IBM Network Connectivity Installation for 21, 28, 32, and 40 Page-Per-Minute Printers

Apr 01

ESD Precautions

CAUTION: Handling ESD-Sensitive Parts

Many electronic parts use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage to ESD-sensitive parts, follow the instructions below in addition to all the usual precautions, such as turning off power before removing logic boards:

- Keep the ESD-sensitive part in its original shipping container (a special “ESD bag”) until you are ready to install the part into the machine.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put an optional ESD wrist strap on your wrist. Connect the wrist band to the system ground point. This discharges any static electricity in your body to the machine.
- Hold the ESD-sensitive part by its edge connector cover; do not touch its pins. If you are removing a pluggable module, use the correct tool.
- Do not place the ESD-sensitive part on any metal surface; if you need to put down the ESD-sensitive part for any reason, first put it into its special bag.
- Metal surfaces are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharged paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other personnel.
- Be extra care in working with ESD-sensitive parts when cold weather heating is used because low humidity increases static electricity.

WARNING: To prevent the danger of electric shock, before installing any options be sure to turn the power switch of the printer to the off [**O**] position and disconnect the power cord from the wall outlet.

How This Guide Is Organized

Chapter 1 IBM Network Connectivity Installation in 21 Page-Per-Minute Printers

This chapter explains the procedure for installing either the IBM Network Interface option or the LAN IPDS option in 21 page-per-minute laser printers. Installation of FLASH SIMMs on the controller assembly is also discussed.

Chapter 2 IBM Network Connectivity Installation in 28 Page-Per-Minute Printers

This chapter explains the procedure for installing either the IBM Network Interface option or the LAN IPDS option in 28 page-per-minute laser printers. Installation of FLASH SIMMs on the controller assembly is also discussed.

Chapter 3 IBM Network Connectivity Installation in 32 and 40 Page-Per-Minute Printers

This chapter explains the procedure for installing either the IBM Network Interface option or the LAN IPDS option in 32 and 40 page-per-minute laser printers. Installation of FLASH SIMMs on the controller assembly is also discussed.

Chapter 4 Connection to the Coax, Twinax or Ethernet Network

This chapter discusses the features and compatibility of your IBM Network Option, and also provides connection procedures for coax, twinax and LAN/IPDS environments.

Table of Contents

Chapter 1

IBM Network Connectivity Installation in 21 Page-Per-Minute Printers

Chapter 2

IBM Network Connectivity Installation in 28 Page-Per-Minute Printers

Chapter 3

IBM Network Connectivity Installation in 32 and 40 Page-Per-Minute Printers

Chapter 4

Connection to the Coax, Twinax or Ethernet Network

Chapter 1

IBM Network Connectivity Installation in 21 Page-Per-Minute Printers

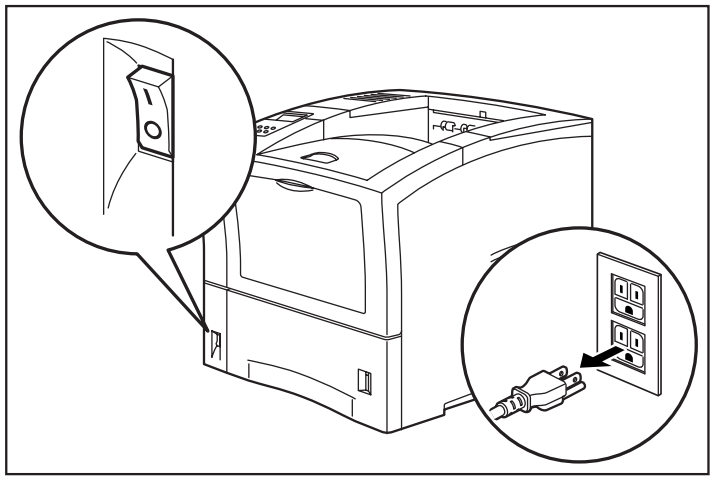
In this Chapter . . .

About this Chapter

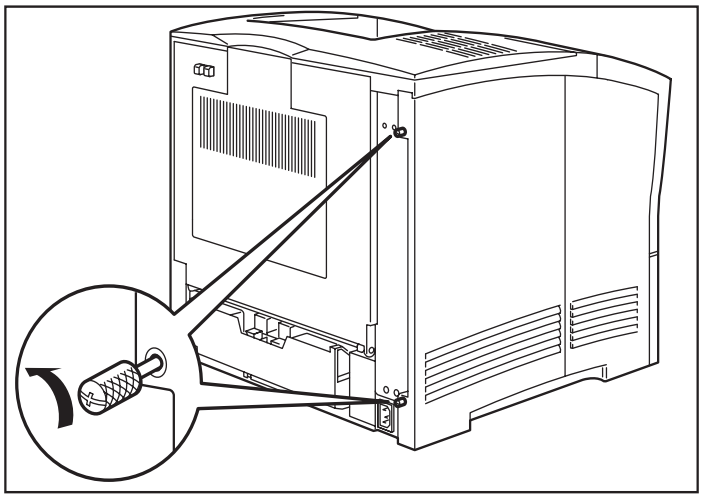
This chapter explains the procedure for installing either the IBM Network Interface option or the LAN IPDS option in 21 page-per-minute laser printers. Installation of FLASH SIMMs on the controller assembly is also discussed.

IBM Network Connectivity in 21 Page-Per-Minute Printers

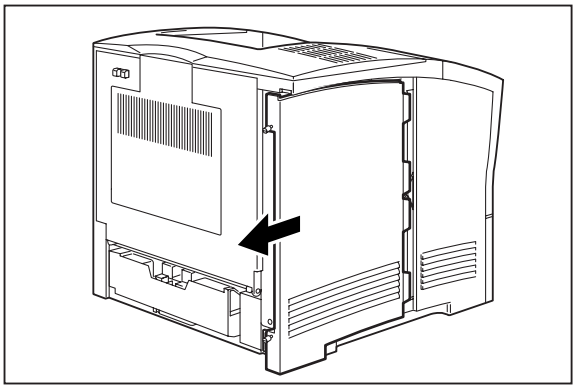
1. Carefully review the safety precautions in the front of this guide before starting this installation procedure.
2. Ensure that the printer power switch is set to the OFF [O] position and unplug the power cord from the AC outlet.



