

Getting Started Guide

P/N 054324-003

EasyCoder™ 4400 Printer

 **ntermec**

A **UNOVA** Company

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Outside U.S. and Canada: Contact your local Intermec service supplier.

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Contents

About This Guide v
 Related Intermec Manuals v
 Warranty Information v
 Safety Summary vi
 Cautions vi

1

Understanding and Preparing the Printer

Unpacking the 4400 Printer 1-3

Identifying the Printer's Components 1-5

Plugging In the Printer 1-7

Understanding the Printer Control Panel 1-8
 Using the Operator Keys 1-8
 Using the Selection Keys 1-9
 Understanding the Indicator Lights 1-10

Accessing the Printer Menus 1-10

Opening the Printer 1-12

Loading Fanfold Media 1-13

Loading a Roll of Media 1-15
 Installing the Media Roll Holder 1-15
 Installing a New Media Roll 1-16

Loading Thermal Transfer Ribbon 1-17
 Removing the Ribbon Access Door 1-17
 Loading the Thermal Transfer Ribbon 1-18
 Replacing the Ribbon Access Door 1-20

Closing the Printer 1-21

Testing Printer Operation 1-22

2

Connecting the Printer to Your System

Connecting the Printer to Your System 2-3

- Connecting the 4400 to a PC 2-4*
 - Connecting the Printer to a PC Serial Port 2-4*
 - Connecting the Printer to a PC Parallel Port 2-6*
- Connecting the 4400 to a Network 2-6*
- Connecting the 4400 to an AS/400 2-7*
- Connecting the 4400 to a Mainframe 2-7*

Verifying Printer Communications With Your System 2-8

Configuring the Serial Port 2-10

Customizing the Printer for Your Application 2-12

- Using the PrintSet Software 2-12*
- Using Third-Party Software 2-12*
- Using IPL Commands 2-12*

3

Optimizing Print Quality

Restoring Printer Default Configuration 3-3

Setting the Media Sensitivity Number 3-4

- Setting the Media Sensitivity Number for Intermec Media and Ribbon 3-5*
- Setting the Media Sensitivity Number for Other Media and Ribbon 3-6*

Setting the Dark Adjust 3-9

Components to Maintain 3-10

Cleaning the Printer 3-11

- Removing the Ribbon Access Door 3-11*
- Opening the Printer for Cleaning 3-12*
- Cleaning the Printer Case 3-12*
- Cleaning the Printhead 3-13*
- Cleaning the Platen Roller and Tear Bar 3-14*
- Cleaning the Label Gap and Label Mark Sensors 3-15*
- Cleaning the Paper Path 3-16*
- Cleaning the Edge Guides 3-17*

Printer Operation Problems 3-18

Print Quality Problems 3-19

About This Guide

Use this guide to get your printer up and running for the first time. Use this table to locate the information you need to get started.

For information on	Refer to
Preparing the printer for connection.	Chapter 1. Use this chapter to unpack the printer, plug in the printer, understand the printer front panel, load media, load ribbon, and print a test label.
Connecting the printer.	Chapter 2. Use this chapter to connect the printer to your system, configure the serial port, and verify that you have established communications.
Maintaining the printer.	Chapter 3. Use this chapter to troubleshoot basic print quality problems and perform procedures to maintain print quality.

Related Intermec Manuals

These manuals provide additional information about printing labels with your 4400 printer. To order a manual, call your local Intermec sales organization.

Intermec Manuals	Intermec Part Number
<i>4400 Bar Code Label Printer User's Manual</i>	058607
<i>Data Communications Reference Manual</i>	044737
<i>The Bar Code Book</i> by Roger C. Palmer	051241
General Reference	IBM Part Number
<i>Installation and Assembly of Coaxial Cable and Accessories</i>	GA27-2805-4

Warranty Information

To receive a copy of the standard warranty provision for this product, contact your local Intermec sales organization. In the U.S. call 1-800-755-5505, and in Canada call 1-800-688-7043. Otherwise, refer to the Worldwide Sales & Service list that comes with this guide for the address and telephone number of your Intermec sales organization.

Safety Summary

Your safety is extremely important. Read and follow all warnings and cautions in this book before handling and operating Intermec equipment. You can be seriously injured, and equipment and data can be damaged if you do not follow the safety warnings and cautions.

Do Not Repair or Adjust Alone Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First Aid Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized Equipment Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Cautions

The cautions in this guide use the following format.



Caution

A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.

Conseil

Une précaution vous alerte d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.

1

Understanding and Preparing the Printer

The 4400 printer offers many configuration and programming choices, yet it is both easy to operate and understand. Intermec designed the 4400 to produce high-quality labels in harsh environments with minimal supervision and maintenance. The procedures in this chapter guide you through:

- *unpacking the 4400 printer.*
- *identifying the printer's components.*
- *plugging in the printer.*
- *understanding the printer control panel.*
- *accessing the printer menus.*
- *opening the printer.*
- *loading fanfold media.*
- *loading a roll of media.*
- *loading thermal transfer ribbon.*
- *closing the printer.*
- *testing printer operation.*

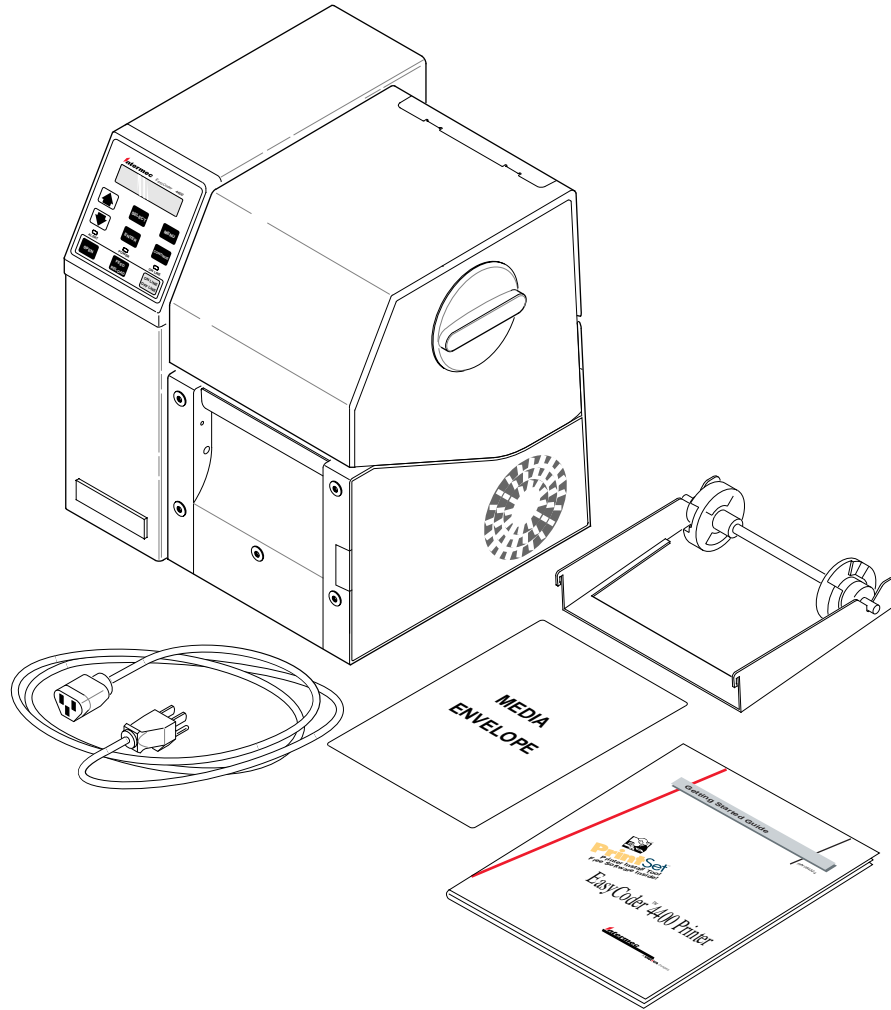
Unpacking the 4400 Printer

Remove the accessories, packing material, and the printer from the shipping container. Set the printer on a clean, stable, flat surface and remove the packing material. Save the shipping container and packing materials in case you need to move or ship your printer.

Verify the contents of the shipping container against the list below. Use the illustration on the following page to help identify these items:

- 4400 bar code label printer
- AC power cord
- Media roll holder
- Media envelope
- PrintSet disk
- EasyCoder 4400 Printer Getting Started Guide

Contents of EasyCoder 4400 Shipping Container



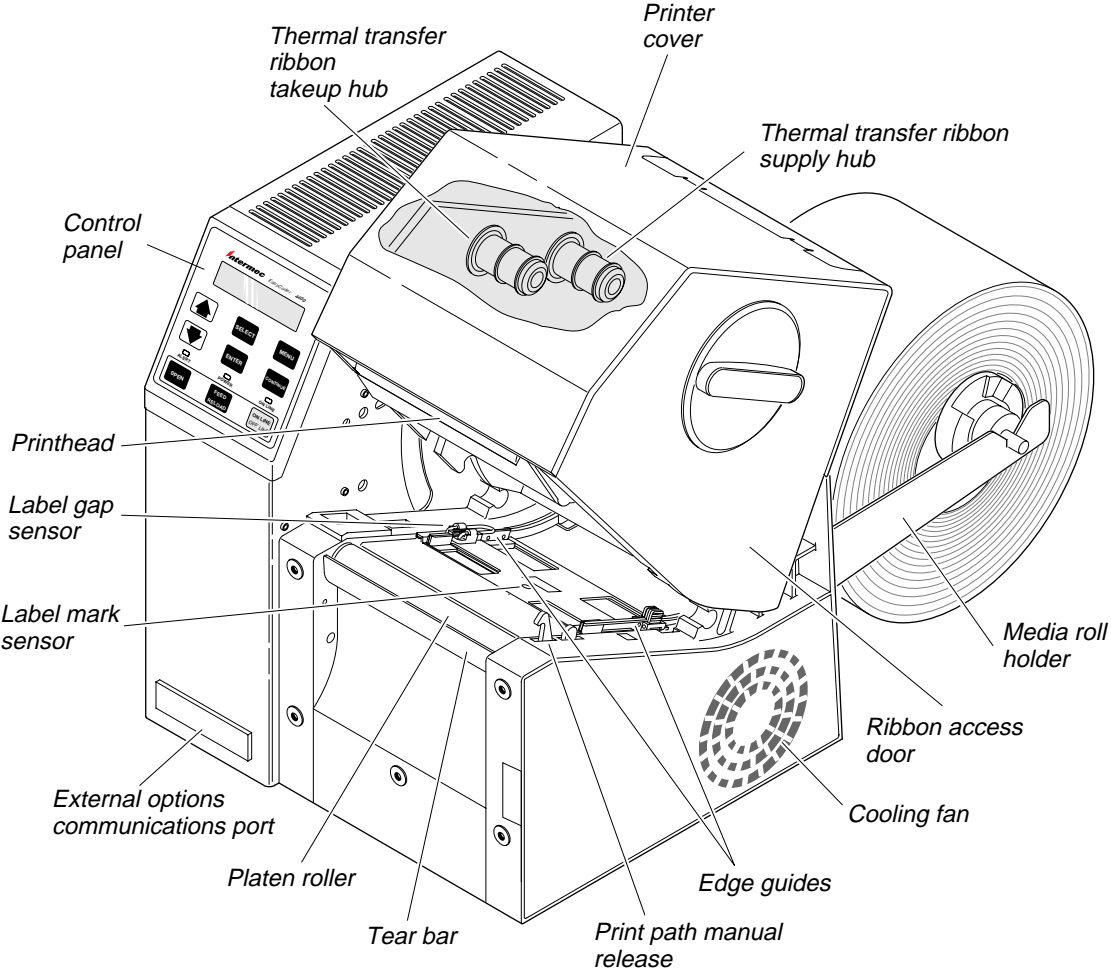
4400G.001

Verify your order against the packing slip to ensure that your order is complete. If any parts are missing, please contact your local Intermec representative.

