting determines whether the printer operates in the resident Diablo 630 mode or in the mode of the emulation card (if any) installed in the printer's emulation card slot. For more information about the emulations, refer to "Selecting the Emulation" in Section 2 of this guide and the programming reference manuals for the different emulations.

Printer Mode

This setting determines the default page orientation, portrait or landscape. It also determines whether the printer operates in the WP (word processing) mode or the DP (data processing) mode.

In WP mode, line and page length, character pitch, and line spacing vary according to the margin and default mode settings. The printer automatically rotates the orientation of the default font to match the page orientation.

In DP mode, the printer automatically adjusts the line spacing and character pitch to provide a line length of 132 characters per line (136 character per line in landscape) and a constant total of 66 print lines per page (both portrait and landscape). The printer also uses the font Letter Gothic 15 and automatically rotates the character orientation to match the page orientation.

Line Termination

The line termination mode determines how the printer
responds to carriage returns and line feeds from the host
computer. 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. Depending on the option selected, the
printer automatically appends a line feed or carriage
return operation to carriage return or line feed codes
received from the host computer.

CR=CR, LF=LF	The printer does not append a line feed or carriage return to carriage return or line feed codes received from the host computer.
CR=NL, LF=LF	The printer appends a line feed to each carriage return code received from the host.
CR=CR, LF=NL	The printer appends a carriage return to each line feed code and each form feed code received from the host.
CR=NL, LF=NL	The printer appends a line feed to each carriage return code and a carriage return to each line feed code and each form feed received from the host.

Most host system software is set to provide the carriage
returns and line feeds. Therefore, the normal setting for
this mode is **CR=CR, LF=LF**.

Auto Wrap Around

When this mode is set to **Enable**, printing automatically
wraps around to the beginning of the next line when the
active position moves beyond the right margin. When set
to **Disable**, the printer overprints characters at the right
margin until it receives a Carriage Return and Line Feed.
The normal setting for most office applications is **Enable**.

Current LPI

This setting determines the line spacing. You can use the
Depends on Font option when the line spacing is defined
in the current font.

Current CPI

This setting determines the character spacing. You can use the **Depends on Font** option when the character spacing is defined in the current font.

Current Font

This setting determines which of the printer's fonts is used for printing in the normal (word processing) mode. If you select **Cartridge**, the printer will select the font from the installed font cartridge(s) with the lowest assignment number on the test summary sheet.

Nationality

This mode indicates the ASCII code set that is being used with your printer. The AP 9215-1 printer is permanently set to **U.S.A.** See Appendix C for the ASCII code table for the entire United States character set.

Notes:

1 This mode appears on the summary sheet, but cannot be changed at the indicator panel. Therefore, "Nationality" does not appear in the display panel as you cycle through the list of modes.

2 This setting only applies to resident fonts. Font cartridge fonts using a character set other than "U.S.A." are not affected.

Serial Baud Rate

In serial mode, this setting determines 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 computer transmits data and is also available on the printer.

Serial Data Form

In serial mode, this setting determines the length of the data byte, the number of stop bits at the end of each byte, and the type of parity. (Parity is an error checking method used to detect if bits have been lost or changed during data transmission.) These settings must correspond with the communication configuration of your host computer.

Serial I/F Mode

In serial mode, this setting affects the method of data transmission. Half duplex mode allows unidirectional (one way) transmission of data. Full duplex mode allows independent, simultaneous transmission and reception of data.

Page Origin

This setting determines the position of the page origin in relation to the paper.

In Figure 3-3, the printable area is shaded. The printer cannot print in the area around the edge of the printable area. If you select the option **Printable Area**, the printer calculates the page origin for margins and other formatting from the edge of the printable area. If you select **Paper Edge**, the printer calculates the page origin from the edge of the paper.

For example, suppose you are using a word processing program and specify a one-inch left margin. If the printer's page origin is set for **Printable Area**, the printer will calculate the margin from the edge of the printable area, resulting in a margin that is actually 1 1/6 inches from the edge of the paper. If the printer's page origin is set for **Paper Edge**, the printer will calculate the margin from the edge of the paper, resulting in a one-inch margin.

Figure 3-3   **Printable Area**
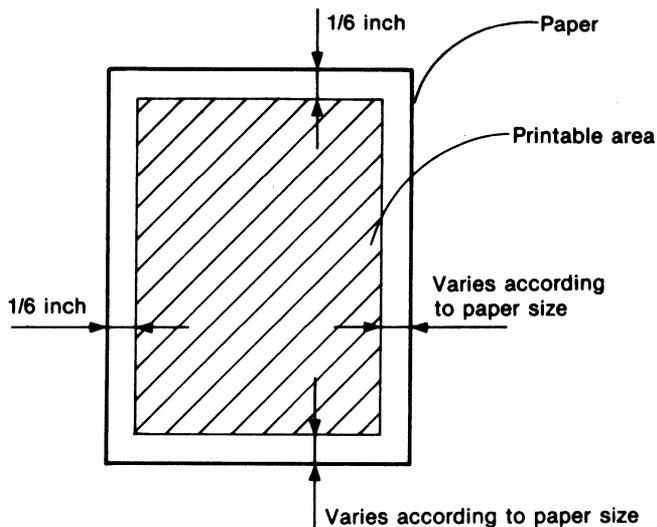
PL2441

Endless Feed

This setting determines whether or not Endless Feed mode is active. In the Endless Feed mode, the printer starts printing from the last specified paper tray. If the tray being used runs out of paper, the printer automatically starts picking up paper from the other tray.

Operating the 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. If you have not yet set the printer's modes, refer to Section 3.

This section describes:

□ Powering on the printer.

□ Making temporary changes to the default paper tray, font, and page orientation.

□ Resetting the printer.

□ Feeding material manually into the printer.

□ Adding paper.

Operator Safety

Warning: Using controls or adjustments or performing procedures other than those specified in this guide may result in hazardous radiation exposure.

The AP 9215-1 printer is considered a CDRH (Center for Devices and Radiological Health) Class I laser device, safe for office/EDP use. The printer contains a 5 milliwatt, 760-810 nanometer wavelength, GaAlAs 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 left side of the printer to the ON (1) position. This action will cause the following events to occur:

a The fan motor starts rotating.

b The bottom plates of the paper trays rise.

c The Power indicator lights.

d The Ready indicator remains OFF.

Figure 4-1   **Location of the Power Switch**
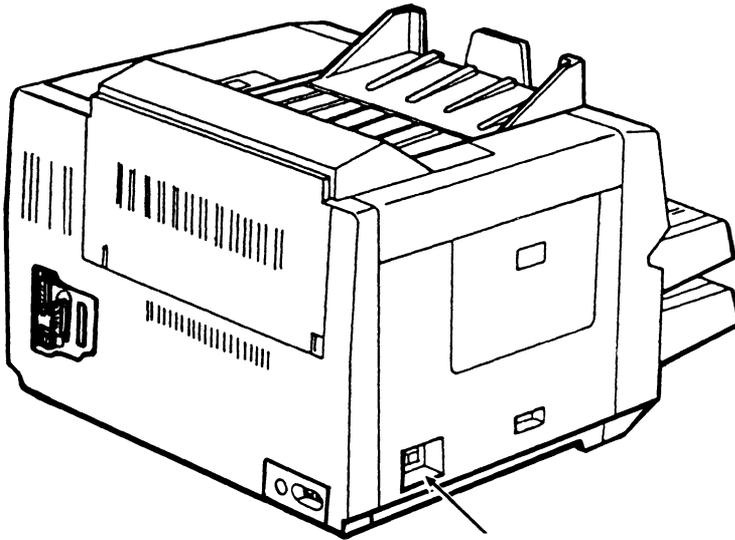
PL2457   POWER SWITCH

2 After approximately 90 seconds, the Ready indicator will light and the display panel will show the message "READY". The printer is now ready for operation.

When the power is turned on, the printer comes up in on-line mode. Any data that might have been in the printer's buffer at the time the printer was turned off is cleared from the buffer. The printer's mode values match those established when you set the default mode values (see Section 3, "Setting the Printer's Modes"). To determine the current default mode settings, print a test summary sheet (see "Printing a Test Summary Sheet" in Section 3).

Making Temporary Changes to the Default Paper Tray, Font, and Page Orientation

Section 3 described one way of making temporary changes to the printer default values. You can also make temporary changes to the paper tray, font, and page orientation selections by pressing other buttons on the indicator panel. Like the temporary changes made to the printer modes, changes made with these buttons are lost when the printer is turned off or reset. The procedures for making these changes follow.

Note: The procedures in this section are performed while the printer is in off-line mode. After completing a change, you must return the printer to on-line mode before performing the next change. Returning to on-line mode reads the change into the printer's memory. If you perform two or more changes before returning to on-line mode, the printer will recognize only the last change.

Changing the Selected Paper Tray

You can use the Tray Select button to select the upper or lower paper tray for printing. If the upper and lower trays are for the same size paper, you also have the option of selecting Endless Feed mode. In the Endless Feed Mode, the printer starts printing from the last specified paper tray. If the tray being used runs out of paper, however, the printer automatically starts picking up paper from the other tray.

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

2 To select the upper or lower paper tray for input, press the Tray Select button. The indicators next to the button will light to show which paper tray has been selected. The message "SELECTED" will appear in the display panel.

3 To select Endless Feed mode, press the Shift and Tray Select buttons simultaneously. Both paper tray indicators will light.

4 If you are using a legal size paper tray, pull out the paper stacker on the top of the printer until it stops.

Figure 4-2   **Pulling out the Paper Stacker**
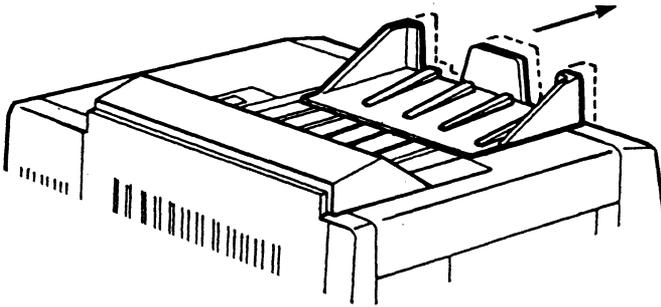
PL1814

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

6 If you selected Endless Feed mode, the indicator for the paper tray that is being used will flash.

Changing the Selected Font

The AP 9215-1 printer comes with eight fonts resident in its memory. These resident fonts are shown in Appendix C of this guide. You can add extra fonts to your printer with font cartridges. For information about ordering font cartridges, consult the *FC 9200 Font Cartridge Support Reference Manual*. To obtain a list of the fonts currently available on your printer, print a test summary sheet (see "Printing a Test Summary Sheet" in Section 3).

When you turn your printer on, it defaults to the primary character set of the font selected by the default mode setting. To temporarily select a different font, follow the procedure below.

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. For information about using software codes to select fonts, consult the Unisys programming reference manual for your printer emulation or the manual for your application software.

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

2 Press the Font Select button until the name of the font you require is displayed in the display panel.

   Note: If a font has been rotated, its name will flash when it is displayed.

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

Changing the Selected 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, depending on the default setting of the "Printer Mode." To determine the default setting, print a test summary sheet as described in Section 3.

You can use the Portrait/Landscape button on the indicator panel to temporarily change the default orientation to one of four options: WP (Word Processing) Portrait, WP Landscape, DP (Data Processing) Portrait, and DP Landscape.

If you select DP Portrait or DP Landscape, the printer automatically adjusts the character pitch to 16.7 character per inch (17.1 in the FX-80 and Proprinter emulations) and the line spacing to 66 print lines per page (both portrait and landscape). The printer also uses the Letter Gothic 15 font and automatically rotates the character orientation to match the page orientation. This smaller size makes DP Portrait and DP Landscape good choices for printing charts and spreadsheets.

The procedures for using the Portrait/Landscape button are given below.

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

2 Press the Portrait/Landscape and the Shift buttons simultaneously. The current page orientation will appear in the display panel. Continue pressing the Portrait/Landscape and Shift buttons until the page orientation you require appears in the display panel.

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

Resetting the Printer

After making temporary changes to the printer's mode settings, you may want to return to the original default settings. After correcting certain error conditions, you may need to clear the printer's memory before resuming printing. You can do these things by either turning the printer off and then on again or by resetting the printer with a "hard" reset.

A hard reset restores the printer's default settings. Any temporary changes made to the settings through the indicator panel or software commands are lost. A hard reset also clears the printer's buffer. Any data in the buffer that has not yet printed is also lost.

To "hard reset" the printer, you can press the Hard Reset button on the indicator panel, print a test summary sheet, or send the printer a HARD RESET (ESC SUB I) command, if you are using the resident emulation, or its equivalent, if you are using an emulation card. The procedure for resetting the printer with the indicator panel follows. To print a test summary sheet, refer to Section 3. For a description of the HARD RESET command or its equivalent, consult the Unisys programming reference manual for your emulation.

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

2 Press the Hard Reset and the Shift buttons simultaneously. The message "**RESET**" will appear in the display panel. Then the indicator lights will all flash and the message "SELF TEST" will appear. When the self test is complete, the On-line indicator will light and the message "READY" will appear. The printer is in on-line mode and ready to operate.

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 one sheet at a time. If more than one sheet of such stock is fed at one time, misfeeds may occur.

1 Open the upper 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 upper paper tray cover.

4 Select the upper paper tray as follows:

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

   b Press the Tray Select button. The indicators next to the button will light to show which paper tray has been selected. The message "SELECTED" will appear in the display panel.

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

5 From the host computer, command the printer to print one page only.

Adding Paper

When a paper tray is empty, the printer will stop, the Paper Empty indicator and the Tray Select indicator for the empty tray will flash, and the display panel will read "SUPPLY PAPER". When the empty paper tray is refilled, the message will clear, the Paper Empty indicator will go out, the Tray Select indicator will return to steady, and printing will resume.

The procedures for adding paper to the paper trays follow. When adding paper to the trays,

   ☐ 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 paper size is the same as the paper tray size (letter, A4, or legal). If the paper size and paper tray size are different, the paper will jam at the exit.

□ 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.

Adding Paper to the Upper Paper Tray

1 Open the paper tray cover.

2 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 4-3   **Adding Paper to the Upper Paper Tray**
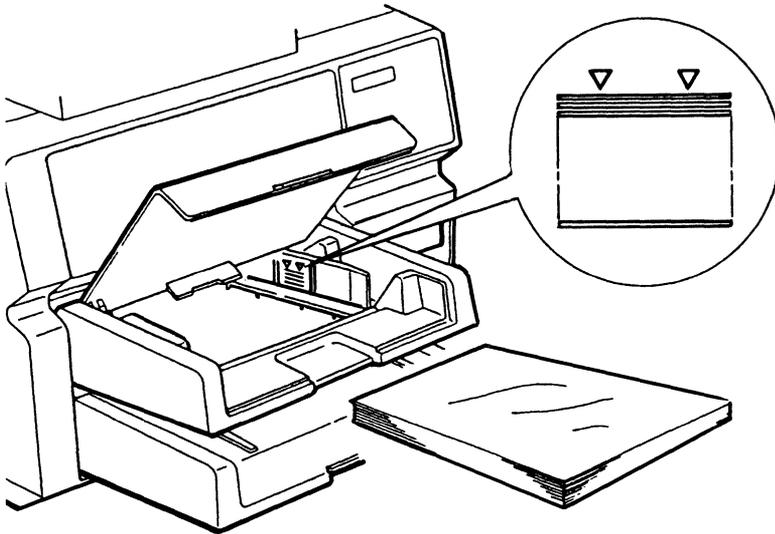
PL1066

3 Close the paper tray cover.

Adding Paper to the Lower Paper Tray

1 Remove the lower paper tray by lifting it up and pulling it out.

2 Open the paper tray cover.

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 Lower Paper Tray**
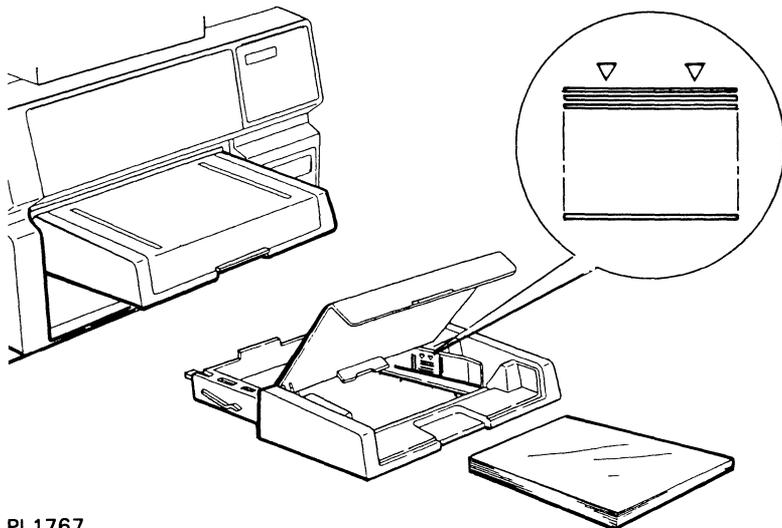
PL1767

4 Close the paper tray cover.

5 Replace the lower paper tray. Make sure the tray sits squarely all the way in the printer.

Adding Paper in Endless Feed Mode

If the printer is in Endless Feed mode, when one paper tray empties, the printer automatically starts printing from the other tray. If you fill the first tray before the second tray empties, the printer will continue to switch back and forth between trays without stopping.

If both trays run out of paper, you will first need to fill
both trays with paper. Then the display panel will read
"CANCEL LIMITLESS." To eliminate this error, you must
reset the printer in one of the following ways:

□ Set the printer power switch to OFF (O) and then set it
   back to ON (I).

□ Reset the printer by pressing the Shift and Hard Reset
   buttons simultaneously as described earlier in this
   section.

□ Print a test summary sheet as described in Section 3.

□ Send the printer a REMOTE ERROR RESET (ESC SUB R)
   command, if you are using the resident emulation, or its
   equivalent, if you are using an emulation card. For more
   information about printer commands, consult the Unisys
   programming reference manual for the emulation you
   are using.

The first two ways of resetting the printer will clear the
print memory and return the printer modes and settings to
the default values they hold at start up. Printing a test
summary sheet or sending a REMOTE ERROR RESET
command will clear the error without changing the
existing modes and settings. Therefore, to avoid loss of
data, you should clear a "CANCEL LIMITLESS" message by
printing a test summary sheet or sending a REMOTE
ERROR RESET command.

Maintaining the Printer

This section describes the procedures necessary to maintain the highest print quality from your AP 9215-1 printer, as well as instructions for relocating your printer. These procedures include:

□ Cleaning the printer.

□ Replacing the toner collection bottle.

□ Replacing the toner cartridge and cleaning pad.

□ Cleaning the separation pawls.

□ Replacing the OPC cartridge, shield lens, charge corona unit, and transfer corona unit.

□ Cleaning the quenching lamp.

□ Replacing the separation and feed rollers.

□ Moving your printer.

The AP 9215-1 indicator panel has several indicators to warn you when most of the maintenance procedures need to occur. Table 5-1 shows the indicator or other signal and the associated procedure(s).

Table 5-1 **Maintenance Schedule**

Indicator/ Other Signal	Meaning	Procedure(s)
SUPPLY PAPER	Paper tray is empty.	Add paper. (The procedure for adding paper is in Section 4.)
TONER OVERFLOW	Toner collection bottle is full.	Replace toner collection bottle.
	Toner level is low.	Replace toner cartridge. Clean separation pawls. Replace cleaning pad.
	OPC cartridge needs to be replaced.	Replace OPC cartridge. Replace shield lens. Replace charge corona unit. Replace transfer corona unit. Clean quenching lamp.
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 trays 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 5-1   **Opening the Exit Cover**
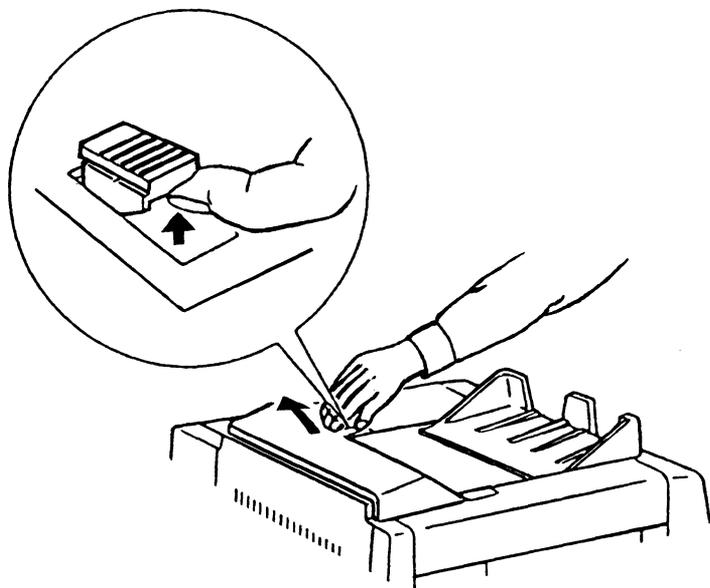
PL1810

Figure 5-2   **Cleaning the Exit Rollers**
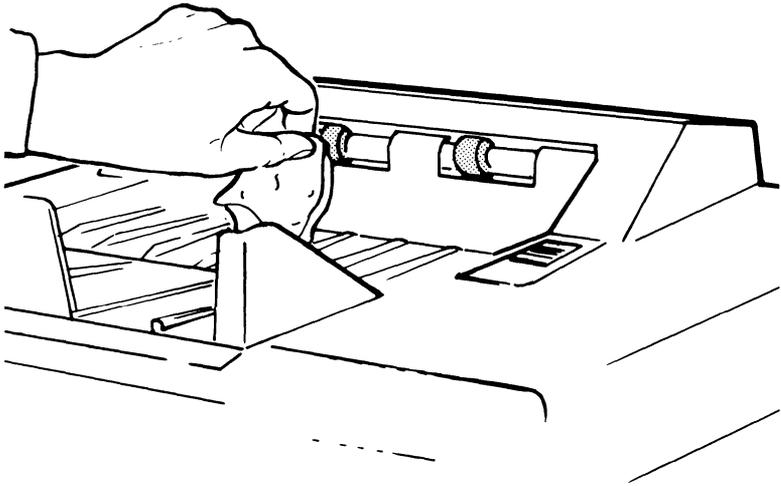
PL1833

Replacing the Toner Collection Bottle

Notes:

1 A replacement toner collection bottle is in Kit A. (Refer to Appendix B for a description of the supply kits and the items they contain.) The bottle will need to be replaced approximately every 6,000 pages.

