



ZT400 Series™

Industrial Printers

User Guide

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Declaration of Conformity

We have determined that the Zebra printers identified as the

ZT410™ and ZT420™

manufactured by:

Zebra Technologies Corporation

3 Overlook Point

Lincolnshire, Illinois 60069 U.S.A.

Have been shown to comply with the applicable technical standards of the FCC

For Home, Office, Commercial, and Industrial use

If no unauthorized change is made in the equipment,
and if the equipment is properly maintained and operated.

Compliance Information

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.



Note • This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful 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 or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement (for printers with RFID encoders)

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Canadian DOC Compliance Statement

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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About This Document

This section provides you with contact information, document structure and organization, and additional reference documents.

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Who Should Use This Document

This User Guide is intended for use by any person who needs to perform routine maintenance, upgrade, or troubleshoot problems with the printer.

How This Document Is Organized

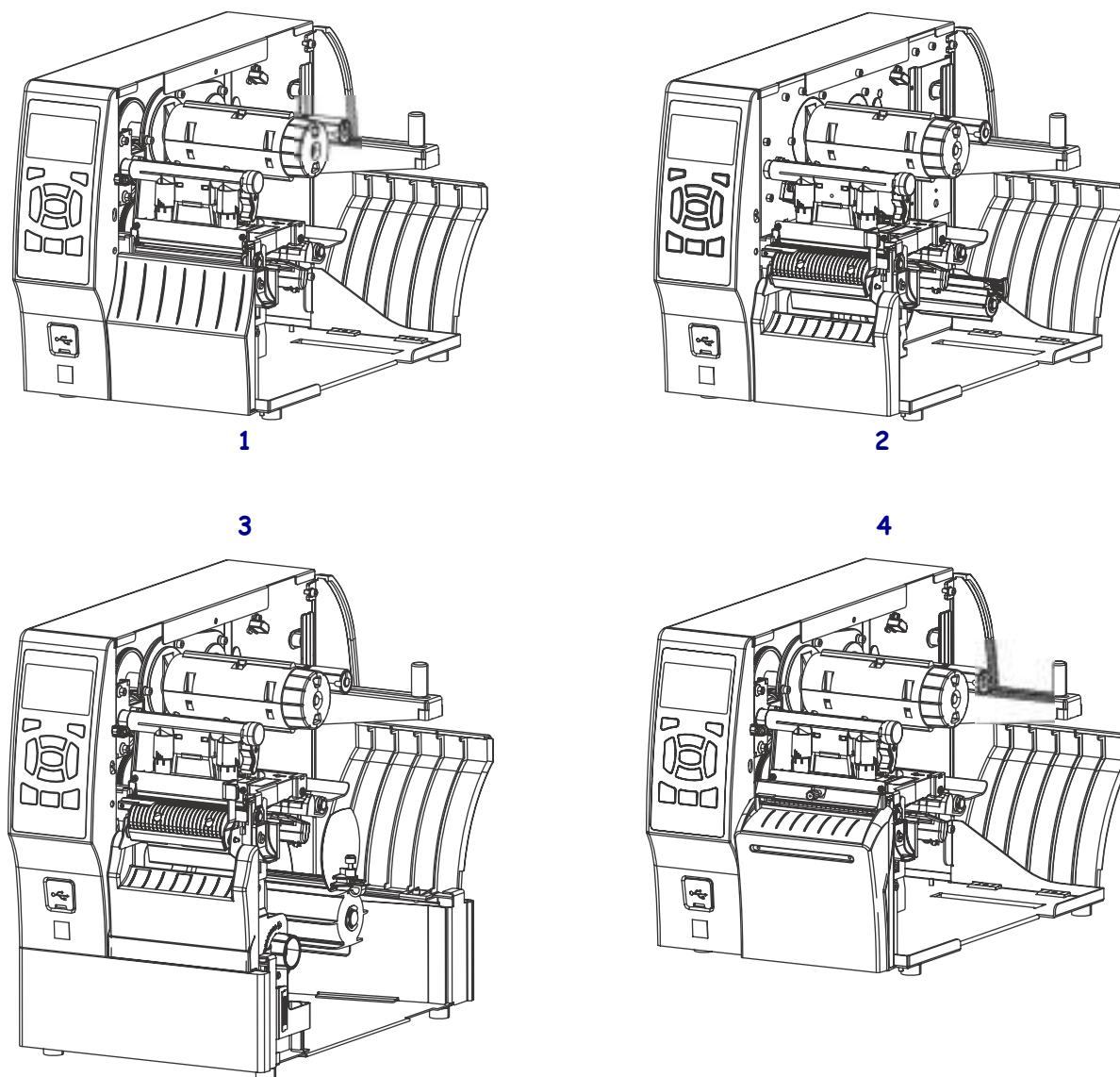
The User Guide is set up as follows:

Section	Description
<i>Introduction on page 11</i>	This section provides a high-level overview of the printer and its components.
<i>Printer Setup and Operation on page 25</i>	This section assists the technician with initial setup and operation of the printer.
<i>Printer Configuration and Adjustment on page 99</i>	This section assists you with configuration of and adjustments to the printer.
<i>Routine Maintenance on page 153</i>	This section provides routine cleaning and maintenance procedures.
<i>Troubleshooting on page 169</i>	This section provides information about errors that you might need to troubleshoot. Assorted diagnostic tests are included.
<i>Specifications on page 211</i>	This section lists general printer specifications, printing specifications, ribbon specifications, and media specifications.
<i>Glossary on page 221</i>	The glossary provides a list of common terms.

Printer Options

The available printer options are shown in [Figure 1](#). For information about the print modes that can be used with the printer options, see [Select a Print Mode on page 28](#).

Figure 1 • Printer Options



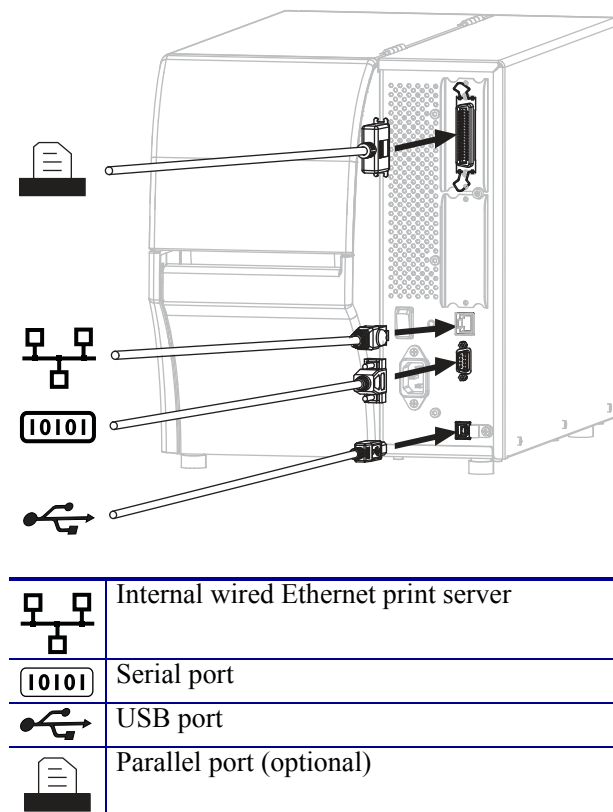
1	Tear-Off (standard)
2	Peel with Liner Take-Up option
3	Rewind option
4	Cutter option

Communication Interfaces

The communication interface connectors are shown in [Figure 2](#). A ZebraNet wireless print server option may also be present on your printer. You may send label formats to the printer through any communication interface that is available on your printer.

- For detailed information about the types of connections available, see [Communication Interface Specifications](#) on page 212.
- For instructions on when and how to connect your computer to one ore more of these communication interfaces, see [Install the Printer Driver and Connect the Printer to the Computer](#) on page 62.

Figure 2 • Location of Communication Interfaces



Data Cables

You must supply all data cables for your application. The use of cable strain relief clamps is recommended.

Ethernet cables do not require shielding, but all other data cables must be fully shielded and fitted with metal or metalized connector shells. Unshielded data cables may increase radiated emissions above the regulated limits.

To minimize electrical noise pickup in the cable:

- Keep data cables as short as possible.
- Do not bundle the data cables tightly with the power cords.
- Do not tie the data cables to power wire conduits.

Printer Components

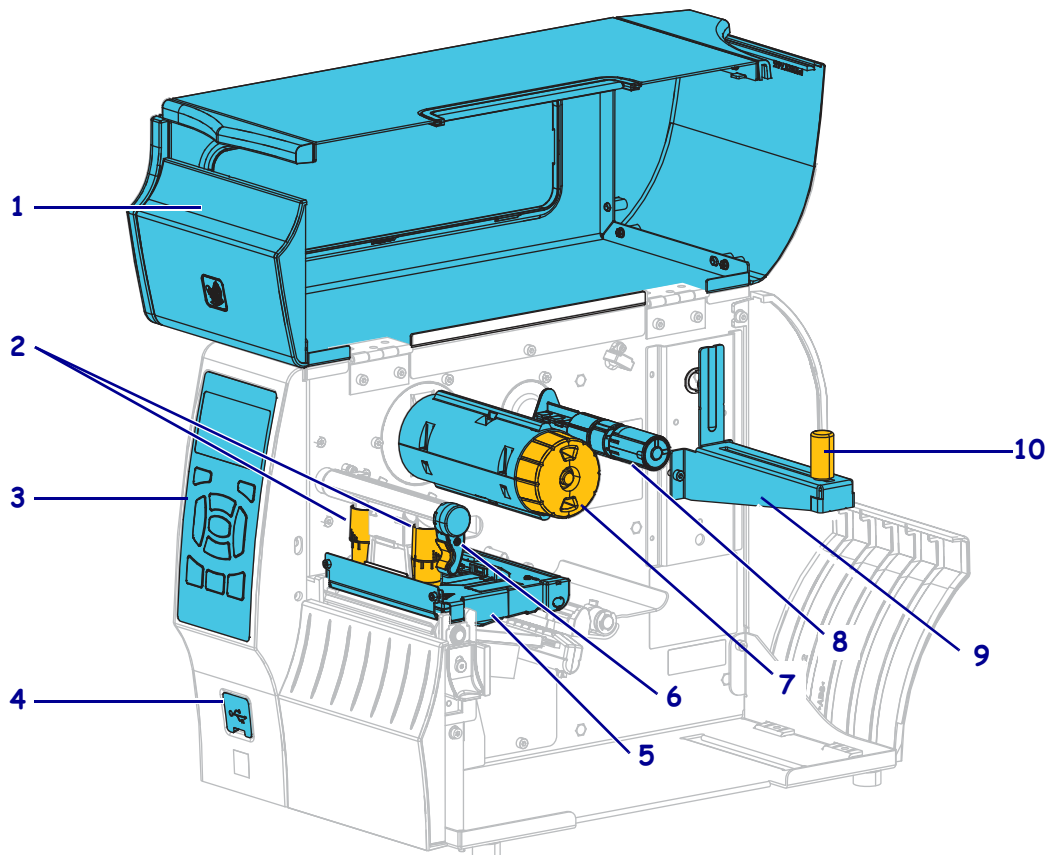


Note • The components inside your printer are color-coded.

- The touch points that you will need to handle are colored **gold** inside the printers and are highlighted in **gold** in the illustrations in this manual.
- The components associated with the ribbon system are made of **black** plastic, while the components associated with media are made of **gray** plastic. Those components and others are highlighted in **light blue** in the illustrations in this manual as needed.

Figure 3 shows the components inside the media compartment of a standard printer. Depending on the printer model and the installed options, your printer may look slightly different. The components that are labeled are mentioned in procedures throughout this manual.

Figure 3 • Printer Components



1	Media door
2	Printhead pressure adjustment toggles
3	Control panel
4	USB host port
5	Printhead assembly

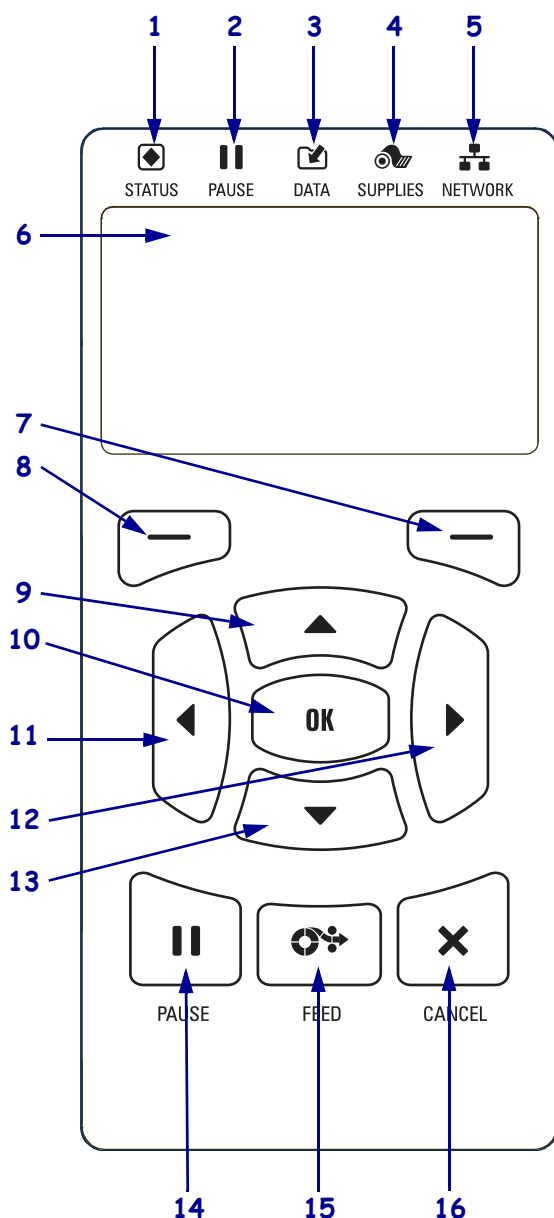
6	Printhead-open lever
7	Ribbon take-up spindle*
8	Ribbon supply spindle*
9	Media supply hanger
10	Media supply guide






* This component appears only in printers that have the Thermal Transfer option installed.