Identifying the Printer's Components

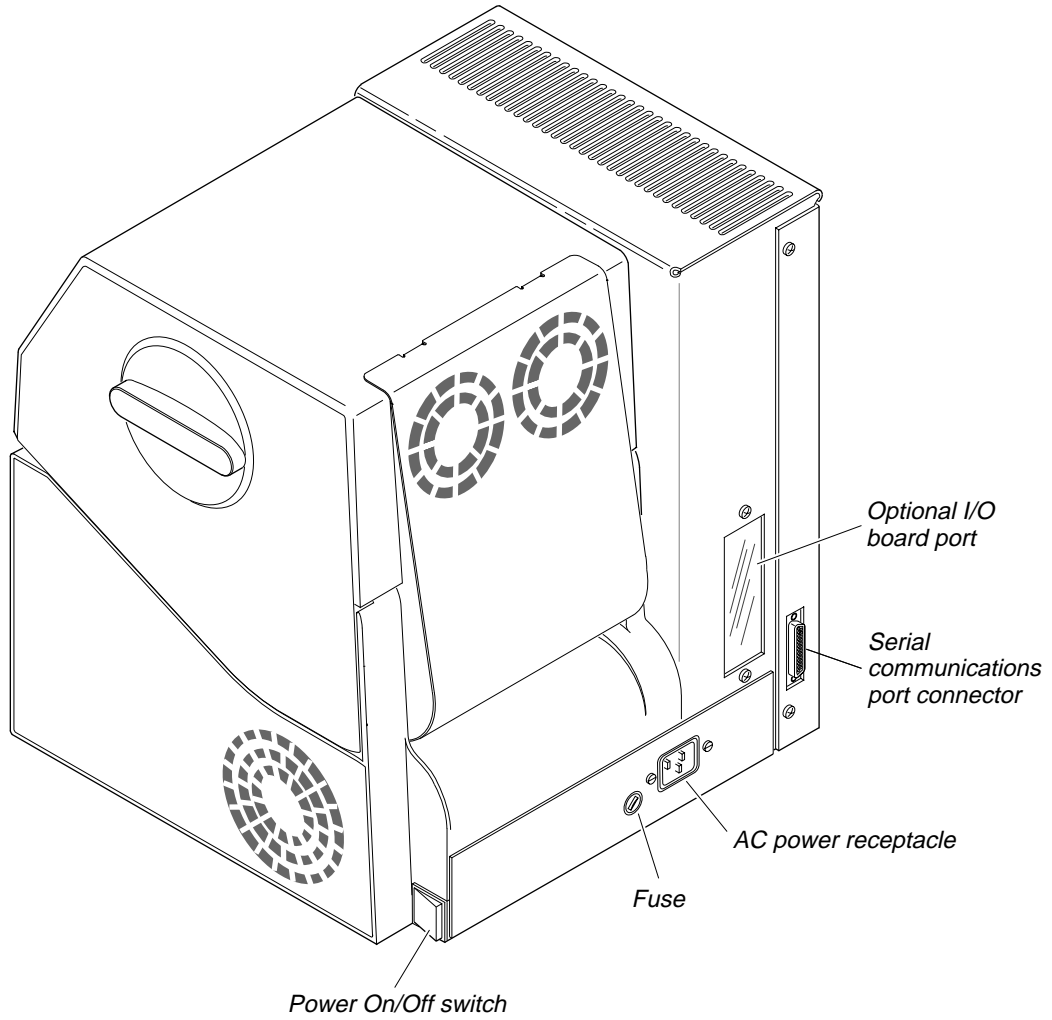
The following illustrations identify the major components of your Intermec 4400 printer.

Front View of the 4400 Printer



4400G.002

Rear View of the 4400 Printer



4400G.003

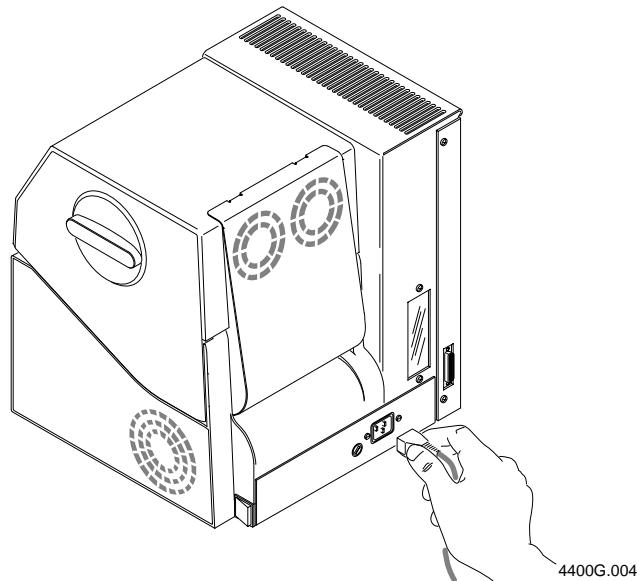
Plugging In the Printer

To power up your printer

1. Plug the AC power cord into the receptacle on the back of the printer. Plug the other end into a wall outlet or surge protector.
2. Set the power switch (located on the back panel of the printer) to the on (I) position. When the printer is fully powered, the power and online indicators light and the display reads as follows:

PAPER FAULT

Note: All three indicator lights, including the Alert light, flash when you turn on the printer.



Understanding the Printer Control Panel

The control panel provides direct control of the printer. Use the control panel for many tasks, such as setting the printer to offline before opening the cover.

The control panel features a 32-character liquid crystal display, nine keys, and three status lights. The nine keys are divided into two sets: three operating keys for normal operation of the printer and six selection keys for entering menus to change the printer settings.

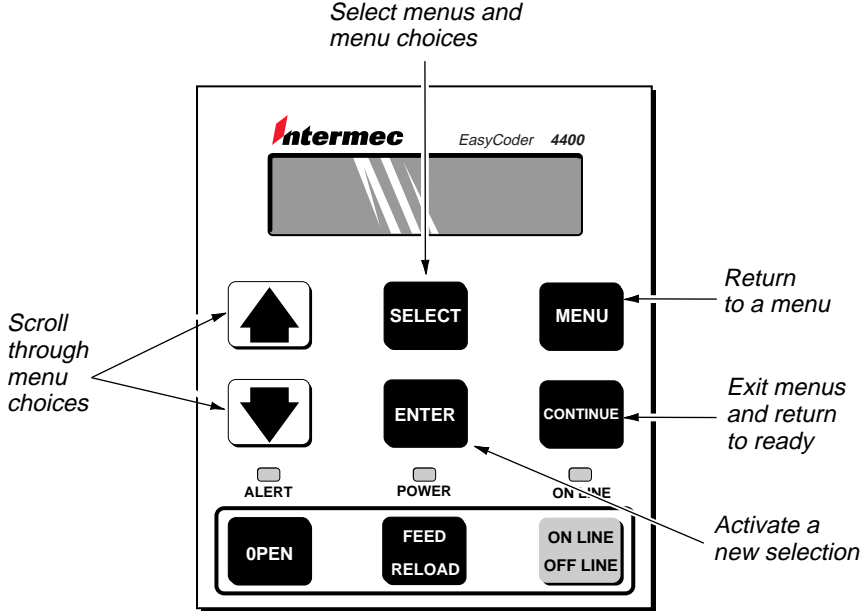
Using the Operating Keys

The operating keys are located at the bottom of the control panel, below the status lights. Each operating key is described in the table below:

Operating Key	Description
[OPEN]	Opens the printer. This key is only operational when the printer is Offline.
[FEED/RELOAD]	Advances the next label and feeds labels when reloading. This key is only operational when the printer is Offline.
[ONLINE/OFFLINE]	Toggles the printer between Online and Offline. When Offline, the printer stops printing and cannot accept data from the host computer.

Using the Selection Keys

The following illustration shows the six selection keys.



4400G.005

Use this table and the circle illustration on page 1-11 to move around the circle and reach the menu selection you need.

Press	To Move	When You Want To
[SELECT]	Outwards towards the edge of the circle.	Select a menu choice.
[MENU]	In towards the center of the circle.	Return to a menu. <i>Note: Use this key to enter the Main menu.</i>
[↑] or [↓]	Around the circle.	Scroll through menu choices.
[CONTINUE]	Back into the center.	Exit menus and return to READY.
[ENTER]		Activate a setting.

Understanding the Indicator Lights

The control panel has three lights that indicate the current operating status of the printer. All three lights flash when you turn the printer power on.

Alert This light flashes when a condition arises that requires your attention, such as an open paper path. A message describing the alert condition is displayed. A beep will sound at regular intervals until you correct the problem.

Power This light remains on as long as the printer is turned on and is receiving power.

Online When lit, this light indicates the printer is online (it can receive data from the host computer). While the printer is online, the only commands you can access from the control panel are the commands in the Operator menu.

Accessing the Printer Menus

The circle on the next page lets you review all of the printer features at once. Once you become accustomed to using the circle to access the menus and features, you will find it quite useful when you need to quickly locate and change a feature.

The circle shows the menu structure in the following way:

- The ONLINE READY or OFFLINE READY screen is in the middle.
- As you move outwards, you see the menu levels. The final level, at the edge, contains the settings.

To use the circle

1. Start at the OFFLINE READY display.
If you want to access the Operator menu, start at the ONLINE READY display.
2. Press [MENU] to enter the Main menu.
3. Press [↑] or [↓] to reach the menu you need.
4. Press [SELECT] when you reach the right menu.
5. Repeat Steps 3 and 4 to find and select the features you are changing.
6. Press [ENTER] to activate the new setting.
7. Press [CONTINUE] to return to the READY display.

Opening the Printer

You need to open the printer to load new media, correct printing problems, and perform maintenance procedures.