3. Loosen the thumbscrews at the top and bottom of the left side cover by turning them in a counter-clockwise direction.



4. Slide the cover towards the rear of the printer and then downwards to remove it.

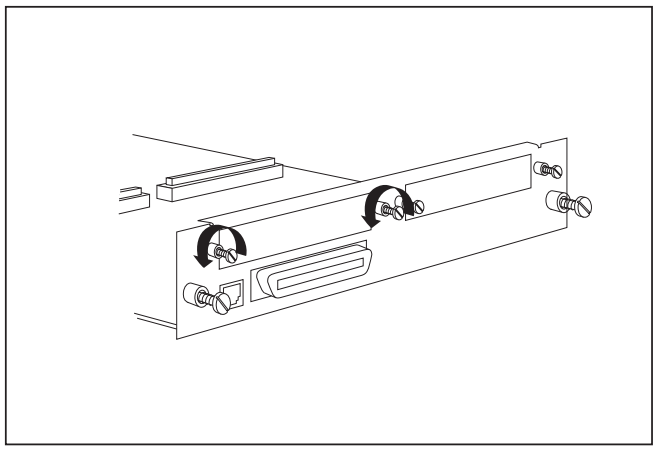


NOTE: The following section, "Installing the IBM Network Interface on the Controller Assembly" on page 1-3, applies to twinax and coax users only. LAN/IPDS users should proceed to "Installing FLASH SIMMs on the Controller Assembly" on page 1-5

Installing the IBM Network Interface on the Controller Assembly

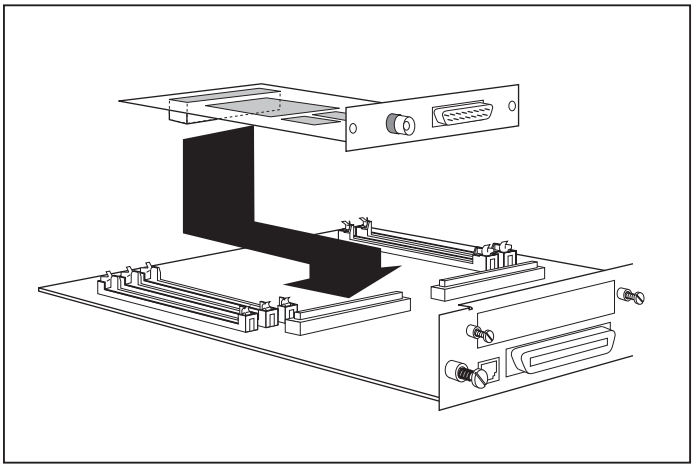
NOTE: It is not necessary to remove the controller from your printer to complete the installation. For clarity, the following illustrations depict a controller removed from the printer. When facing the front of the controller as shown below, network port 1 is on the right and network port 2 is on the left. However, when installed in the printer, network port 1 is on the bottom and network port 2 is on top. In the following few steps, an IBM network interface is being installed in network port 2.

1. Turning thumbscrews counter-clockwise, remove the blank metal plate covering one of the available network ports on the controller bracket.

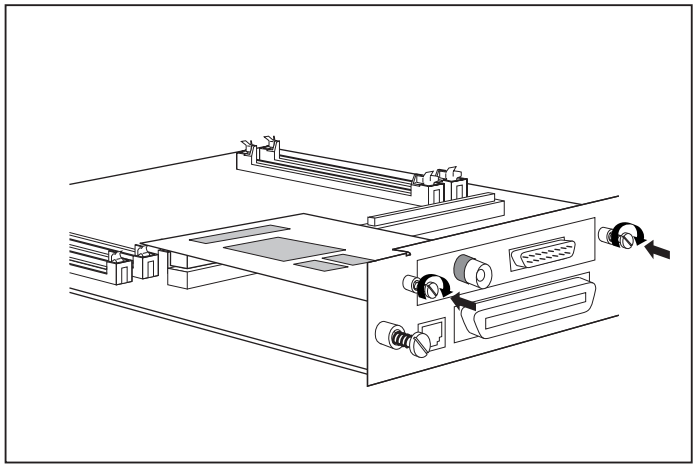


NOTE: There is a wide variety of network and interface options for your printer. Although the installation procedures for all these options are the same, the appearance of your interface may vary slightly from that shown in the following illustrations.

2. While aligning the front bracket of the interface assembly to the two respective thumbscrews on the controller assembly bracket, firmly seat the 80-pin male connector on the underside of the interface to the 80-pin female connector on the controller assembly.



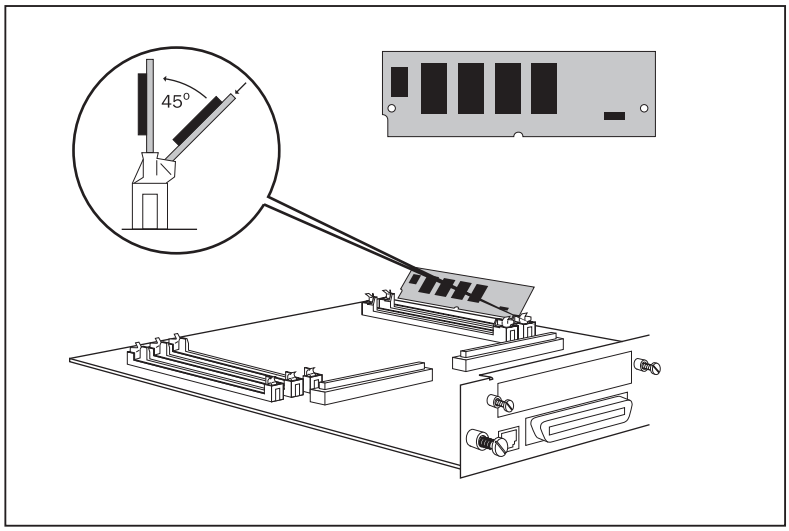
3. Secure the network interface assembly to the controller bracket by tightening the two smaller thumbscrews in a clockwise direction.



Installing FLASH SIMMs on the Controller Assembly

ESD-sensitive precautions should be observed when installing the controller firmware and IPDS Font SIMMs. It is important that the controller firmware FLASH SIMM be inserted in FLASH SIMM Slot 1 only and the IPDS Font FLASH SIMM (if required) be placed in FLASH SIMM Slot 2 only.

1. Carefully insert a controller firmware FLASH SIMM module in FLASH SIMM 1 slot at a 45° angle as shown below. When properly seated, gently rotate 45° until the SIMM snaps and locks into place.