Control Panel

The control panel indicates the printer's current status and allows the user to control basic printer operation.

Figure 4 • Control Panel



1	 STATUS light	These indicator lights show the current status of the printer. For more information, see Table 15 on page 170 .
2	 PAUSE light	
3	 DATA light	
4	 SUPPLIES light	
5	 NETWORK light	
6	The display shows the printer’s current status and allows the user to navigate the menu system.	
7	RIGHT SELECT button	These buttons execute the commands shown directly above them in the display.
8	LEFT SELECT button	
9	The UP ARROW button changes the parameter values. Common uses are to increase a value or to scroll through choices.	
10	The OK button selects or confirms what is shown on the display.	
11	The LEFT ARROW button , which is active only in the menu system, navigates to the left.	
12	The RIGHT ARROW button , which is active only in the menu system, navigates to the right.	
13	The DOWN ARROW button changes the parameter values. Common uses are to decrease a value or to scroll through choices.	
14	The PAUSE button starts or stops printer operation when pressed.	
15	The FEED button forces the printer to feed one blank label each time the button is pressed.	
16	The CANCEL button cancels label formats when the printer is paused. <ul style="list-style-type: none">• Press once to cancel the next label format.• Press and hold for 2 seconds to cancel all label formats.	

Navigating through Screens in the Display

- Table 1 shows the following:
- the options available for navigating through the screens in the control panel display
 - how to select or modify things shown on the display

Table 1 • Navigation

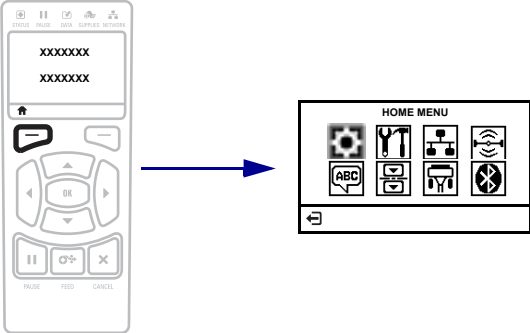





Idle Display		
<div></div>		
At the Idle Display (Figure 5 on page 19), press LEFT SELECT to go to the printer’s Home menu (Figure 6 on page 19).		
Home Menu		
<div></div> <p>To move from icon to icon in the Home menu, press any of the ARROW buttons.</p> <p>When an icon is selected, its colors are reversed to highlight it.</p> <div> SETTINGS menu icon</div> <div> SETTINGS menu icon highlighted</div>	<div></div> <p>To select the highlighted menu icon and enter the menu, press OK.</p>	<div></div> <p>Press LEFT SELECT to exit the Home menu and return to the Idle Display. The printer automatically returns to the Idle Display after 15 seconds of inactivity in the Home menu.</p>

Table 1 • Navigation (Continued)

User Menus



Press LEFT SELECT to return to the Home menu. The printer automatically returns to the Home menu after 15 seconds of inactivity in a user menu.



▲ and ▼ indicate that a value can be changed. Any changes that you make are saved immediately. Press the UP ARROW or DOWN ARROW to scroll through accepted values.

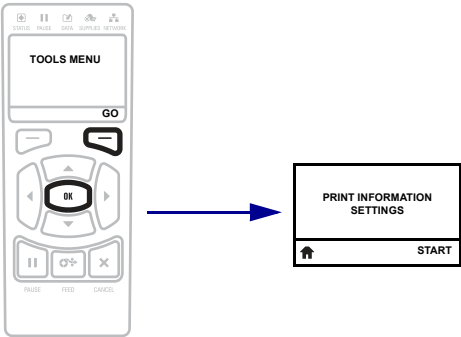


To scroll through the items in a user menu, press the LEFT ARROW or RIGHT ARROW.

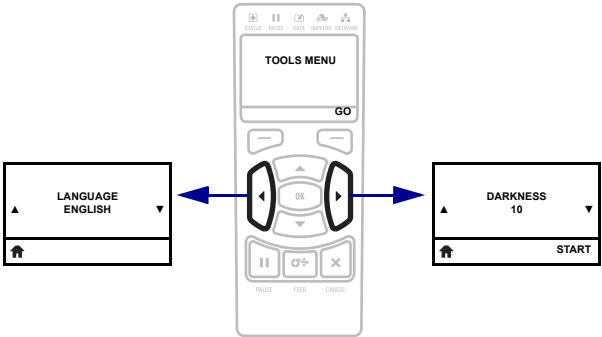


A word in the bottom-right corner of the display indicates an available action. Press OK or press RIGHT SELECT to perform the action shown.

Menu Shortcuts



To go to the next user menu from a menu shortcut, press OK or press RIGHT SELECT to select GO.



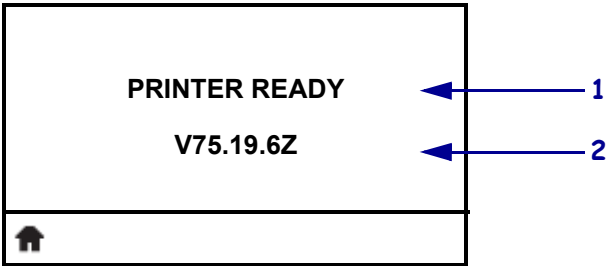
To continue to navigate in the same user menu, press the LEFT ARROW or RIGHT ARROW.

Idle Display, Home Menu, and User Menus

The printer’s control panel includes a display, where you can view the printer’s status or change its operating parameters. In this section, you will learn how to navigate through the printer’s menu system and change values for menu items.

Idle Display After the printer completes the power-up sequence, it moves to the Idle Display (Figure 5). The printer cycles through its IP address and information configured by the user.

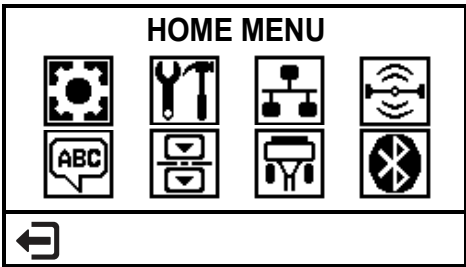
Figure 5 • Idle Display



1	The printer’s current status
2	Information that is set through Idle Display on page 110
	Home menu shortcut

Home Menu Use the Home menu (Figure 6) to access the printer’s operating parameters through the eight user menus (Figure 7 on page 20).







Figure 6 • Home Menu



	Exit and return to the Idle Display (Figure 5).
--	---

User Menus The following are the user menus and the items that appear in each. Click any of the menu items to go to their descriptions.

Figure 7 • User Menus

 SETTINGS <ul style="list-style-type: none"> DARKNESS PRINT SPEED MEDIA TYPE PRINT METHOD TEAR OFF PRINT WIDTH PRINT MODE LEFT POSITION REPRINT MODE LABEL LENGTH MAX LANGUAGE TOOLS MENU* 	 TOOLS <ul style="list-style-type: none"> PRINT INFORMATION LCD CONTRAST IDLE DISPLAY POWER UP ACTION HEAD CLOSE ACTION HEAD OPEN LIGHT COVER OPEN LIGHT LOAD DEFAULTS MEDIA/RIBBON CAL DIAGNOSTIC MODE ZBI ENABLED? RUN ZBI PROGRAM STOP ZBI PROGRAM PRINT USB FILE COPY USB FILE TO E: STORE E: FILE TO USB PRINT STATION NETWORK MENU* 	 NETWORK <ul style="list-style-type: none"> ACTIVE PRINT SERVER PRIMARY NETWORK WIRED IP ADDRESS WIRED SUBNET MASK WIRED GATEWAY WIRED IP PROTOCOL WIRED MAC ADDRESS IP PORT IP ALTERNATE PORT WLAN IP ADDRESS WLAN SUBNET MASK WLAN GATEWAY WLAN IP PROTOCOL WLAN MAC ADDRESS ESSID CHANNEL SIGNAL PRINT INFORMATION RESET NETWORK LOAD DEFAULTS RFID MENU* 	 RFID <ul style="list-style-type: none"> RFID COUNTRY CODE RFID STATUS RFID CALIBRATE READ RFID DATA RFID TEST RFID PROGRAM POS. RFID ANTENNA RFID READ POWER RFID WRITE POWER RFID VALID COUNT RFID VOID COUNT LANGUAGE MENU*
 LANGUAGE <ul style="list-style-type: none"> LANGUAGE ZPL OVERRIDE COMMAND CHAR CONTROL CHAR DELIMITER CHAR ZPL MODE SENSORS MENU* 	 SENSORS <ul style="list-style-type: none"> SENSOR TYPE MEDIA/RIBBON CAL PRINT INFORMATION LABEL SENSOR TAKE LABEL PORTS MENU* 	 PORTS <ul style="list-style-type: none"> BAUD RATE DATA BITS PARITY HOST HANDSHAKE ZEBRA TECHNOLOGIES BLUETOOTH MENU* 	 BLUETOOTH <ul style="list-style-type: none"> BLUETOOTH ADDRESS MODE DISCOVERY CONNECTED BT SPEC VERSION MIN SECURITY MODE SETTINGS MENU*

* Denotes a shortcut to the next user menu

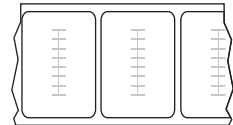
Types of Media



Important • Zebra strongly recommends the use of Zebra-brand supplies for continuous high-quality printing. A wide range of paper, polypropylene, polyester, and vinyl stock has been specifically engineered to enhance the printing capabilities of the printer and to prevent premature printhead wear. To purchase supplies, go to <http://www.zebra.com/supplies>.

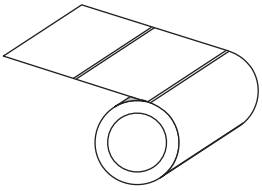
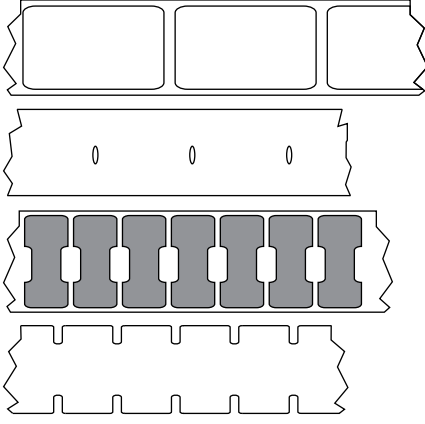
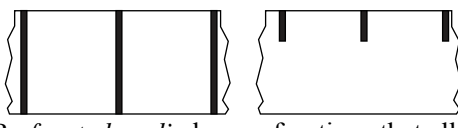
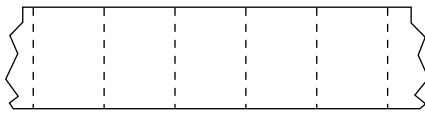
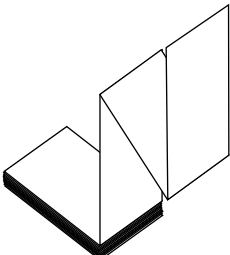
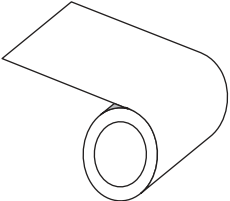
Your printer can use various types of media:

- *Standard media*—Most standard media uses an adhesive backing that sticks individual labels or a continuous length of labels to a liner. Standard media can come on rolls or in a fanfold stack (Table 2).
- *Tag stock*—Tags are usually made from a heavy paper. Tag stock does not have adhesive or a liner, and it is typically perforated between tags. Tag stock can come on rolls or in a fanfold stack (Table 2).
- *Radio frequency identification (RFID) “smart” media*—RFID media can be used in a printer that is equipped with an RFID reader/encoder. RFID labels are made from the same materials and adhesives as non-RFID labels. Each label has an RFID transponder (sometimes called an “inlay”), made of a chip and an antenna, embedded between the label and the liner. The shape of the transponder varies by manufacturer and is visible through the label. All “smart” labels have memory that can be read, and many have memory that can be encoded.