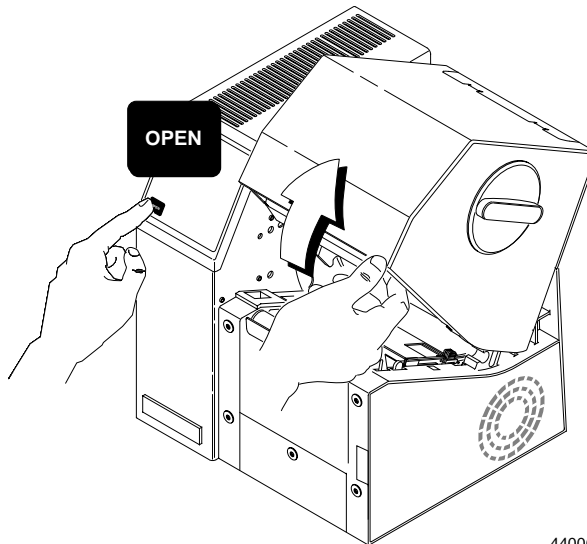
To open the printer

1. Press [ONLINE/OFFLINE]. The display reads:

OFFLINE
READY

2. Press [OPEN]. Lift the cover open to expose the paper path. The display reads:

PAPER PATH OPEN



4400G.008

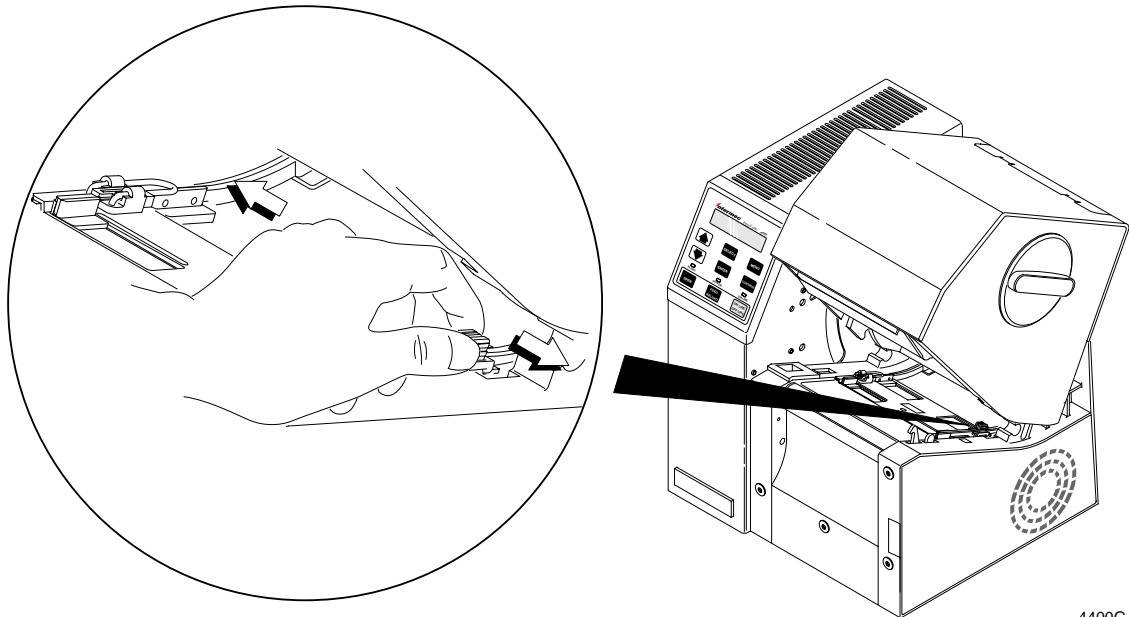
Loading Fanfold Media

Use the sample of direct thermal fanfold media supplied in the media envelope to complete the following procedure.

Note: If you want to load your own roll of media, see “Loading a Roll of Media” later in this chapter.

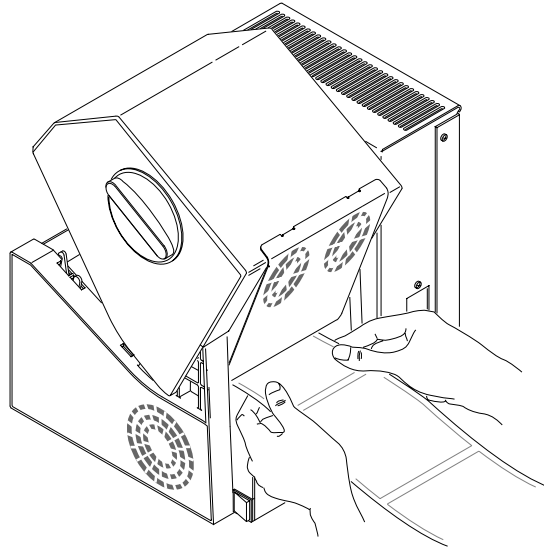
To load media

1. Open the printer as described earlier in this chapter in “Opening the Printer.”
2. Remove the media from the media envelope. Lay it out flat, with the labels facing up.
3. Open the edge guides to accommodate the width of the media. Slide the edge guides apart by pulling on the edge guide tab.



4400G.011

Feeding the Media Into the Back of the Printer



4400G.012

4. Feed one end of the media into the opening at the back of the printer. Continue feeding media until several inches extend out the front of the printer.
5. Adjust the edge guides so that the media does not shift as the label prints. To do this, push the edge guide tab in until the inside edges of the guide just contact the edges of the media.
6. For help closing the printer, see "Closing the Printer" later in this chapter.

Loading a Roll of Media

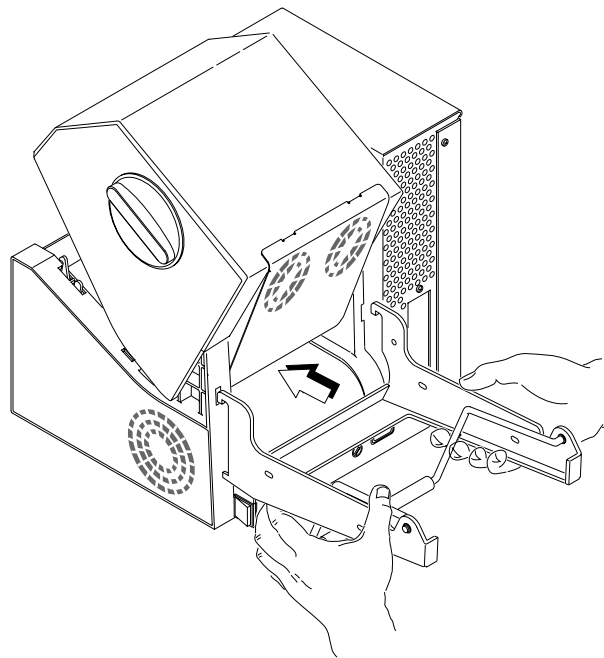
The following procedures explain how to load roll media into the printer. The 4400 printer supports both direct thermal or thermal transfer media.

Installing the Media Roll Holder

The 4400 printer accepts both fanfold and roll media. If you are planning to use roll media, you need to install the media roll holder.

To install the media roll holder

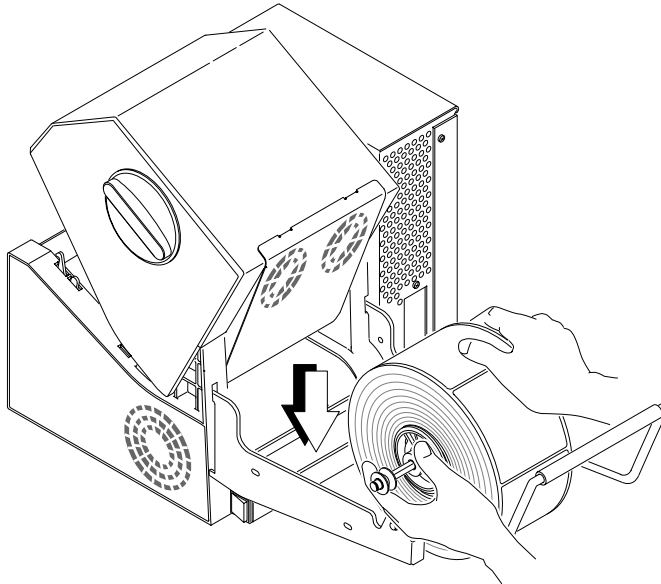
1. Open the printer as described earlier in this chapter in “Opening the Printer.”
2. Insert the tabs at the ends of the arms into the slots at the back of the printer. Make sure the holder is installed securely before loading roll media.



4400G.009

Installing a New Media Roll

1. Install a new roll of media on the roll shaft between the collets. Make sure the labels are sent underneath the tension bar before entering the printer.
2. Place the shaft on the hanger arms.



4400G.010

3. Open the edge guides to accommodate the width of the media. Slide the edge guides apart by pulling on the edge guide tab.
4. Feed one end of the media into the opening at the back of the printer. continue feeding media until several inches extend out the front of the printer.
5. Adjust the edge guides so that the media does not shift as the label prints. To do this, push the edge guide tab in until the inside edges of the guide just contact the edges of the media.

Note: *If you are loading thermal transfer media, you need to install a thermal transfer ribbon. See the next procedure for help.*

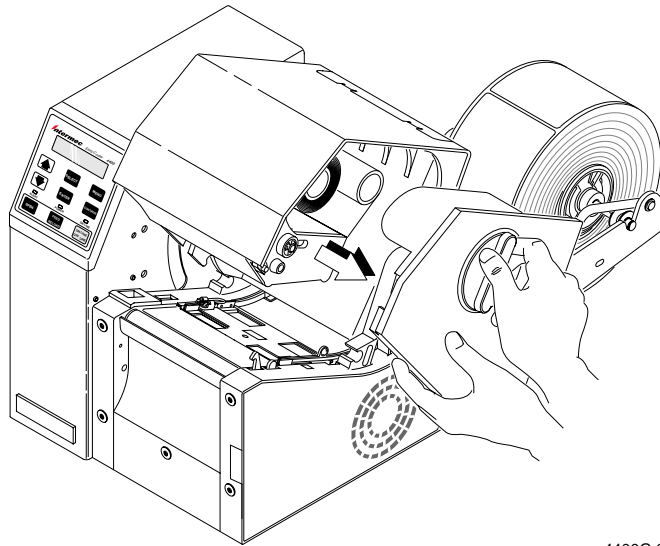
6. For help closing the printer, see "Closing the Printer" later in this chapter.

Loading Thermal Transfer Ribbon

The following procedures explain how to load thermal transfer ribbon into the printer if you are printing on thermal transfer media.

Removing the Ribbon Access Door

1. Make sure the printer is turned on.
2. Open the printer as described earlier in this chapter in “Opening the Printer.”
3. Turn the large knob on the door 1/4 turn counterclockwise.
4. Lift the door away from the printer.