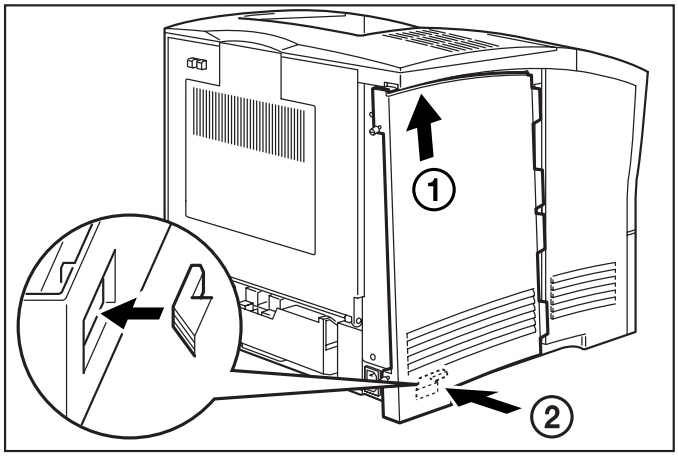


2. IPDS environments require the installation of a second SIMM in FLASH SIMM slot 2. Carefully insert an IPDS Font FLASH SIMM module in FLASH SIMM 2 slot at a 45° angle. When properly seated, gently rotate 45° until the SIMM snaps and locks into place.

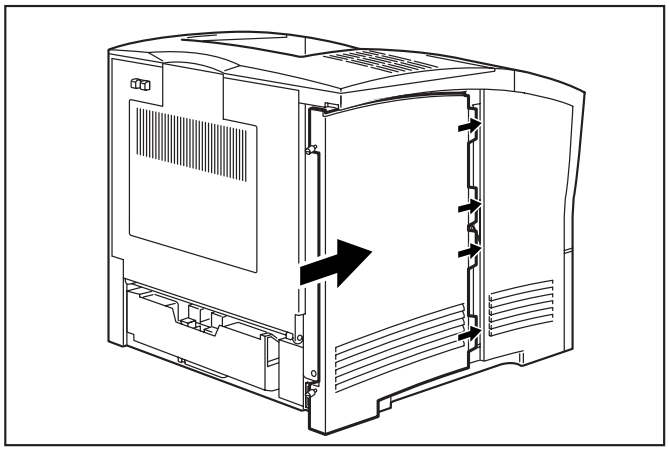
NOTE: This IPDS Font FLASH SIMM procedure applies to IPDS users only (coax, twinax and LAN. Non-IPDS users (SCS environments) should proceed to the next section. See "Replacing the Printer Side Cover" on page 1-6.

Replacing the Printer Side Cover

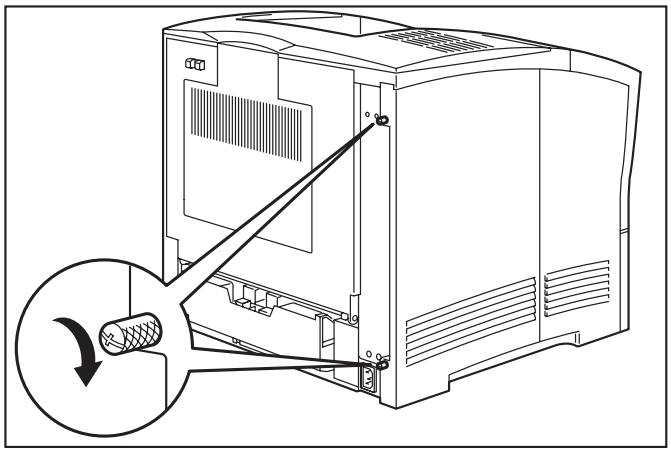
1. Insert the top part of the left side cover into the printer. Ensure the locking tab aligns with the hole in the printer's side.



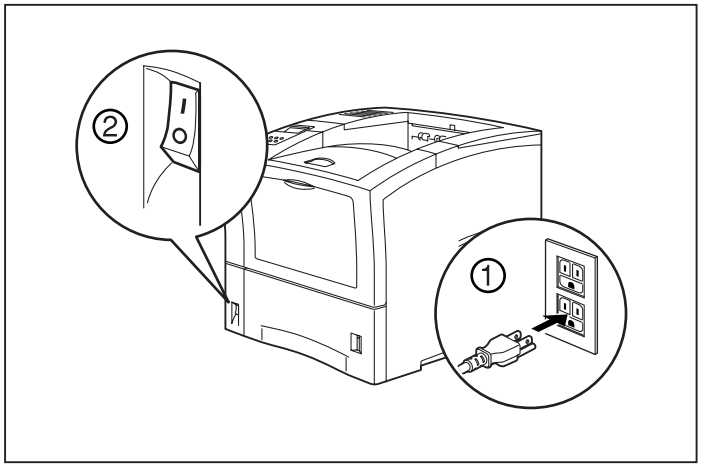
2. Slide the side cover towards the front of the printer to install it.



3. Tighten both thumbscrews in a clockwise direction.



4. Connect the power cord to the wall outlet and turn the printer power switch to the ON [I] position.



The installation of your IBM network connectivity option in your 21 page-per-minute printer is now complete. Proceed to Chapter 4 Connection to the Coax, Twinax or Ethernet Network .

...

Chapter 2

IBM Network Connectivity Installation in 28 Page-Per-Minute Printers

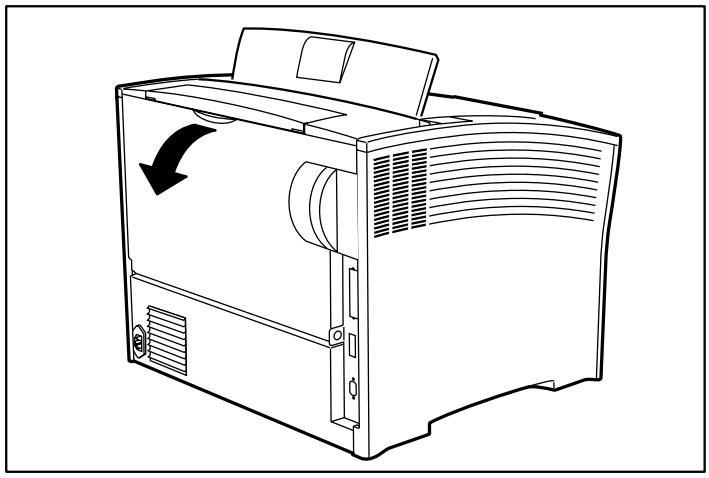
In this Chapter . . .

About this Chapter

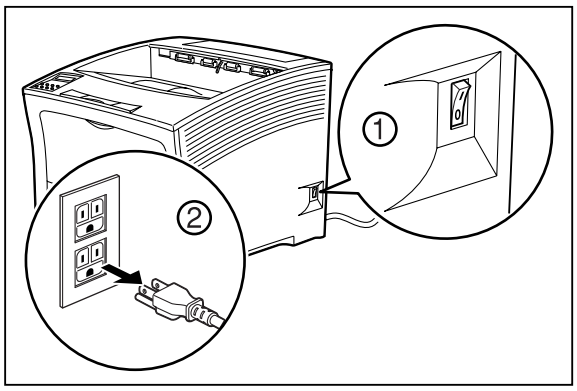
This chapter explains the procedure for installing either the IBM Network Interface option or the LAN IPDS option in 28 page-per-minute laser printers. Installation of FLASH SIMMs on the controller assembly is also discussed.