Important • Transponder placement within a label depends on the transponder type and the printer model. Make sure that you are using the correct “smart” media for your printer. For more information, refer to the *RFID Programming Guide 3*. A copy of the manual is available at <http://www.zebra.com/manuals> or on the user CD that came with your printer. For transponder placement details, go to <http://www.zebra.com/transponders>.

Table 2 • Roll and Fanfold Media

Media Type	How It Looks	Description
Non-Continuous Roll Media		<p>Roll media is wound on a core that can be 1 in. to 3 in. (25 to 76 mm) in diameter. Individual labels or tags are separated by one or more of the following methods:</p> <ul style="list-style-type: none"> <p><i>Web media</i> separates labels by gaps, holes, or notches.</p>  <p><i>Black mark media</i> uses pre-printed black marks on the back side of the media to indicate label separations.</p>  <p><i>Perforated media</i> has perforations that allow the labels or tags to be separated from each other easily. The media may also have black marks or other separations between labels or tags.</p> 
Non-Continuous Fanfold Media		<p>Fanfold media is folded in a zigzag pattern. Fanfold media can have the same label separations as non-continuous roll media. The separations would fall on or near the folds.</p>
Continuous Roll Media		<p>Roll media is wound on a core that can be 1 in. to 3 in. (25 to 76 mm) in diameter.</p> <p>Continuous roll media does not have gaps, holes, notches, or black marks to indicate label separations. This allows the image to be printed anywhere on the label. Sometimes a cutter is used to cut apart individual labels.</p>

Ribbon Overview

Ribbon is a thin film that is coated on one side with wax, resin, or wax resin, which is transferred to the media during the thermal transfer process. The media determines whether you need to use ribbon and how wide the ribbon must be.

When ribbon is used, it must be as wide as or wider than the media being used. If the ribbon is narrower than the media, areas of the printhead are unprotected and subject to premature wear.

When to Use Ribbon

Thermal transfer media requires ribbon for printing while direct thermal media does not. To determine if ribbon must be used with a particular media, perform a media scratch test.

To perform a media scratch test, complete these steps:

1. Scratch the print surface of the media rapidly with your fingernail.
2. Did a black mark appear on the media?

If a black mark...	Then the media is...
Does not appear on the media	Thermal transfer. A ribbon is required.
Appears on the media	Direct thermal. No ribbon is required.

Coated Side of Ribbon

Ribbon can be wound with the coated side on the inside or outside (Figure 8). This printer can only use ribbon that is coated on the outside. If you are unsure which side of a particular roll of ribbon is coated, perform an adhesive test or a ribbon scratch test to determine which side is coated.

Figure 8 • Ribbon Coated on Outside or Inside





Adhesive Test

If you have labels available, perform the adhesive test to determine which side of a ribbon is coated. This method works well for ribbon that is already installed.

To perform an adhesive test, complete these steps:

1. Peel a label from its liner.
2. Press a corner of the sticky side of the label to the outer surface of the roll of ribbon.
3. Peel the label off of the ribbon.
4. Observe the results. Did flakes or particles of ink from the ribbon adhere to the label?



If ink from the ribbon...	Then...
Adhered to the label	The ribbon is coated on the outside and can be used in this printer. 
Did not adhere to the label	The ribbon is coated on the inside and cannot be used in this printer. To verify this, repeat the test on the other surface of the roll of ribbon. 

Ribbon Scratch Test

Perform the ribbon scratch test when labels are unavailable.

To perform a ribbon scratch test, complete these steps:

1. Unroll a short length of ribbon.
2. Place the unrolled section of ribbon on a piece of paper with the outer surface of the ribbon in contact with the paper.
3. Scratch the inner surface of the unrolled ribbon with your fingernail.
4. Lift the ribbon from the paper.
5. Observe the results. Did the ribbon leave a mark on the paper?

If the ribbon...	Then...
Left a mark on the paper	The ribbon is coated on the outside and can be used in this printer. 
Did not leave a mark on the paper	The ribbon is coated on the inside and cannot be used with a standard ZT410 printer or with a ZT420 printer. An optional ribbon supply spindle is available for the ZT410. Contact your authorized Zebra reseller for ordering information. To verify this result, repeat the test on the other surface of the roll of ribbon. 

Printer Setup and Operation

This section assists the technician with initial setup and operation of the printer.

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Handling the Printer

This section describes how to handle your printer.

Unpack and Inspect the Printer

When you receive the printer, immediately unpack it and inspect for shipping damage.

- Save all packing materials.
- Check all exterior surfaces for damage.
- Raise the media door, and inspect the media compartment for damage to components.

If you discover shipping damage upon inspection:

- Immediately notify the shipping company and file a damage report.
- Keep all packaging material for shipping company inspection.
- Notify your authorized Zebra reseller



Important • Zebra Technologies is not responsible for any damage incurred during the shipment of the equipment and will not repair this damage under warranty.

Store the Printer

If you are not placing the printer into immediate operation, repackage it using the original packing materials. You may store the printer under the following conditions:

- Temperature: –40°F to 140°F (–40° to 60°C)
- Relative humidity: 5% to 85% non-condensing

Ship the Printer

If you must ship the printer:

- Turn off (●) the printer, and disconnect all cables.
- Remove any media, ribbon, or loose objects from the printer interior.
- Close the printhead.
- Carefully pack the printer into the original container or a suitable alternate container to avoid damage during transit. A shipping container can be purchased from Zebra if the original packaging has been lost or destroyed.

Select a Location for the Printer

Select a location for the printer that meets these conditions:

- **Surface:** The surface where the printer will be located must be solid, level, and of sufficient size and strength to hold the printer.
- **Space:** The area where the printer will be located must include enough space for ventilation and for accessing the printer components and connectors. To allow for proper ventilation and cooling, leave open space on all sides of the printer.



Caution • Do not place any padding or cushioning material behind or under the printer because this restricts air flow and could cause the printer to overheat.

- **Power:** The printer should be within a short distance of an appropriate power outlet that is easily accessible.
- **Data communication interfaces:** The printer must be within range of your WLAN radio (if applicable) or within an acceptable range for other connectors to reach your data source (usually a computer). For more information on maximum cable lengths and configuration, see [General Specifications on page 212](#).
- **Operating conditions:** Your printer is designed to function in a wide range of environmental and electrical conditions, including a warehouse or factory floor. [Table 3](#) shows the temperature and relative humidity requirements for the printer when it is operating.

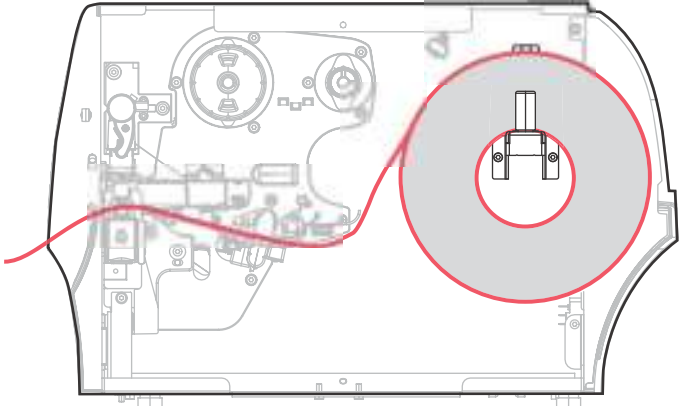
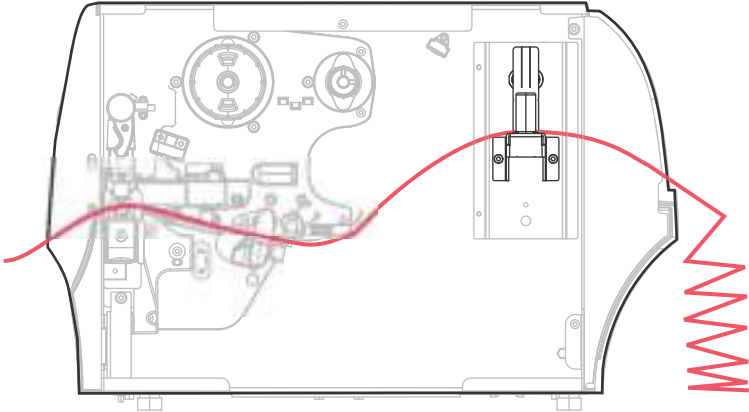
Table 3 • Operating Temperature and Humidity

Mode	Temperature	Relative Humidity
Thermal Transfer	40° to 104°F (5° to 40°C)	20 to 85% non-condensing
Direct Thermal	32° to 104°F (0° to 40°C)	

Select a Print Mode

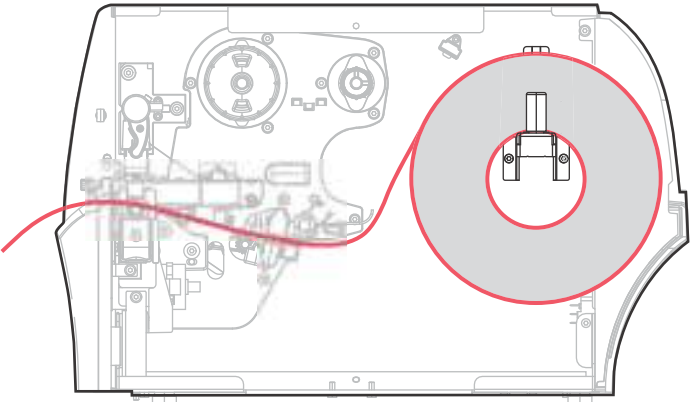
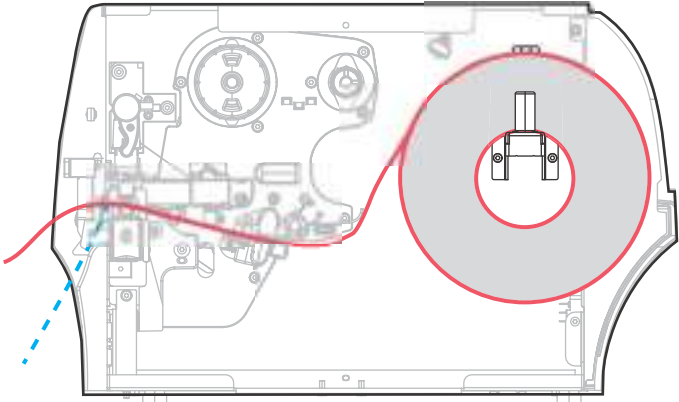
Use a print mode that matches the media being used and the printer options available (Table 4). The media path is the same for roll and fanfold media. To set the printer to use an available print mode, see [Print Mode on page 105](#).

Table 4 • Print Modes and Printer Options

Print Mode	When to Use/Printer Options Required	Printer Actions
TEAR OFF (default setting)	Use for most applications. This mode can be used with any printer options and most media types.	The printer prints label formats as it receives them. The printer operator can tear off the printed labels any time after they print.
	<div><p>Roll media in Tear-Off mode</p><p>Fanfold media in Tear-Off mode (shown fed through the rear access slot)</p></div>	

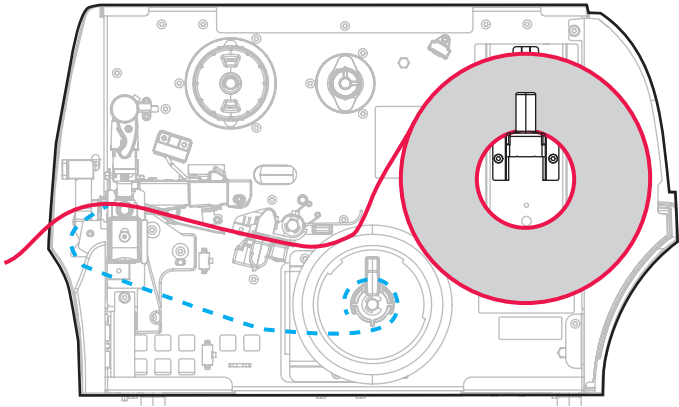
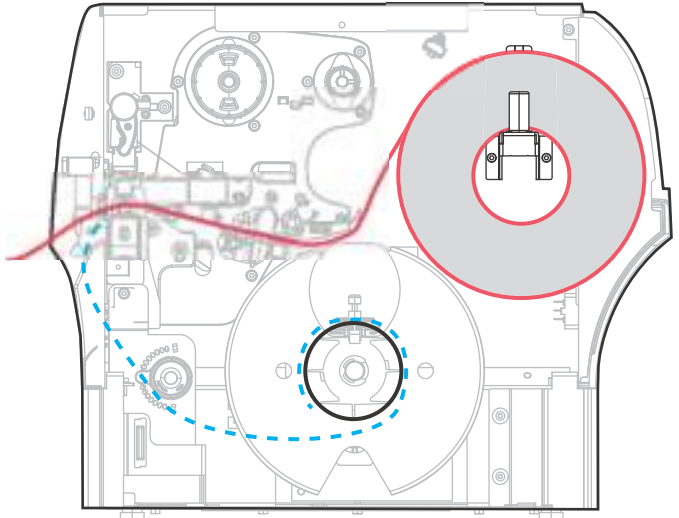
Red solid lines = media, Blue dotted lines = backing only