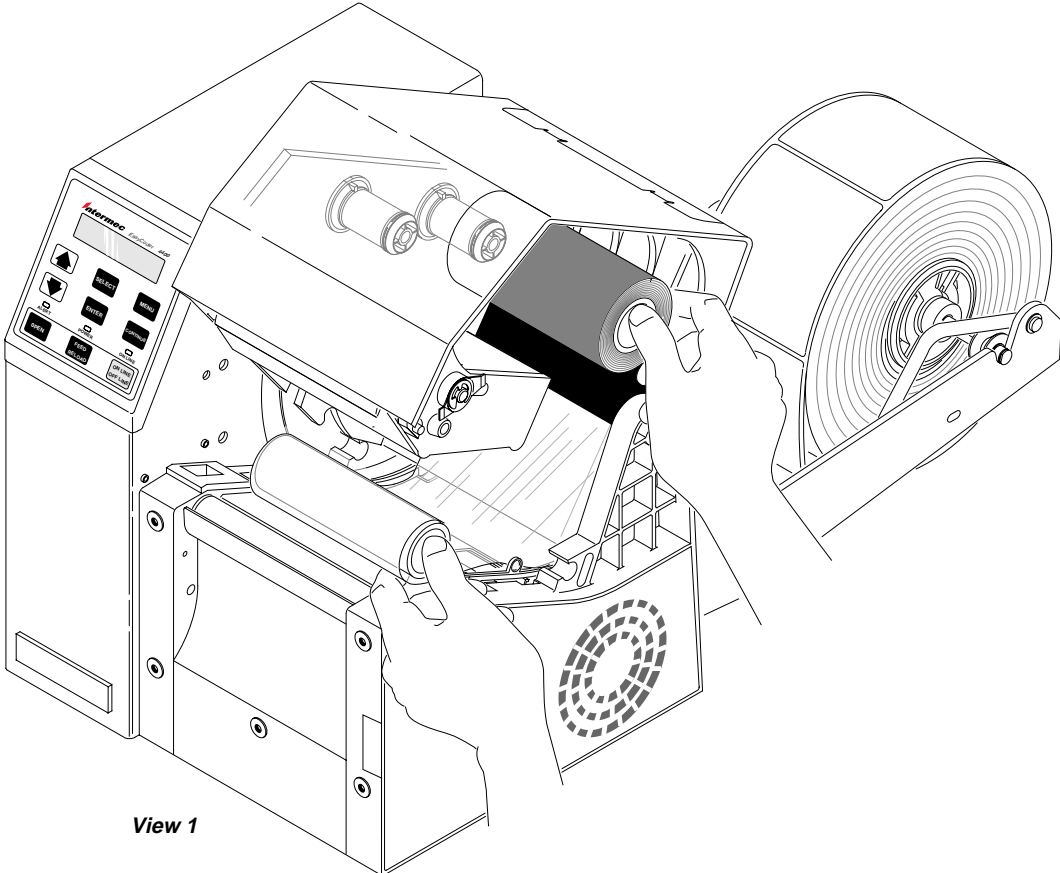


4400G.013

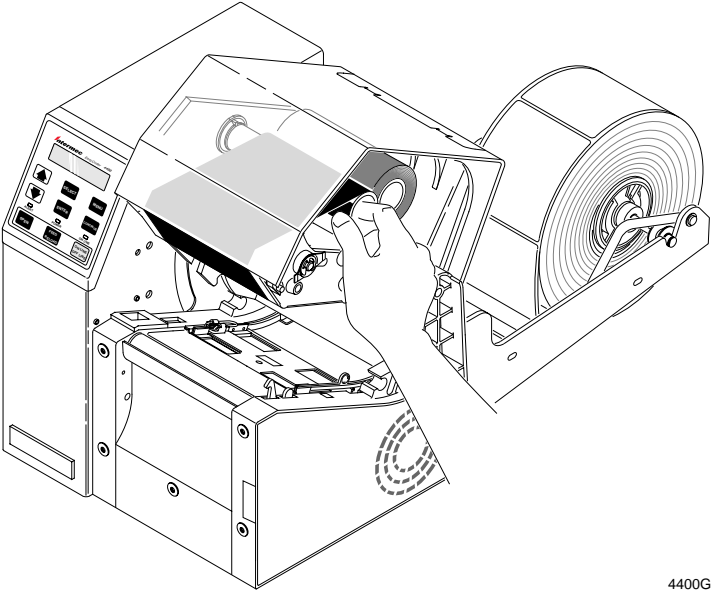
Loading the Thermal Transfer Ribbon

1. Remove and discard the used ribbon and inner cores on the ribbon supply and takeup hubs.
2. Remove and discard the protective wrapping on the new ribbon supply.
3. Slide the supply roll onto the supply hub until the notches engage the keys on the hub. Make sure the ribbon unwinds from the bottom of the roll. See View 1 in the following illustration.
4. Pull the ribbon around underneath the printhead assembly and up to the takeup hub. See View 2 in the following illustration.
5. Slide the ribbon takeup core onto the takeup hub, making sure the notches engage the keys on the takeup hub.
6. Wind the ribbon onto the takeup core until the inked part of the ribbon is past the printhead.
7. Make sure that you enable the thermal transfer ribbon command for the printer. Use the control panel to access the Configuration menu, then select label, media type, and thermal transfer.

Loading the Thermal Transfer Ribbon



View 1

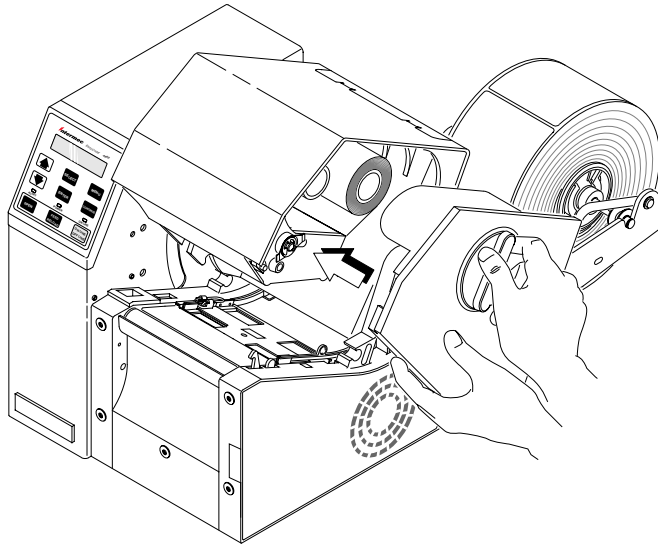


View 2

4400G.014

Replacing the Ribbon Access Door

1. Make sure that the grip on the knob is in the open (vertical) position.
2. Position the door on the printer and press it into place, making sure it seats evenly.
3. Lock the door into place by turning the knob 1/4 turn clockwise.
4. For help closing the printer, see the next section, “Closing the Printer.”



4400G.015

Closing the Printer

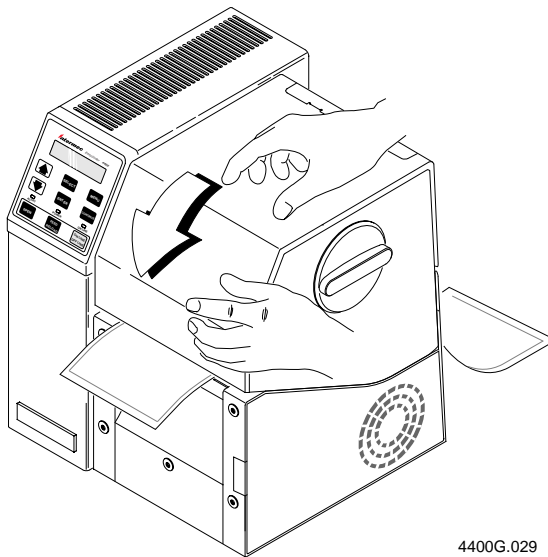
To close the printer

1. Close the printer by pressing down on the cover until it latches. The display shows the following:

PRESS RELOAD

2. Press [FEED/RELOAD]. Media advances to the next label and the display shows the following:

OFFLINE
READY



4400G.029

Testing Printer Operation

To review your printer's current configuration, you can print a configuration test label showing the hardware configuration of your printer.

To print the hardware configuration test label

1. From the OFFLINE READY display, press [MENU]. The display shows:

```
OFFLINE
OPERATOR MENU
```

2. Press [↑] or [↓] until the display shows:

```
OFFLINE
SERVICE MENU
```

3. Press [SELECT]. The display shows:

```
SERVICE MENU
PRINT PAGE
```

4. Press [↑] or [↓] until the display shows:

```
SERVICE MENU
PRINT CONFIG
```

5. Press [SELECT]. The display shows:

```
PRINT CONFIG
USER DEFINED
```

6. Press [SELECT]. The display shows:

```
USER DEFINED
EXECUTE TEST
```

7. Press [ENTER] to print the configuration test label.

8. To exit from the Service Menu, press [CONTINUE]. The display shows:

```
OFFLINE
READY
```

9. Turn off the printer. Save the configuration test label for reference when you install and configure the printer.

If you have trouble printing your configuration test label, try restoring the default configuration using the procedure in the beginning of Chapter 3.

Note: The parameters of the configuration test label shown here may not reflect the actual parameters of your test label.

4400 Configuration Test Label

Hardware Configuration Label	User Defined Configuration Label
<pre> Hardware Configuration Memory Installed Static RAM: 39 kilobytes Expanded RAM: none Dynamic RAM: 370 kilobytes I/O Option Card: none Printhead Mileage Inches Processed : 0 Inches Burned : 0 </pre>	<pre> INTERMEC 4400 Printer Program Version: 1.3.1 Pages Defined : 0 Format Defined : 0 Fonts Defined: 0,1,2,7,20,21,22,23,24, MAX LABEL LENGTH - 5 inches Graphics Defined : none PRINT SPEED - 3.5 IPS IMAGE BANDS - 3 HEAD PRESSURE - Low LABEL WIDTH - 896 dots LABEL STOCK - Inter-Label gap MEDIA TYPE - Direct Thermal MEDIA LENGTH - 0 inches LOW MEDIA WARN - 0 inches SET WARNING - Disabled CHARACTERSET - US ASCII TRANSLATION - Disabled POWER-ON - online ASCII ZERO - Not Slashed EMULATION - Disabled UNITS - Inches LABEL RETRACT - Enabled PRINTD TEST WARN - Continue PRINTD RANGE - -45% to 45% MESSAGE LENGTH - 255 PARITY - Even STOP BITS - 1 PROTOCOL - Standard DEVICE ADDRESS - A INTERNAL OPTIONS - none EXTERNAL OPTIONS - none SECURITY - Level 0 </pre>

4400G.016

Connecting the Printer to Your System

You can connect the 4400 printer to almost any system available and establish communications. Use this chapter for:

- connecting the printer to your system.
- verifying printer communications with your system.
- configuring the serial port.
- customizing the printer for your application.