IBM Network Connectivity in 28 Page-Per-Minute Printers

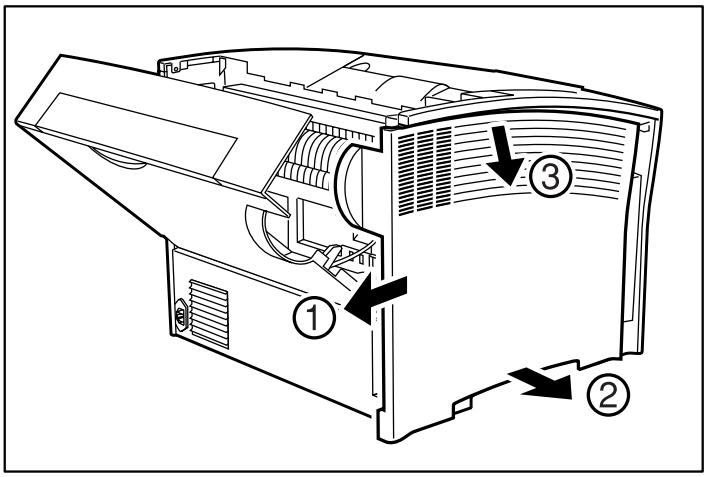
1. Carefully review the safety precautions in the front of this guide before starting this installation procedure.
2. Locate the recessed area near the top of the rear of the printer and pull on the recessed area to open the rear cover.



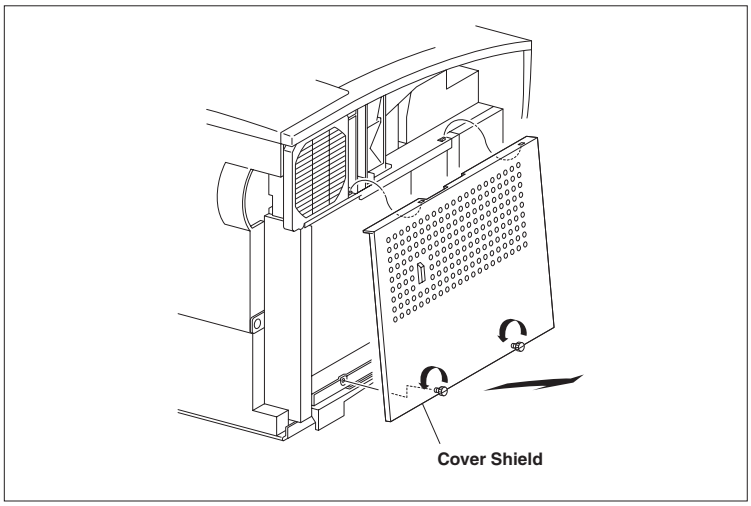
3. Ensure that the printer power switch is set to the OFF [O] position and disconnect the power cord from the wall outlet.



4. Remove the cover on the left side of the printer by first sliding the cover toward the rear of the printer, then pulling the bottom of the cover toward you and then down.



5. Remove the cover shield by first loosening the two thumbscrews in a counter-clockwise direction and then gently lifting up and pulling towards you.



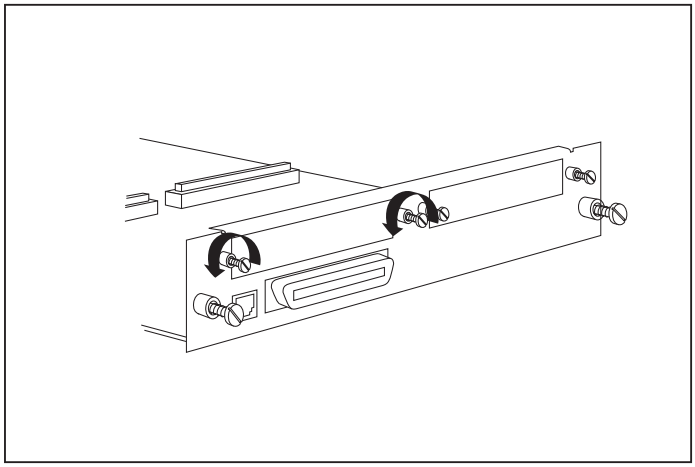
6. Removal of the cover shield will expose the controller assembly.

NOTE: The following section, "Installing the IBM Network Interface on the Controller Assembly" on page 2-4, applies to twinax and coax users only. LAN/IPDS users should proceed to "Installing FLASH SIMMs on the Controller Assembly" on page 2-5

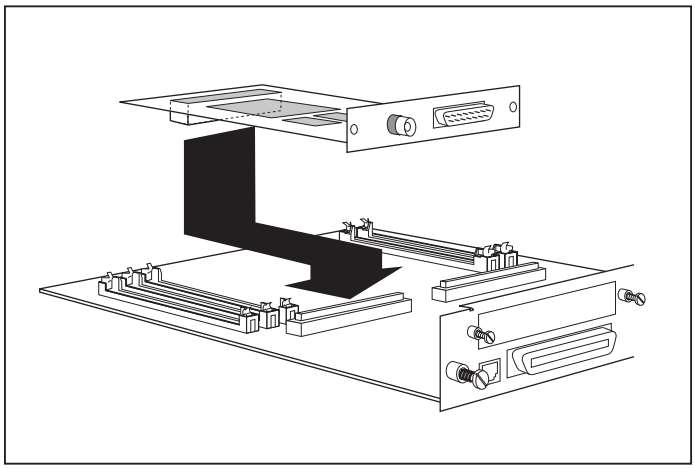
Installing the IBM Network Interface on the Controller Assembly

NOTE: It is not necessary to remove the controller from your printer to complete the installation. For clarity, the following illustrations depict a controller removed from the printer. When facing the front of the controller as shown below, network port 1 is on the right and network port 2 is on the left. However, when installed in the printer, network port 1 is on the bottom and network port 2 is on top. In the following few steps, an IBM network interface is being installed in network port 2.

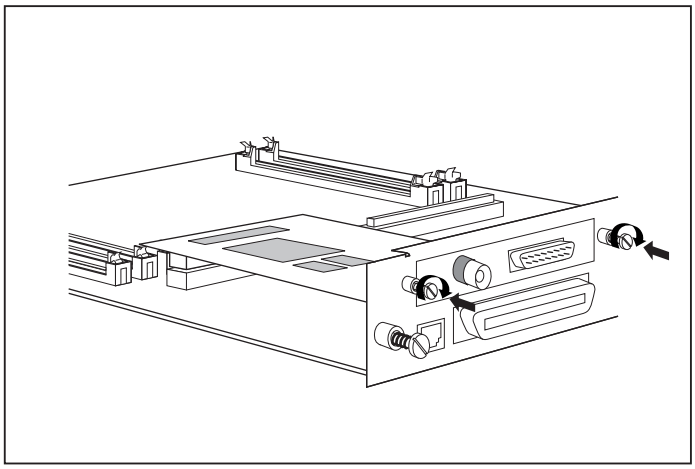
1. Turning thumbscrews counter-clockwise, remove the blank metal plate covering one of the available network ports on the controller bracket.