Table 4 • Print Modes and Printer Options

Print Mode	When to Use/Printer Options Required	Printer Actions
CUTTER	Use if the printer has a cutter option when you want the labels to be cut apart.	The printer prints a label and then cuts it free.
	<div>Cutter mode</div> 	
PEEL	Use if the printer has the Peel-Off option, the Liner Take-Up option, or the Rewind option.	The printer peels the label from the liner during printing and then pauses until the label is removed. The liner exits the front of the printer.
	<div>Peel-Off mode</div> 	

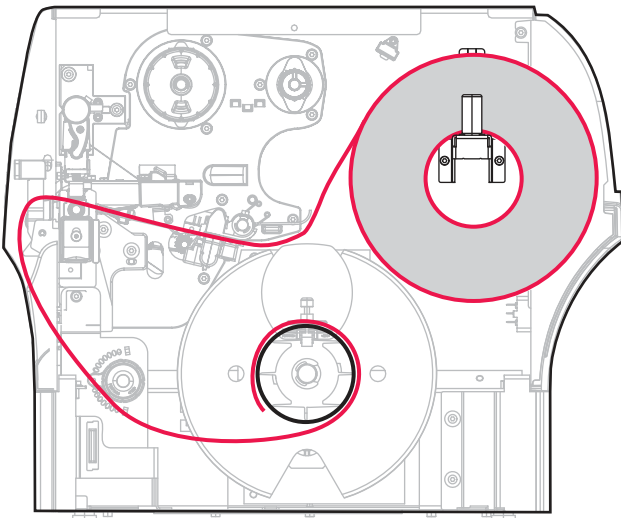
Red solid lines = media, Blue dotted lines = backing only

Table 4 • Print Modes and Printer Options

Print Mode	When to Use/Printer Options Required	Printer Actions
PEEL (with Liner Take-Up)	Use if the printer has the Liner Take-Up option or the Rewind option.	The printer peels the label from the liner during printing and then pauses until the label is removed. The liner winds onto the liner take-up spindle or the rewind spindle.
	Liner Take-Up Option	
		
	Rewind Option	
		

Red solid lines = media, Blue dotted lines = backing only

Table 4 • Print Modes and Printer Options

Print Mode	When to Use/Printer Options Required	Printer Actions
REWIND	Use if the printer has the Rewind option.	The printer winds the labels and liner onto the rewind spindle without peeling the labels from the liner.
	<div>Rewind mode</div> <div></div>	

Red solid lines = media, Blue dotted lines = backing only

Load the Media

Use the instructions in this section for loading roll or fanfold media in any print mode.

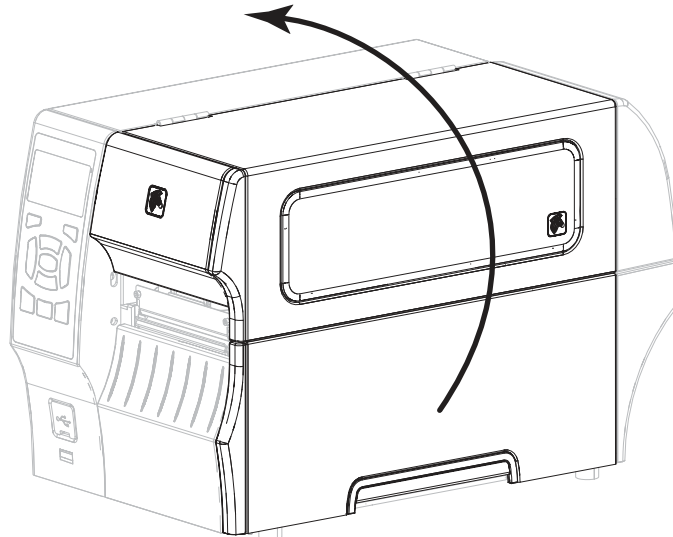
Caution • While performing any tasks near an open printhead, remove all rings, watches, hanging necklaces, identification badges, or other metallic objects that could touch the printhead. You are not required to turn off the printer power when working near an open printhead, but Zebra recommends it as a precaution. If you turn off the power, you will lose all temporary settings, such as label formats, and you must reload them before you resume printing.

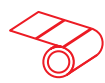


Note • In some of the drawings that follow, the printer is shown without a ribbon system to give you a better view of the components involved in media loading.

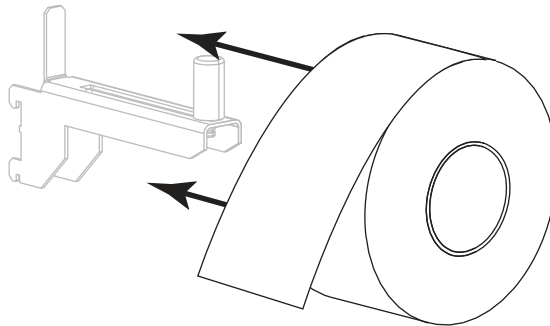
To load media, complete these steps:

1. Raise the media door.

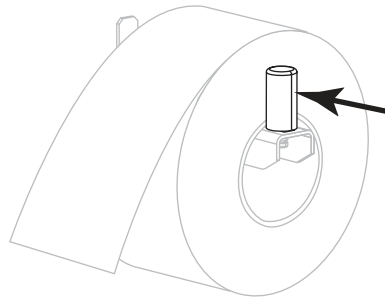




Roll Media (Continued)



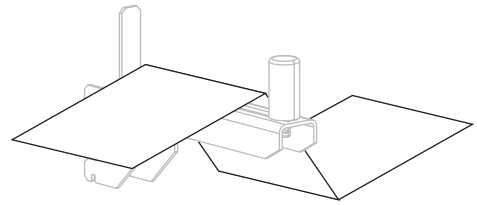
- 2-d.** Slide in the media supply guide, until it touches the edge of the roll.



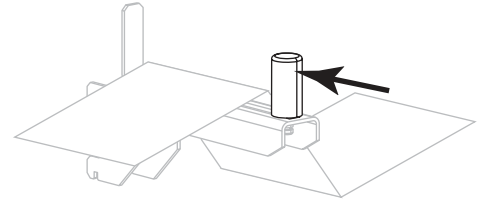
- 2-e.** Continue with [step 3](#).



Fanfold Media (Continued)



- Slide in the media supply guide, until it touches the edge of the media.

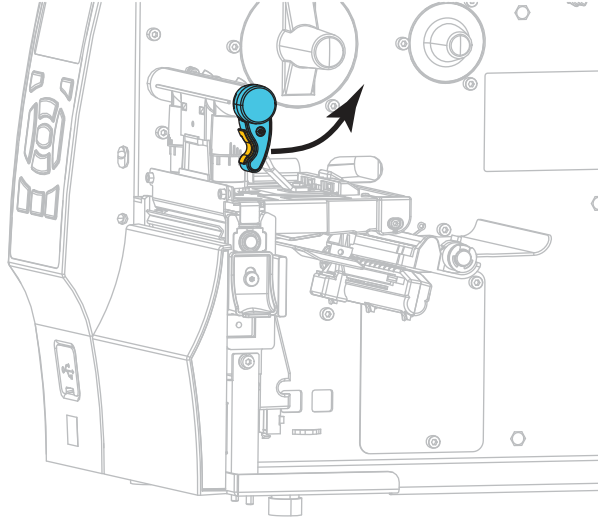


- Continue with [step 3](#) and the remaining steps as shown for roll media.

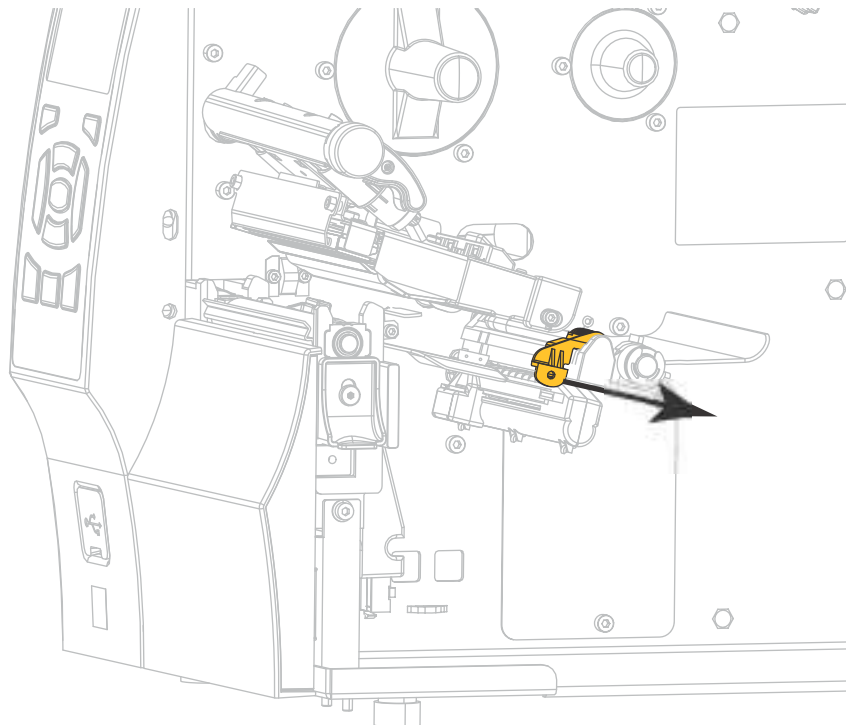


3. **Caution** • The printhead may be hot and could cause severe burns. Allow the printhead to cool.

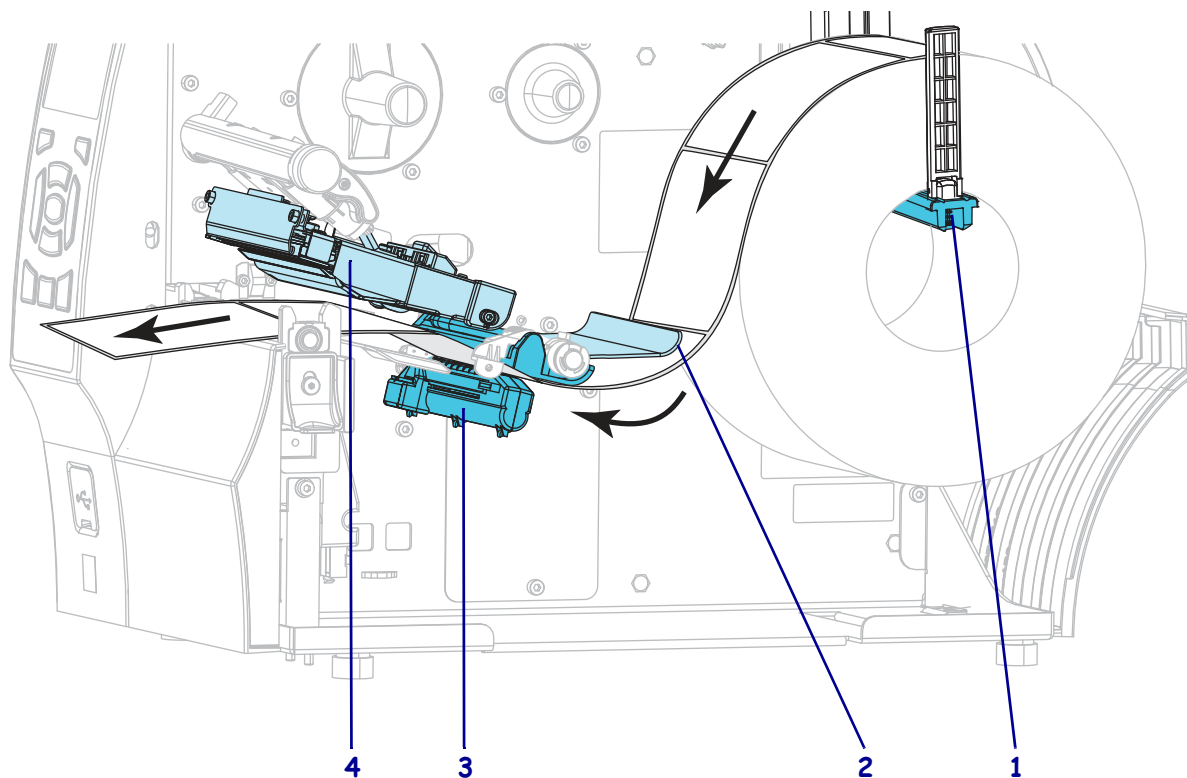
Open the printhead assembly by rotating the printhead-open lever.