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 5-3   **Removing the Toner Collection Bottle**
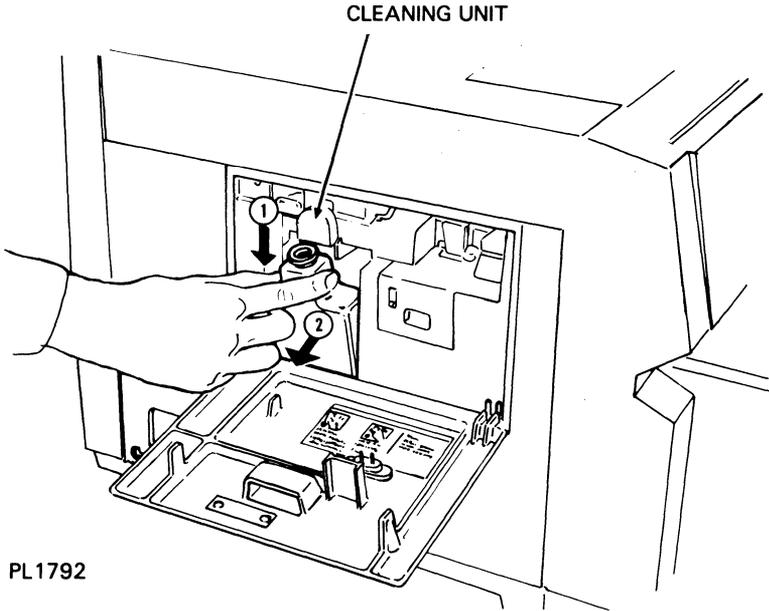
CLEANING UNIT

PL1792

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

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 A replacement toner cartridge and cleaning pad are in Kit A. (Refer to Appendix B 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.

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

2 With the upper paper tray in position, pull out the development drawer until it stops.

3 Push in the green toner cartridge holder and lift the empty toner cartridge up and out.

Figure 5-4 **Removing the Toner Cartridge**
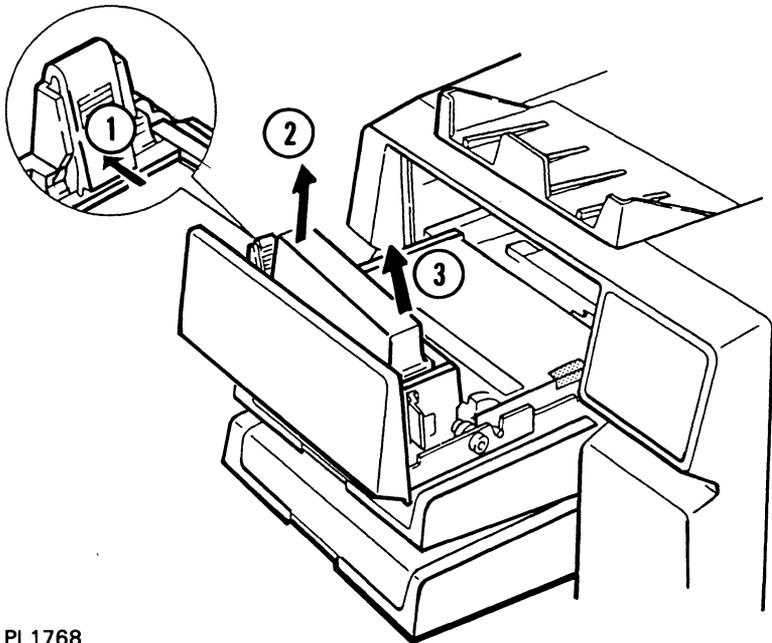
PL1768

4 Hold the new toner cartridge so the seal is on the right and align the projections on the cartridge with the notches on the development tank.

5 Push the toner cartridge down into the toner cartridge holder. Check that the cartridge is firmly fitted to the holder.

Figure 5-5   **Installing the Toner Cartridge**

DEVELOPMENT
TANK
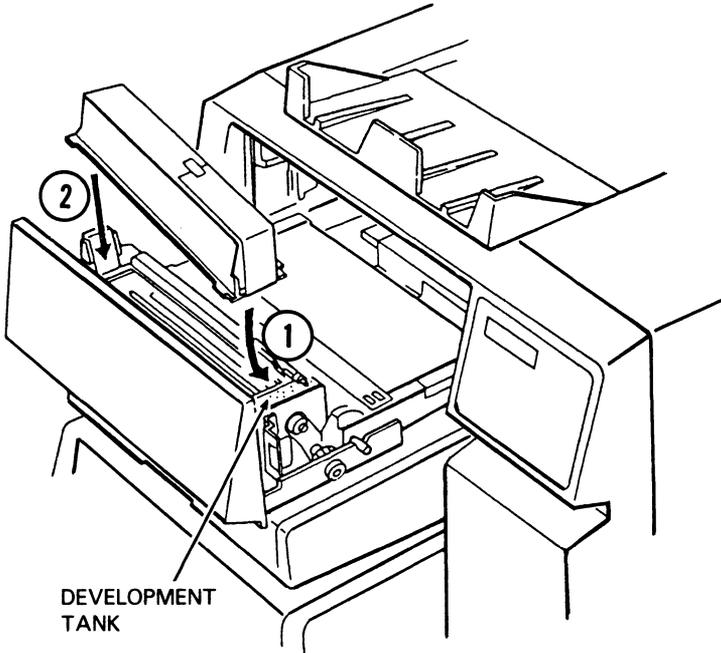
PL1627

6 Peel down the end of the toner cartridge seal.

Figure 5-6 **Peeling the Toner Cartridge Seal**
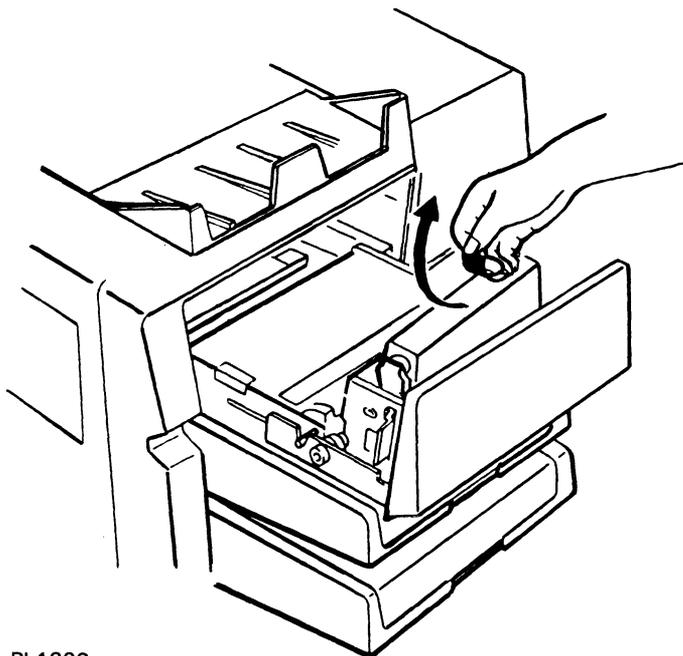
PL1629

7 Hold the toner cartridge with one hand and pull the seal horizontally until a green tab becomes visible.

Figure 5-7 **Pulling the Seal**
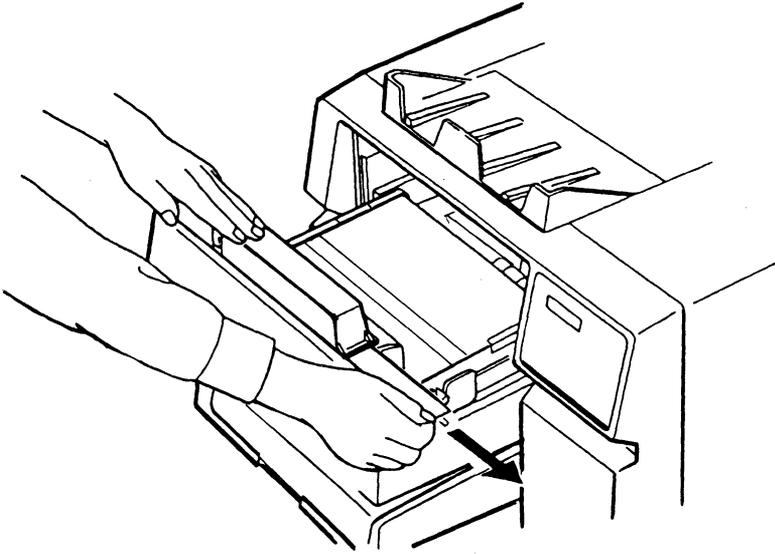
PL1624

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

Figure 5-8 **Peeling Off the Tab**
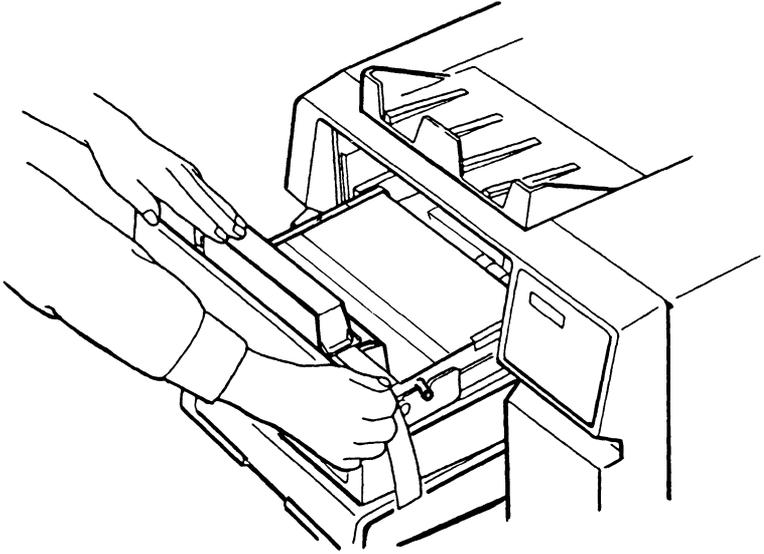
PL1626

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

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 5-9 **Unlocking the Exit Cover**
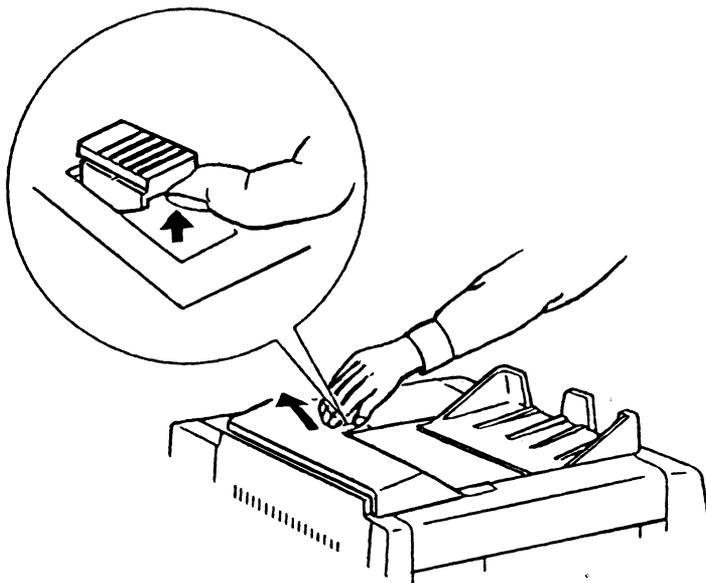
PL1810

3 Remove the three separation pawls by gripping the
  raised edge of the pawl, pushing in the direction of the
  arrow (see Figure 5-10), and lifting the pawl out.

Figure 5-10 **Removing the Separation Pawls**
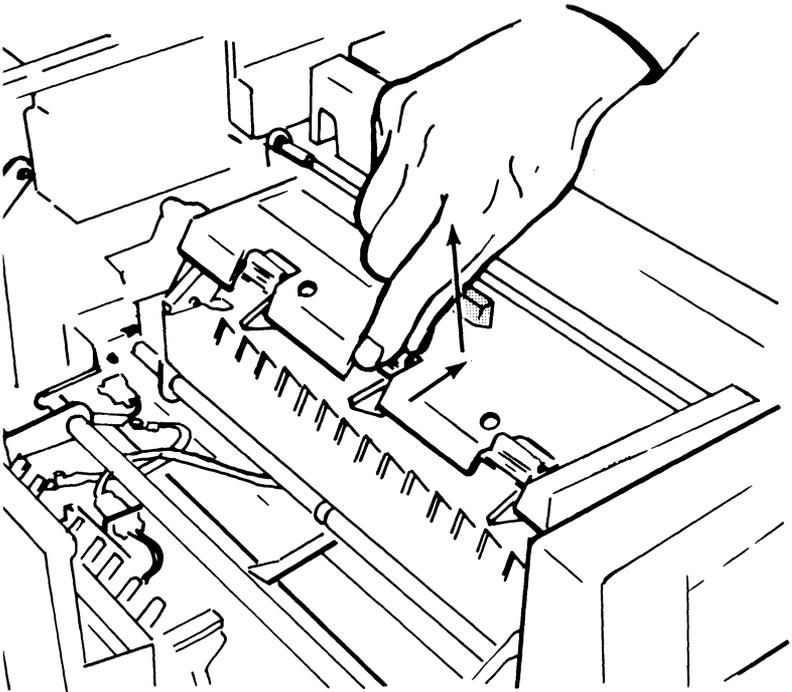
PL1812

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

Figure 5-11 **Cleaning the Separation Pawls**
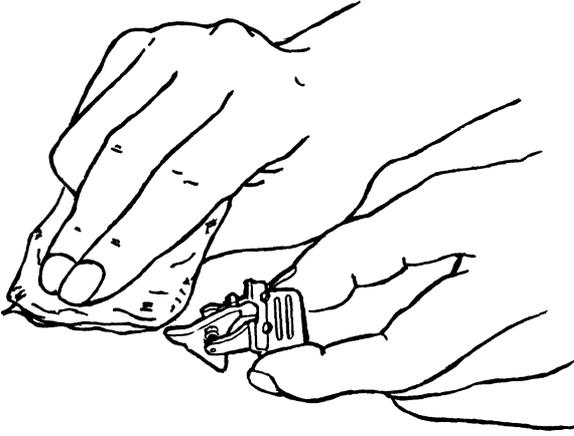
PL1769

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

Figure 5-12   **Reinserting the Separation Pawls**
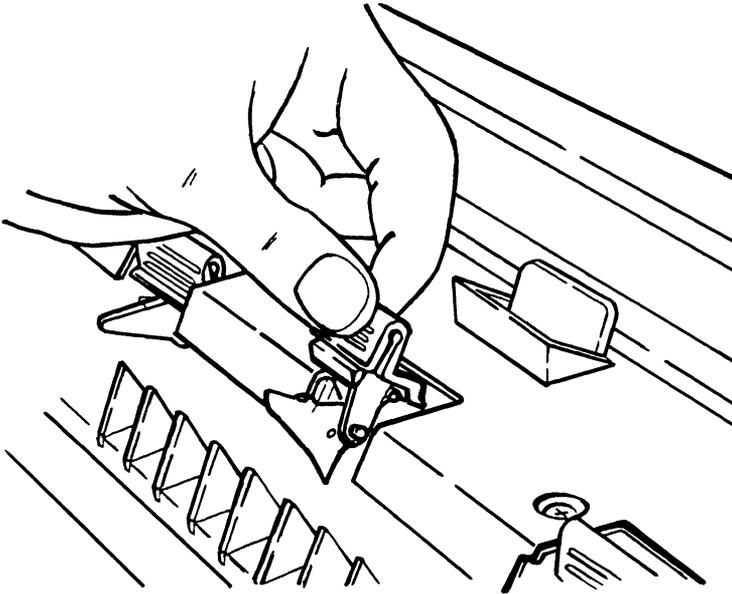
PL1770

6 If you are cleaning the separation pawls in conjunction with replacing the cleaning pad, then continue with the next procedure, "Replacing the Cleaning Pad." Otherwise, close the exit cover.

Replacing the Cleaning Pad

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.

Notes:

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

2 If you are replacing the cleaning pad immediately after cleaning the separation pawls, start this procedure with Step 3. Otherwise, start with Step 1.

   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.


   Caution: The remainder of this procedure (Steps 3 through 10) 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.

   Note: Review the illustrations and instructions for the remainder of this procedure before starting. If you are interrupted, close the fusing unit until you are ready to resume.

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

Figure 5-13 **Unlocking the Fusing Unit**
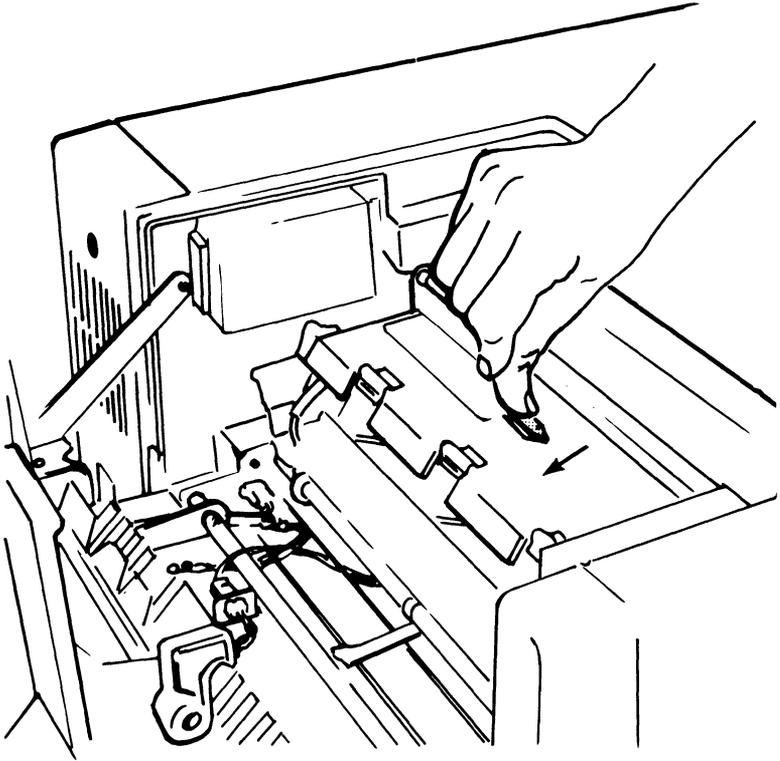
PL1809

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

Figure 5-14 **Opening the Fusing Unit Front Cover**
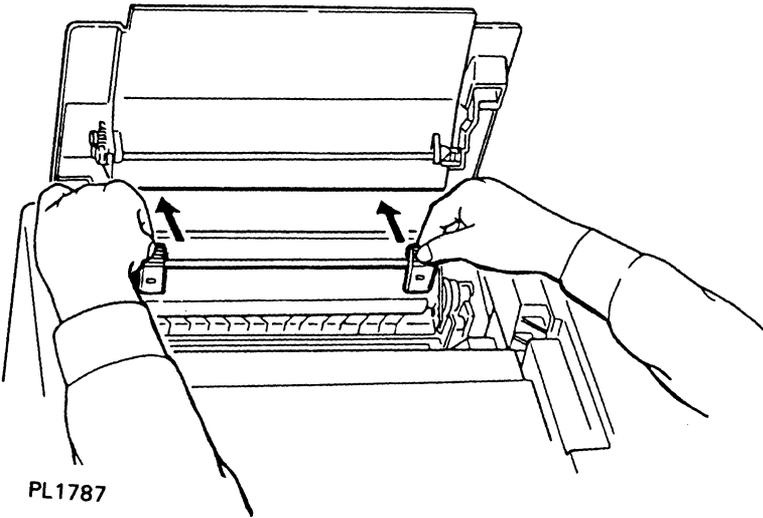
PL1787

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

Figure 5-15 **Removing the Cleaning Pad**
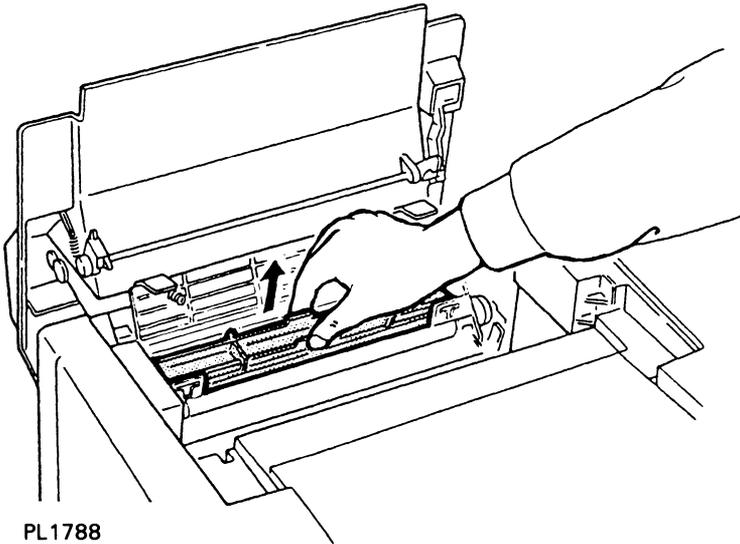
PL1788

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.