2. While aligning the front bracket of the IBM network assembly to the two respective thumbscrews on the controller assembly bracket, firmly seat the 80-pin male connector on the underside of the interface to the 80-pin female connector on the controller assembly.



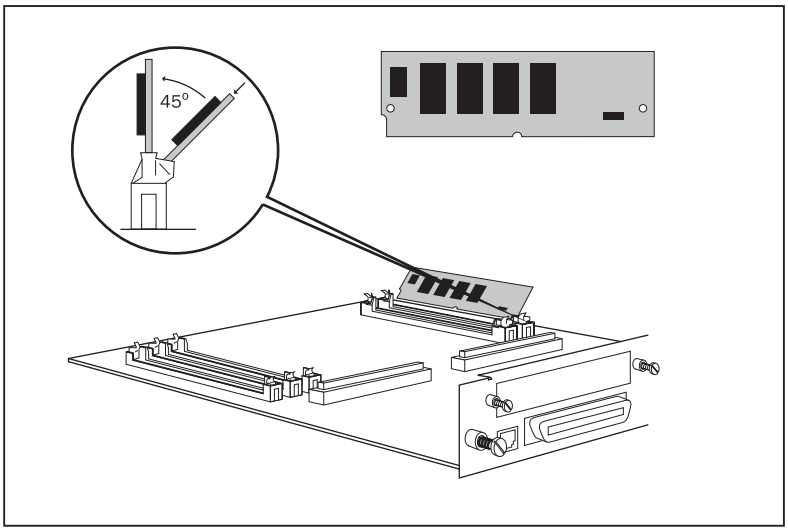
3. Secure the IBM network interface assembly to the controller bracket by tightening the two smaller thumbscrews in a clockwise direction.



Installing FLASH SIMMs on the Controller Assembly

ESD-sensitive precautions should be observed when installing the controller firmware and IPDS Font SIMMs. It is important that the controller firmware FLASH SIMM be inserted in FLASH SIMM Slot 1 only and the IPDS Font FLASH SIMM (if required) be placed in FLASH SIMM Slot 2 only.

1. Carefully insert a controller firmware FLASH SIMM module in FLASH SIMM 1 slot at a 45° angle as shown below. When properly seated, gently rotate 45° until the SIMM snaps and locks into place.

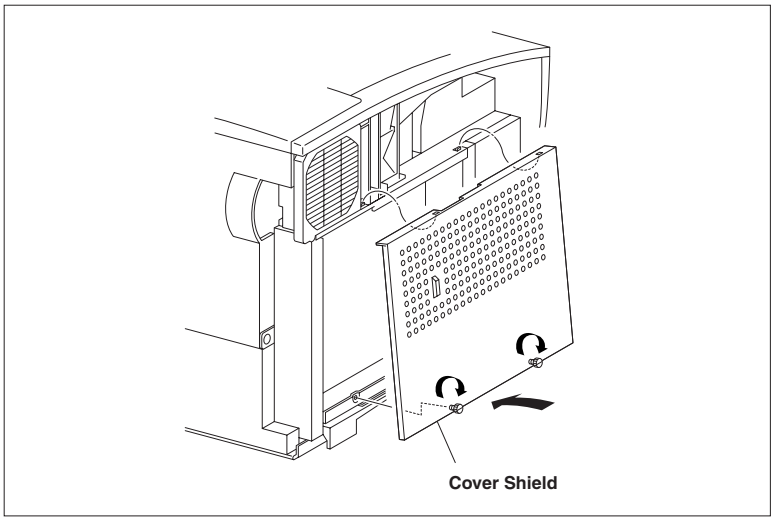


2. IPDS environments require the installation of a second SIMM in FLASH SIMM slot 2. Carefully insert an IPDS Font FLASH SIMM module in FLASH SIMM 2 slot at a 45° angle. When properly seated, gently rotate 45° until the SIMM snaps and locks into place.

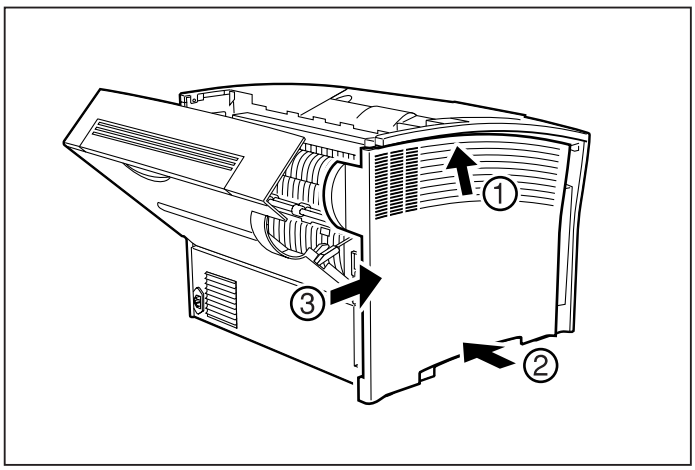
NOTE: This IPDS Font FLASH SIMM procedure applies to IPDS users only (coax, twinax and LAN. Non-IPDS users (SCS environments) should proceed to the next section. See "Replacing the Printer Side Cover" on page 2-6.

Replacing the Printer Side Cover

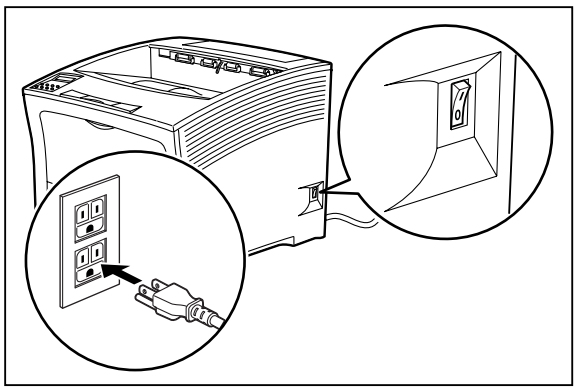
1. Replace the cover shield as shown and tighten the two thumbscrews.



2. Replace the side cover of the printer.



3. Plug the power cord in the AC outlet and turn the printer power switch to the ON [I] position.



The installation of your IBM network connectivity option in your 21 page-per-minute printer is now complete. Proceed to the IBM Network Connectivity user guide.