Connecting the Printer to Your System

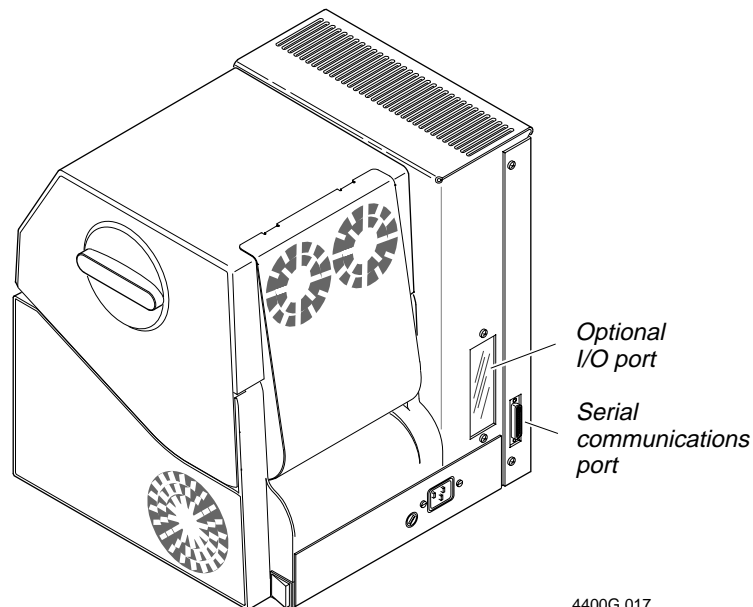
The proper method for connecting your printer to the host computer is determined by the way your system is configured. This section contains procedures for point-to-point and non-switched modem installations. There is also a reference section for network installations.

You can connect your 4400 printer to a PC, a local area network, an AS/400 (or other midrange computer), or a mainframe. This section provides the information necessary for connecting to any of these systems.

This illustration shows you where to connect your system to the printer. You can use either of these two ports on the rear of the printer:

- Serial communications port
- Optional I/O board port (if you have an adapter card installed)

Connecting the Printer



4400G.017

Connecting the 4400 to a PC

You can connect the 4400 to either a serial port or parallel port (if you have the option installed) on your PC. You must provide the correct cables for connecting the printer. Refer to the following instructions for cable information. Contact your Intermec representative for ordering assistance if you do not have the appropriate cables.

Connecting the Printer to a PC Serial Port

To connect the 4400 to your PC serial port, you need a shielded EIA RS-232, RS-422, or RS-485 electrical interface with a 25-pin D-style subminiature connector. It must have pins on the printer end and an appropriate serial port connector on the other end.

Use the following table to determine the correct Intermec cable for your application. Cable schematics for these cables appear on the next page.

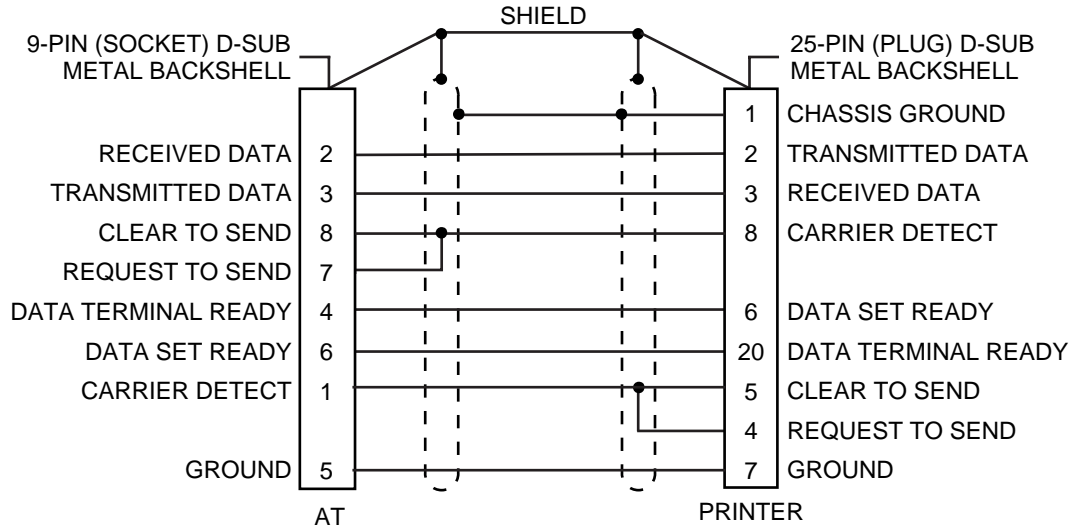
For Connecting To	Use Intermec Cable Part Number
IBM PC AT	048693 (25-pin printer to 9-pin serial port straight-through)
IBM PC XT	048668 (25-pin printer to 25-pin serial port null modem)

To connect your printer to a PC serial port

1. Turn the On/Off switch to the off position.
2. Plug the 25-pin connector into the serial communications port on the back of the 4400 printer.
3. Plug the other end of the cable into a serial COM port on the PC.
4. If necessary, change the PC serial port configuration to match your printer. The default configuration settings for the 4400 printer are:
 - 9600 baud
 - even parity
 - 7 bit word length
 - XON/XOFF no status response protocol
 - device address A
 - direct thermal media

See "Configuring the Serial Port" later in this chapter for more information.

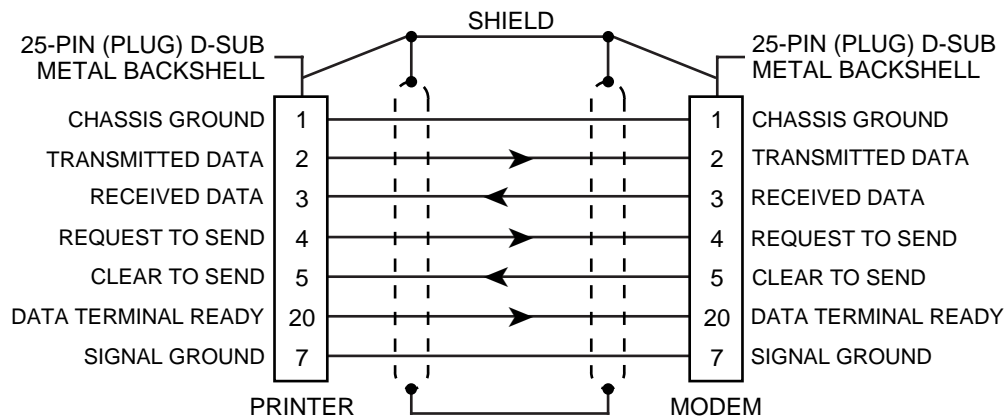
RS-232 Null Modem Cable for AT (Part Number 048693)



NOTE: The metal backshell is connected directly to the shield to achieve electrostatic discharge (ESD) immunity.

4400G.018

RS-232 Null Modem Cable for PC (Part Number 048668)



NOTE: The metal backshell is connected directly to the shield to achieve electrostatic discharge (ESD) immunity.

4400G.019

Connecting the Printer to a PC Parallel Port

If you are using a parallel port to communicate with the printer, you need:

- a Centronics interface adapter installed in the printer.
- a parallel cable to run between the printer and the PC.

If you did not have the parallel interface installed at the factory, you can install the field installable option (Intermec Part No. 056830) in the optional I/O board port of your printer. You can purchase a parallel cable from Intermec (Part No. 051211) or from your local computer store.

To connect your printer to a PC parallel port

1. Turn the On/Off switch to the off position.
2. Plug the Centronics cable connector into the interface adapter port on the back of the 4400 printer.
3. Plug the other end of the cable into a parallel port on the PC.

Connecting the 4400 to a Network

You can connect the 4400 printer to Novell NetWare networks, Token Ring networks, or TCP/IP networks. To connect the 4400 printer to a network, you must have:

- a Centronics parallel interface installed in your printer.
- a network interface adapter (for example, Ethernet).

If you did not have the interface installed at the factory, you can install the field installable option (Intermec Part No. 056830) in the optional I/O board port of your printer.

The network interface adapter (for example, Ethernet) connects to the Centronics parallel interface on the back of the printer. Your network must be able to use XON/XOFF (hardware handshake) protocol. Refer to your network documentation for more information.

Connecting the 4400 to an AS/400

To connect a 4400 printer directly to an AS/400 or other midrange computer, you need:

- a twinax adapter card.
- a twinaxial cable equivalent to IBM part number 7362267 or 7362062. The maximum cable length for the twinax interface is 5000 feet (1525 meters).

If you did not have the twinax card installed at the factory, you can install the field installable option (Intermec Part No. 056835) in the optional I/O board port of your printer.

For help on cabling and communications, see the manual that comes with the twinax adapter card.

Note: *If you are using a midrange computer other than the AS/400, refer to your system documentation for information on cabling and setting up communications.*

Connecting the 4400 to a Mainframe

To connect a 4400 printer directly to an IBM mainframe, you need:

- a coax adapter card.
- a coaxial cable equivalent to IBM part number 2577672 or 1833108.

The maximum cable length allowed is 4920 feet (1500 meters). See the IBM specification *Installation and Assembly of Coaxial Cable and Accessories*, part number GA27-2805-4, for further information.

If you did not have the coax card installed at the factory, you can install the field installable option (Intermec Part No. 056836) in the optional I/O board port of your printer.

For help on cabling and communications, see the manual that comes with your coax adapter card.

Verifying Printer Communications With Your System

Once you have the printer connected to your system, you need to verify that the printer communicates with your system. The easiest way to test communications is to enable the Data Line Print command in the Service menu. You have two selections for Data Line Print:

Enabled The printer prints all ASCII characters it receives from the host, including control characters. The corresponding hexadecimal code prints directly underneath each character.

Disabled The printer prints normally. This is the default setting.

To enable or disable Data Line Print

1. Start at the OFFLINE READY display.
2. Press [MENU] to enter the main menu. Press [↑] or [↓] until you reach the Service menu.
3. Press [SELECT] to enter the Service menu. Press [↑] or [↓] until the display shows:

```
SERVICE MENU
DATA LINE PRINT
```

4. Press [SELECT]. The display shows:

```
DATA LINE PRINT
DISABLED*
```

5. Press [↑] or [↓] to change to enabled, and then press [ENTER] to move the asterisk next to the new selection. The display shows:

```
DATA LINE PRINT
ENABLED*
```

The printer will now print characters it receives from the host.

Note: An example using DOS to verify printer communications follows this procedure.

6. Press [ONLINE/OFFLINE] to return to normal printing. The printer automatically returns to the disabled setting after you exit this menu.

Note: If you press the [FEED/RELOAD] key while Data Line Print is enabled, the software version number will be transmitted to the host. This feature allows you to perform a loop-back test at the communications port.

Example of Using DOS to Verify Printer Communications

1. At the DOS prompt, type the following command and press **Enter** to configure the serial port:

```
MODE COM1 96,E,7,1,N
```

2. Type the following command lines and press **Enter**:

```
COPY CON COM1  
ABCDEF^Z
```

where:

COPY CON COM1 tells the PC to copy the next line of information to communications port COM1.

ABCDEF are random characters typed at the host.

^Z (**Ctrl-Z**) sends the information to the printer.

The printer prints the following characters:

```
A B C D E F  
41 42 43 44 45 46
```

4400G.020

Note: *If you are using a different platform to communicate with your printer, please refer to your system user's manual and the 4400 Bar Code Label Printer User's Manual for help downloading commands.*

Configuring the Serial Port

The printer's main port settings should match those of your host computer or controlling device. If you need to change the defaults, follow the instructions in this section.

This table summarizes the main port settings. The defaults are shown in bold type.