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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.

Figure 5-16   **Cleaning the Fusing Unit Roller**
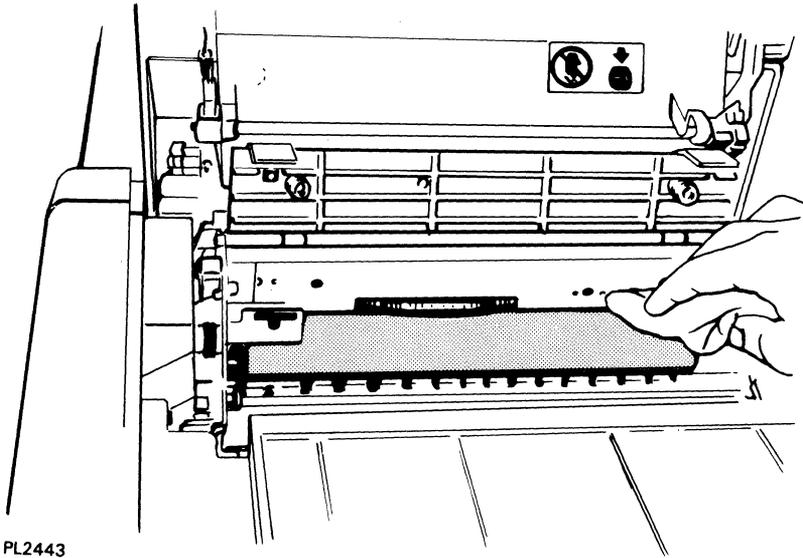
PL2443

7 Remove a new cleaning pad from the supply kit and place it on the fusing unit with the pad facing down on the roller.

8 Close the fusing unit cover by pressing down on the two ridge 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

Warning: Disconnect the power cord before performing this procedure.

Note: A replacement OPC cartridge, shield lens, charge corona unit, and transfer corona unit are in Kit D. (Refer to Appendix B for a description of the supply kits and the items they contain.) You will need to replace the OPC cartridge approximately every 10,000 to 15,000 pages.

1 With the upper paper tray in position, pull out the development drawer until it stops.

Figure 5-17 **Opening the Development Drawer**
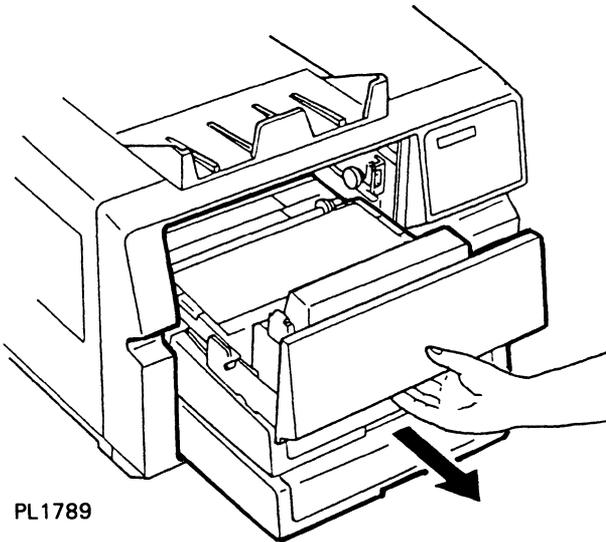
PL1789

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 5-18   **Removing the Old OPC Cartridge**
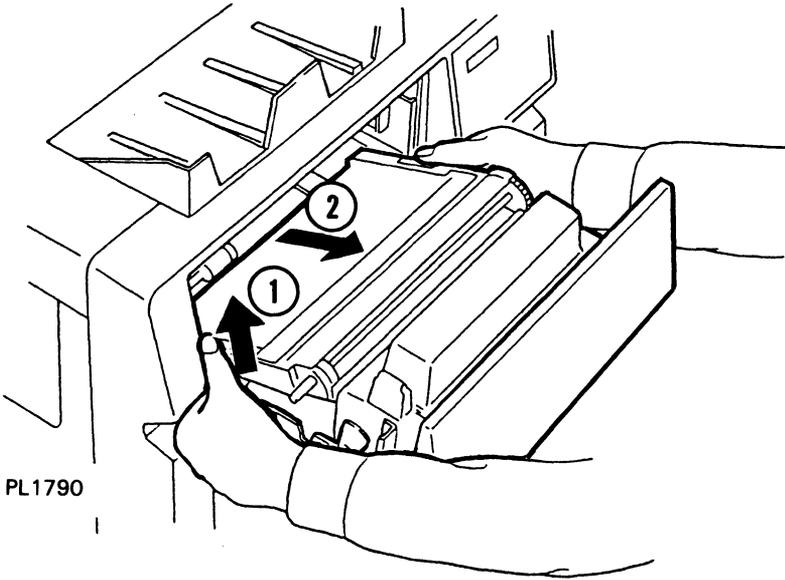
PL1790

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 box containing the OPC cartridge, and set the case on a flat surface with the side labeled "UP" facing up.

Figure 5-19 **Packing of the OPC Cartridge**

"UP" INDICATION

VINYL BAG

PLASTIC BOX
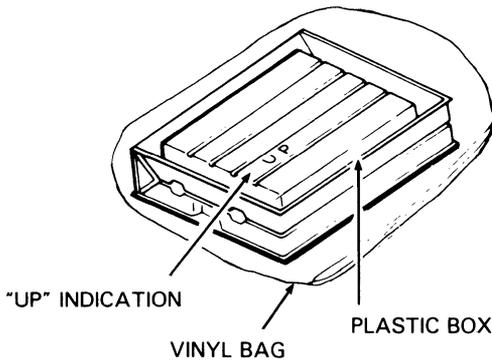
PL1763

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 5-20 **Handling the OPC Cartridge**

SPACER (GREEN)

GREEN MARK

GREEN MARK

PROTECTIVE SHEET
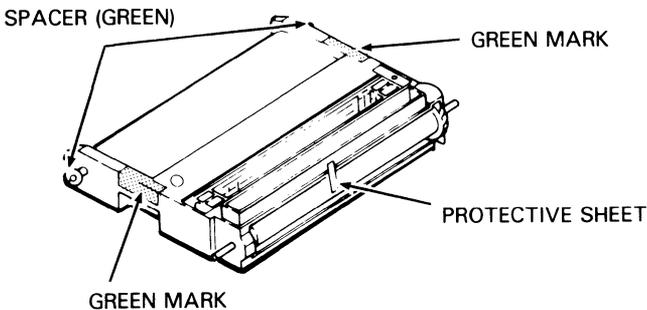
PL1764

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 5-21   **Inserting the OPC Cartridge**
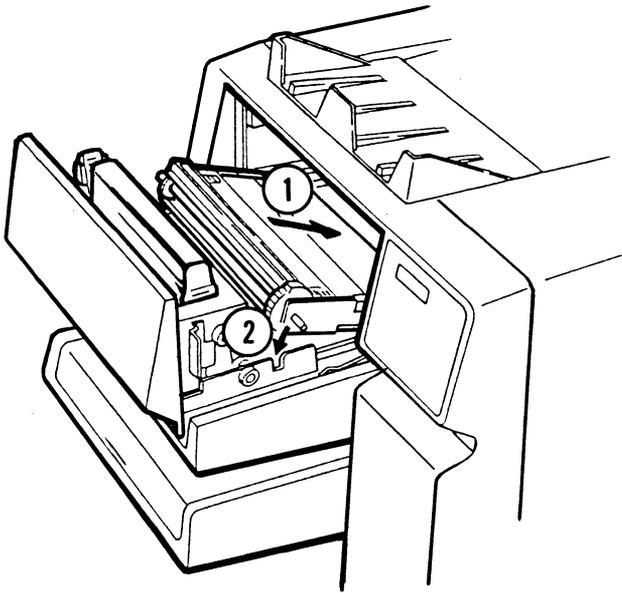
PL1765

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

Replacing the Shield Lens

Warning: Disconnect the power cord before performing this procedure.

1 Open the left side cover.
2 Grip the shield lens by the green, ridged end (with arrow) and slide it out from the printer.
3 Remove the new shield lens from the supply kit, hold the lens by the green ridged end with the arrow facing up, and slide the lens into the printer as far as possible until the lens is securely in place.

Figure 5-22   **Replacing the Shield Lens**
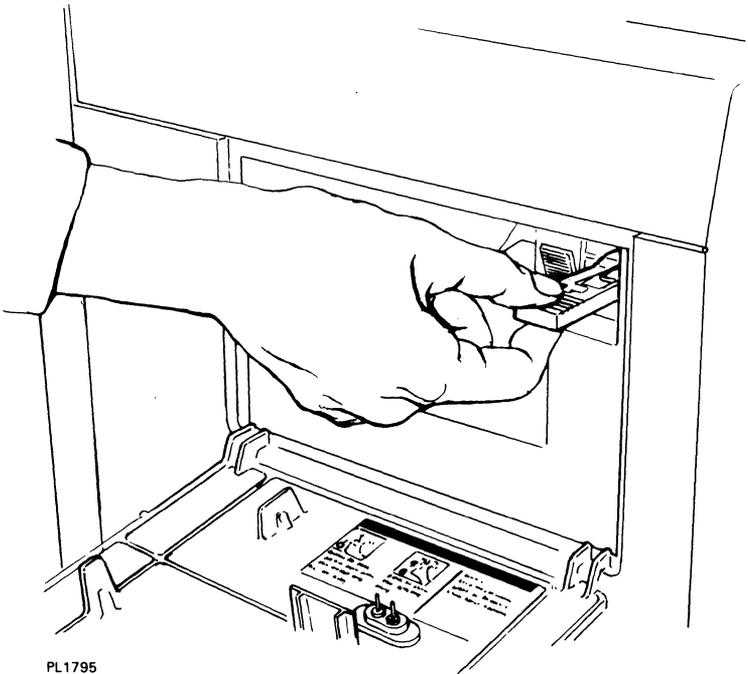
PL1795

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 lens, 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 5-23   **Replacing the Charge Corona Unit**
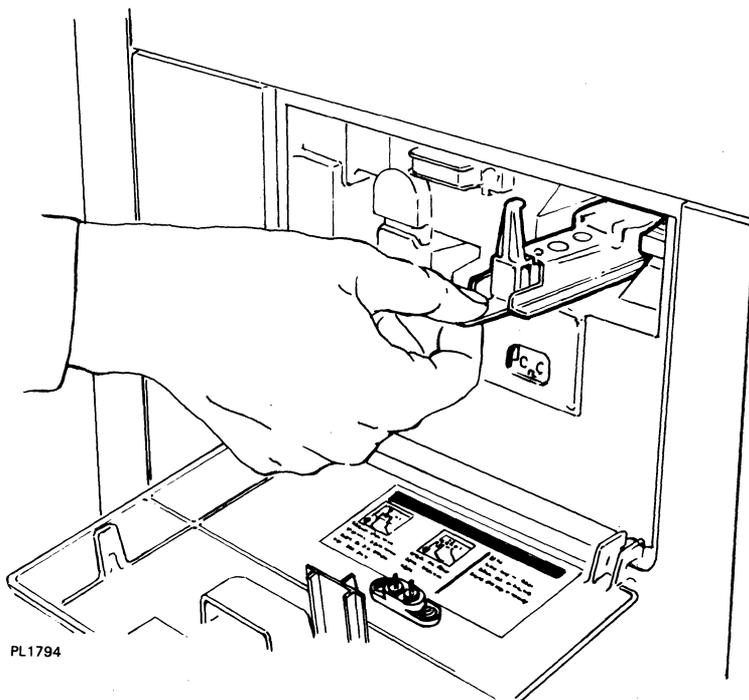
PL1794

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 5-24 **Removing the Toner Collection Bottle**
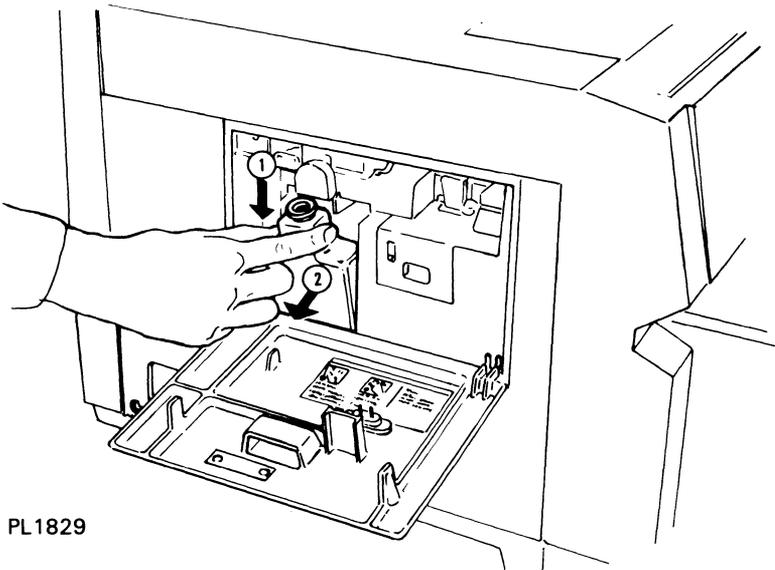
PL1829

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 5-25 **Replacing the Transfer Corona Unit**

PL1797
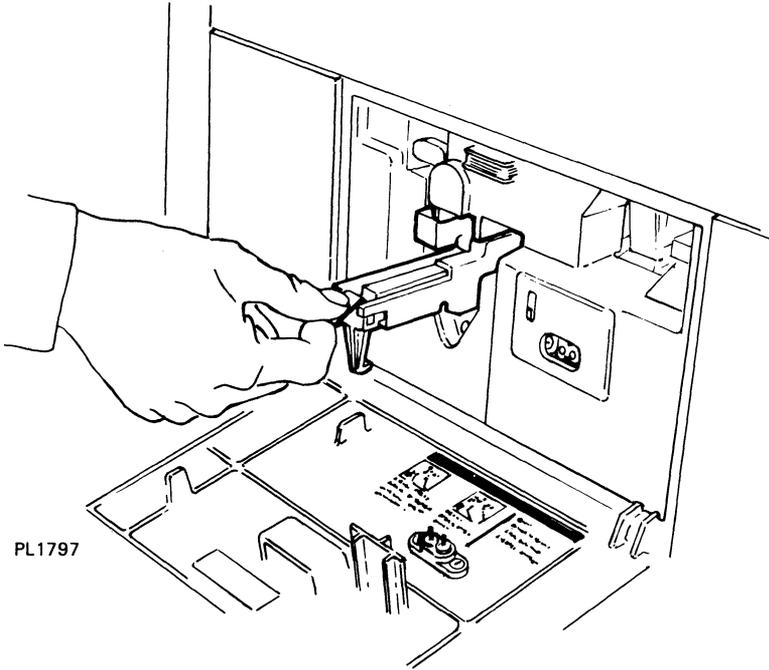
4 Replace the toner collection bottle, making sure the neck of the bottle lines up with the cleaning unit spigot.

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 5-26 **Removing the Quenching Lamp**

PL1796
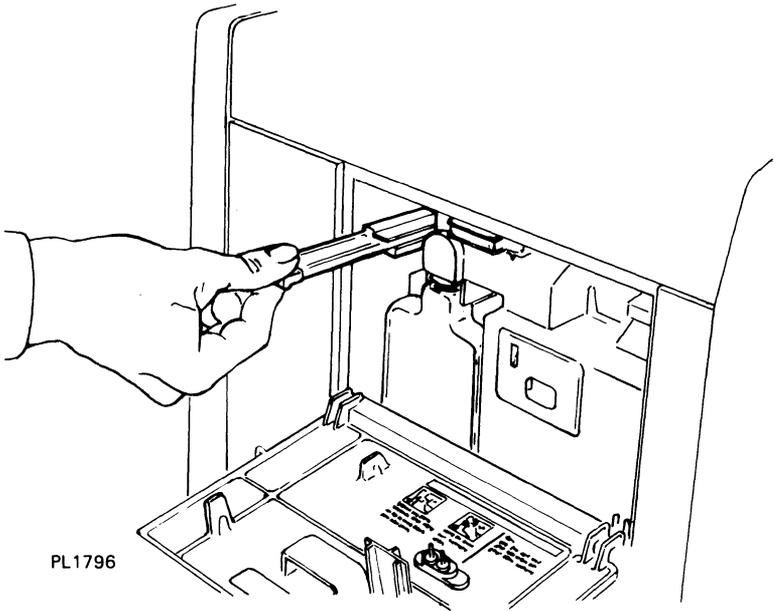
2 Wipe the clear, plastic surface of the quenching lamp cover with a damp cloth.

Figure 5-27 **Cleaning the Quenching Lamp**
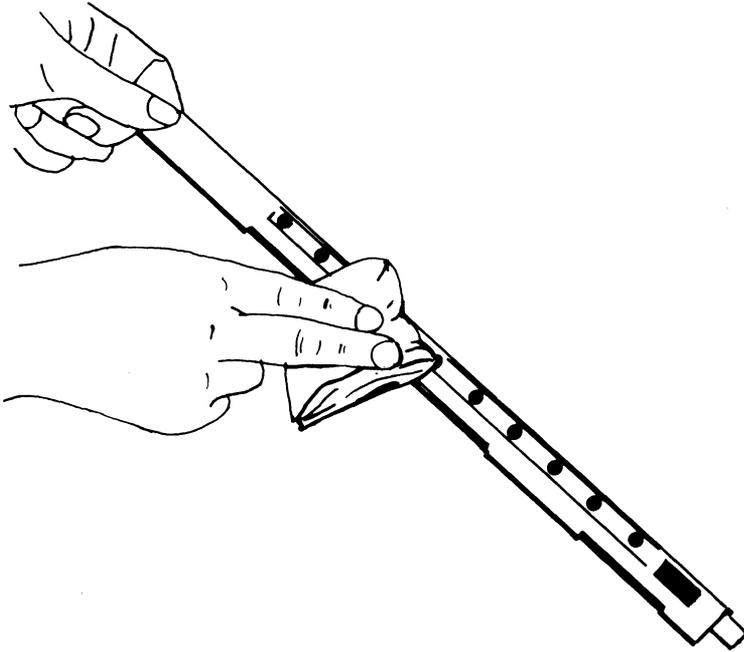
PL1303

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

4 Close the left side cover.

Replacing 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 maintenance agreement, the cost of the rollers will be covered by the agreement, and if you prefer, a Unisys customer service engineer will perform this procedure 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 5-28   **Removing the Development Drawer**
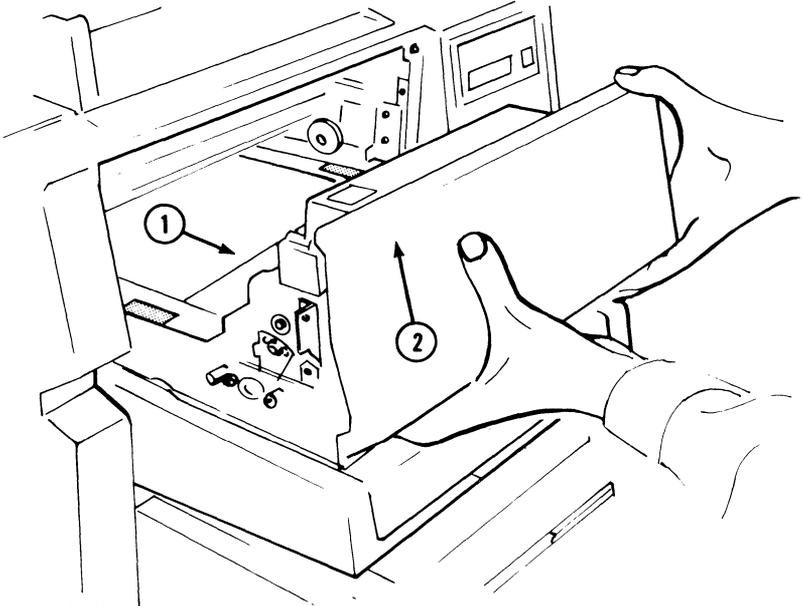
PL1802

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 trays by lifting up on the front end of each tray and pulling the tray out of the printer.