...

Chapter 3

IBM Network Connectivity Installation in 32 and 40 Page-Per-Minute Printers

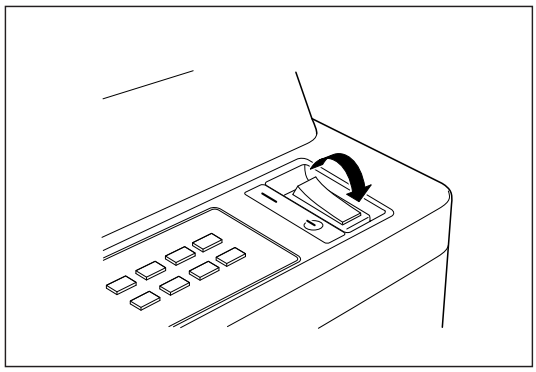
In this Chapter . . .

About this Chapter

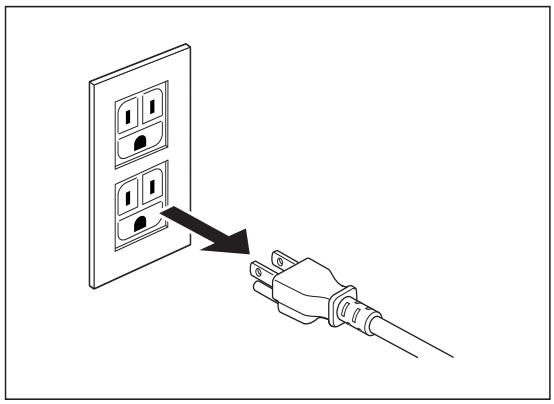
This chapter explains the procedure for installing either the IBM Network Interface option or the LAN IPDS option in 32 and 40 page-per-minute laser printers. Installation of FLASH SIMMs on the controller assembly is also discussed.

IBM Network Connectivity in 32 and 40 Page-Per-Minute Printers

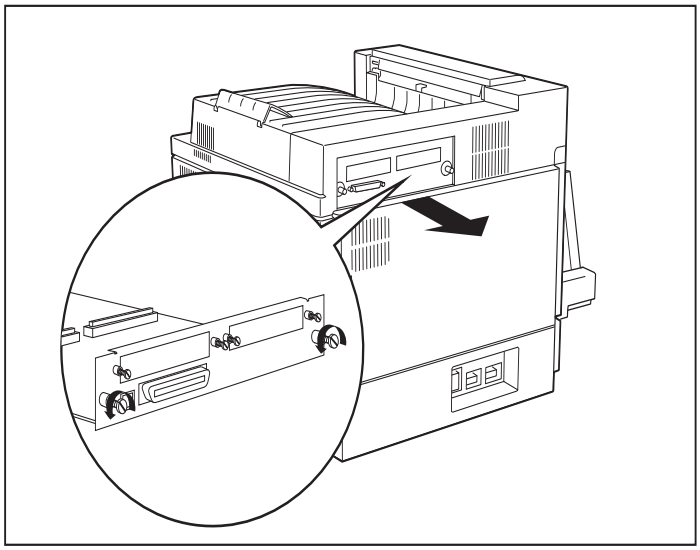
1. Carefully review the safety precautions in the front of this guide before starting this installation procedure.
2. Ensure that the printer power switch is set to the OFF [O] position.



3. Disconnect the power cord from the wall outlet.



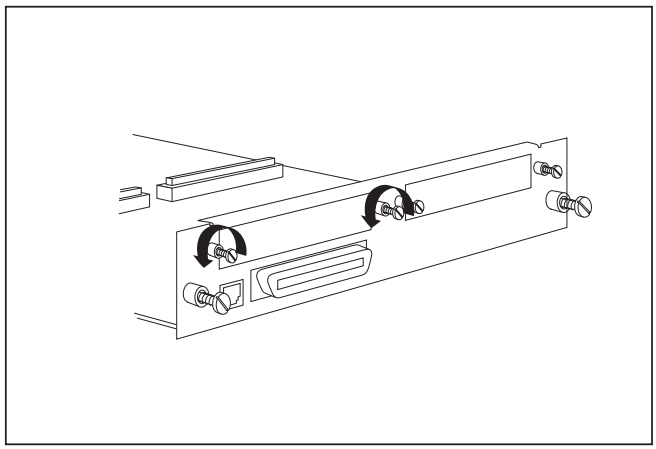
4. Turn thumbscrews on controller assembly counterclockwise until loose and gently pull controller assembly towards you to completely remove from printer.



NOTE: The following section, "Installing the IBM Network Interface on the Controller Assembly" on page 3-3, applies to twinax and coax users only. LAN/IPDS users should proceed to "Installing FLASH SIMMs on the Controller Assembly" on page 3-5

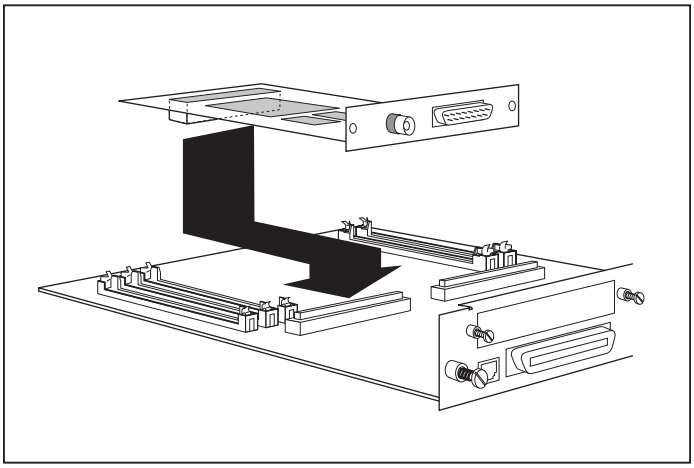
Installing the IBM Network Interface on the Controller Assembly

1. Turning thumbscrews counter-clockwise, remove the blank metal plate covering one of the available network ports on the controller bracket.

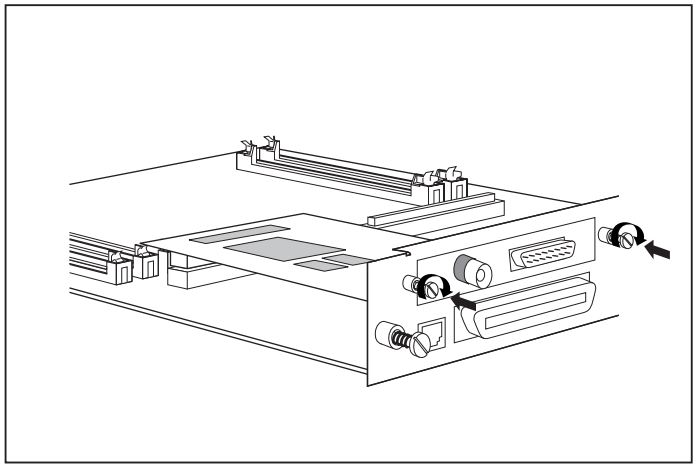


NOTE: There is a wide variety of network and interface options for your printer. Although the installation procedures for all these options are the same, the appearance of your interface may vary slightly from that shown in the following illustrations.