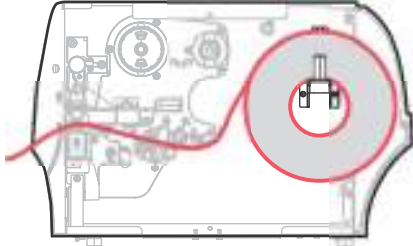
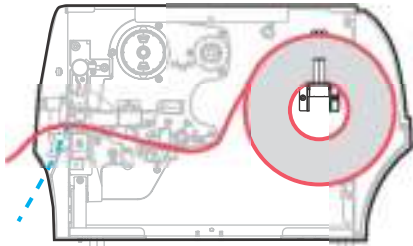
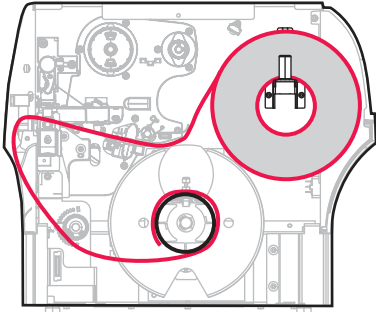
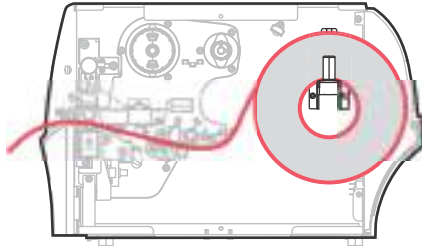
4. Slide the media guide all the way out.



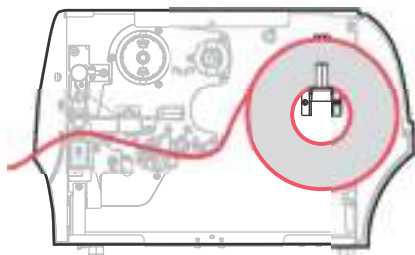
5. From the media hanger (1), feed the media under the dancer assembly (2), through the media sensor (3), and under the printhead assembly (4). Slide the media back until it touches the inside back wall of the media sensor.



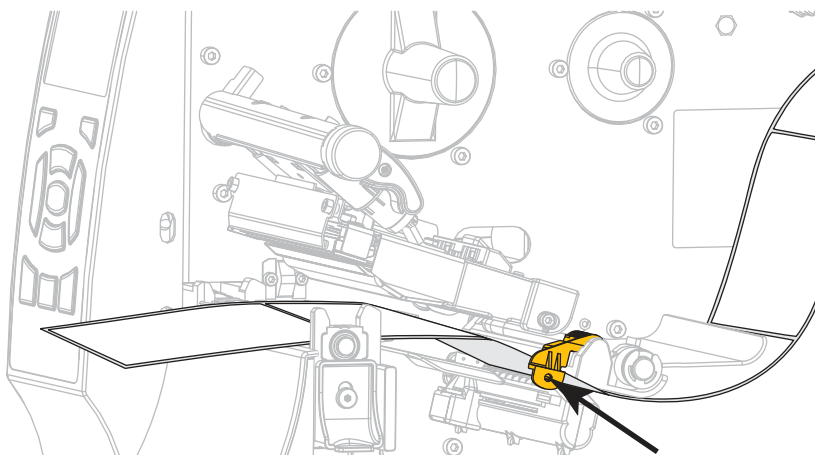
6. In which print mode will your printer be operating? (For more information on print modes, see [Select a Print Mode on page 28.](#))

If using...	Then...
<p>Tear-Off mode</p> 	<p>Continue with <i>Final Steps for Tear-Off Mode</i> on page 38.</p>
<p>Peel-Off mode (with or without Liner Take-Up)</p> 	<p>Continue with <i>Final Steps for Peel-Off Mode (with or without Liner Take-Up)</i> on page 40.</p>
<p>Rewind mode</p> 	<p>Continue with <i>Final Steps for Rewind Mode</i> on page 49.</p>
<p>Cutter mode</p> 	<p>Continue with <i>Final Steps for Cutter Mode</i> on page 55.</p>

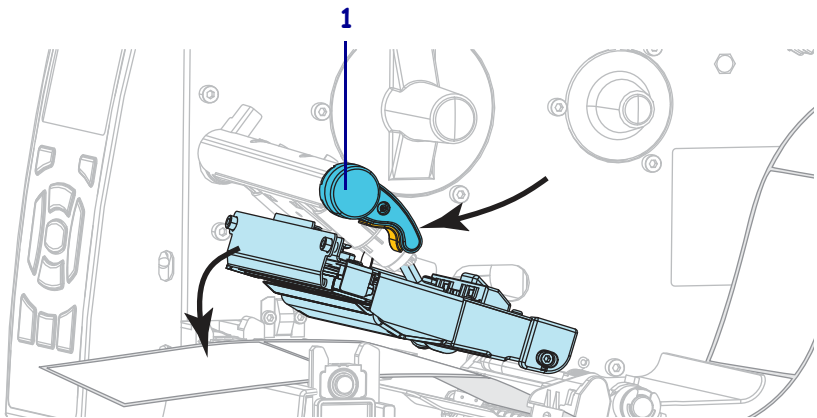
Final Steps for Tear-Off Mode



1. Slide in the media guide until it just touches the edge of the media.



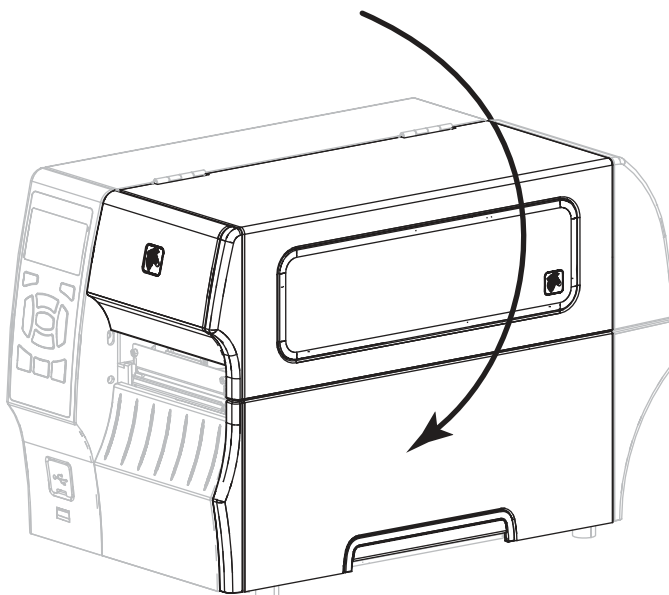
2. Rotate the printhead-open lever (1) downward until it locks the printhead in place.



3. Does the media that you are using require ribbon for printing? If you are not sure, see [When to Use Ribbon on page 23](#).

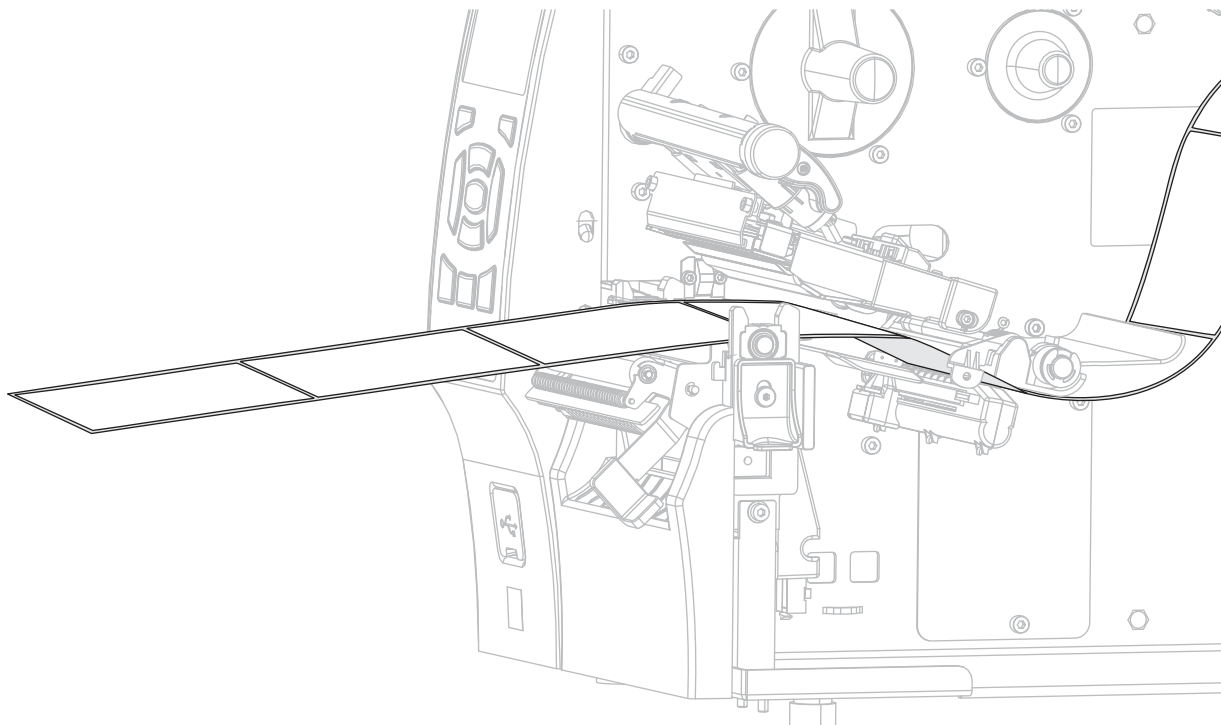
If using...	Then...
Direct Thermal media (no ribbon needed)	Continue with step 4 .
Thermal Transfer media (ribbon needed)	<p>a. If you have not already done so, load ribbon in the printer. See Load the Ribbon on page 58.</p> <p>b. Continue with step 4.</p>

4. Close the media door.

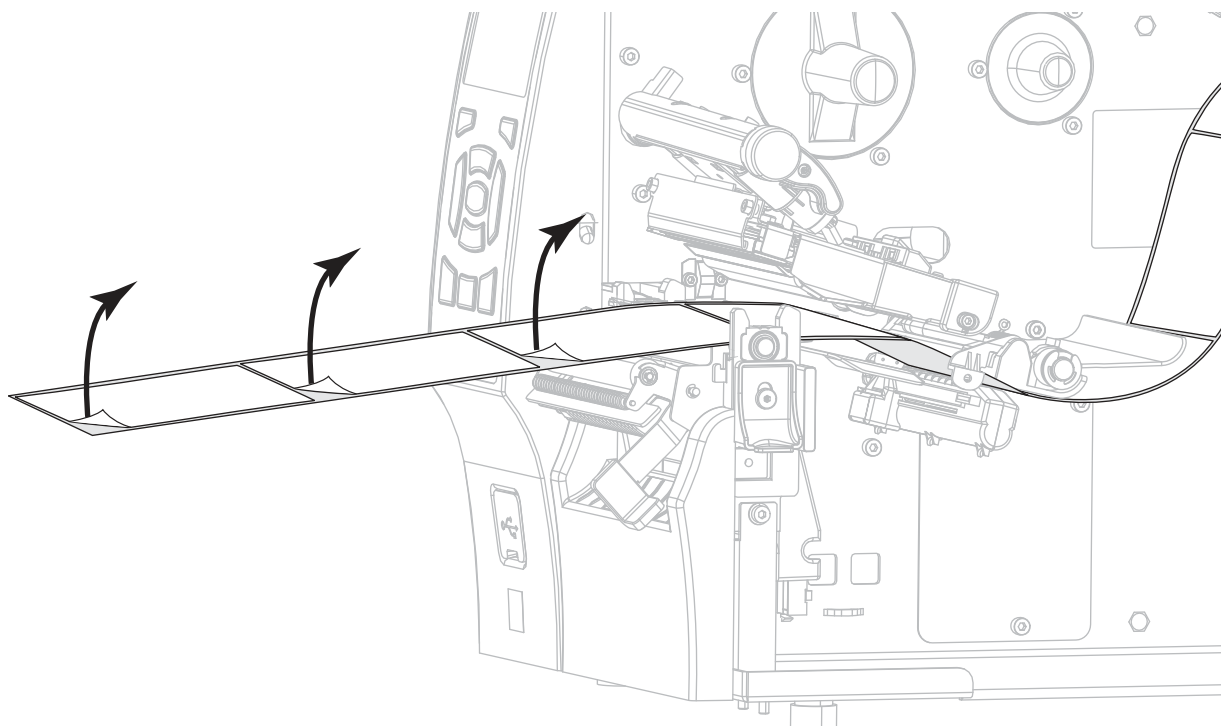


5. Set the printer to Tear-Off mode (for more information, see [Print Mode on page 105](#)).
6. Press PAUSE to exit pause mode and enable printing.
The printer may perform a label calibration or feed a label, depending on your settings.
7. If desired, perform the [CANCEL Self Test on page 188](#) to verify that your printer is able to print.
Media loading in Tear-Off mode is complete.