Figure 5-29   **Removing the Paper Trays**
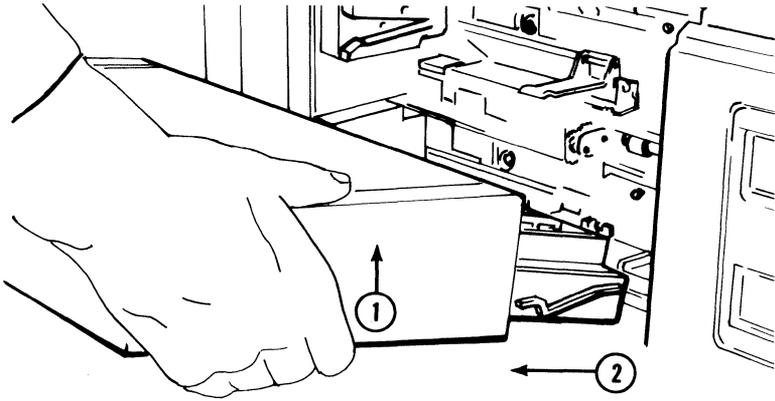
PL1786

5 Remove the plastic snap rings securing the upper and lower shield covers.

Figure 5-30 **Location of the Shield Covers**

SNAP RING   SHIELD COVER
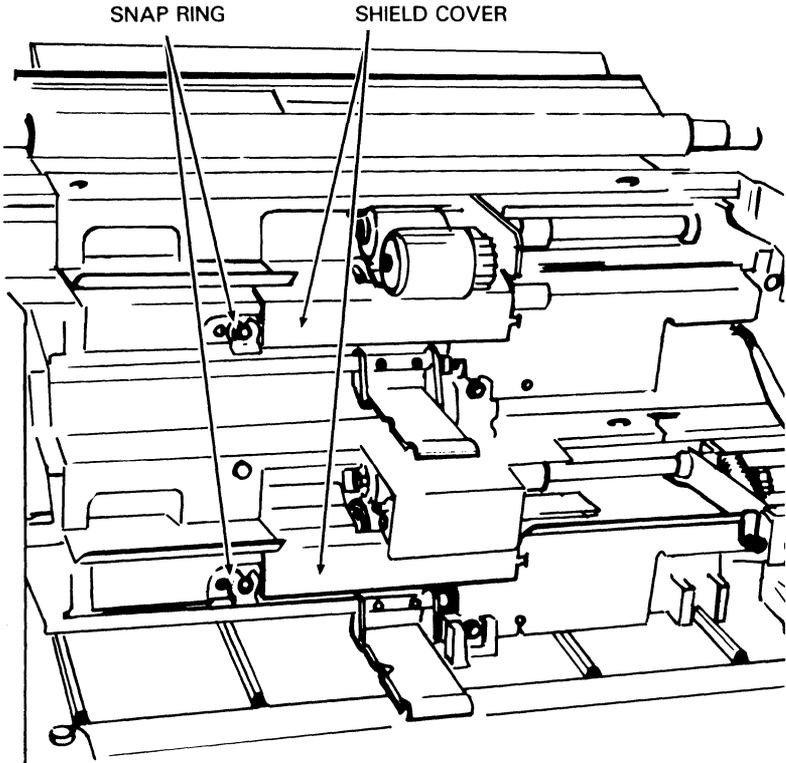
PL1806

6 Remove the shield covers by lifting the left end of each
cover off its post and sliding the cover to the left.

7 Remove the plastic snap ring on the upper and lower
separation roller shafts. (The separation roller is the
lowest roller in each set of three.)

Figure 5-31 **Location of the Separation and Feed Rollers**

FEED ROLLERS

PL1815   SEPARATION ROLLERS
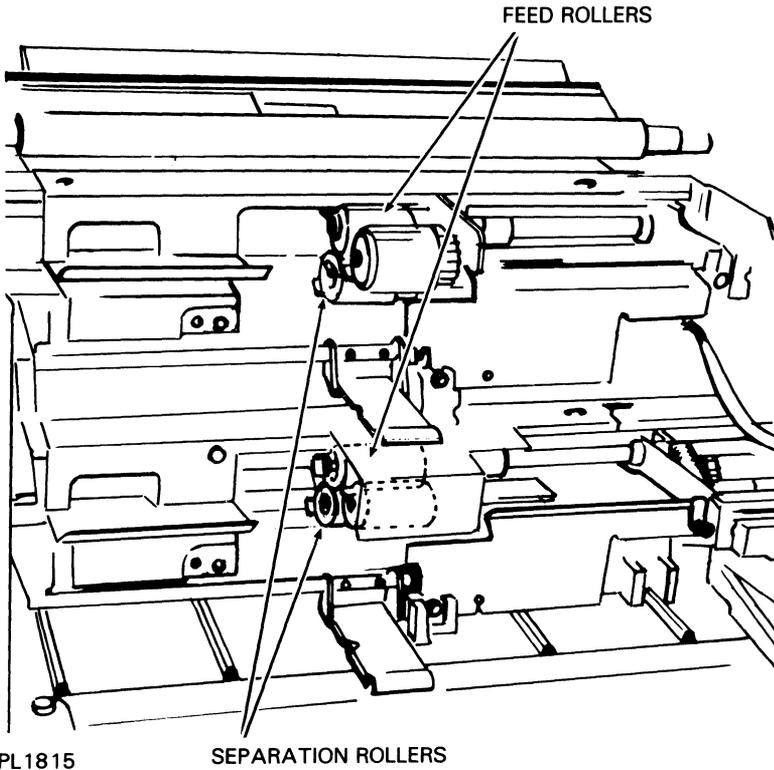
8 Slide each separation roller assembly to the left and remove it from the shaft. The roller assembly consists of two parts: a steel inner roller (with coil) covered by a white, plastic collar; and the rubber roller.

Figure 5-32 **Separation Roller Assembly**

RUBBER ROLLER

PLASTIC COLLAR

STEEL INNER ROLLER
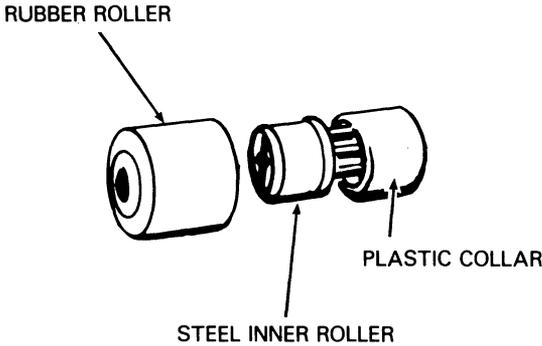
PL1807

9 Replace the feed roller on each feed roller shaft as follows:

a Remove the snap ring from the feed roller shaft. (The feed roller is the upper rear roller in each set of three. See Figure 5-31.)

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 on each separation roller shaft 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 Place the shield covers back in place 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 trays by matching each tray's guides with the grooves on the printer, sliding the tray in, and pushing down on the tray.

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 5-33   **Replacing the Development Drawer**

DEVELOPMENT
DRAWER

RIDGE

UPPER PAPER TRAY

GROOVE
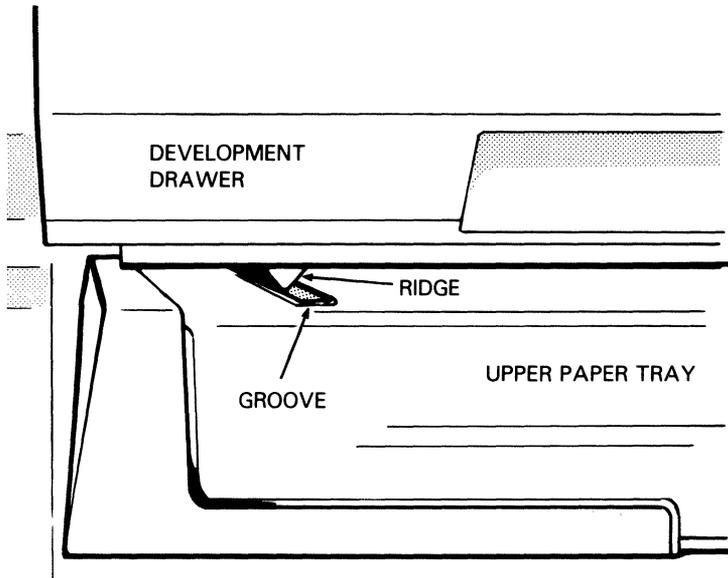
PL1808

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

Moving the 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.

---

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 5-34   **Sealing the Development Tank Opening**
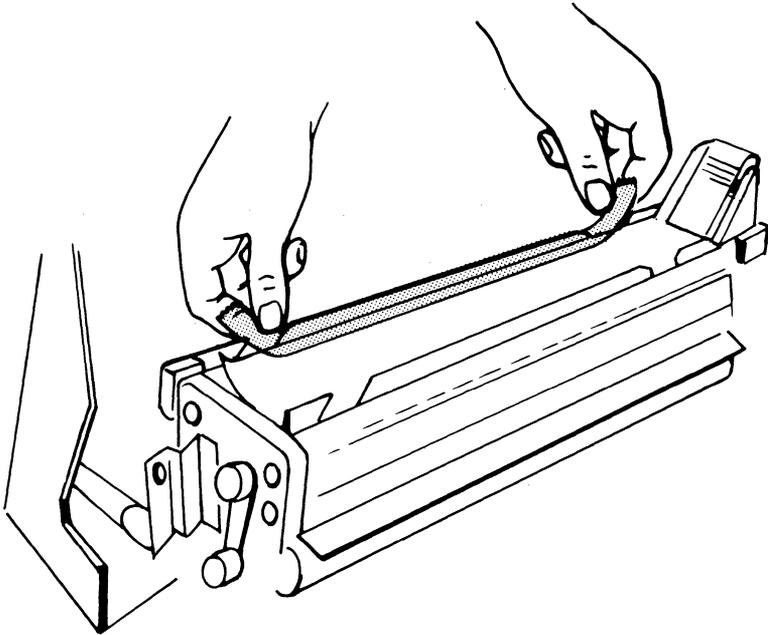
PL1834

   c Reinsert the empty toner cartridge over the paper.

   d 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 5-35 **Sealing the Cleaning Unit Spigot**
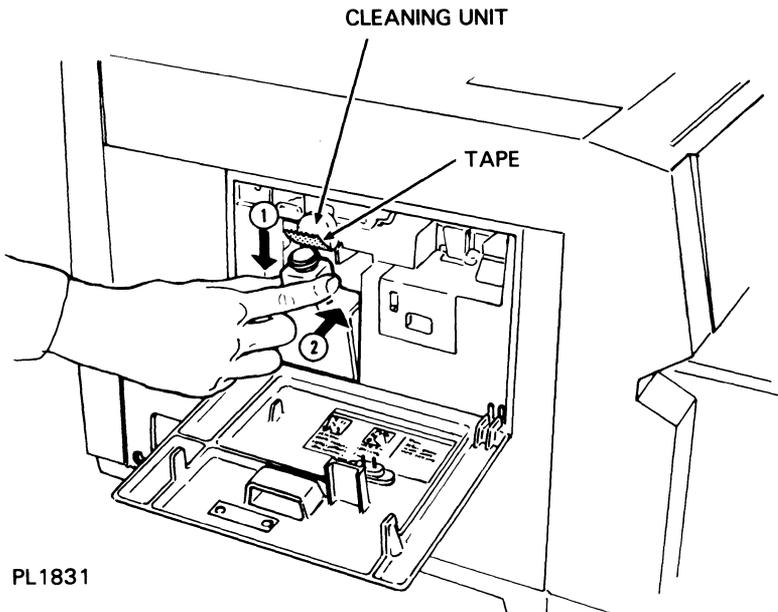
7 Use the original shipping materials to repack the printer and accessories, reversing the unpacking instructions in Section 1. If the original shipping materials are not available, use a large, strong carton capable of holding the printer and accessories securely. Be sure to cushion the printer against damage during shipping.

Troubleshooting

This section provides information to help you answer questions you may have about the operation of your AP 9215-1 printer. Included are instructions for:

□ Reading error messages on the indicator 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 your problem, contact a Unisys customer service engineer or your Unisys Service Center.

Reading Indicator Panel Error Messages

The AP 9215-1 printer is designed to diagnose some of the problems that may occur during operation. To alert you to the problem, an indicator will light and an error message will appear on the display panel. Table 6-1 lists these messages, their meanings, and corrective measures you can take to resolve the problem.

Notes:

1 Only error indicators and messages are given below. Indicator lights connected with maintenance procedures are explained in Section 5.

2 Actions marked with an asterisk (*) are described in detail in the *AP 9215-1 Printer Diablo 630 Emulation Programming Reference Manual, Volume 1: Text Mode*.

Table 6-1 **Error Messages**

Indicator	Message	Description	Action
○Λν Ϛ	MIS FEED UPPER	Paper is not being fed from the upper paper tray.	See "Clearing Paper Jams" later in this section.
○Λν Ϛ	MIS FEED LOWER	Paper is not being fed from the lower paper tray.	See "Clearing Paper Jams" later in this section.
○Λν Ϛ	JAM AT TRANSFER	Paper jam in the paper transport system.	See "Clearing Paper Jams" later in this section.
○Λν Ϛ	JAM AT EXIT	Paper jam in the exit system.	See "Clearing Paper Jams" later in this section.
Ϛ	BAD DOWNLOAD	Error in downloaded font or image data.	Check the download command, correct the error, and resend the data.*
Ϛ	CANCEL LIMITLESS	Both paper trays have run out of paper while in Endless Feed mode. OR Different size paper trays are being used and Endless Feed mode has been requested.	Add paper to the paper trays or insert two paper trays of the same size into the printer. Then print a test summary sheet and reenter Endless feed Mode.
Ϛ	C.F.ROM ERROR	Error in the memory of an inserted font cartridge.	Check for proper cartridge insertion. Change cartridges.
Ϛ	C.MIS-OPERATED	The font cartridge containing the specified font has been pulled out while the printer is on-line.	Set the power switch to OFF (0), reinsert the font cartridge, set the power switch to ON (I), and resend the data.

Table 6-1   **Error Messages (Continued)**

⌐⌐	CHECK PAPER TRAY	Cover of the selected paper tray is open.	Close the cover.
⌐⌐	CLOSE SIDE COVER	Left side cover is open.	Close the left side cover.
⌐⌐	CLOSE TOP COVER	Exit cover is open.	Close the exit cover.
⌐⌐	COM. DATA ERROR	Communication data error.	Verify that the baud rate, data format, and parity check settings for the printer and host system match and restart data communication.
⌐⌐	DIFFERENT SIZE	A different paper size has been set for the data already processed within the controller.	Verify that the paper size and the paper tray size match.
⌐⌐	F.ERROR ENGINE	Engine drive system error.	Contact a Unisys customer service engineer.
⌐⌐	F.ERROR FPU	Front panel unit error.	Contact a Unisys customer service engineer.
⌐⌐	F.ERROR F.ROM	Font file memory error.	Contact a Unisys customer service engineer.
⌐⌐	F.ERROR FUSER	Fusing system error.	Contact a Unisys customer service engineer.
⌐⌐	F.ERROR MOTOR	Main motor or main motor drive error.	Contact a Unisys customer service engineer.
⌐⌐	F.ERROR OPC	OPC belt system error.	Contact a Unisys customer service engineer.

Table 6-1 **Error Messages (Continued)**

⌐	F.ERROR OPTICAL	Optical system error.	Contact a Unisys customer service engineer.
⌐	F.ERROR P.ROM	Controller memory error.	Contact a Unisys customer service engineer.
⌐	F.ERROR RAM	Read/write memory error.	Contact a Unisys customer service engineer.
⌐	F.ERROR TIMER	Timer/interrupt CPU check error.	Contact a Unisys customer service engineer.
⌐	FONT FILE ERROR	Font file error.	Contact a Unisys customer service engineer.
⌐	INPUT OVERFLOWED	The input buffer overflows. OR Communication protocols between the host system and the printer do not match.	Verify that communication protocols between the host system and the printer match and restart data communication. If any data was lost, resend data.
⌐	JAMMED PAGE LOST	Data for a jammed page cannot be wholly recovered.	Clear the paper jam and resend the lost data.
⌐	LINE OVERFLOW	Data to be printed in one character line exceeds the line buffer memory capacity.	Reduce the number of characters per line and resend the data.
⌐	LINE TOO COMPLEX	Too many characters on one scanning line; CPU cannot process the data. OR Communication protocols between the host system and the printer do not match.	Reduce the number of characters per line and resend the data. Verify that communication protocols between the host system and the printer match.

Table 6-1   **Error Messages (Continued)**

⌐	NO REQ. FONT	Designated font name does not exist. OR Selected font number is not defined.	Check font name or number and resend data.
⌐	NO REQ. TRAY	Selected paper tray is not installed.	Install the required paper tray. Check the paper tray to be sure it is seated all the way into the printer.
⌐	PAGE OVERFLOWED	Data to be printed on one page exceeds the page memory capacity.	Reduce the number of characters per page and resend data.
⌐	RAM ERROR	Read/write memory error.	Contact a Unisys customer service engineer.
⌐	RAM OVERFLOWED	Not enough memory to rotate or download font. OR Not enough memory for image data.	Delete unnecessary font data in memory, open memory, and resend the command.*
⌐	SET DEVELOPER	Development drawer not closed all the way.	Close development drawer.
⌐	SET PAPER STACK	Paper stacker is not set to legal size when legal size paper is selected.	Slide the paper stacker to the legal size position.
⌐	SET TONER BOTTLE	Toner collection bottle is full or not properly set.	Check position of toner collection bottle. If bottle is full, replace (see Section 5).
⌐	TOO MANY FONT	The total number of fonts loaded in the printer exceeds the allowable maximum.	Delete some of the downloaded or rotated fonts and restart the printer.*

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 Upper Paper Tray

1 Lift open the upper paper tray cover.

Figure 6-1 **Opening the Upper Paper Tray Cover**
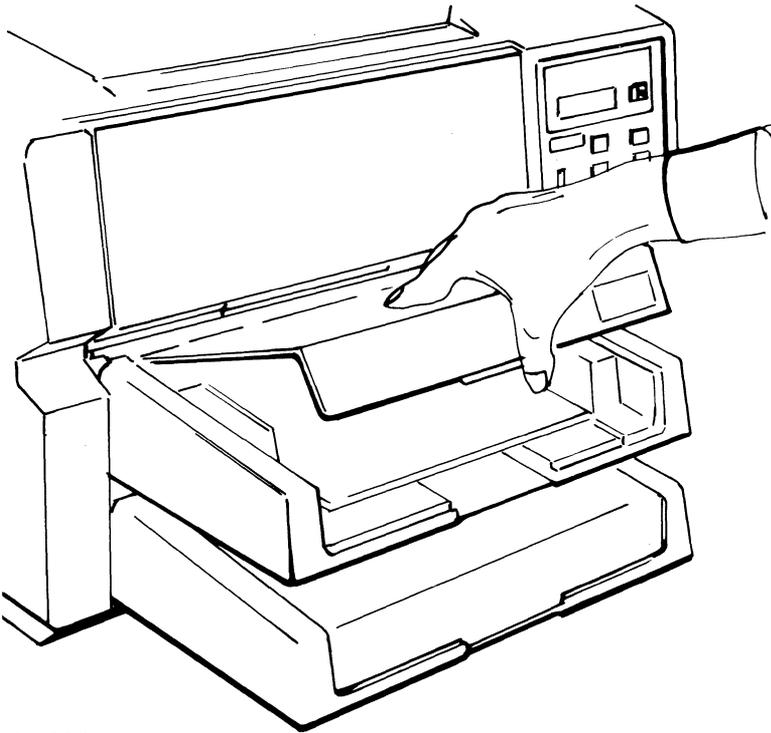
PL1803

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

Figure 6-2   **Clearing Misfed Paper from the Upper Paper Tray**
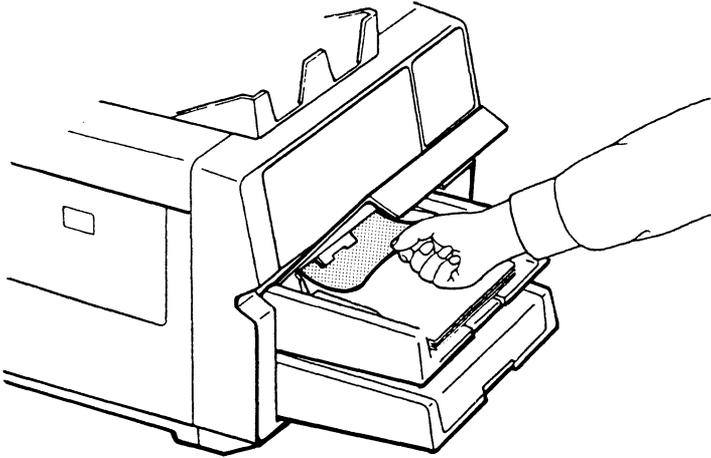
PL1773

3 Close the upper paper tray cover.

Clearing Paper from the Lower Paper Tray

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

Figure 6-3   **Clearing Misfed Paper from the Lower Paper Tray**
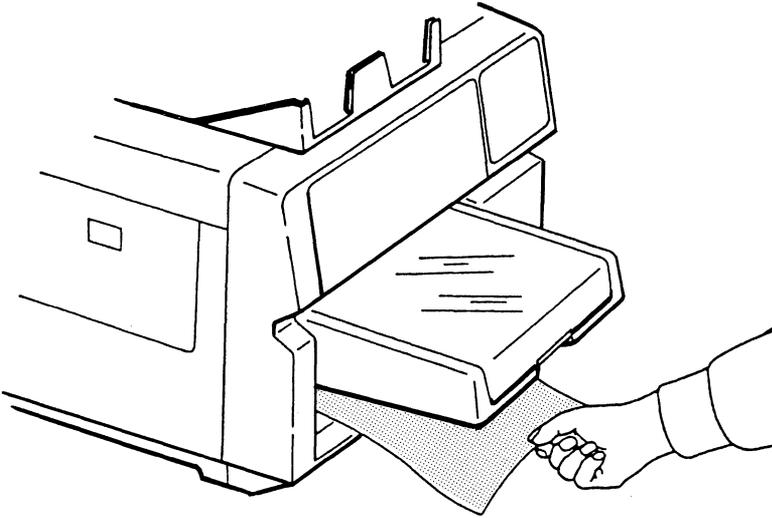
PL1774

3 Reinsert the lower paper tray.

Clearing Misfed Paper from the Transfer Section

Caution: Pull out the development drawer as far as it can go before
attempting to remove misfed paper from the transfer section. This will prevent
the misfed paper from dragging across the OPC belt and possibly damaging it.
However, since opening the development drawer exposes the OPC cartridge to
light, do not leave the development drawer open for more than five minutes. If
the OPC cartridge is exposed to light for more than five minutes, the OPC belt
will deteriorate, affecting print quality.