1. While aligning the front bracket of the interface assembly to the two respective thumbscrews on the controller assembly bracket, firmly seat the 80-pin male connector on the underside of the interface to the 80-pin female connector on the controller assembly.



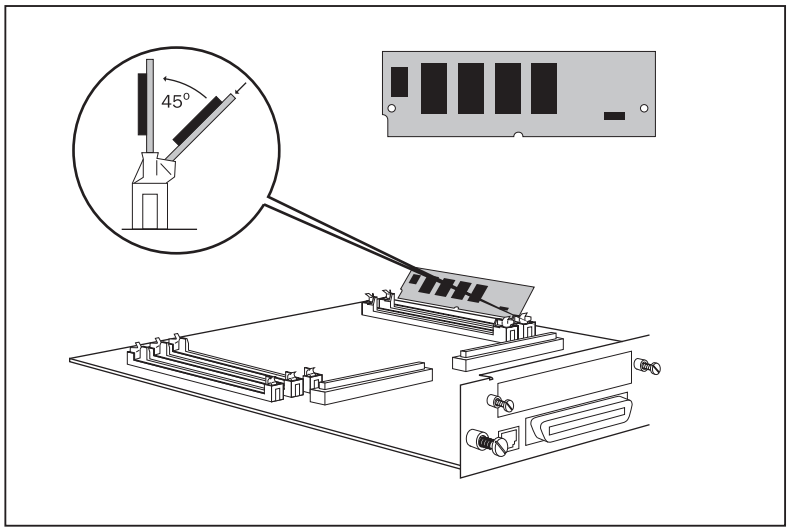
2. Secure the network interface assembly to the controller bracket by tightening the two smaller thumbscrews in a clockwise direction.



Installing FLASH SIMMs on the Controller Assembly

CAUTION: ESD-sensitive precautions should be observed when installing the controller firmware and IPDS Font SIMMs. It is important that the controller firmware FLASH SIMM be inserted in FLASH SIMM Slot 1 only and the IPDS Font FLASH SIMM (if required) be placed in FLASH SIMM Slot 2 only.

1. Carefully insert a controller firmware FLASH SIMM module in FLASH SIMM 1 slot at a 45° angle as shown below. When properly seated, gently rotate 45° until the SIMM snaps and locks into place.

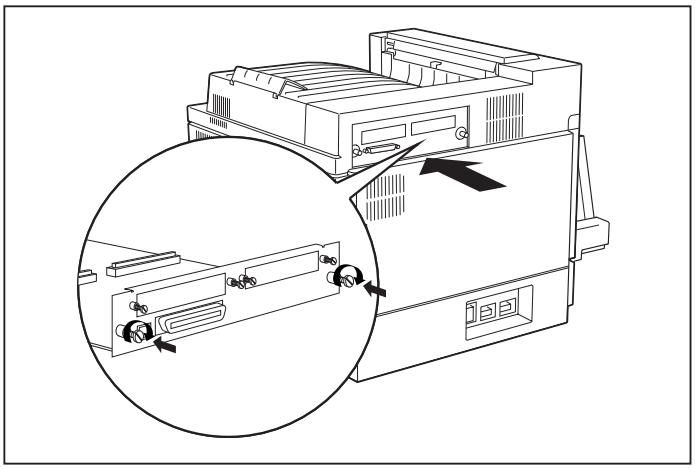


2. IPDS environments require the installation of a second SIMM in FLASH SIMM slot 2. Carefully insert an IPDS Font FLASH SIMM module in FLASH SIMM 2 slot at a 45° angle. When properly seated, gently rotate 45° until the SIMM snaps and locks into place.

NOTE: This IPDS Font FLASH SIMM procedure applies to IPDS users only (coax, twinax and LAN. Non-IPDS users (SCS environments) should proceed to the next section. See "Replacing the Controller Assembly" on page 3-6.

Replacing the Controller Assembly

1. Return the controller to the printer. Ensure that it is firmly seated in the printer. Once firmly in place, push and hand tighten the thumbscrews in a clockwise direction.



The installation of your IBM network connectivity option in your printer is now complete. Proceed to Chapter 4 Connection to the Coax, Twinax or Ethernet Network .

...

Chapter 4

Connection to the Coax, Twinax or Ethernet Network

In this Chapter . . .

About this Chapter

This chapter discusses the features and compatibility of your IBM Network Option, and also provides connection procedures for coax, twinax and LAN/IPDS environments.

Features and Compatibility of the IBM Network Option

The IBM Network Option is an internal adapter board which expands the range of your printer. The option, which installs in either of your printer's network slots, enables your printer to be shared between the PC environment and depending on the configuration, an IBM coax or twinax host. This added connectivity boosts your printer's productivity by allowing your PC printer to double as your Host printer eliminating the need for two separate printers.

The printer automatically switches between emulations enabling you to focus on your application, and not the printer.

It offers various configurations bringing you connectivity in different IBM network environments:

- IBM Coax/IPDS
- IBM Twinax/IPDS
- IBM Coax non-IPDS (SCS)
- Twinax non-IPDS (SCS)

Coax/IPDS Configuration Features

- Plug compatible with the IBM 4028, 3112/3116 and 3912/3916 printers
- Duplex print support
- Automatic switching between the Coax and parallel ports
- Supports SCS (LU1) and 3270 (LU3) datastreams
- Query Reply
- EAB (Extended Attribute Buffer)
- IBM user-configurable RPQs
- Computer Output Reduction (COR)
- Automatic orientation support
- Non-volatile memory for storage of configuration settings

Coax/IPDS Configuration Compatibility

- IBM 30xx
- IBM 937x
- IBM 43xx
- IBM 81xx via 3x74 controller
- IBM 3174 controller
- IBM 3274 controller

Twinax/IPDS Configuration Features

- Plug compatible with the IBM 4028 AS1 and 3912/3916 printers.
- Duplex print support
- Automatic switching between the twinax and parallel ports

- Non-volatile memory for storage of configuration settings
- Computer Output Reduction (COR)
- Automatic orientation support

Twinax/IPDS Configuration Compatibility

Attachment support includes:

- IBM System/36
- IBM AS/400
- IBM 5259 Migration Data Link
- IBM 5251 model 12 controller
- IBM 5294 controller
- IBM 5394 controller