2. Extend the media approximately 18 in. (500 mm) out of the printer.



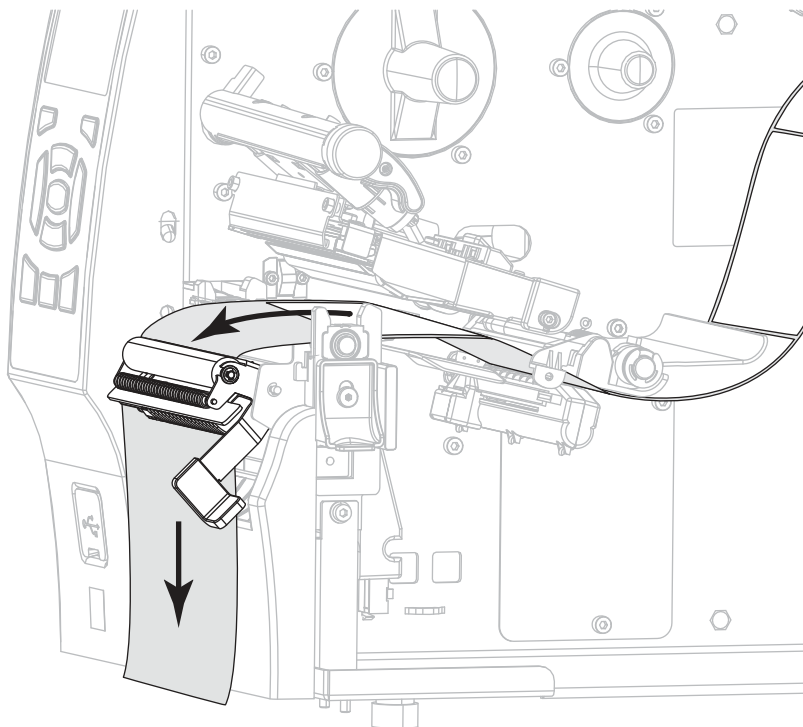
3. Remove the exposed labels so that only the liner remains.



42 | Printer Setup and Operation

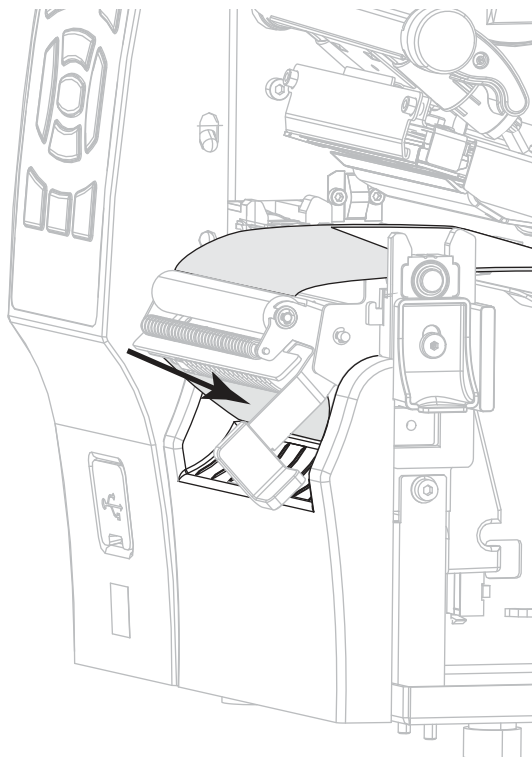
Load the Media—Peel-Off Mode (with or without Liner Take-Up)

4. Feed the liner behind the peel assembly. Make sure that the end of the liner falls outside of the printer.



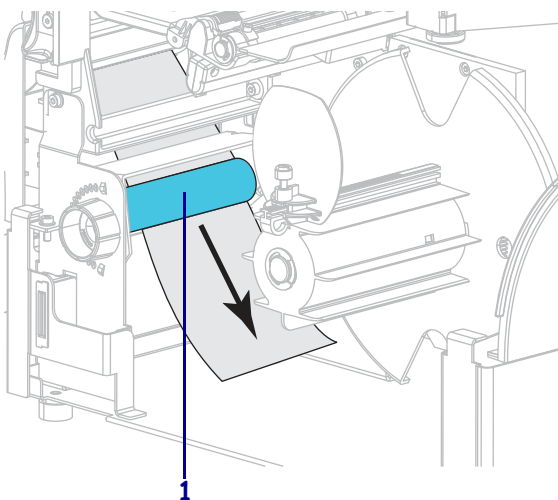
5. Complete this step only if you want to use Peel-Off mode with Liner Take-Up. Your printer must have the Liner Take-Up option or the Rewind option installed. Follow the instructions for your printer option. If you are not using Liner Take-Up, continue with [step 6](#).

- 5-a. Thread the liner into the slot below the peel assembly.



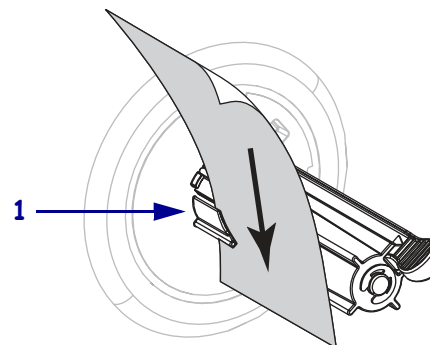
Rewind Option

- 5-b. Feed the liner under the media alignment roller (1).



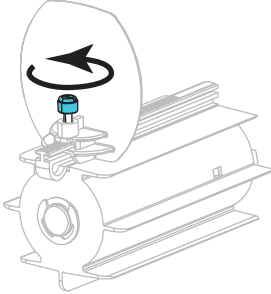
Liner Take-Up Option

- Slide the liner into the slot in the liner take-up spindle (1).

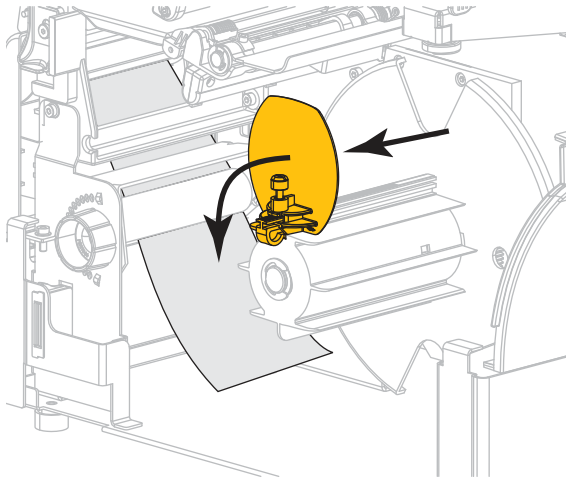


**Rewind Option
(Continued)**

- 5-c.** Loosen the thumbscrew on the rewind media guide.

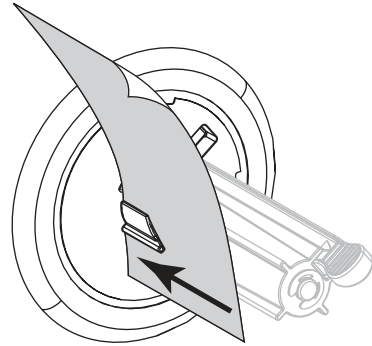


- 5-d.** Slide the rewind media guide all the way out, and then fold it down.

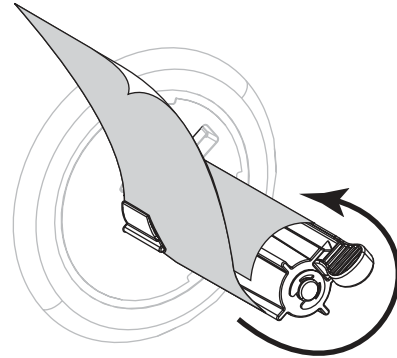


**Liner Take-Up Option
(Continued)**

Push the liner back until it touches the back plate of the liner take-up spindle assembly.



Wrap the liner around the liner take-up spindle and turn the spindle counterclockwise to tighten the liner.

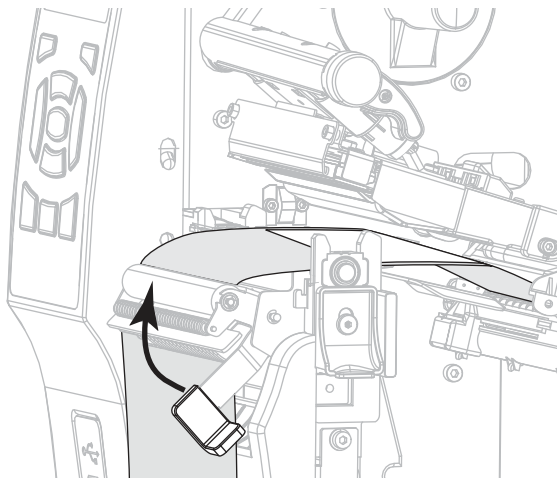


For the Liner Take-Up option, loading of the liner is complete. Continue with [step 6](#).

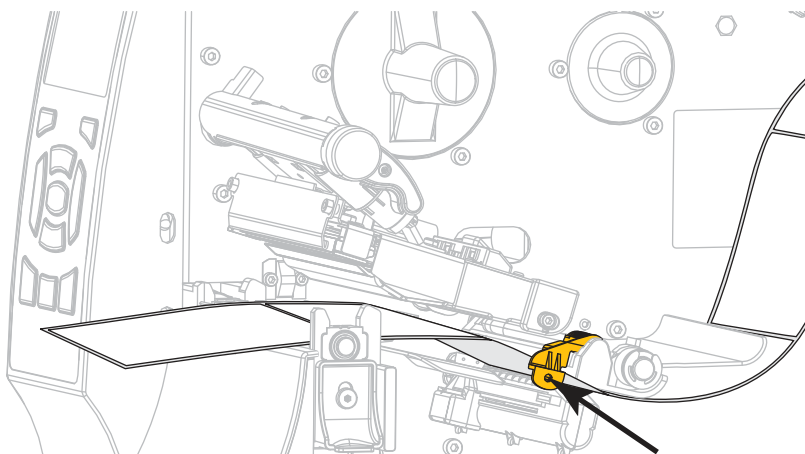


6. **Caution** • Use the peel release lever and your right hand to close the peel assembly. Do not use your left hand to assist in closing. The top edge of the peel roller/assembly could pinch your fingers.

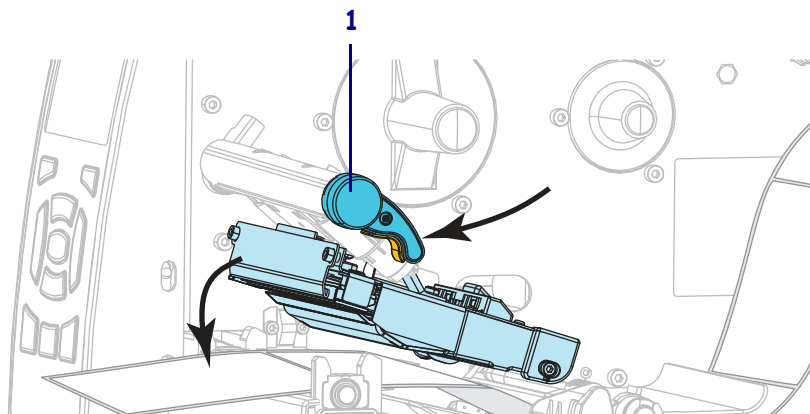
Close the peel assembly using the peel-off mechanism release lever.



7. Slide in the media guide until it just touches the edge of the media.



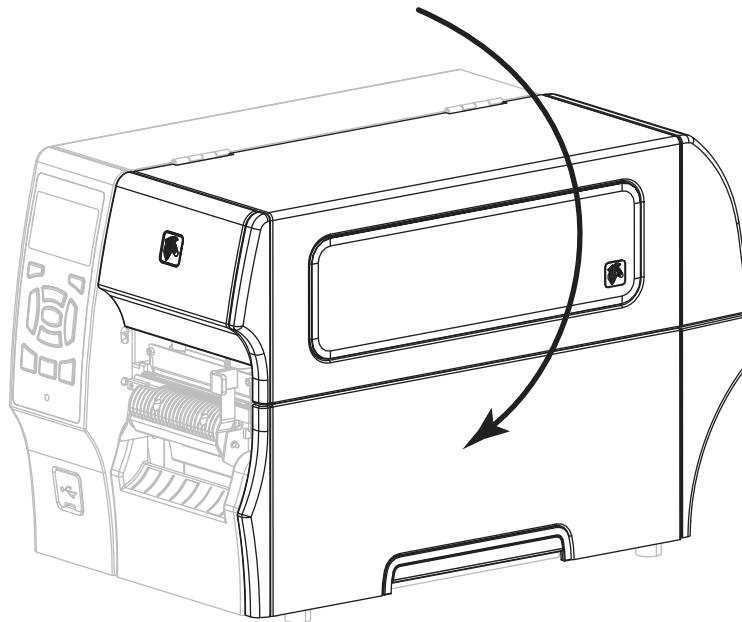
8. Rotate the printhead-open lever (1) downward until it locks the printhead in place.