1 Lift the release lever and open the exit cover.

Figure 6-4 **Unlocking the Exit Cover**
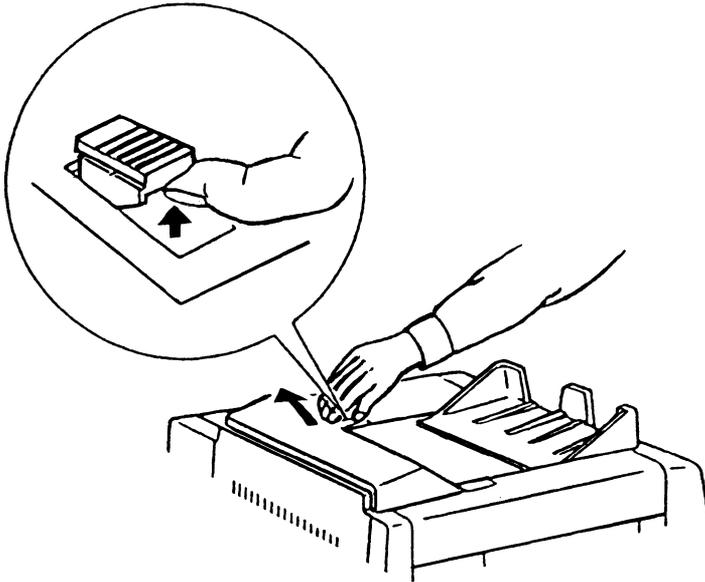
PL1810

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

---

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

Figure 6-5   **Unlocking the Fusing Unit**
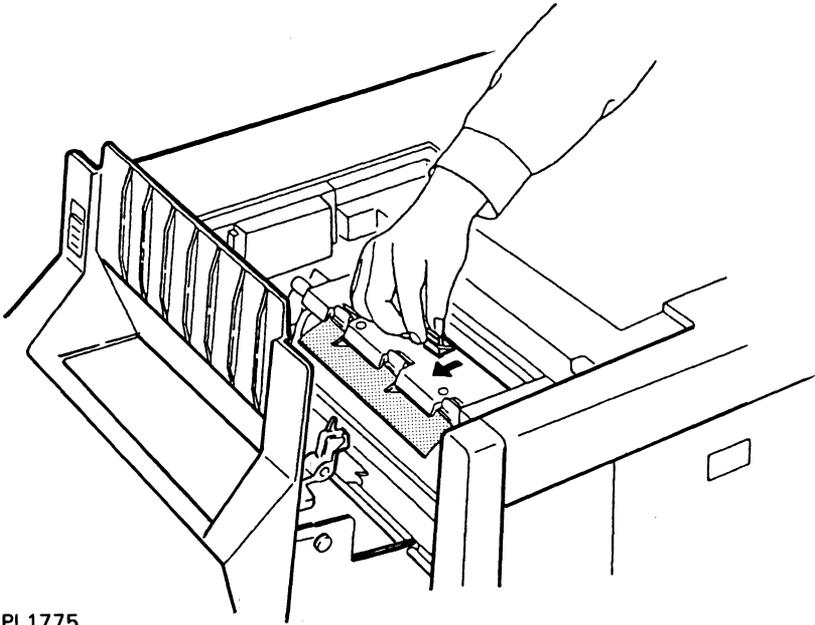
PL1775

> **Note:**   If no paper or only the edge of the paper is found in the fusing
> unit, close the printer as described in Steps 4 and 5 and follow the
> procedure for clearing misfed paper from the upper or lower paper tray,
> described earlier in this section.

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

Figure 6-6 **Removing Misfed Paper from the Transfer Section**
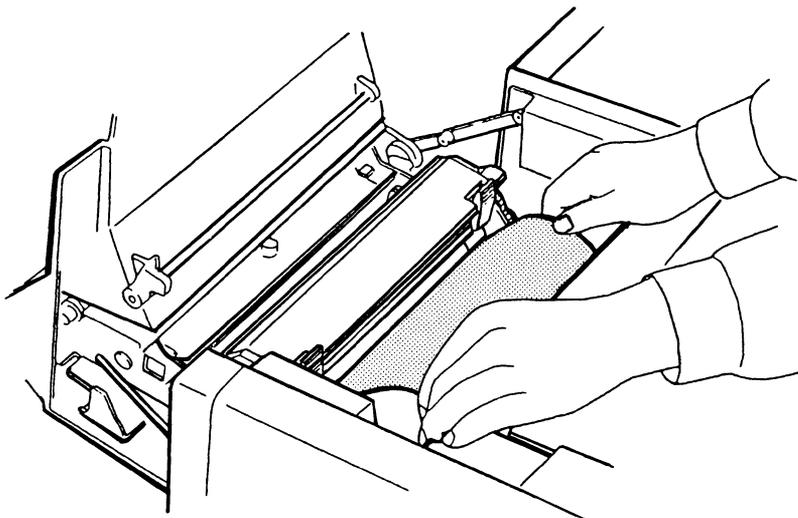
PL1776

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

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

6 Close the development drawer.

Clearing Misfed Paper from the Exit Section

Caution: Pull out the development drawer as far as it can go before attempting to remove misfed paper from the exit section. This will prevent the misfed paper from dragging across the OPC belt and possibly damaging it. However, since opening the development drawer exposes the OPC cartridge to light, do not leave the development drawer open for more than five minutes. If the OPC cartridge is exposed to light for more than five minutes, the OPC belt will deteriorate, affecting print quality.

1 Lift the release lever and open the exit cover.

Figure 6-7   **Unlocking the Exit Cover**
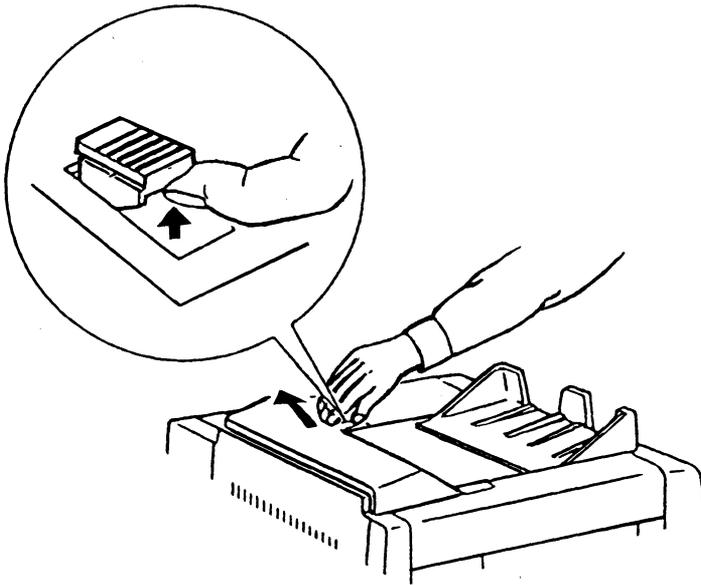
PL1810

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

---

2 Push back the fusing unit lock lever to release pressure on the fusing roller. Do **not** tilt the fusing unit toward the exit cover.

Figure 6-8 **Unlocking the Fusing Unit**
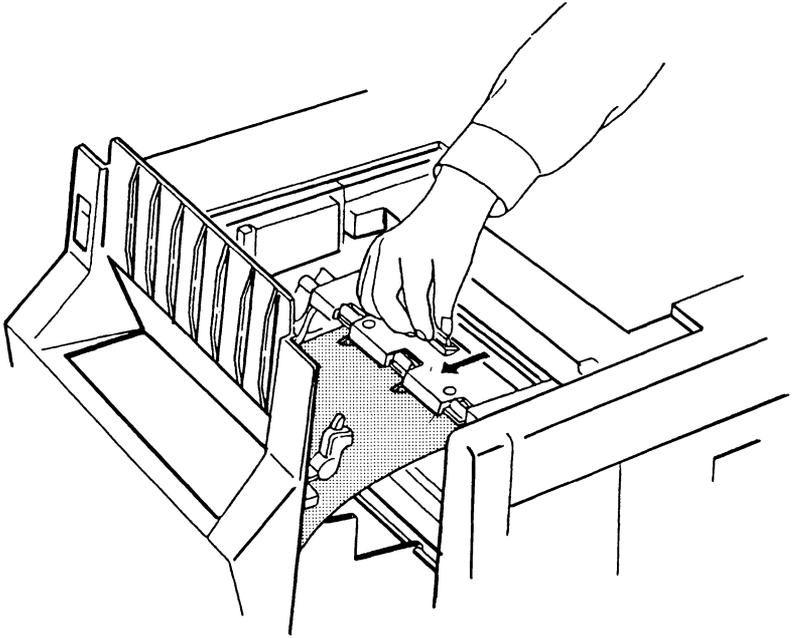
PL1439

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

Figure 6-9 **Removing Misfed Paper from the Exit Section**
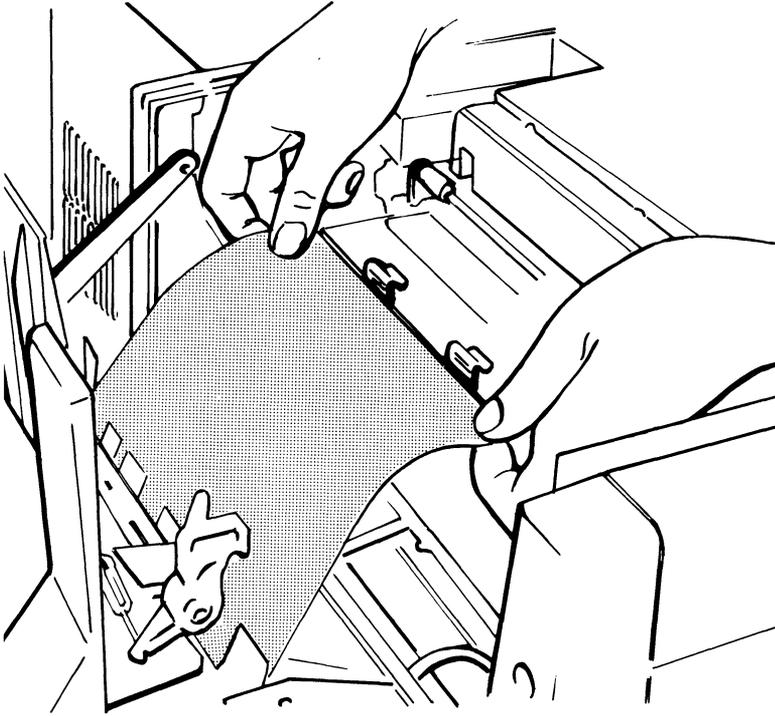
PL1804

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

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

6 Close the development drawer.

Correcting Printing Problems

Table 6-2 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 6-2 **Printing Troubleshooting Chart**

Sample	Problem	Corrective Action
	Printed paper comes out blank.	Replace the charge corona unit.
	Printing is blurred or too light.	Check toner level. Check the installation of the shield lens. 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. Clean the fusing unit roller. 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 rollers.
	Black line(s) appear at the same location on every page.	Replace the shield lens. Replace the OPC cartridge.
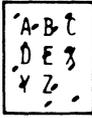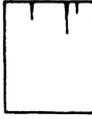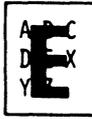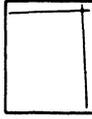
Correcting Other Problems

You may encounter problems with your printer other than those mentioned above. Many of these problems can be easily solved. Consult Table 6-3 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 6-3 **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. Replace the fuse (see "Replacing the Fuse" 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 mode settings match the host system configuration.
You are operating in serial mode and the first few characters of data do not print.	Make sure you turn on the printer **before** sending data from the host computer.
The printer stops printing, but the Data In Buffer indicator is lit and the message DATA PRESENT is in the display panel.	Press the On/Off Line button to put the printer in off-line mode. Then press the Form Feed button on the indicator panel. The printer will print the data left in the buffer and eject the paper.
Paper misfeeds frequently with two or more sheets fed at the same time.	Make sure you are using undamaged paper suitable for the printer. (See Appendix A for paper specifications.) Clean the separation rollers. Replace the separation rollers.
You have entered two or more commands at the indicator panel, but the printer recognizes only one of them.	After each command, return to on-line mode before entering the next command.
Printer operation interferes with radio or television reception.	See "Correcting Radio or Television Interference" later in this section.

Replacing the Fuse

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, the problem may be a burned out power fuse. Instructions for replacing the power fuse are given below.

Warning: Disconnect the power cord before performing this procedure.

1 To remove the fuse holder, turn it with a small screwdriver counterclockwise approximately 30 degrees and pull the fuse holder out of the printer.

Figure 6-10 **Removing the Fuse Holder**
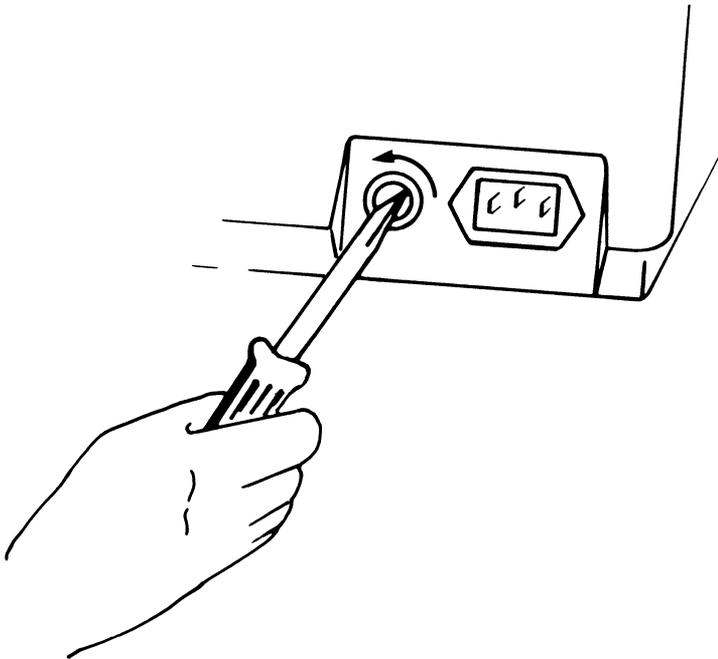
PL1837

2 Pull straight out on the fuse to remove it from the fuse holder.

1205796

Figure 6-11   **Removing the Fuse from the Holder**
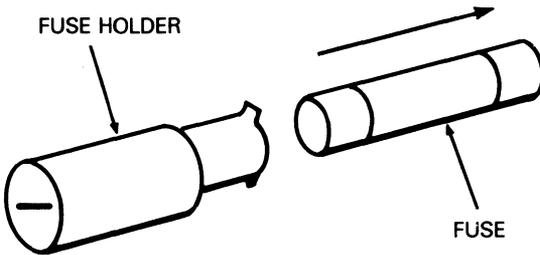
FUSE HOLDER

FUSE

PL1836

Warning: For continued protection against fire hazard, replace your printer's fuse only with a fuse of the type and rating appropriate for your printer.

---

3 Push a new fuse into the fuse holder until the fuse sticks. If you have a 120V printer, use a standard 250V 10A "normal-blow" fuse. If you have a 220V or 240V printer, use a standard 250V 5A time lag fuse.

4 Set the fuse holder in the printer opening and turn the holder clockwise until it goes into the printer as far as possible.

Figure 6-12   **Reinserting the Fuse Holder**
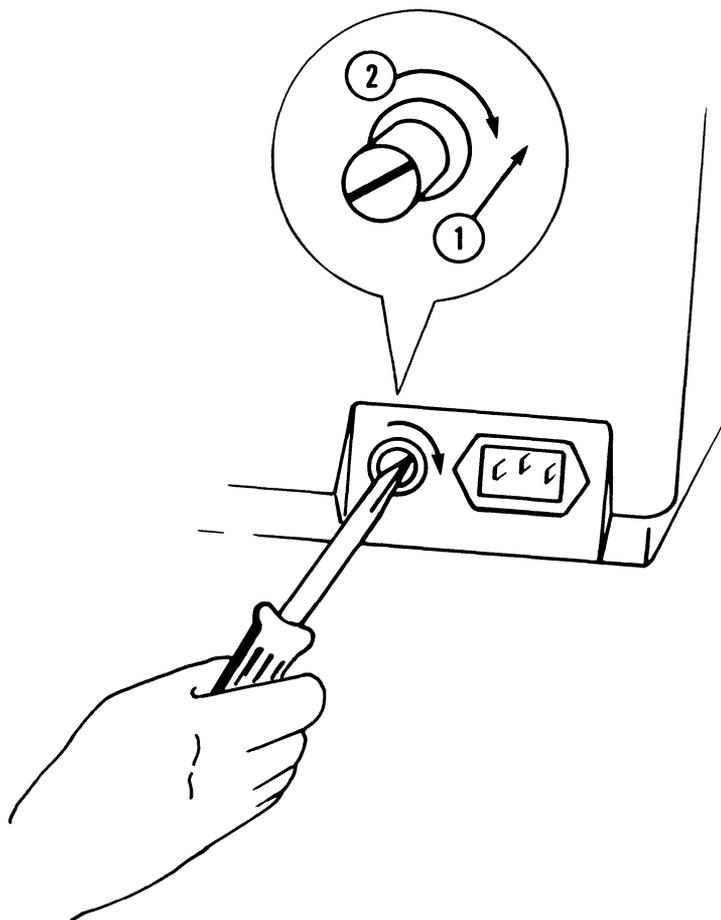
PL1838

5 With a small screwdriver, turn the fuse holder clockwise approximately 30 degrees while pressing in on the holder.

Correcting Radio or Television Interference

AP 9215-1 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: 16.6 inches (421 mm)
□ Width: 21.3 inches (540 mm)
□ Depth:
   □ 25.2 inches (641 mm) with A4 and letter paper trays
   □ 28.2 inches (718 mm) with legal size paper tray
□ Weight: 88 pounds (40 kg)

Development Process

The development process in the AP 9215-1 printer is dry electrophotography.

Print Speed

Note: To achieve these print speeds, a data transfer rate from the host of at least 19,200 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 12 seconds.

Print speed during continuous printing of text is a maximum of 15 sheets per minute for A4 and letter paper, and 7.5 sheets per minute for legal size paper.

Printer warm-up time is approximately 90 seconds.

Electrical Environment

Power Requirements

□ 100/120 V model: 90 to 132 V
□ 220/240 V model: 191 to 256 V

Power Consumption

□ 100/120 V model: 800 W
□ 220/240 V model: 750 W

Fuses

□ 100/120 V model: 250 V, 10 A "normal-blow" fuse
□ 220/240 V model: 250 V, 5 A time lag fuse

Acoustic Noise Levels

□ Printing: less than 55 dB
□ Standby: less than 50 dB

Operating Environment

The AP 9215-1 should be operated in a normal office with
the following conditions:

□ Temperature: 50° to 90°F (10° to 32°C)
□ 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.

Interface

The AP 9215-1 printer may be run with either a serial or
parallel interface. The interface mode is selected with the
indicator panel.