Command	Settings	Description
Baud Rate	110, 300, 600, 1200, 2400, 4800, 9600 , 19200	The rate (in bits per second) at which the host exchanges data with the printer.
Data Bits	7 or 8	The number of bits that represent the ASCII characters.
Message Length	255 , 512	Determines the maximum number of characters in a block (including overhead) that is sent to the printer in Standard, Polling Mode D and Multi-Drop protocols.
Parity	Odd, Even , Mark, Space, Off	Checks each transmitted character for errors.
Stop Bits	1 or 2	Bits that follow each character to synchronize character transmission.
Protocol	Standard , XON/XOFF*,	The type of network used to connect the printer, Multi-Drop, Polling Mode D host and the rest of the data collection system.
Device Address	A to Z, or 0 to 5	Unique address for each device connected with Multi-Drop protocol.

* Use for READY/BUSY buffer control.

To change the main port settings, you must use the control panel to reach the selections in the main port menu.

To change any of the values listed in the previous table

1. Start at the OFFLINE READY display.
2. Press [MENU]. Then press [↑] or [↓] until the display shows the following:

OFFLINE INSTALL MENU

3. Press [SELECT]. The display shows:

INSTALL MENU SECURITY

4. Press [↑] or [↓] until the display shows the following:

INSTALL MENU MAIN PORT

5. Press [SELECT]. The display shows the following:

MAIN PORT BAUD RATE

6. Press [↑] or [↓] to scroll through the available commands.
7. Press [SELECT] when you reach the command you want to change. The display shows the current setting with an asterisk (*).
8. Press [↑] or [↓] to scroll through the available settings for the command.
9. When you see the setting you want, press [ENTER]. The asterisk (*) appears next to the new setting, indicating it is now active.
10. Press [CONTINUE] to return to the OFFLINE READY display or, to change other settings, press [MENU] and repeat Steps 6 through 9.

Note: You must cycle the printer power (turn the printer off and then on again) to put any changes into effect. Cycling the power after making a number of changes activates all of them at once.

Customizing the Printer for Your Application

You can change your printer's configuration to improve print quality and performance. For example, some configuration settings control the print darkness and the media sensitivity number, and other settings specify the type of media you are using. Refer to Chapter 5, "Configuring the Printer," in the *4400 Bar Code Label Printer User's Manual* for more information on all of the configuration settings.

Use PrintSet, your third-party software, or the Intermec Printer Language (IPL) commands to customize the configuration settings.

Using the PrintSet Software

Use the PrintSet application software to easily configure your printer from your PC. You can upload the current configuration settings, modify them, and then download them to the 4400 printer. PrintSet also lets you:

- download graphics and fonts (including TrueType).
- print test labels.
- allocate memory.
- download configuration files.

For help using PrintSet, see the application's online help.

Using Third-Party Software

You can use third-party software to set many printer parameters. Use the printer command set or the configuration DIP switches to set the parameters that your software cannot set (for example, the number of image bands and media sensitivity number).

Use your third-party software to create label formats and convert graphics into a user-definable character (UDC) format that the 4400 printer can interpret.

Using IPL Commands

You can also create labels by downloading formats (designs) and data created with the IPL commands. The IPL commands can perform any function or activate any feature of the 4400 printer except for those features and functions that you set with the control panel. See Chapter 7, "Printer Commands," in the *4400 Bar Code Label Printer User's Manual* for a complete list of printer commands and their descriptions.

3

Optimizing Print Quality

Use the procedures and adjustments in this chapter to optimize and maintain print quality by:

- restoring printer default configuration.
- setting the media sensitivity number.
- setting the dark adjust.
- cleaning the printer.
- troubleshooting the printer.

Restoring Printer Default Configuration

If your configuration test label is not satisfactory, or if you have trouble printing, your printer may have lost its configuration during shipment.

To restore the factory default setting

1. Start at the OFFLINE READY display (press [ONLINE/OFFLINE] if necessary).
2. Press [MENU]. Then press [↑] or [↓] until the display shows:

```
OFFLINE
SERVICE MENU
```

3. Press [SELECT]. Then press [↑] until the display shows:

```
SERVICE MENU
MEMORY RESET
```

4. Press [SELECT]. The display shows:

```
MEMORY RESET
ALL
```

5. Press [↓] until the display shows:

```
MEMORY RESET
CONFIGURATION
```

6. Press [ENTER] to restore the default configuration settings.
7. Press [CONTINUE] to return to the OFFLINE READY display.

Now follow the procedure, “Testing Printer Operation,” in Chapter 1.

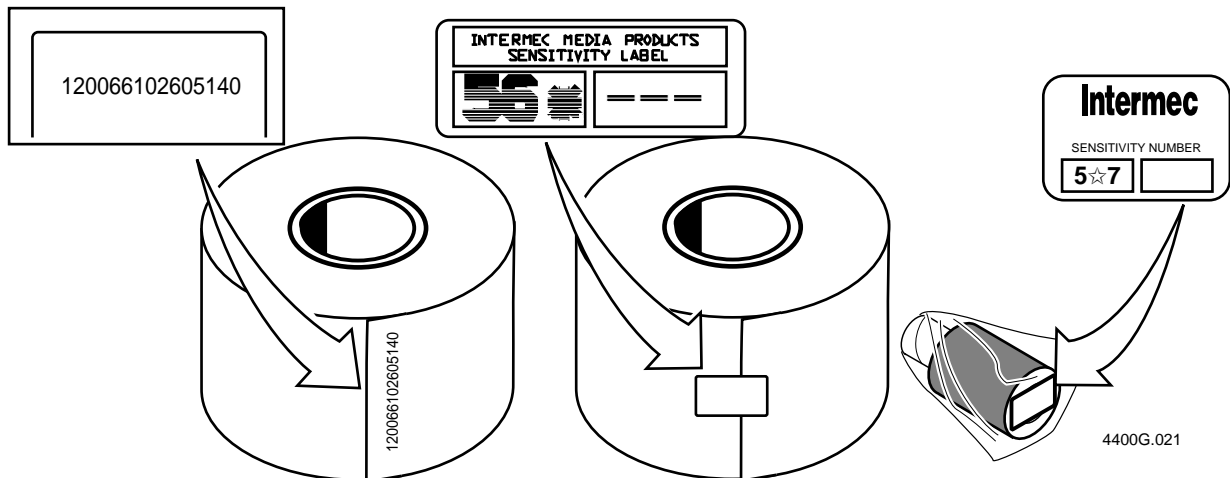
Note: After using memory reset you must reinstall the software drivers for options, such as cutter or self-strip. See Chapter 8, “Special Procedures,” in the 4400 Bar Code Label Printer User’s Manual for help reinstalling the software drivers.

Setting the Media Sensitivity Number

Media sensitivity is important because you use it to optimize print quality and print speed. The three-digit sensitivity number specifies the amount of heat required by the printhead to image a label. The amount of heat that each roll of media or ribbon requires is unique to different chemistries and manufacturing processes.

Intermec has developed heating schedules (the amount of heat required to image a label) to produce the highest possible print quality for Intermec media and ribbon combinations on Intermec printers. Look for the three digit media sensitivity number on:

- The side of the media roll. Use the last three digits (140 in the example) of the 15 digit number stamped on the roll for the media sensitivity number.
- A small label attached to the roll of the media.
- A small label attached to the plastic bag of your ribbon roll.



Use this three-digit number to optimize print quality and print speed on the 4400 printer. You can achieve the best print quality on the 4400 printer by using Intermec ribbon and media products.

The default printer setting for direct thermal media sensitivity is 420. For thermal transfer media, the default setting is 567. Use the information on the packaging that you saved when loading media and ribbon to determine the correct sensitivity number.

Setting the Media Sensitivity Number for Intermec Media and Ribbon

The default printer setting for direct thermal media sensitivity is 420. For thermal transfer media, the default setting is 567. Use the information on the packaging that you saved when loading media and ribbon to determine the correct sensitivity number.

The sensitivity number on each roll of thermal transfer media or ribbon has an asterisk (*) in place of one of the digits. To optimize the sensitivity number for thermal transfer media, you combine the digits as in this example.

Media or Ribbon	Sensitivity Rating	Description
Thermal Transfer Media	56*	The asterisk reserves the third digit to identify the ribbon's sensitivity number.
Thermal Transfer Ribbon	5*7	The asterisk reserves the second digit to identify the media's sensitivity number.
	567	Optimum Sensitivity Rating

To set the sensitivity rating for direct thermal media, use the three-digit sensitivity rating located on the roll of media or listed in the Direct Thermal Media Sensitivity Settings table later in this chapter.

Use the PrintSet software, your third-party software, or the Intermec Printer Language (IPL) command set to change the media sensitivity number. For help setting the media sensitivity number using IPL commands, see the DOS example in the next section.

Example of Setting the Media Sensitivity Number

To set the media sensitivity number

1. At the DOS prompt, type the following command and press **Enter**.

```
MODE COM1 96,E,7,N
```

2. Type the following command lines and press **Enter**.

```
COPY CON COM1
```

```
<STX><SI>g1,567<ETX>^Z
```

where:

<SI>g1,567 sets the media sensitivity number for thermal transfer media to 567.

Setting the Media Sensitivity Number for Other Media and Ribbon

If you are not using Intermec media and ribbon, or you misplaced your packaging with the three-digit sensitivity number label on it, you can set the approximate sensitivity setting. The approximate sensitivity numbers are the first entry (in bold text) for each series in the media sensitivity settings table on the following pages. Enter the three-digit approximate sensitivity setting (for example, 800) to achieve acceptable print quality.

Use the following tables to find the correct sensitivity rating for you direct thermal media or thermal transfer media and ribbon combination.

Direct Thermal Media Sensitivity Settings

Approximate Sensitivity Ratings	Sensitivity Setting	Thermal Transfer Media/Ribbon
700 Series High Sensitivity	740	Duratherm Lightning Plus-1
	720	Duratherm Lightning Plus-2
400 Series Medium Sensitivity	480	Duratherm Lightning IR-2
	470	Duratherm Lightning-1
	460	European Thermal IR
	450	Duratherm Lightning IR-1
	440	European Thermal Economy
	430	Duratherm Lightning Synthetic
	420	Duratherm Lightning-2
100 Series Low Sensitivity	190	Duratherm Buff Tags
	180	Duratherm II-1
	170	European Thermal Top Board/Reinforced
	160	Duratherm II Tag
	150	Duratherm Buff Labels
	140	European Thermal Top
	130	Duratherm II-2
	120	European Thermal Economy Tag

Thermal Transfer Media and Ribbon Sensitivity Settings

Approximate Sensitivity Ratings	Sensitivity Setting	Thermal Transfer Media/Ribbon
800 Series High Sensitivity (Paper)	864	European Uncoated/Standard
	854	Duratron I/Standard
	834	Duratron I Tag/Standard
600 Series Medium Sensitivity (Plastic)	687	Duratron Matte Polyester/Premium
	677	Duratron Syntran/Premium
	647	Duratron Tyvek/Premium
	633	European Polyethylene/Premium
	627	Duratron Kimdura/Premium
500 Series Medium Sensitivity (Paper)	567	Duratron II-1/Premium
	565	Duratron European/Premium
	547	Duratron II-2/Premium
	533	European Tag/Premium
	527	Duratron II Tag-5 mil and 7 mil/Premium
	513	European Coated and Board Tag/Premium
300 Series Low Sensitivity (Plastic)	369	Super Premium Poly./Super Premium 3
	366	Super Premium Poly./Super Premium 7
200 Series Low Sensitivity (Plastic)	238	Gloss Polyimide (Kapton)/Gloss Super Premium 7
	236	Gloss Polyimide (Kapton)/Super Premium 7
	226	Matte Polyimide (Kapton)/Super Premium 7
	222	Matte Polyimide (Kapton)/Matte Super Premium

Setting the Dark Adjust

You can adjust the print darkness when the printer is online or offline. Use the dark adjust setting for fine-tuning only. Once you set the sensitivity rating, a darkness setting of zero should provide optimal print quality. However, as the printhead wears or if you use a lot of media, some adjustment may be necessary.