Coax/SCS Configuration Features

- Plug compatible with the IBM 3287 and 3268 printers
- Duplex print support
- Automatic switching between the Coax and parallel ports
- Supports SCS (LU1) and 3270 (LU3) datastreams
- Query Reply
- EAB (Extended Attribute Buffer)
- IBM user-configurable RPQs
- Computer Output Reduction (COR)
- Automatic orientation support
- Non-volatile memory for storage of configuration settings
- OFS (Online Function Selection) datastream command

Coax/SCS Configuration Compatibility

The Coax/SCS configuration provides plug compatibility with the IBM 4028 NS1 and 3912/3916 printers. Attachment support includes:

- IBM 30xx
- IBM 937x
- IBM 43xx
- IBM 81xx via 3x74 controller
- IBM 3174 controller
- IBM 3274 controller

Twinax/SCS Configuration Features

- Plug compatible with the IBM 3112/3116 and 3912/3916 printers.
- Duplex print support
- Automatic switching between the twinax and parallel ports.
- Computer Output Reduction (COR)
- Automatic orientation support
- Non-volatile memory for storage of configuration settings

- OFS (Online Function Selection) datastream commands

Twinax/SCS Configuration Compatibility

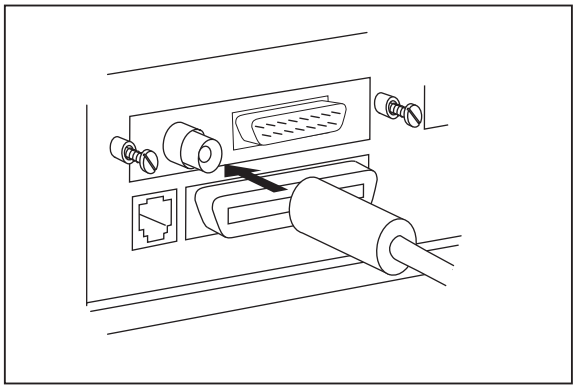
The Twinax/SCS configuration provides plug compatibility with the IBM 4028 AS1 and 3912/3916 printers. Attachment support includes:

- IBM System/36
- IBM AS/400
- IBM 5259 Migration Data Link
- IBM 5251 model 12 controller
- IBM 5294 controller
- IBM 5394 controller

Attaching the Coax Emulation Source Cable

NOTE: This section applies to coax (IPDS and SCS) users only. Twinax users should proceed to "Attaching the Twinax Emulation Source Cable" on page 4-4. LAN/IPDS users should proceed to "Attaching the Ethernet Source Cable" on page 4-5

1. Connect the coax emulation source cable to the BNC port of the IBM network interface.



NOTE: Before supplying power to the printer, be sure that only the BNC option port on the IBM Network Option is being used.

Coax users should ignore the following two sections. See "Powering On the Printer" on page 4-6.

Attaching the Twinax Emulation Source Cable

1. Connect the DB-15 pin connector of the twinax T-cable to the DB-15 twinax port of the IBM Network Option.
2. Attach the DB-15 pin connector of the T-cable to the printer only at this time.

NOTE: The T-cable must not be attached to the system communication cable until the printer twinax station address has been set as follows.

3. Plug the printer power cord into an electrical outlet.
4. Turn the printer power ON.
5. Set the twinax Station Address for the printer (*see "Station Address" in Chapters 2 and 4 of* ***IBM Network Connectivity for Intelliprint Laser Printers***.).
6. Turn the printer power OFF.
7. Attach the T-cable to the system twinax cable.

NOTE: Before supplying power to the printer, be sure that only the DB-15 option port on the IBM Network Option is being used.

Configuring Twinax Host - Attaching Printer

Attaching to an AS/400

Auto Configuration

Use Auto Configuration when either locally or remotely attaching to the system. The printer will be configured as DEVTYPE (*5219), (*5224) or (*5256), depending upon the Emulation setting selected within the printer's SETUP MENU. Other parameters are automatically assigned by the system. See the AS/400 Device Configuration Guide, IBM Form No. SC21-8106.

Attaching to a System/36

Auto Configuration

Auto Configuration configures the printer as a 5219 , 5224 or 5256 printer depending upon the Emulation setting selected within the printer's SETUP MENU. Other parameters are automatically assigned by the system.

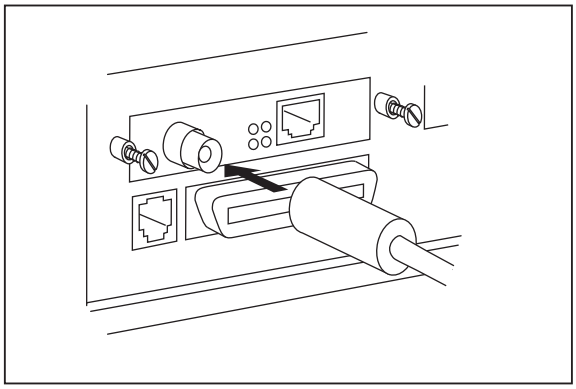
To modify the System/36 configuration for the laser printer, refer to the *Adding or Deleting Local Display Stations and Printers* and *Adding or Deleting Remote Work Stations* sections in Chapter 2 of **Changing Your System Configuration**, IBM Form No. SC21-9052.

NOTE: When attaching to System/36, the buffer size must be set to 256 bytes.

Attaching the Ethernet Source Cable

NOTE: This section applies to LAN/IPDS users only. Twinax and coax users should proceed to the next section.

1. Connect the Ethernet source cable to the BNC port of the ethernet interface.



NOTE: Before supplying power to the printer, be sure that only the BNC option port of the ethernet interface is being used.

NOTE: The Ethernet Interface option is not included with the IBM connectivity kit, and must be ordered separately. Please see the **Ethernet Network Interface Option Installation Guide** for more information about installing and connecting the ethernet interface.

Powering On the Printer

1. Connect the power cord to the wall outlet.
2. Turn the printer power switch to the ON [I] position.

Printing a Configuration Summary

Your printer can print a configuration summary that lists the currently selected status of menu options, media selections in trays, options installed and other relevant information about your printer. To print a Configuration Summary, follow these steps:

1. From the Ready status, press MENU, the control panel display will read:

   ```
   Menu
   Paper
   ```

2. Press PREVIOUS or NEXT until the display reads:

   ```
   Menu
   Functions
   ```

3. Press SELECT, the display will read:

   ```
   Functions
   Reset Printer
   ```

4. Press NEXT or PREVIOUS until the display reads:

```
Functions
Print Summary
```

5. Press SELECT. A two page Configuration Summary will print.
6. Verify that coax, twinax or LAN/IPDS configuration selections appear indicating successful installation of your IBM network connectivity option.

...