□ Parallel protocol: Centronics-type
□ Serial protocols: XON/XOFF; ETX/ACK; DTR
□ Serial baud rates: 150, 300, 600, 1200, 2400, 4800, 9600,
   19200

Paper

The AP 9215-1 printer uses plain, cut sheet paper. Usable paper sizes are A4 (8.27 by 11.69 inches), letter (8.5 by 11 inches), and legal (8.5 by 14 inches). Usable paper weights are 16 to 24 pound (60 to 90 g/m^2). When fed manually, the AP 9215-1 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 should not be used 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.

□ Folded, 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 capacity of each paper tray is 250 sheets of 20 pound (75 g/m^2) paper for a total of 500 sheets.

Paper Stacker Capacity

Paper ejects from the printer face down to provide positive page collation in the stacker. Capacity is 500 sheets of 20 pound (75 g/m^2) paper.

Fonts

There are eight resident fonts. Up to 24 additional fonts can be downloaded from the host computer or from font cartridges.

Print Resolution

Print resolution is 300 by 300 dots per inch.

Printable Area

The printable area on a sheet is less than the full paper size to allow for differences in mechanical tolerances in the print engine (registration and skew) and for sheet to sheet variations in the paper itself. The printable area for each paper size is as follows:

Table A-1   **Printable Area**

Paper Size	Width	Length
Letter	8 1/6 inches (2450 dots)	10 2/3 inches (3200 dots)
Legal	8 1/6 inches (2450 dots)	13 2/3 inches (4100 dots)
A4	7 11/12 inches (2375 dots)	11 1/3 inches (3400 dots)

Table A-2 shows the maximum number of characters per line and lines per page.

Table A-2   **Maximum Number of Characters Per Line and Lines Per Page**

Paper Size	Characters Per Line			Lines per Page	
	10 pitch	12 pitch	15 pitch	3 lines per inch	6 lines per inch
Letter	81	98	122	32	64
Legal	81	98	122	41	82
A4	79	95	118	34	68

The AP 9215-1 printer leaves a margin on all four sides of the paper approximately 1/6 (.17) inch wide. Printing cannot take place within this margin. Figure A-1 shows the maximum printable areas for A4, letter, and legal size paper.

Figure A-1   Maximum Printable Areas

<A4>

<LETTER SIZE>

* = Exact size
  varies according
  to paper size.

<LEGAL SIZE>

PL2446

Appendix B
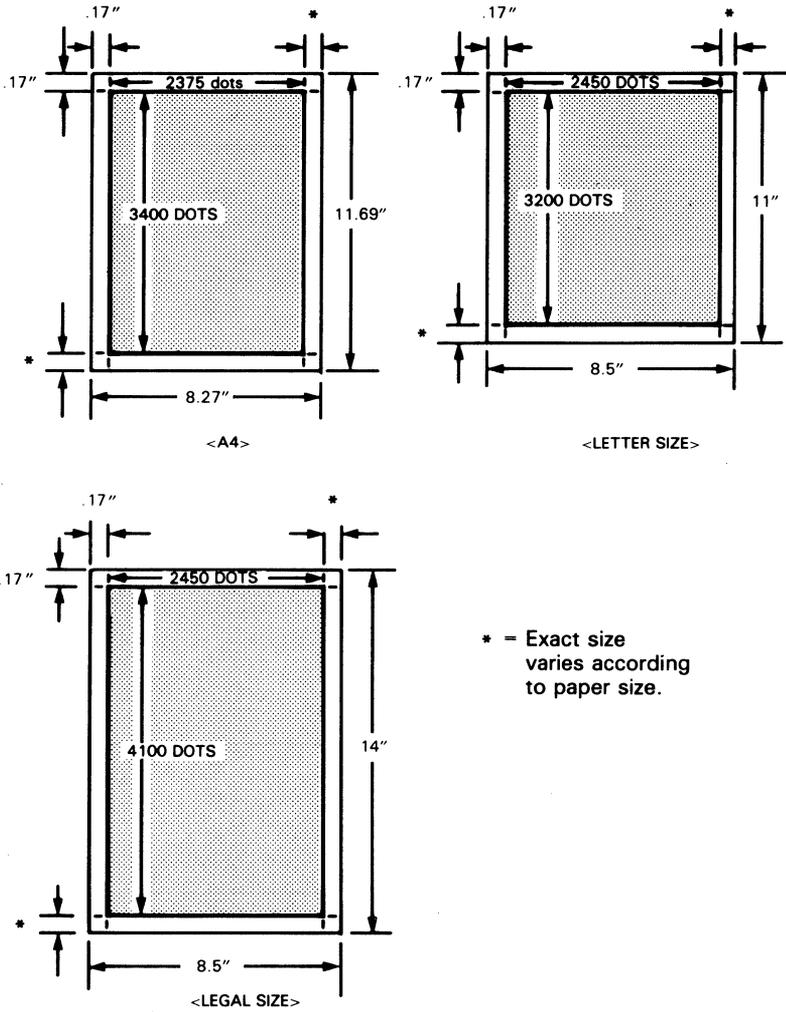
Supplies

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	

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 D (Reorder Number 81-6003-859)

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

Kit D contains supplies sufficient for replacing the OPC cartridge, shield lens, and charge and transfer corona units once. You will need to order a Kit D approximately every 10,000 to 15,000 pages.

PAPER

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

Appendix C

Resident Fonts, Character Sets, and Control Codes

Figure C-1 displays the fonts that are resident in the AP 9215-1 printer. Additional fonts may be downloaded from a host computer or installed using font cartridges. For more information about font cartridges, consult Appendix F of this guide.

COURIER 10   Font No. 1

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

COURIER 12   Font No. 2

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

PRESTIGE ELITE   Font No. 3

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

BOLD ITALIC PS   *Font No. 4*

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

BOLDFACE PS   Font No. 5

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

LETTER GOTHIC 12   Font No. 6

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

LETTER GOTHIC 15   Font No. 7

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

ORATOR 90%   FONT No. 8

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

Tables C-1, C-2, and C-3 display the primary and secondary character sets for the resident fonts. Tables C-1 and C-2 show the codes assigned to these characters when you are operating in 7-bit data transfer mode; Table C-3 shows the codes assigned to the characters when operating in 8-bit mode.

Note: The character sets for fonts in font cartridges may not match the sets shown here. For those character sets, consult the *FC 9200 Font Cartridge Support Reference Manual.*

You should be able to access most characters in the primary character set by simply pressing a key on the keyboard. The method of accessing characters in the secondary character set varies with different word processing and other application software programs. For information about accessing the secondary characters with your application program, consult the documentation for your application software.

If your application software does not allow you to access the secondary character set, a programmer or your system administrator will need to make some adjustments to your software. The printer commands to use are described in the *AP 9215-1 Printer Diablo 630 Emulation Programming Reference Manual, Volume 1: Text Mode.*

Table C-1   **Basic 96-Character ASCII Set (7-Bit) (Primary)**

| | | | | b_7 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| | | | | b_6 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 |
				b_5	0	1	0	1	0	1	0	1
b_4	b_3	b_2	b_1		0	1	2	3	4	5	6	7
0	0	0	0	0				0	@	P	`	p
0	0	0	1	1			!	1	A	Q	a	q
0	0	1	0	2			"	2	B	R	b	r
0	0	1	1	3			#	3	C	S	c	s
0	1	0	0	4			$	4	D	T	d	t
0	1	0	1	5			%	5	E	U	e	u
0	1	1	0	6			&	6	F	V	f	v
0	1	1	1	7			'	7	G	W	g	w
1	0	0	0	8			(	8	H	X	h	x
1	0	0	1	9			)	9	I	Y	i	y
1	0	1	0	A			*	:	J	Z	j	z
1	0	1	1	B			+	;	K	[	k	{
1	1	0	0	C			,	<	L	\	l		
1	1	0	1	D			-	=	M	]	m	}
1	1	1	0	E			.	>	N	^	n	~
1	1	1	1	F			/	?	O	_	o	

Note: Characters within the chart are from the Courier 10 font.

Table C-2   **Extended Character Set (7-Bit) (Secondary)**

b_7				0	0	0	0	1	1	1	1
b_6				0	0	1	1	0	0	1	1
b_5				0	1	0	1	0	1	0	1
b_4	b_3	b_2	b_1	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**
0	0	0	0	**0**			°				`	
0	0	0	1	**1**			¡				Æ	æ
0	0	1	0	**2**			¢		´		Đ	đ
0	0	1	1	**3**			£				ª	
0	1	0	0	**4**			¤			™		
0	1	0	1	**5**				µ	¯			ŀ
0	1	1	0	**6**							IJ	ij
0	1	1	1	**7**								
1	0	0	0	**8**					¨			
1	0	0	1	**9**							Ø	ø
1	0	1	0	**A**					°			
1	0	1	1	**B**					¸		º	ß
1	1	0	0	**C**				¼				
1	1	0	1	**D**				½				
1	1	1	0	**E**				¾		^		~
1	1	1	1	**F**				¿			ŉ	

Table C-3   Character Set (8-Bit) (Primary and Secondary)

b8	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1
b7	0	0	0	0	1	1	1	1	0	0	0	0	1	1	1	1
b6	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
b5	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
b4 b3 b2 b1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0 0 0 0 — 0				0	@	P	`	p				°			`	
0 0 0 1 — 1			!	1	A	Q	a	q				¡			Æ	æ
0 0 1 0 — 2			"	2	B	R	b	r				¢		´	Ð	đ
0 0 1 1 — 3			#	3	C	S	c	s				£			▪	
0 1 0 0 — 4			$	4	D	T	d	t				¤		™		
0 1 0 1 — 5			%	5	E	U	e	u				μ	¯			ı
0 1 1 0 — 6			&	6	F	V	f	v							IJ	ij
0 1 1 1 — 7			'	7	G	W	g	w								
1 0 0 0 — 8			(	8	H	X	h	x					¨			
1 0 0 1 — 9			)	9	I	Y	i	y							Ø	ø
1 0 1 0 — A			*	:	J	Z	j	z					°			
1 0 1 1 — B			+	;	K	[	k	{					₂		º	β
1 1 0 0 — C			,	<	L	\	l	|				¼				
1 1 0 1 — D			–	=	M	]	m	}				½				
1 1 1 0 — E			.	>	N	^	n	~				¾		ˆ		¬
1 1 1 1 — F			/	?	O	_	o					¿			ŉ	

Default Values

Table D-1 provides a list of the default values to which the printer returns after power on or an indicator panel reset. Many of the defaults listed in this table are set from the indicator panel on the front of the printer. The procedure for doing this is described in Section 3, "Setting the Printer's Modes."

To make temporary changes to the values of modes marked with an asterisk (*), you must use software commands from either the printer's command set or your application software package. Appendix G provides a list of the text mode software commands for the printer's resident command set, the Diablo 630. For a detailed explanation of these commands, consult the *AP 9215-1 Printer Diablo 630 Emulation Programming Reference Manual, Volume 1: Text Mode*. If you are using an emulation card with the printer, consult the Unisys programming reference manual for your emulation. Also refer to the documentation for your application software package.

For typical default values used when installing your printer with certain Unisys systems, consult Appendix E of this guide.

Table D-1 **Default Values**

Mode	Default Value
Host Interface	Set from indicator panel
Emulation Mode	Set from indicator panel
Printer Mode	Set from indicator panel
Line Termination	Set from indicator panel
Auto Wrap Around	Set from indicator panel
Current LPI (Lines per Inch)	Set from indicator panel
Current CPI (Characters per Inch)	Set from indicator panel
Current Font	Set from indicator panel
Nationality	U.S.A.
Serial Baud Rate	Set from indicator panel
Serial Data Form	Set from indicator panel
Serial I/F Mode	Set from indicator panel
Page Origin	Set from indicator panel

Table D-1   **Default Values (Continued)**

Endless Feed	Set from indicator panel
Parallel Data Communication Rate	Set from host computer
Parallel Data Form	8 data bits
Paper Handling - Feed	First available paper tray
Paper Handling - Eject	*Left side
Spacing Units	*Daisy wheel mode (1/120 inch horizontal, 1/48 inch vertical)
Horizontal Tab Settings	*Cleared
Vertical Tab Settings	*Cleared
Word Processing Modes	*All disabled
Number of Copies	*One
Reverse Print Mode	*Disabled
Backward Print Mode	*Disabled
Graphics Mode	*Disabled

Installing the AP 9215-1 Printer with Unisys Systems

For your printer to operate properly with a Unisys computer system, the printer's modes set by the indicator panel must be compatible with the system's configuration file parameters. In this appendix you will learn to:

□ Determine the printer's current mode settings.

□ Configure the printer for B 20 Series systems in serial mode.

□ Configure the printer for B 20 Series systems in parallel mode.

□ Configure the printer for B 20 Series systems in parallel mode using the PC Emulator.

□ Configure the printer for XE 500 Series BTOS systems in serial mode.

□ Configure the printer for XE 500 Series BTOS systems in parallel mode.

□ Configure the printer for 5000/70 CENTIX systems in serial mode.

□ Configure the printer for 5000/70 CENTIX systems in parallel mode.

Notes:

1 The explanations that follow describe only **typical** configurations of the AP 9215-1 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.

2 To install your printer with your Unisys system, you will need to have an interface cable qualified for your printer and your system. For information about ordering qualified cables, contact your Unisys sales representative.

Determining the Current Mode Settings

To determine the printer's current mode settings, print a
test summary sheet. To do this, turn on the printer and
wait for it to warm up. Then press the On/Off Line button
to place the printer in off-line mode and press the Test
button on the indicator panel. The printer will produce a
printout that includes a description of the current mode
settings. For more information about the test summary
sheet, refer to "Printing a Test Summary Sheet" in Section
3 of this guide. Instructions for setting the modes using
the indicator panel and a detailed description of these
modes are in Section 3, "Setting the Printer's Modes."

Configuring the Printer for B 20 Series Systems

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

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 printer interface cable
qualified for the host. For information about qualified
cables, contact your Unisys sales representative.
3 Set the power switch to the ON (I) position.
4 Following the procedure for setting the modes given in
Section 3, set the modes to the default values given in
Table E-1.

Table E-1   **Printer Default Values for B 20 Series, Serial Mode**

Mode	Value
Host Interface	Serial, XON/XOFF
Emulation Mode	Internal (D630)
Line Termination	CR=CR, LF=LF
Serial Baud Rate	9600 baud
Serial Data Form	8 bit 1 stop none
Serial I/F Mode	Full duplex mode

Notes:

1 If you will be printing using the Generic Print System (GPS) software package, set the Host Interface to "Serial, DTR". For more information, consult the *BTOS Generic Print System (GPS) Installation and Administration Guide*.

2 Printing complex text and graphics may result in reduced throughput.

3 Modes not named may be set to the default value of your choice.

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 E-2. This is a typical configuration and will match the default settings given in Table E-1.

Table E-2   B 20 Series 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)

Notes:

1 Setting the Data Bits field to **8** and Parity to **None** enables the printer to print both text and graphics. Accepting the default setting of **7** and setting the Parity to **Even** allows the printer to print text, but not graphics.

2 If you will be printing using the Generic Print System (GPS) software package, set the Line Control parameter to "CTS". For more information, consult the *BTOS Generic Print System (GPS) Installation and Administration Guide.*

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: Rebooting the system is not required for direct printing.

6 If you are using SWP Release Level 1.4.2 or later, PWP Release Level 2.3.2 or later, or the Generic Print System (GPS), make the following adjustments to your software files. If you are using other application software, consult your software manual for the appropriate printer designation.

a If you are using SWP Release Level 1.4.2 or later or PWP Release Level 2.3.2 or later, specify *AP92Laser* as the format type and *DiabloF32* as the sheet feeder type in the Sys.Printers file. For more information, consult the *BTOS Secretarial Word Processing Installation, Configuration, and Administration Guide*.

b If you are using GPS, specify *[SYS]<GPS>APVLASERDD.RUN* in the Driver Run File field on the Print Manager's Install Device form. For more information, consult the *BTOS Generic Print System (GPS) Installation and Administration Guide*.

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 printer interface cable qualified for the host. For information about qualified cables, contact your Unisys sales representative.

3 Set the power switch to the ON (I) position.

4 Following the procedure for setting the modes given in Section 3, set the modes to the default values given in Table E-3.

Table E-3   **Printer Default Values for B 20 Series, Parallel Mode**

Mode	Value
Host Interface	Parallel, ACK Out Busy
Emulation Mode	Internal (D630)
Printer Mode	WP-Portrait
Line Termination	CR=CR, LF=LF
Default LPI	6 LPI
Default CPI	10 CPI

Note: Modes not named may be set to the default value of your choice.

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 E-4. This is a typical configuration and will match the default values given in Table E-3.

Table E-4   **B 20 Series 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: Rebooting the system is not required for direct printing.

6 If you are using SWP Release Level 1.4.2 or later, PWP
Release Level 2.3.2 or later, or the Generic Print System
(GPS), make the following adjustments to your software
files. If you are using other application software,
consult your software manual for the appropriate
printer designation.

a If you are using SWP Release Level 1.4.2 or later or
PWP Release Level 2.3.2 or later, specify *AP92Laser*
as the format type and *DiabloF32* as the sheet feeder
type in the Sys.Printers file. For more information,
consult the *BTOS Secretarial Word Processing
Installation, Configuration, and Administration
Guide*.

b If you are using GPS, specify
[SYS]<GPS>APVLASERDD.RUN in the Driver Run
File field on the Print Manager's Install Device form.
For more information, consult the *BTOS Generic
Print System (GPS) Installation and Administration
Guide*.

Parallel Mode with the PC Emulator

When using a B 20 series system with the PC Emulator,
you can operate your printer in parallel mode only. You
can configure your system for either direct or spooled
printing.

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 printer interface
cable qualified for the host. For more information about
qualified cables, contact your Unisys sales
representative.

3 Set the power switch to the ON (I) position.

4 Following the procedure for setting the modes given in
Section 3, set the modes to the default values given in
Table E-5.

Table E-5   **Printer Default Values for B 20 Series, Parallel Mode**

Mode	Value
Host Interface	Parallel, ACK Out Busy
Emulation Mode	Internal (D630)
Printer Mode	WP-Portrait
Line Termination	CR=CR, LF=LF
Default LPI	6 LPI
Default CPI	10 CPI

Note: Modes not named may be set to the default value of your choice.

5   Edit the PC configuration file as follows:

a   In the Executive mode, type the following on the Command line and press the **RETURN** key:

EDIT

b   On the File line, type the name of your PC configuration file.

1   If your user name is unique within your cluster, the PC configuration file set up for you should be named:

[SYS]<SYS>YourUserNamePC.SYS

2   If your user name is not unique within your cluster, your System Administrator should have assigned a unique file name to your PC configuration file at installation. If you do not know the name of your unique PC configuration file, contact your System Administrator.

c   Press the **GO** key. The following form will appear:

:DriveA: [f0]

:DriveC: [sys]<sys>PCEmulator.PSV

:DriveCReadOnly?:

:DriveD:

:DriveDReadOnly?:

:LPT1: [Lpt]

:COMM1: [COMM]B

:GraphicsAdapter: None

Note: The values shown are the default PC configuration file values. If your PC configuration file has been edited previously, the values shown may differ.

d The PC configuration file includes entries for a number of devices which you can specify for use with the PC Emulator. Press the **RETURN** key to move the cursor to the :LPT1: (printer) field.

    1 If using the spooler, type the following:

    [Spl]

    2 If printing directly without using the spooler, type the following:

    [Lpt]

e Press the **FINISH** key followed by the **GO** key to exit the EDITOR and return to the Executive.

f 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:**   Rebooting the system is not required for direct printing.

6 If you are using SWP Release Level 1.4.2 or later, PWP Release Level 2.3.2 or later, or the Generic Print System (GPS), make the following adjustments to your software files. If you are using other application software, consult your software manual for the appropriate printer designation.

a If you are using SWP Release Level 1.4.2 or later or PWP Release Level 2.3.2 or later, specify *AP92Laser* as the format type and *DiabloF32* as the sheet feeder type in the Sys.Printers file. For more information, consult the *BTOS Secretarial Word Processing Installation, Configuration, and Administration Guide*.

b If you are using GPS, specify *[SYS]<GPS>APVLASERDD.RUN* in the Driver Run File field on the Print Manager's Install Device form. For more information, consult the *BTOS Generic Print System (GPS) Installation and Administration Guide*.

Configuring the Printer for XE 500 Series BTOS Systems

With XE 500 series BTOS systems, your printer can operate in either serial or parallel mode. In serial mode, the same printer can be shared by both an XE 500 series BTOS system and a 5000/70 CENTIX system. In parallel mode, the same printer cannot be shared by a BTOS and a CENTIX system.

Operating in Serial Mode

When connecting the AP 9215-1 as a serial printer to an XE 500 series BTOS system, be aware of the following:

□ The Cluster and Terminal Processors are only qualified to drive serial printers in XON/XOFF mode. CTS protocol is not supported. The printer should be on-line before issuing any print request to it. If the printer is not on-line, some print requests may be lost due to protocol limitations.

□ The XE 500 series BTOS system supports only spooled printing.

□ The AP 9215-1 works as a serial printer connected to Channels 1 to 3 on a Cluster Processor and Channels 1 to 10 on a Terminal Processor.