Check the sensitivity rating before you use the dark adjust command.

To adjust the darkness of your labels

1. Start at the ONLINE READY display:

```
ONLINE
READY
```

2. Press [MENU] to enter the Operator menu. Press [↑] or [↓] until the display shows:

```
OPERATOR MENU
DARK ADJUST
```

3. Press [SELECT]. The display shows the current dark adjust setting with an asterisk (*) as shown in the example below:

```
DARK ADJUST
5*
```

4. Press [↑] to increase the number and darken the printing. Press [↓] to decrease the number and lighten the printing. The range is from -10 (lightest) to 10 (darkest).
5. Press [ENTER] at the desired setting. The asterisk (*) moves to the new setting as shown in the example below:

```
DARK ADJUST
3*
```

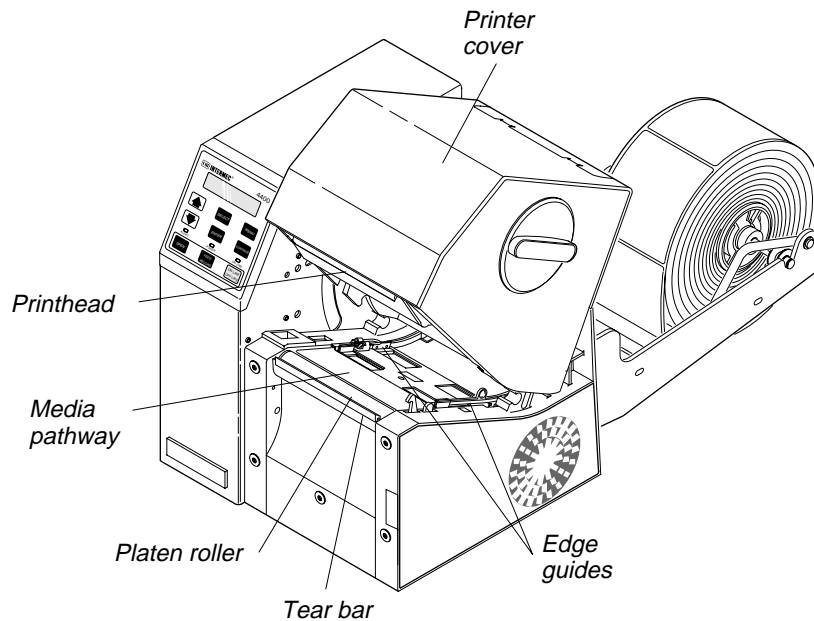
6. Press [CONTINUE] to return to the ONLINE READY display. Print out a few labels. Also, scan some labels to see if they are too dark or light for you to scan.
7. If the labels are too dark or too light, repeat Steps 3 through 6.

Components to Maintain

Clean your printer regularly to maintain the quality of your labels and extend the life of your printer. The following table contains suggestions for cleaning the printer.

To clean the printer effectively and safely use the following items: isopropyl alcohol, a cleaning brush, cotton swabs, and a clean lint-free cloth.

Printer Component	Maintenance Period
Printhead	Inspect after every roll of media. Clean after every five rolls of media.
Platen Roller and Tear Bar	Clean after every ten rolls of media. If you are using hi-tack adhesive, you must clean after every roll of media. If you are using tag stock or continuous media, you should clean after every five rolls of media.
Label Gap and Label Mark Sensors	
Media Pathway and Edge Guides	
Printer Cover	Clean as necessary.



4400G.022

Cleaning the Printer

The following procedures tell you how to access and clean the printer components without causing any damage.

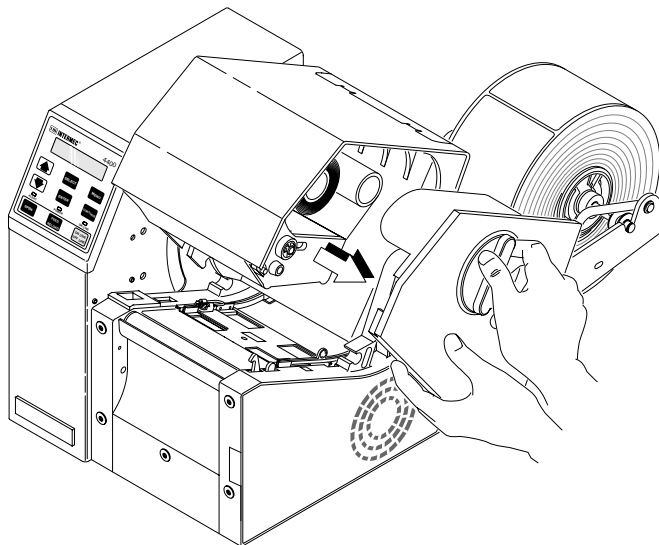
Note: Turn off and unplug the printer before cleaning any components. The following procedures include instructions for opening the printer without power.

Removing the Ribbon Access Door

To open the printer without power, you must remove the ribbon access door.

To remove the ribbon access door

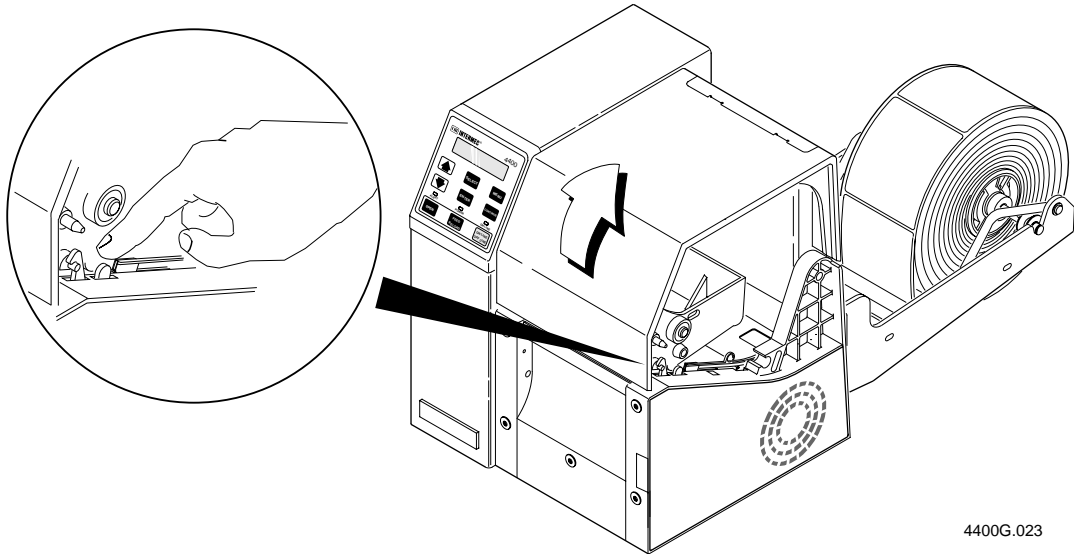
1. Turn off and unplug the printer.
2. Remove the ribbon access door by turning the knob 1/4 turn counterclockwise, and lifting the door away from the printer.



4400G.013

Opening the Printer for Cleaning

1. Press down on the manual cover release and lift the cover.
2. Remove the media and thermal transfer ribbon.



4400G.023

Cleaning the Printer Case

Clean the case with a lint-free cloth and isopropyl alcohol as necessary to remove dust from cooling vents. If the vents become obstructed, the printer may overheat, which can result in pauses while printing labels and damage to the electronic circuitry inside the printer.

Cleaning the Printhead

Cleaning media debris from the printhead maintains close contact between the media and printhead, which provides good print quality. The printhead should be cleaned after every five rolls of media. Always clean the printhead immediately if a label jams in the printer.



Caution

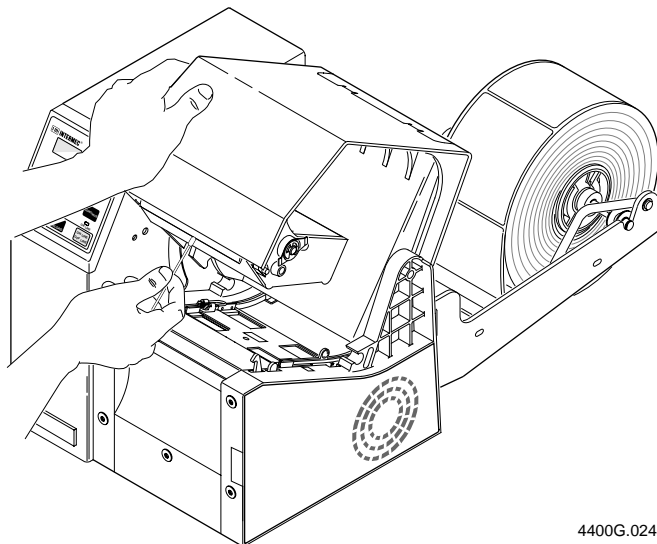
Do not use sharp objects such as knives or screwdrivers to scrape the printhead clean. Cleaning with sharp objects will damage the printhead. Clean with only a cotton swab, or a clean, lint-free cloth or tissue damp with isopropyl alcohol.

Conseil

N'utilisez pas d'objets pointus tels que couteaux ou tournevis pour nettoyer la tête d'imprimante. Nettoyer avec des objets pointus endommagera la tête d'imprimante. Nettoyez-la seulement avec de la ouate ou avec un linge propre et libre de peluches, humecté avec de l'alcool d'isopropyl.

To clean the printhead

1. Complete the steps in “Opening the Printer for Cleaning.”
2. Use a cotton swab or a clean, lint-free cloth and isopropyl alcohol to clean the printhead. Be persistent. It may take a long time to remove label adhesive.