9. Does the media that you are using require ribbon for printing? If you are not sure, see [When to Use Ribbon on page 23](#).

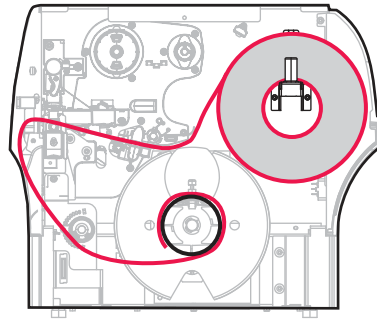
If using...	Then...
Direct Thermal media (no ribbon needed)	Continue with step 10 .
Thermal Transfer media (ribbon needed)	<p>a. If you have not already done so, load ribbon in the printer. See Load the Ribbon on page 58.</p> <p>b. Continue with step 10.</p>

10. Close the media door.

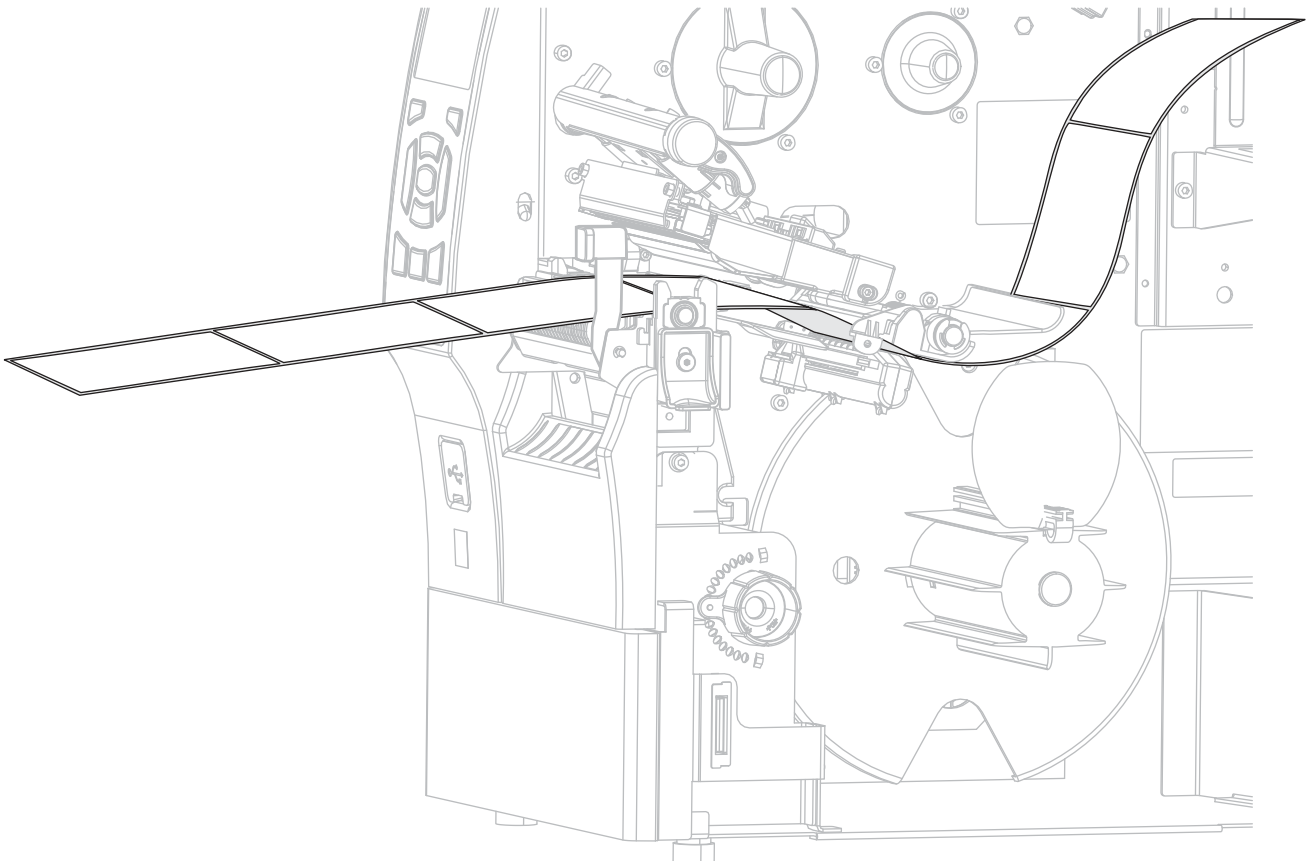


11. Set the printer to Peel-Off mode (for more information, see [Print Mode on page 105](#)).
12. Press PAUSE to exit pause mode and enable printing.
 The printer may perform a label calibration or feed a label, depending on your settings.
13. If desired, perform the [CANCEL Self Test on page 188](#) to verify that your printer is able to print.
 Media loading in Peel-Off mode is complete.

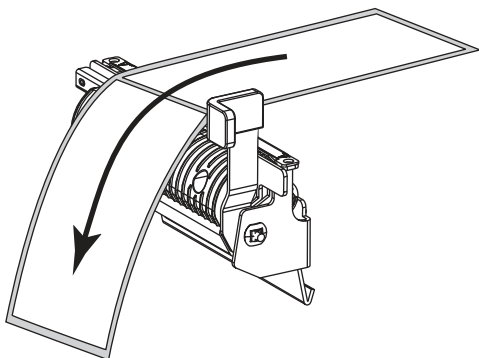
Final Steps for Rewind Mode



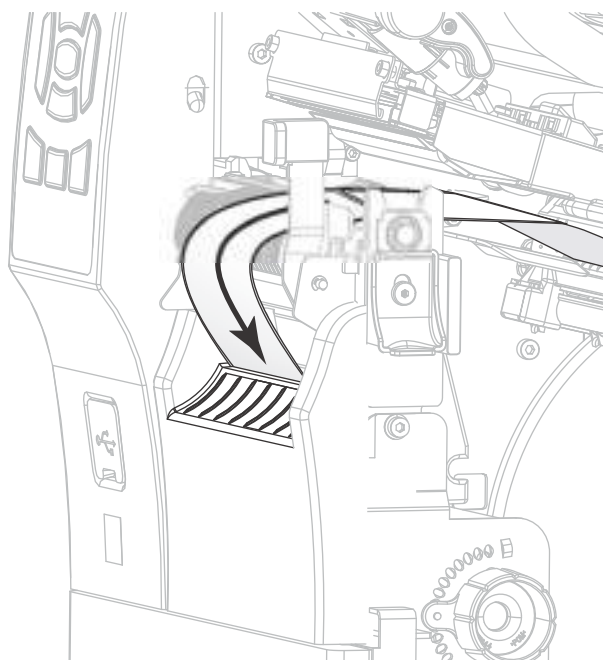
1. Extend the media approximately 18 in. (500 mm) out of the printer.



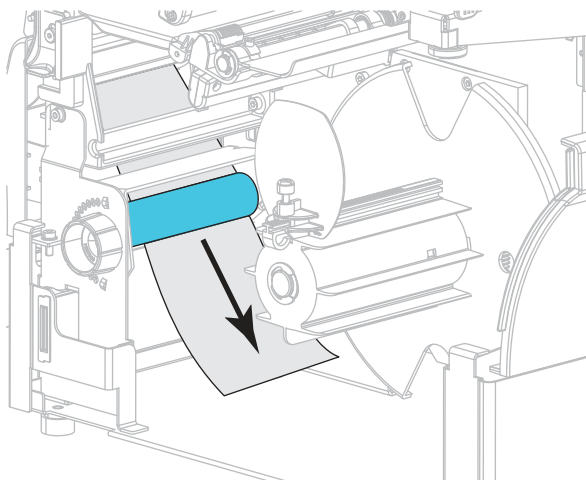
2. Feed the media over the peel assembly.



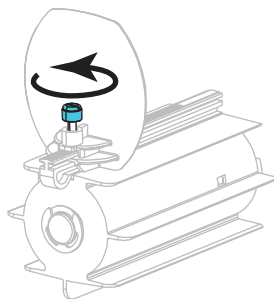
3. Thread the media into the slot below the peel assembly.



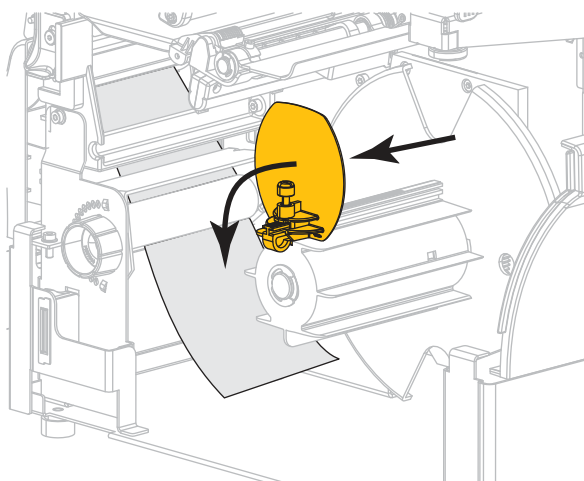
4. Feed the media under the media alignment roller.



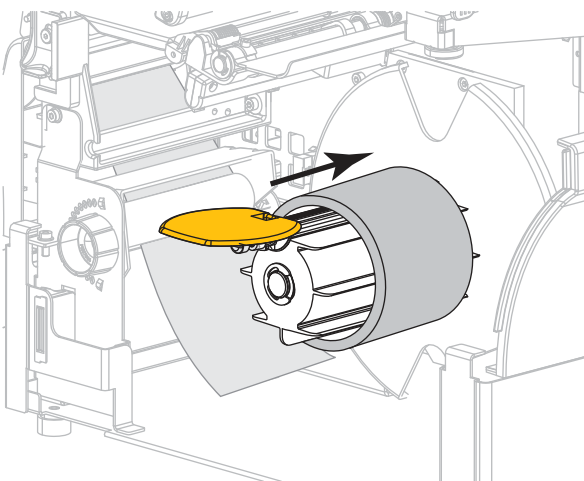
5. Loosen the thumbscrew on the rewind media guide.



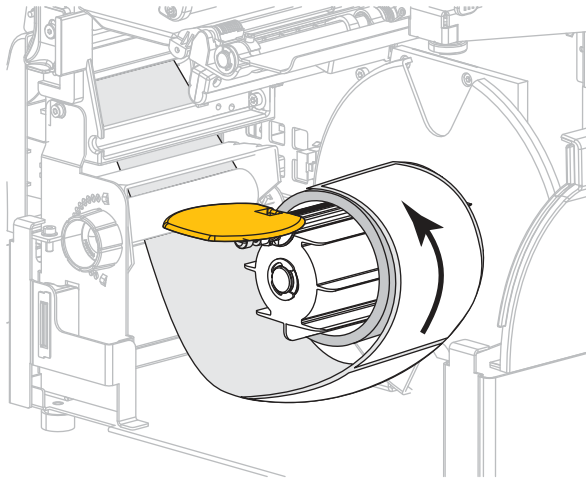
6. Slide the rewind media guide all the way out, and then fold it down.



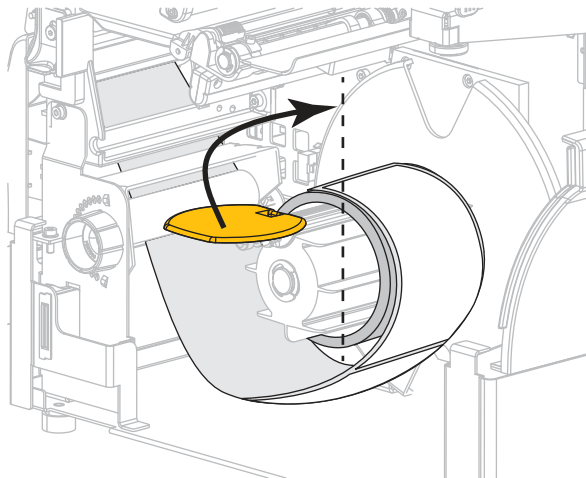
7. Slide an empty core onto the rewind spindle.



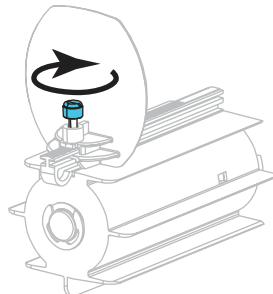
8. Wrap the media around the core as shown and turn the rewind spindle to tighten the media. Ensure that the edge of the media is flush against the backplate of the rewind spindle.