□ The Cluster Processor supports the Mspooler Manager Server (up to three serial printers).

□ The Terminal Processor supports the MSpooler Manager Server (up to three serial printers connected to Channels 1 to 3) and the MBig Spooler Manager Server (if more than three printers are to be used or if one of the printers is connected to Channel 4 or higher).

□ Each time a configuration file is modified the system **must** be rebooted to make the modification effective.

For more information about using an XE 500 series BTOS system, consult the *XE 500 BTOS Installation and Implementation Guide*, Release Level B6.0, or the *XE 500 BTOS System Software Installation Guide*, Release Level B5.0.

Default Configuration

1 Set the printer power switch to the ON (I) position.

2 Following the procedure for setting the modes given in Section 3, set the modes to the default values given in Table E-6.

Table E-6 **Printer Default Values with an XE 500 BTOS System, Serial Mode**

Mode	Value
Host Interface	Serial, XON/XOFF
Emulation Mode	Internal (D630)
Line Termination	CR=CR, LF=LF
Serial Baud Rate	9600 baud
Serial Data Form	8 bit 1 stop none
Serial I/F Mode	Full duplex mode

Notes:

1 Printing complex text and graphics may result in reduced throughput.

2 Modes not named may be set to the default value of your choice.

3 Set the power switch to the OFF (O) position.

4 Connect the printer interface cable to the serial port of the printer and to Channel 3 of Cluster Processor 00, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

5 Set the power switch to the ON (I) position.

6 Use the MCreate Configuration File command to verify that the parameters in the <spl>SplCConfigCp00.Sys file match the modes which have been defined in the printer. Table E-7 shows a sample printer configuration file that allows you to take advantage of all the printer escape sequences.

Table E-7   **Sample XE 500 BTOS System Serial Mode Configuration File**

Data bits	8
Parity	none
Baud rate	9600
Stop bits	1
Transmit time out	60
New line mapping	Binary
Line control	XON/XOFF
Tab expansion	0
Number of characters	132
Translation file	[sys]<sys>serial.xlat

7 To create the [sys]<sys>serial.xlat file:

a Edit a file named **xlat** and enter the following:

0A=0A,0D

b Invoke the MCreate Translation File command with the following parameters:

xlat

[!sys]<sys>serial.xlat

Modified Configuration

If you want to modify the standard printer installation (for example, to add a printer), you have to edit and modify some files.

1 Follow Steps 1 through 3 of the Default Configuration procedure immediately preceding this procedure.

2 Connect the printer interface cable to the serial port of the printer and to the channel you want to use on any Cluster Processor or Terminal Processor board, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

3 Use the MCreate Configuration File command to create a configuration file for the (new) printer. This file can have any name (such as, <spl>SplBConfigCP00.sys or AP9215-1Config...). Modify the parameters of the configuration file to match the modes assigned to the printer.

4 Edit the SplCnfg.Sys file and add the file for the new printer.

Note: The name of the printer configuration file you have just created and the name of the printer configuration file in the [!SYS]<SYS>SplCnfg.Sys must be the same.

5 Edit the [!SYS]<SYS>QUEUE.INDEX file and modify it to reflect your desired modification(s).

6 Verify that the Queue Manager Server is installed (generally in the FP00). The related file is [!SYS]<SYS>INITFP00.JCL.

7 Verify that an Mspooler Manager Server is installed in the Cluster Processor or Terminal Processor where you want to connect a printer. If not, install the server using the MBtos Configure command.

8 If you want to use more than three printers in a Terminal Processor, you must install the Big Spooler Server in this Terminal Processor. To do this, use the MBtos Configure command.

9 If you are adding a printer, an asynchronous line must be added in the CPXX.cnf or TPXX.cnf file for the channel you want to use. Edit and modify the appropriate file.

10 To make the modifications take effect, reboot the system.

Operating in Parallel Mode

When connecting the AP 9215-1 as a parallel printer to an XE 500 series BTOS system, be aware of the following:

□ The XE 500 Cluster Processor and Terminal Processor can drive one parallel printer connected to the parallel port of the boards. The printer should be on-line before issuing any print request to it. If the printer is not on-line, some print requests may be lost due to protocol limitations.

□ The XE 500 BTOS operating system supports only spooled printing.

□ The AP 9215-1 works as a parallel printer connected to the parallel channel of a Cluster or Terminal Processor.

□ The Cluster Processor supports the Mspooler Manager Server.

□ The Terminal Processor supports the MSpooler Manager Server and the MBig Spooler Manager Server. If you do not install serial printers it is not useful to install the MBig Spooler Manager.

□ Each time a configuration file is modified the system **must** be rebooted to make the modification effective.

For more information about using an XE 500 series BTOS system, consult the *XE 500 BTOS Installation and Implementation Guide*, Release Level B6.0 or the *XE 500 BTOS System Software Installation Guide*, Release Level B5.0.

Default Configuration

1 Set the printer power switch to the ON (I) position.

2 Following the procedure for setting the modes given in Section 3, set the modes to the default values given in Table E-8.

Table E-8   **Printer Default Values with an XE 500 BTOS System, Parallel Mode**

Mode	Value
Host Interface	Parallel, ACK Out Busy
Emulation Mode	Internal (D630)
Printer Mode	WP-Portrait
Line Termination	CR=CR, LF=LF
Default LPI	6 LPI
Default CPI	10 CPI

Note: Modes not named may be set to the default value of your choice.

3 Set the power switch to the OFF (O) position.

4 Connect the printer interface cable to the parallel port of the printer and to the parallel channel (port) of Cluster Processor 00, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

5 Set the power switch to the ON (I) position.

6 Use the MCreate Configuration File command to verify that the parameters in the <spl>SplCConfigCp00.Sys file match the modes which have been defined in the printer.

Modified Configuration

If you want to modify the standard printer installation (for example, to add a printer), you have to edit and modify some files.

1 Follow Steps 1 through 3 of the Default Configuration procedure immediately preceding this procedure.

2 Connect the printer interface cable to the parallel port of the printer and to the parallel channel (port) of any Cluster Processor or Terminal Processor board, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

3 Use the MCreate Configuration File command to create a configuration file for the (new) printer. This file can have any name (such as, <spl>ParConfigCP00.sys or AP9215-1Config...). Modify the parameters of the configuration file to match the modes assigned to the printer.

4 Edit the SplCnfg.Sys file and add the file for the new printer.

   Note: The name of the printer configuration file you have just created and the name of the printer configuration file in the [!SYS]<SYS>SplCnfg.Sys must be the same.

5 Edit the [!SYS]<SYS>QUEUE.INDEX file and modify it to reflect your desired modification(s).

6 Verify that the Queue Manager Server is installed (generally in the FP00). The related file is [!SYS]<SYS>INITFP00.JCL.

7 Verify that an Mspooler Manager Server is installed in the Cluster or Terminal Processor where you want to connect a printer. If not, install the server using the MBtos Configure command.

8 To make the modifications take effect, reboot the system.

Configuring the Printer for 5000/70 CENTIX Systems

With 5000/70 CENTIX systems, your printer can operate in either serial or parallel mode. In serial mode, the same printer can be shared by both a 5000/70 CENTIX system and an XE 500 series BTOS system. In parallel mode, the same printer cannot be shared by a CENTIX and a BTOS system.

Note: The 5000/70 CENTIX system was formerly called the XE 500 series CENTIX system.

Operating in Serial Mode

When connecting the AP 9215-1 as a serial printer to a 5000/70 CENTIX system, be aware of the following:

□ It is recommended that only the System Administrator make modifications in the CENTIX operating system.

□ The Cluster and Terminal Processors are only qualified to drive serial printers in XON/XOFF mode. CTS protocol is not supported. The printer should be on-line before issuing any print request to it. If the printer is not on-line, some print requests may be lost due to protocol limitations.

□ The AP 9215-1 works as a serial printer connected to Channels 1 to 3 on a Cluster Processor and Channels 1 to 10 on a Terminal Processor.

□ The 5000/70 can also drive printers connected to the RS-232 interface of a PT 1500 connected to the system through the RS-422 line (cluster line).

Three different commands can be used to direct outputs to printers connected to a 5000/70 Cluster or Terminal Processor: the cat command, the lpr command, and the lp command.

Using the cat Command

1 Use saf to attach a terminal to the port where you want to connect the printer.

   Note: The default terminal options are 9600 baud, 8 bits, and no parity.

2 Use a CENTIX editor to modify the file /etc/inittab00. For the tty assigned to the printer, replace the word "respawn" with "off".

3 Set the printer power switch to the ON (I) position.

4 Following the procedure for configuring the default modes given in Section 3, set the default modes to the values given in Table E-9.

Table E-9   **Printer Default Values with a 5000/70 CENTIX System, Serial Mode**

Mode	Value
Host Interface	Serial, XON/XOFF
Emulation Mode	Internal (D630)
Line Termination	CR=CR, LF=LF
Serial Baud Rate	9600 baud
Serial Data Form	8 bit 1 stop none
Serial I/F Mode	Full duplex mode

Notes:

1 When using CENTIX in serial mode, the maximum throughput may be less than 15 pages per minute due to the CENTIX maximum baud rate of 9600 baud.

2 Printing complex text and graphics may also result in reduced throughput.

3 Modes not named may be set to the default value of your choice.

5 Set the power switch to the OFF (O) position.

6 Connect the printer interface cable to the serial port of the printer and to the channel (port) where you have attached the terminal, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

7 Set the power switch to the ON (I) position

8 Reboot the system.

Using the lpr Command (lpr Spooler)

The lpr Spooler uses the MBtos Spooler(s). Install the printer as described in the serial mode procedures for "Configuring the Printer with XE 500 Series BTOS Systems" earlier in this section.

The format of the command is: lpr -qQUEUENAME FILE(S). The default queue is SPL.

For more information, consult the *5000/70 CENTIX Installation and Implementation Guide*, Release Level B6.1 or the *XE 500 CENTIX Software Installation Guide*, Release Level B5.0.

Using the lp Command (lp Spooler)

The format of the command is: lp file.

For more information, consult the *5000/70 CENTIX Administration Guide*, Release Level B6.1 or the *XE 500 CENTIX Administration Guide*, Release Level B5.0.

1 Use saf to attach a terminal to the port where you want to connect the printer.

    Note: The default terminal options are 9600 baud, 8 bits, and no parity.

2 Use a CENTIX editor to modify the file /etc/inittab00. For the tty assigned to the printer, replace the word "respawn" with "off".

3 Set the printer power switch to the ON (I) position.

4 Following the procedure for setting the modes given in Section 3, set the modes to the default values given in Table E-10.

Table E-10   **Printer Default Values with a 5000/70 CENTIX System, Serial Mode**

Mode	Value
Host Interface	Serial, XON/XOFF
Emulation Mode	Internal (D630)
Line Termination	CR=CR, LF=LF
Serial Baud Rate	9600 baud
Serial Data Form	8 bit 1 stop none
Serial I/F Mode	Full duplex mode

Notes:

1 When using CENTIX in serial mode, the maximum throughput may be less than 15 pages per minute due to the CENTIX maximum baud rate of 9600 baud.

2 Printing complex text and graphics may also result in reduced throughput.

3 Modes not named may be set to the default value of your choice.

5 Set the power switch to the OFF (O) position.

6 Connect the printer interface cable to the serial port of the printer and to the channel (port) where you have attached the terminal, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

7 Set the power switch to the ON (I) position

8 Follow the flow given in the following script file.

Note: If you want to create a command for an automatic installation, you can edit the file and then change the file's mode to 777. The command's format will be: Command Parameter1. Parameter1 is the tty number of the port where you want to attach the printer. For example: lppt1500 002.

#THIS IS A SCRIPT FILE THAT WILL INSTALL THE LP
#SPOOLER FOR A PRINTER CONNECTED TO A TTY PORT
#
#In the following AP 9215 and 9215 are sample names that
#you can change to reflect your typical installation.
#
#Remove the /dev/tty$1 file where $1 is the tty number of
#the port where you want to connect the printer.
#
rm /dev/tty$1
#
#Recreate the device file for the port
#
mknod /dev/tty$1 c 0 $1
#
#Establish that the tty port is a printer port.
#
chown lp /dev/tty$1
chmod 600 /dev/tty$1
#
#Disable the printer
#
disable AP9215
#

```
#Stop the scheduler
#
/usr/lib/lpshut
#
#Copy the model interface file
#
cp /usr/spool/lp/model/1305 /usr/spool/lp/model/9215
#
#Edit the new model interface file to reflect the printer
#parameters
#
vi /usr/spool/lp/model/9215
#
#Allow the lp spooler to access the model interface file
#
chown lp /user/spool/lp/model/9215
#
#Define the printer to the operating system.
#
/usr/lib/lpadmin -l -PAP9215 -vdev/tty$1 -m9215
#
#Start the scheduler
#
/usr/lib/lpsched
#
#Enable the printer and define it as the default
#destination.
#
enable AP9215; /usr/lib/lpadmin -dAP9215
#
#Make the printer accept data from lp
#
/usr/lib/accept AP9215
#
#Verify the scheduler status.
#
lpstat -t
#
#If not enabled
#
enable AP9215
#
#
```

Using the lp Command PT 1500 Printer Pass Through Capability (lp Spooler)

The format of the command is: lp file.

For more information, consult the *5000/70 CENTIX Administration Guide*, Release Level B6.1 or the *XE 500 CENTIX Administration Guide*, Release Level B5.0.

Note: The default terminal options are 9600 baud, 8 bits, and no parity.

1 Set the printer power switch to the ON (I) position.

2 Following the procedure for setting the modes given in Section 3, set the modes to the default values given in Table E-11.

Table E-11   **Printer Default Values with an 5000/70 CENTIX System, Serial Mode**

Mode	Value
Host Interface	Serial, XON/XOFF
Emulation Mode	Internal (D630)
Line Termination	CR=CR, LF=LF
Serial Baud Rate	9600 baud
Serial Data Form	8 bit 1 stop none
Serial I/F Mode	Full duplex mode

Notes:

1 When using CENTIX in serial mode, the maximum throughput may be less than 15 pages per minute due to the CENTIX maximum baud rate of 9600 baud.

2 Printing complex text and graphics may also result in reduced throughput.

3 Modes not named may be set to the default value of your choice.

3 Set the power switch to the OFF (O) position.

4 Connect the printer interface cable to the serial port of the printer and to the RS 232 connector of the PT 1500 where you want to attach the printer, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

5 Set the power switch to the ON (I) position

6 Follow the flow given in the following script file.

Note: If you want to create a command for an automatic installation, you can edit the lppt1500 file and then change the file's mode to 777. The command's format will be: Command Parameter1, where Parameter1 is the tty number of the PT 1500 where you want to attach the printer. For example, if the PT 1500's tty number is 002, the command format will be: pt1500 002.

```
#THIS IS A SCRIPT FILE THAT WILL INSTALL THE LP
#SPOOLER FOR A PT1500 PRINTER PASS THROUGH
#
#The default RS232 parameters for the PT1500 are
#9600 baud 8 bits no parity
#It is possible to set different options at power on time by
#pushing the PT1500 Space bar while turning the PT1500
#ON. To change the baud rate, type: R and enter the
#appropriate number
#     9     9600
#     8     4800
#     6      600
#     4     2400
#     3      300
#     2     1200
#     1      110
```

Note: The 110 baud rate is not available on the AP 9215-1 printer.

```
#To change the format, type: F followed by a 3 digit
#number of the form DPS
#D=7,8 data bits
#P=0 for no parity
#P=1 for odd parity
#P=3 for even parity
#S=1 for 1 Stop bit
#S=2 for 1.5 Stop bit
#S=3 for 2 Stop bit
#For example 731 will set your PT1500 for
#7 bits parity even 1 stop bit.
#
#In the following, AP9215 and 9215 are sample names that
#you can change to reflect your typeical installation.
#
#Remove the /dev/tp1$1 file where $1 is the tty number
#of the PT1500 where you want to connect the printer.
#
```

```
rm /dev/tp1$1
#
#Recreate the device file for the pt
#
mknod /dev/tp1$1 c 14 $1
#
#Disable the printer
#
disable AP9215
#
#Stop the scheduler
#
/usr/lib/lpshut
#
#Copy the model interface file
#
cp /usr/spool/lp/model/1305 /usr/spool/lp/model/9215
#
#Edit the new model interface file to reflect the printer
#parameters
#
vi /usr/spool/lp/model/9215
#
#Allow the lp spooler to access the model interface file
#
chown lp /user/spool/lp/model/9215
#
#Define the printer to the operating system.
#
/usr/lib/lpadmin -l -PAP9215 -vdev/tp1$1 -m9215
#
#Start the scheduler
#
/usr/lib/lpsched
#
#Enable the printer and define it as the default
#destination.
#
enable AP9215; /usr/lib/lpadmin -dAP9215
#
#Make the printer accept data from lp
#
/usr/lib/accept AP9215
#
#Verify the scheduler status.
#
lpstat -t
```

```
#
#If not enabled
#
enable AP9215
#
#
```

Operating in Parallel Mode

When connecting the AP 9215-1 as a parallel printer to a 5000/70 CENTIX system, be aware of the following:

□ It is recommended that only the System Administrator make modifications in the CENTIX operating system.

□ The Cluster and Terminal Processors can drive one parallel printer connected to the parallel port of the boards. The printer should be on-line before issuing any print request to it. If the printer is not on-line, some print requests may be lost due to protocol limitations.

□ The AP 9215-1 works as a parallel printer connected to the parallel port of a Cluster or Terminal Processor.

□ The LpSpooler must be installed in the init file of the board where you want to connect the parallel printer.

□ A Btos Mspooler Server or MBig Spooler Server cannot share a parallel printer with an LpSpooler server.

Two different commands can be used to direct outputs to printers connected to a 5000/70 Cluster or Terminal Processor: the lpr command and the lp command.

Using the lpr Command (lpr Spooler)

The lpr Spooler uses the MBtos Spooler(s). Install the printer as described in the serial mode procedures for "Configuring the Printer with XE 500 Series BTOS Systems" earlier in this section.

The format of the command is: lpr -qQUEUENAME FILE(S). The default queue is SPL.

For more information, consult the *5000/70 CENTIX Installation and Implementation Guide*, Release Level B6.1 or the *XE 500 CENTIX Software Installation Guide*, Release Level B5.0.

Using the lp Command (lp Spooler)

The format of the command is: lp file.

For more information, consult the *5000/70 CENTIX Administration Guide*, Release Level B6.1 or the *XE 500 CENTIX Administration Guide*, Release Level B5.0.

1 Set the printer power switch to the ON (I) position.

2 Following the procedure for setting the modes given in Section 3, set the modes to the default values given in Table E-12.

Table E-12   **Printer Default Values with a 5000/70 CENTIX System, Parallel Mode**

Mode	Value
Host Interface	Parallel, ACK Out Busy
Emulation Mode	Internal (D630)
Printer Mode	WP-Portrait
Line Termination	CR=CR, LF=LF
Default LPI	6 LPI
Default CPI	10 CPI

Note: Modes not named may be set to the default value of your choice.

3 Set the power switch to the OFF (O) position.

4 Connect the printer interface cable to the parallel port of the printer and to the parallel channel (port) of any Cluster or Terminal Processor board, using a cable qualified for your system. For information about qualified cables, contact your Unisys sales representative.

5 Set the power switch to the ON (I) position

6 Follow the flow given in the following script file.

Note: If you want to create a command for an automatic installation, you can edit the file and then change the file's mode to 777. The command's format will be: Command Parameter1, where Parameter1 is the number of the board where you want to attach the printer (00 for the first Cluster Processor after the File Processor, 01 for the next Cluster or Terminal Processor, and so on). For example: lppar 00.

```
#THIS IS A SCRIPT FILE THAT WILL INSTALL THE LP
#SPOOLER FOR A PRINTER CONNECTED TO A
#PARALLEL PORT
#
#In the following AP 9215 and 9215 are sample names that
#you can change to reflect your typical installation.
#
#Remove the /dev/lp$1 file where $1 is the number of
#the where you want to connect the printer.
#
rm /dev/lp$1
#
#Recreate the device file for the port
#
mknod /dev/lp$1 c 7 $1
#
#Disable the printer
#
disable AP9215
#
#Stop the scheduler
#
/usr/lib/lpshut
#
#Copy the model interface file
#
cp /usr/spool/lp/model/9246 /usr/spool/lp/model/9215P
#
#Allow the lp spooler to access the model interface file
#
chown lp /user/spool/lp/model/9215P
#
#Define the printer to the operating system.
#
/usr/lib/lpadmin -1 -PAP9215 -vdev/lp$1 -m9215P
#
#Start the scheduler
#
/usr/lib/lpsched
#
#Enable the printer and define it as the default
#destination.
#
enable AP9215; /usr/lib/lpadmin -dAP9215
#
#Make the printer accept data from lp
#
```

/usr/lib/accept AP9215
#
#Verify the scheduler status.
#
lpstat -t
#
#If not enabled
#
enable AP9215
#
#

Using Font Cartridges

Font cartridges are small rectangular devices containing memory chips on which one or more fonts or other images are stored. When a cartridge is inserted into the AP 9215-1 printer, the cartridge's fonts or other images can be loaded into the printer's memory and used when printing documents. Font cartridges can also be used to load signatures, company logos, and "3 of 9" bar codes into your printer.