4400G.024

Cleaning the Platen Roller and Tear Bar

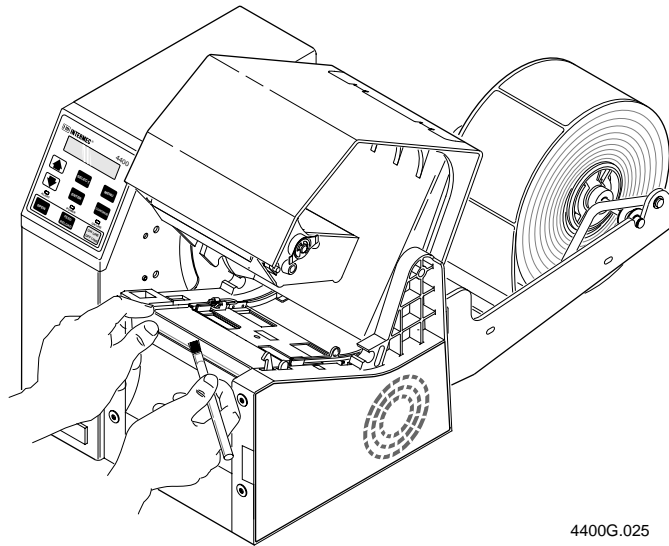
Cleaning the platen roller and tear bar maintains even contact between the media and the printhead.

To clean the platen roller and tear bar

1. Complete the steps in “Opening the Printer for Cleaning.”
2. Clean the platen roller with a brush and isopropyl alcohol. Make sure you rotate the roller to clean all areas.

Note: *If you do not have a brush and isopropyl alcohol, use a label to clean the platen roller. Place one end of the label on the roller (adhesive side down) and pull the label forward to remove any debris. Repeat the process until the roller is clean.*

3. Clean the tear bar with a brush and isopropyl alcohol.



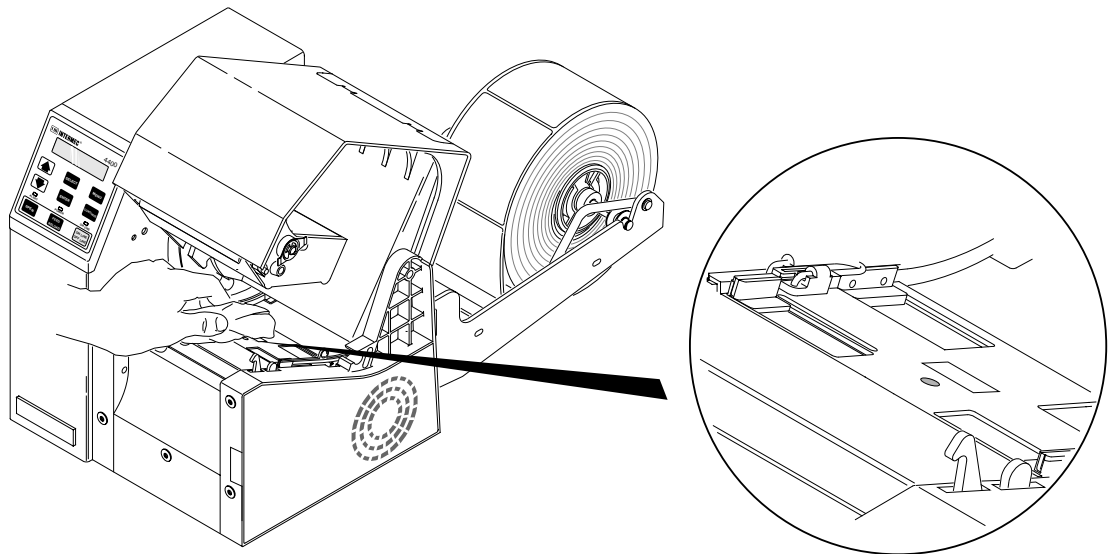
4400G.025

Cleaning the Label Gap and Label Mark Sensors

The label gap and label mark sensors should be checked for debris and cleaned after every ten rolls of media.

To clean the sensors

1. Complete the steps in “Opening the Printer for Cleaning.”
2. Clean both sensors with a brush and isopropyl alcohol. Make sure you clean both the label gap sensor and the label mark sensor.



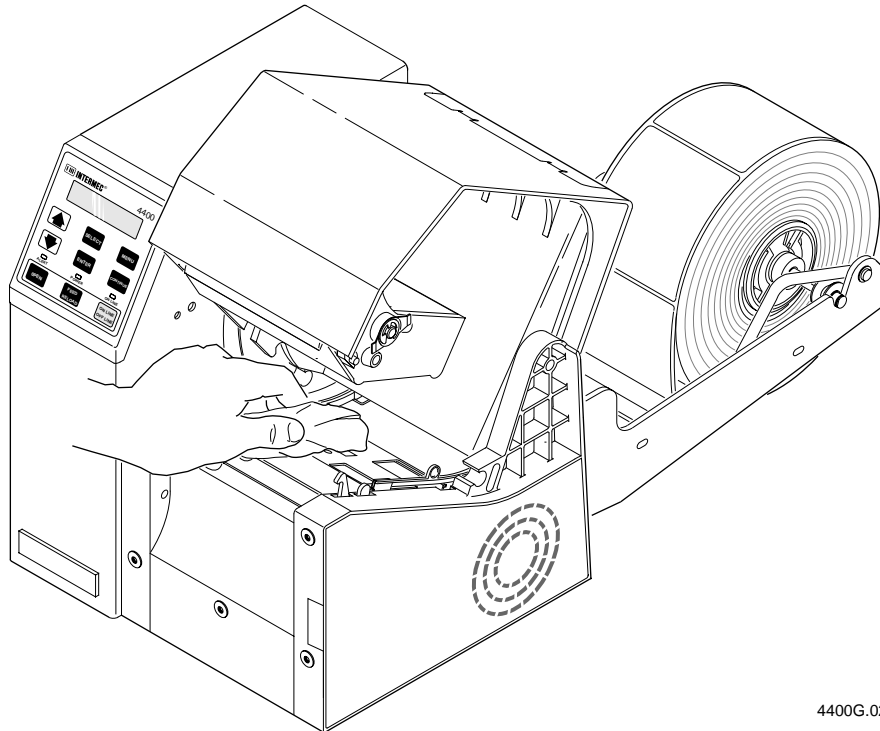
4400G.026

Cleaning the Paper Path

The paper path should be checked for debris and cleaned after every ten rolls of media. Cleaning media debris and dust from the paper path keeps the printhead and platen roller clean as well. If debris spreads within the printhead the print quality will be affected.

To clean the paper path

1. Complete the steps in “Opening the Printer for Cleaning.”
2. Clean the flat surfaces of the paper path with a clean, lint-free cloth and isopropyl alcohol. Remove all traces of dust, paper, and adhesive.



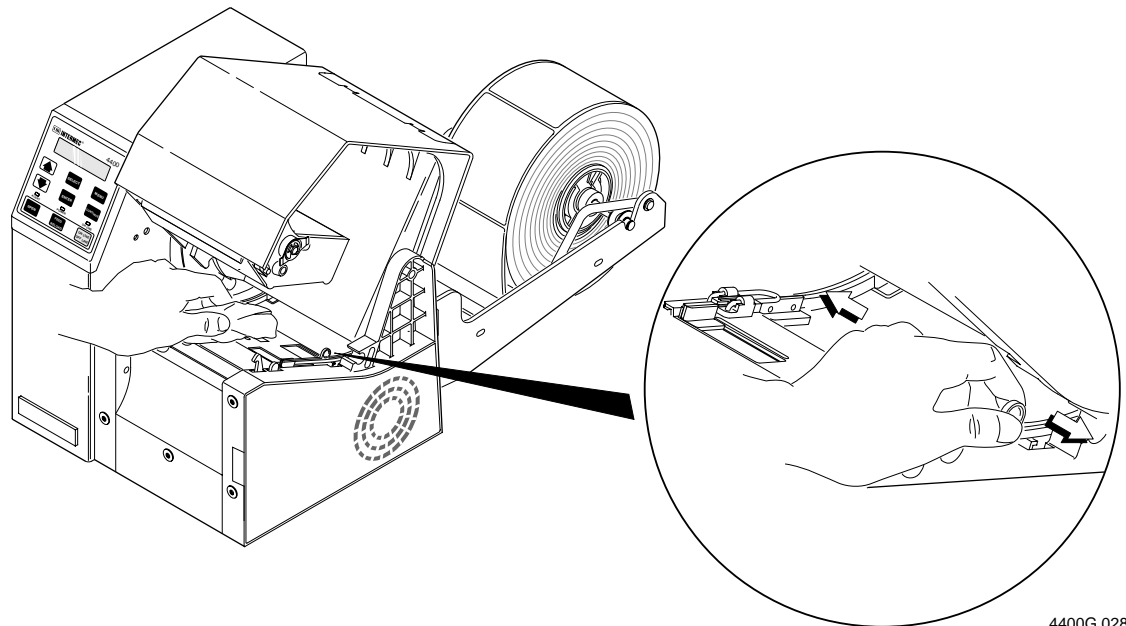
4400G.027

Cleaning the Edge Guides

You should clean the edge guides to keep debris off the media surface and the printhead where irregularities can spoil print quality. Cleaning the guides also prevents the media from skewing, or mistracking as it travels through the paper path which can smear images and print off the label edge. Always clean the edge guides immediately if a label jams in the printer.

To clean the edge guides

1. Complete the steps in “Opening the Printer for Cleaning.”
2. Clean the edge guide using a lint-free cloth and isopropyl alcohol.



4400G.028

Printer Operation Problems

If your printer is not operating correctly, try locating the problem in this table:

Symptom	Cause	Solution
No power or power loss.	AC power cable is damaged or disconnected.	Make sure the power cable is plugged into both the printer and an outlet or power strip. Replace the cable if it is damaged.
	Printer main power fuse is burnt out.	Contact your Intermec representative to have an Intermec service technician replace the fuse.
	The secondary fuse is blown.	Contact your Intermec representative to have an Intermec service technician replace the fuse.
Labels stop indexing.	Media is sticking to the paper path.	Clear any extraneous material from the paper path and clean it thoroughly.
	Printer is out of media.	Load new media.
	Label gap or label mark sensors are dirty.	Clean label sensors.
	Label stock is loaded incorrectly.	Check the paper path.
Printer slows down.	Label Stock command is not set for your media.	Use the menu panel to change the label stock setting to match the media you are using.
	Print speed incorrectly set (and is not recovered when printer quits).	Use the menu panel to change the print speed settings.
	Printer has quit and print speed was reset.	Use the menu panel to change the print speed settings.

Print Quality Problems

If your labels are not printing properly, try locating the problem in this table:

Symptom	Cause	Solution
Control panel does not access menus.	Security command set to restrict access to menus.	Turn the printer off, then hold down the [FEED/RELOAD] key while turning it on to bypass security levels.
Blotches on labels.	Dirty printhead.	Clean the printhead.
	Dirty paper path.	Clean the paper path.
	Poor quality label or ribbon stock.	Contact your Intermec representative for suggestions on proper media or ribbons for your printing requirements.
Printing is too light or too dark.	Dark adjust is incorrectly set.	Try changing the dark adjust menu panel setting.
	Dirty printhead.	Clean the printhead.
	Poor quality label or ribbon stock.	Contact your Intermec representative for suggestions on proper media or ribbons for your printing requirements.
Print is too far forward or too far back.	Forms adjust command incorrectly set.	Reset forms adjust.
Labels are not stopping at the right point to be removed.	Label rest point command incorrectly set.	Adjust the label rest point.