This appendix includes instructions for installing and caring for font cartridges and for reading the font cartridge label. For information about setting the default font value for your printer, refer to Section 3, "Setting the Printer's Modes." For information about selecting fonts using the AP 9215-1 indicator panel, refer to Section 4, "Operating the Printer." For information about selecting fonts using software codes, consult the *AP 9215-1 Printer Diablo 630 Emulation Programming Reference Manual, Volume 1: Text Mode*. You can find other information about using fonts in a document in the *FC 9200 Font Cartridge Installation and Operations Guide* or the manual for your application software.

For more information about font availability and ordering font cartridges, consult the *FC 9200 Font Cartridge Support Reference Manual* or contact your Unisys sales representative.

Inserting and Removing a Font Cartridge

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 left 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 F-1   **Inserting the Font Cartridge**
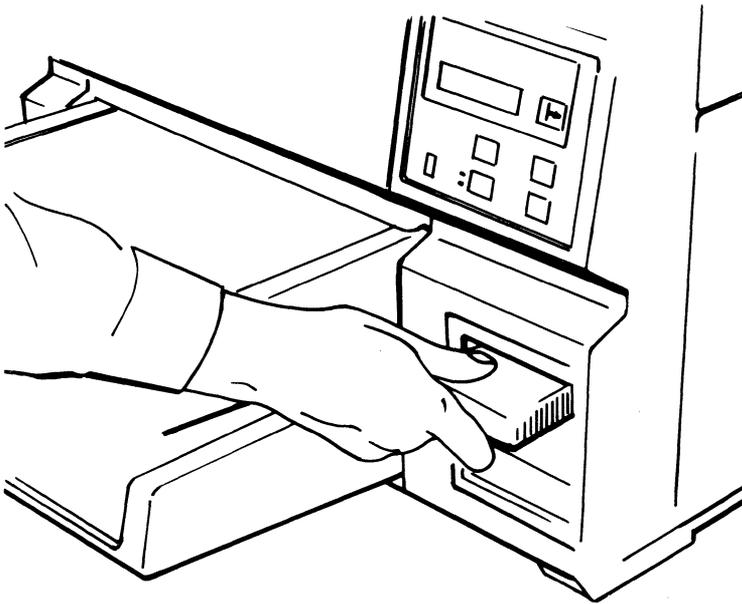
PL1805

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 assignment 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 and other images 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 and other images that are stored on that cartridge. This provides useful information for using these fonts and images. 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 or image.

□ The point size of the font.

□ WS or STD. WS (workstation) identifies character sets to use with the B 20 computer series. STD 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, October 1987 would be indicated by the code 1087.

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 9215-1 Diablo 630 Emulation Programming Reference Manual, Volume 1: Text Mode.*

Table G-1 **AP 9215-1 Text Mode 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, m16, 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 Page Length	ESC FF n
Set Page 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 9215-1 Text Mode 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 Top and Bottom Margins	ESC C
Set Horizontal Tab Stops	1. ESC 1 Sets a tab stop at the AP. 2. ESC DC4 HT k n1 n2 ... nk Sets tab stops at points which are (n-1) HMI from the left page edge. 3. ESC DC2 HT m1,m2...mk SP Sets tab stops at points which are m x 1/120 inch from the left page edge.
Set Vertical Tab Stops	1. ESC - Sets a tab stop at the AP. 2. ESC DC4 VT k n1 n2 ... nk Sets tab stops at points which are (n-1) VMI from the top of page. 3. ESC DC2 VT m1,m2,...,mk SP Sets tab stops at points which are m x 1/48 inch from the top of page
Clear Tabs	1. ESC 8 Clears the horizontal tab stop at the AP. 2. ESC 2 Clears all horizontal and vertical tab stops.

Table G-1   AP 9215-1 Text Mode Commands (continued)

Word Processing Commands	Sequence
Enter Proportional Print Mode	ESC P
Set Proportional Print Offset	ESC DC1 n
Exit Proportional Print Mode	ESC Q
Start Automatic Underlining	ESC E
End Automatic Underlining	ESC R
Enter Boldface Print Mode	ESC O
Enter Shadow Print Mode	ESC W
Exit Boldface/ Shadow Print Mode	ESC &
Enter Enlarged Printing Mode	ESC DC2 E m SP
Enter Automatic Justification Mode	ESC M
Enter Automatic Centering Mode	ESC =
Set Number of Copies (Multiple Print)	ESC DC2 N m SP
Suppress Character Print	ESC 7
Print Special Characters	1. ESC Y Prints character assigned to <20>. 2. ESC Z Prints character assigned to <7F>.
Turn Off Word Processing Functions Except Proportional Spacing	ESC X
Print Control Codes	ESC DC2 K m SP

Table G-1   **AP 9215-1 Text Mode Commands (continued)**

Movement Commands	Sequence
Set HMI	1. ESC US n Sets the size of the HMI as (n-1) x 1/120 inch. 2. ESC DC2 US m SP Sets the size of the HMI as m x SU.
Reset HMI	ESC S
Move AP Horizontally (Absolute Positioning)	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.
Move AP Horizontally (Relative Positioning)	1. ESC DC4 SP +/- n Moves AP right (+) or left (-) by (n-1) HMI. 2. ESC DC2 SP +/- m SP Moves AP right (+) or left (-) by m x 1/120 inch.
Backspace 1/120-inch	ESC BS
Backspace	BS
Set VMI	1. ESC RS n Sets the VMI to (n-1) x 1/48 inch. 2. ESC DC2 RS m SP Sets the VMI to m x SU.
Move API Vertically (Absolute Positioning)	1. ESC VT n 2. ESC DC4 V n Moves API to (n-1) VMI from the top limit (top of page). 3. ESC DC2 V m SP Moves API to m x 1/48 inch from the top limit (top of page).
Move API Vertically (Relative Positioning)	1. ESC DC4 LF +/- n Moves API down (+) or up (-) by (n-1) VMI. 2. ESC DC2 LF +/- m SP Moves API down (+) or up (-) by m x SU.
Half-Line Feed	ESC U
Negative Line Feed	ESC LF
Negative Half-Line Feed	ESC D
Define CR, LF, and FF Movements	ESC DC2 M m SP
Enable Auto Carriage Return	ESC ?
Disable Auto Carriage Return	ESC 1

Table G-1   **AP 9215-1 Text Mode Commands (continued)**

Movement Commands	**Sequence**
Enter Reverse Print Mode	ESC <
Exit Reverse Print Mode	ESC >
Enter Backward Print Mode	ESC 6
Exit Backward Print Mode	ESC 5
Select Spacing Unit (SU)	ESC DC2 Q m SP
Forms Overlay Commands	**Sequence**
Register Form (Transmit Form Overlay Data)	ESC DC2 O m SP *contents* ESC DC2 O SP
Delete Form	ESC DC2 O m SP ESC DC2 O SP
Select Form	ESC DC2 U m SP
Graphics Commands	**Sequence**
Transfer Graphic Data	ESC DC2 G m1, m2, m3, m4, m5, m6, m7 @ *graphic-data*
Draw Ruled Line	ESC DC2 R m1, m2, m3, m4 SP
Draw Box	ESC DC2 B m1, m2, m3, m4, m5 SP
Remote Diagnostic Commands	**Sequence**
Initialize Printer (Hard Reset)	ESC SUB I
Remote Reset (Soft Reset)	ESC CR P
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 Paper Path Status	ESC SUB # 3 SP

Table G-1   **AP 9215-1 Text Mode Commands (continued)**

Graphics Commands	Sequence
Request Download Memory Status	ESC SUB # 4 SP
Request Font Status	ESC SUB # 5 SP
Request Character Status	ESC SUB # 6 SP

Paper Handling Commands	Sequence
Select Paper Feed	ESC EM m
Select Paper Exit	ESC DC2 W m SP
Endless Feed Mode	ESC DC2 Z m SP

Glossary

An acronym or name at the beginning of a definition in this glossary indicates the following:

□ **ANDIPS:** The definition is taken from the *American National Dictionary for Information Processing Systems* (American National Standards Committee X3, Information Processing Systems, 1982).

□ **ISO:** The definition is approved by the International Organization for Standardization Technical Committee 97, Subcommittee 1.

□ **Kroenke:** The definition is taken from *Business Computer Systems: An Introduction* by David M. Kroenke (Mitchell: Santa Cruz, California, 1981).

AC. Alternating Current

ACK. The acknowledge character.

acknowledge character (ACK). 1. (ANDIPS) A transmission control character transmitted by a receiver as an affirmative response to a sender. 2. *See also* ETX/ACK.

American Standard Code for Information Interchange (ASCII). An 8-bit code in which seven bits indicate the character and the eighth bit verifies the character's accuracy.

application. A software program that provides a complete user interface for a specific function or operation such as word processing or inventory control.

ASCII. American Standard Code for Information Interchange (pronounced askey).

baud rate. The speed of data transmission from a computer to a peripheral device, such as a printer, or from one device to another, measured in bits per second.

binary. A system of numbers that has two as its base and uses only combinations of the digits zero (0) and one (1).

bit. 1. The smallest unit of information transfer recognized by a computer, having a value of either zero (0) or one (1). Characters are composed of seven or eight bits. 2. (ISO) *Synonymous with* binary digit.

BTOS. A Unisys operating system.

buffer. (Kroenke) An area of printer memory used as a temporary holding place for data.

byte. A computer storage unit equivalent to eight bits (one character) of information.

cathode ray tube (CRT). The screen of a computer terminal on which data displays.

central processing unit (CPU). The computer unit that controls the actual operations of the computer system.

cluster configuration. A local resource-sharing group of workstations consisting of a master and one or more cluster workstations.

cluster workstation. A workstation connected to a master workstation within a cluster configuration.

command. An instruction to the operating system to perform a specific action.

configure. To set up certain hardware and/or software components to fill a specific user need.

cpi. Characters per inch.

cps. Characters per second.

CPU. Central processing unit.

CRT. Cathode ray tube.

Data Terminal Ready (DTR). 1. A protocol used in serial data communication. This protocol uses a data terminal ready (DTR) line to signal the host computer when the printer receive buffer is ready to receive data. When the printer receive buffer is within 64 characters of being filled, the signal on the DTR line goes low which causes the host to stop sending data. While the host waits, the printer continues processing data in the receive buffer. Then, when the buffer is within 64 characters of being empty, the signal on the DTR returns to high, indicating that the host computer should resume sending data. 2. *See also* ETX/ACK, XON/XOFF.

default. A predetermined value the system uses, or action the system takes, unless it receives an instruction to use an alternate value or perform an alternate action.

device. A piece of equipment (hardware) connected to a computer; it is entirely or partially under the computer's control. Examples of devices are printers and disk drives.

direct printing. 1. A printing mode which allows printing only from the workstation attached to the printer. 2. *Contrast with* spooled printing.

dot matrix. A technique that generates characters from dots. Video terminals and printers generate characters on the screen and on paper.

download. To transmit data from a host computer to the memory of another system or device. For example, to download font data from a host computer to a printer.

dpi. Dots per inch.

DTR. Data Terminal Ready.

Elite type. 1. Type that prints at 12 characters per inch (12 pitch). 2. The name of a particular font. 3. *See also* Pica type.

emulate. 1. (ANDIPS, ISO) To imitate one system with another, primarily by hardware, so that the imitating system accepts the same data, executes the same programs, and achieves the same results as the imitated system. 2. Specifically in this guide, to imitate the command set of another printer.

emulation. 1. (ANDIPS, ISO) The imitation of all or part of one system by another, primarily by hardware, so that the imitating system accepts the same data, executes the same programs, and achieves the same results as the imitated system. 2. Specifically in this guide, the imitation of the command set of another printer.

emulation card. A small card packaged in plastic which contains the command set of another printer. When the card is installed in the AP 9215-1 printer, it allows the AP 9215-1 to imitate the other printer and use its commands.

Endless Feed mode. The mode in which, when the paper tray that is being used for printing empties, the printer automatically starts picking up paper from the other tray.

end-of-text character (ETX). 1. (ANDIPS,ISO) A transmission control character used to terminate text. 2. *See also* ETX/ACK.

error message. A message which appears in the printer's display panel when the printer cannot complete an operation as requested.

ETX. End-of-text character.

ETX/ACK. 1. A protocol used in serial data communications. In this protocol, each block of data that the host computer transmits to the printer has the ASCII code ETX as its last character. After sending a block of characters, the computer stops transmitting. The printer processes the characters and, upon finding the ETX code, transmits the ASCII code ACK back to the waiting computer. This tells the host that the printer is ready for another block of data. 2. *See also* XON/XOFF, DTR.

FCC. Federal Communications Commission.

field. A unit of information in a record or form.

firmware. The program instructions stored in read-only memory.

font. 1. A particular size and style of type, such as Courier 10. 2. *See also* typeface.

font cartridge. A small rectangular device containing memory chips on which one or more fonts or other images are stored.

full duplex. 1. Pertaining to a mode of data communication which allows independent, simultaneous transmission and reception of data. 2. *Contrast with* half duplex.

Generic Print System (GPS). A Unisys application program.

GPS. Generic Print System.

h. Hexadecimal.

half duplex. 1. Pertaining to a mode of data communication in which transmission is alternating and unidirectional (one way at a time). 2. *Contrast with* full duplex.

hard reset. *Synonym for* reset.

hardware. The physical machinery, including peripheral devices, of a computer system.

Hertz (Hz). A unit of frequency equal to one cycle per second.

hexadecimal (h). A number based on 16 digits. Hexadecimal means 16: (HEX=6) + (DEC=10). Programmers use hexadecimal numbers as a shorthand method for representing binary numbers. Each four bits of binary is converted to a single hexadecimal digit.

host computer. The computer system that provides control and print data to the printer.

I/F cable. Interface cable.

input. The instruction(s) sent to the computer system from the keyboard.

interface. (ANDIPS) A shared boundary. An interface might be a hardware component to link two devices or it might be a portion of storage or registers accessed by two or more computer programs.

interface (I/F) cable. The piece of equipment which provides the communication link between a printer and the host computer.

Kb. Kilobytes.

keyboard. The part of the workstation from which input is sent to the central processing unit.

Kilobytes (Kb). A unit representing 1,024 bytes or characters.

landscape. 1. In printing, a page orientation in which the lines of type run parallel to the long side of the page. 2. *Contrast with* portrait.

laser printer. A nonimpact printer that forms dot matrix characters with a laser beam on a photoconductor and then transfers the characters to paper one page at a time.

lpi. Lines per inch.

Mb. Megabyte.

megabyte (Mb). A unit representing one million bytes or characters.

memory. A high-speed working area of the central processing unit that writes and reads information.

mode. In this guide, a method of carrying out an activity between the printer and the host computer. Each mode has several operation options. Examples of AP 9215-1 printer modes include Host Interface Mode, Emulation Mode, and Serial I/F Mode. Options within the Serial I/F Mode, for example, are full and half duplex.

modem. A hardware device that converts computer digital pulses to audio tones that can be transmitted by the telephone system.

monospacing. 1. A method of printing text so that the amount of horizontal space for each character is equal regardless of its width. 2. *Contrast with* proportional spacing.

off-line. 1. (Kroenke) Referring to the condition of not being in direct communication with the host computer. 2. Specifically in this guide, referring to the printer condition of being not ready to receive data from the host computer. 3. *Contrast with* on-line.

on-line. 1. (Kroenke) Referring to the condition of being in direct communication with the host computer. 2. Specifically in this guide, referring to the printer condition of being ready to receive data from the host computer and print. 3. *Contrast with* off-line.

OPC cartridge. Organic photoconductor cartridge.

operating system. The software program that provides the computer's basic operating instructions.

organic photoconductor (OPC) cartridge. The device in the AP 9215-1 printer which is used to transfer toner to the paper to form an image.

orientation. 1. In printing, the way the type appears in relation to the sides of the page. 2. *See also* portrait, landscape.

parallel interface. 1. An interface arrangement typically containing eight separate data lines between printer and host. This allows data transfer to be done one full character (8 bits) at a time. 2. *Contrast with* serial interface.

parallel printer. A printer that receives eight bits of data at a time from the workstation.

parallel transmission. 1. (ANDIPS, ISO) The simultaneous transmission of the bits constituting an entity of data over a data circuit. 2. (ANDIPS) In data communication, the simultaneous transmission of a certain number of signal elements constituting the same telegraph or data signal. 3. *Contrast with* serial transmission.

parameter. A variable or constant value that a system needs to execute an operation.

parity. An error checking method used to detect if bits have been lost or changed during data transmission.

Pica type. 1. Type that prints at 10 characters per inch (10 pitch). 2. The name of a particular font. 3. *See also* Elite type.

pitch. In type, a measure of the number of characters that can fit in an inch.

portrait. 1. In printing, the page orientation in which the lines of type run parallel to the short side of the page. 2. *Contrast with* landscape.

primary character set. 1. Generally, characters located at hexadecimal code positions <20> through <7F>. The primary character 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 (&). 2. *Contrast with* secondary character set.

printable area. The rectangular portion of a sheet of paper that is able to receive print. In the AP 9215-1 printer, the printable area is less than the full paper size to allow for differences in mechanical tolerances in the print engine (registration and skew) and for sheet to sheet variations in the paper itself.

Professional Word Processing (PWP). A Unisys word processing program.

program. A sequence of computer instructions that the central processing unit understands and carries out to accomplish a system function or job.

proportional spacing. 1. A method of printing text so that the amount of horizontal space for each character is proportional to its width. For example, more space is allotted to the letter W than the letter I. 2. *Contrast with* monospacing.

protocol. A set of rules that govern the packaging and handling of messages between two communication programs.

PWP. Professional Word Processing.

read-only memory (ROM). (ANDIPS) A storage device whose contents cannot be modified, except by a particular user, or when operating under particular conditions.

reboot. To reset a system when it is running.

registration. The point at which printing starts in relation to the paper's leading edge and left side.

reset. 1. In this guide, to restore all printer modes and settings to the values they hold when the printer's power is turned on. 2. *Synonymous with* hard reset.

resident emulation. 1. The command set that comes with the printer. For the AP 9215-1, the resident emulation imitates a Diablo 630 printer. 2. *See also* emulation.

ROM. Read-only memory.

secondary character set. 1. Generally, characters located at hexadecimal code positions <A0> through <FF>. The more unusual symbols, accents, and diacritical marks are usually in the secondary character set. 2. *Contrast with* primary character set.

Secretarial Word Processing (SWP). A Unisys word processing program.

serial printer. 1. A printer that receives text from the workstation or computer one bit at a time. 2. *Contrast with* parallel printer.

serial transmission. 1. (ANDIPS, ISO) The sequential transmission of the bits constituting an entity of data over a data circuit. 2. (ANDIPS) In data communication, transmission at successive intervals of signal elements constituting the same telegraph or data signal. The sequential elements may be transmitted with or without interruption, provided that they are not transmitted simultaneously. 3. *Contrast with* parallel transmission.

sheet feeder bin. On a laser printer, the paper tray. If you are using SWP Release Level 1.4.2 or later or PWP Release Level 2.3.2 or later, the sheet feeder bin type for the AP 9215-1 printer is *DiabloF32*.

skew. The amount by which the sides of the paper do not parallel the paper path during paper feed.

software. A set of programmed instructions that make the computer hardware function. There are three types of software: system software that controls hardware functions; utility software that performs general frequently-used tasks; and applications software that manipulates data for a particular purpose (such as word processing or payroll processing).

spooled printing. 1. A method of printing which allows all clustered workstations to use one printer attached to a workstation in the cluster. 2. *Contrast with* direct printing.

stop bit(s). In serial transmission, the one or two bits that end(s) each byte (character) of data.

SWP. Secretarial Word Processing.

Sys.Printers file. In SWP, the printer configuration file that makes printers available to a workstation.

system. (ANDIPS, ISO) In data processing, a collection of people, machines, and methods organized to accomplish a set of specific functions.

throughput. The print speed of a printer in combination with the data transfer speed of the host computer. For example, the print speed of the AP 9215-1 printer is 15 pages per minute. If the host computer, however, is transmitting only four pages of data per minute, then the printer's throughput will be four pages per minute.

typeface. 1. A group of characters (letters, numbers, symbols, etc.) that share certain design characteristics, such as boldness and angle. Courier is an example of a typeface. 2. *See also* font.

XON/XOFF. 1. A protocol used in serial data communications. In this mode, the printer sends ASCII codes DC1 (XON) and DC3 (XOFF) to provide the host computer with the printer receive buffer status. When the buffer is within 64 characters of being full, the printer transmits XOFF to the computer, indicating that the computer should stop transmission. When the buffer is within 64 characters of being empty, the printer transmits XON, indicating that the computer may continue transmission. 2. *See also* ETX/ACK, DTR.

word processing. The use of software on a computer for writing, editing, revising, manipulating, formatting, storing, and printing text for letters, reports, and other documents.

workstation. A piece of equipment that combines a cathode ray tube, central processing unit, and keyboard with or without local storage facilities.

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