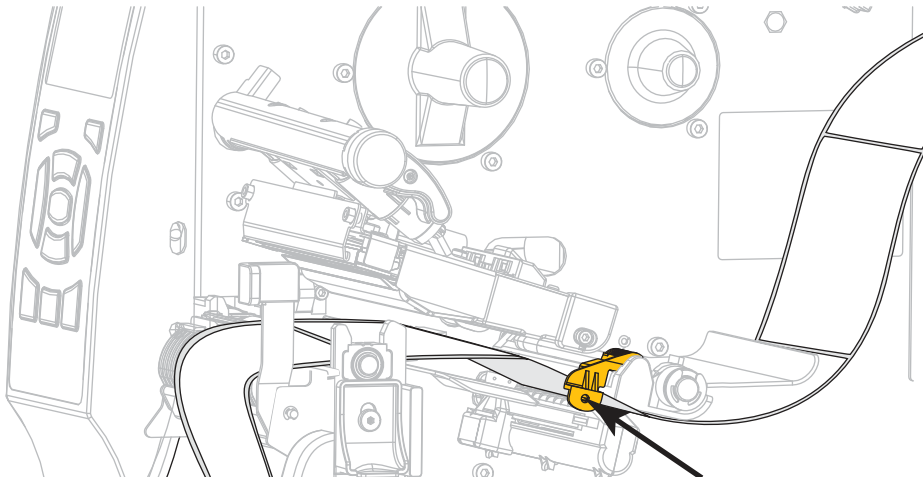
9. Fold up the rewind media guide, and then slide it in until it touches the media.



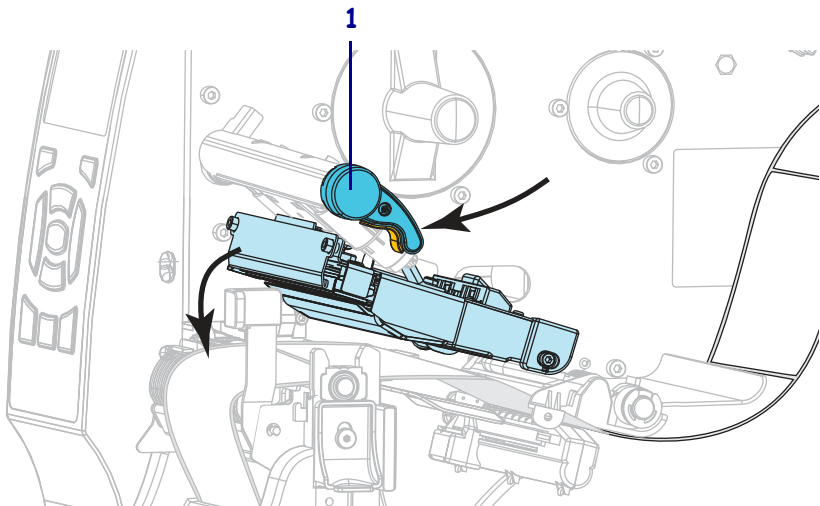
10. Tighten the thumbscrew on the rewind media guide.



11. Slide in the outer media guide until it just touches the edge of the media.



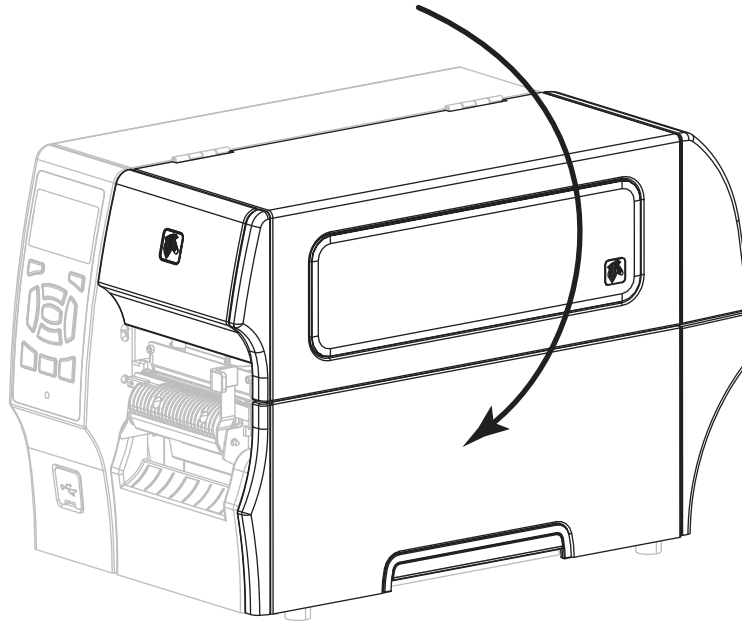
12. Rotate the printhead-open lever (1) downward until it locks the printhead in place.



13. Does the media that you are using require ribbon for printing? If you are not sure, see [When to Use Ribbon on page 23](#).

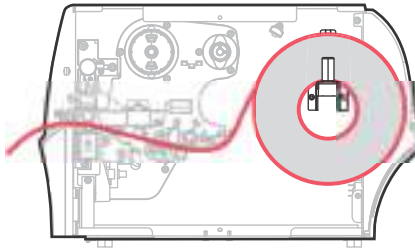
If using...	Then...
Direct Thermal media (no ribbon needed)	Continue with step 14 .
Thermal Transfer media (ribbon needed)	<div>a. If you have not already done so, load ribbon in the printer. See Load the Ribbon on page 58.</div> <div>b. Continue with step 14.</div>

- 14.** Close the media door.



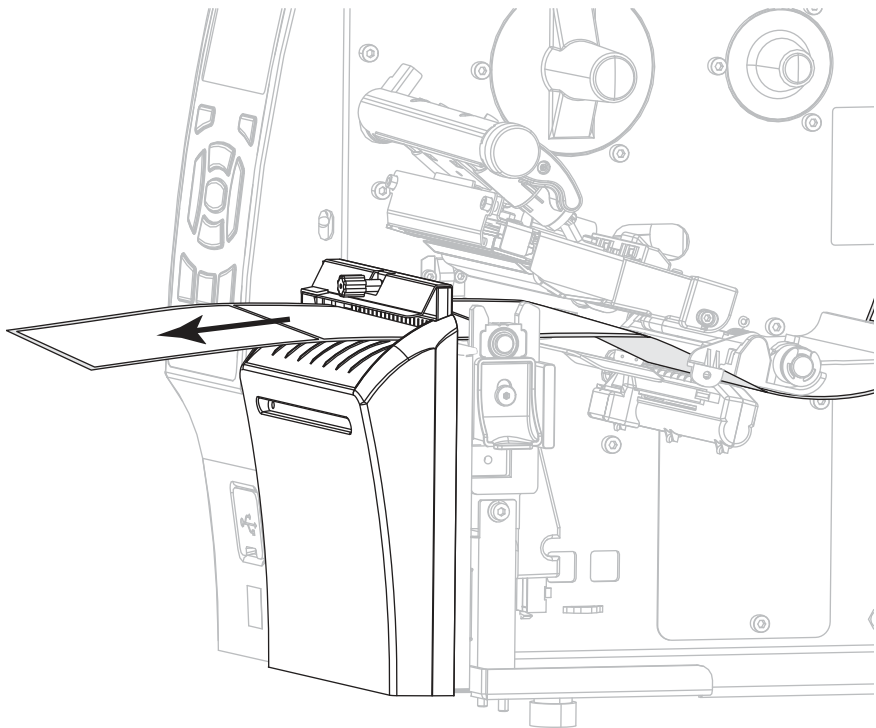
- 15.** Set the printer to Rewind mode (for more information, see [Print Mode on page 105](#)).
- 16.** Press PAUSE to exit pause mode and enable printing.
The printer may perform a label calibration or feed a label, depending on your settings.
- 17.** If desired, perform the [CANCEL Self Test on page 188](#) to verify that your printer is able to print.
Media loading in Cutter mode is complete.

Final Steps for Cutter Mode

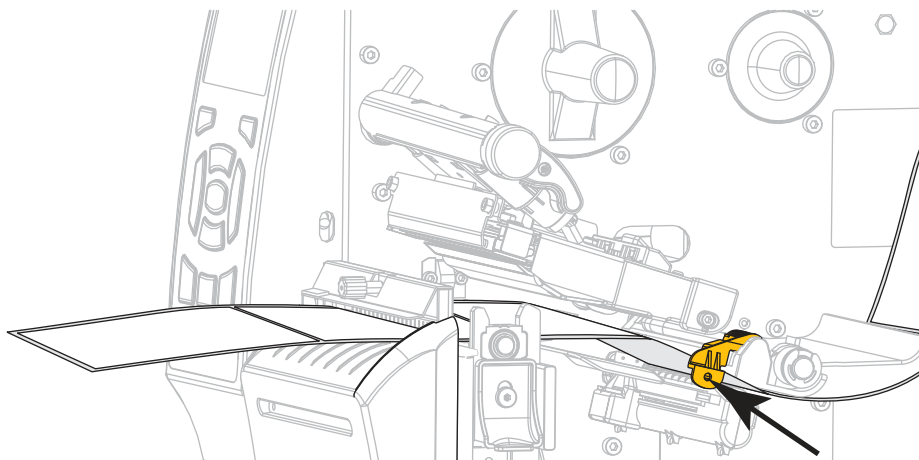


1. **Caution** • The cutter blade is sharp. Do not touch or rub the blade with your fingers.

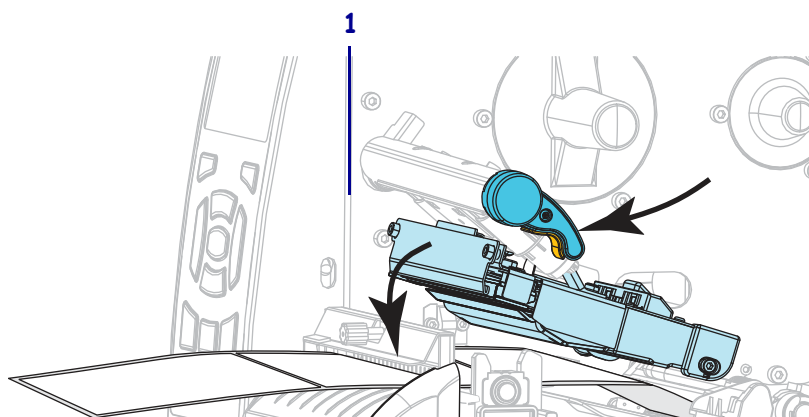
Feed the media through the cutter.



2. Slide in the outer media guide until it just touches the edge of the media.



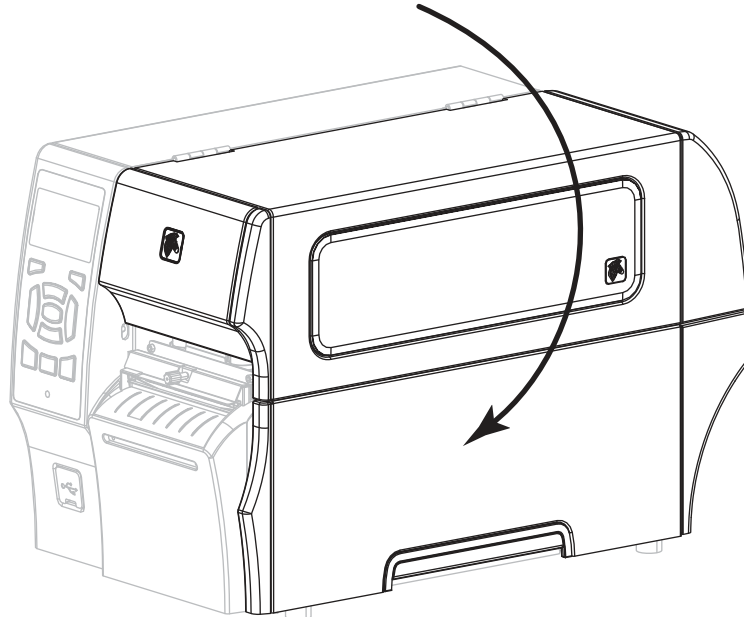
3. Rotate the printhead-open lever (1) downward until it locks the printhead in place.



4. Does the media that you are using require ribbon for printing? If you are not sure, see [When to Use Ribbon on page 23](#).

If using...	Then...
Direct Thermal media (no ribbon needed)	Continue with step 5 .
Thermal Transfer media (ribbon needed)	<ol style="list-style-type: none"> a. If you have not already done so, load ribbon in the printer. See Load the Ribbon on page 58. b. Continue with step 5.

5. Close the media door.



6. Set the printer to Cutter mode (for more information, see [Print Mode on page 105](#)).
7. Press PAUSE to exit pause mode and enable printing.
The printer may perform a label calibration or feed a label, depending on your settings.
8. If desired, perform the [CANCEL Self Test on page 188](#) to verify that your printer is able to print.
Media loading in Cutter mode is complete.

Load the Ribbon



Note • This section applies only to printers that have the Thermal Transfer option installed.

Ribbon is used only with thermal transfer labels. For direct thermal labels, do not load ribbon in the printer. To determine if ribbon must be used with a particular media, see [When to Use Ribbon on page 23](#).

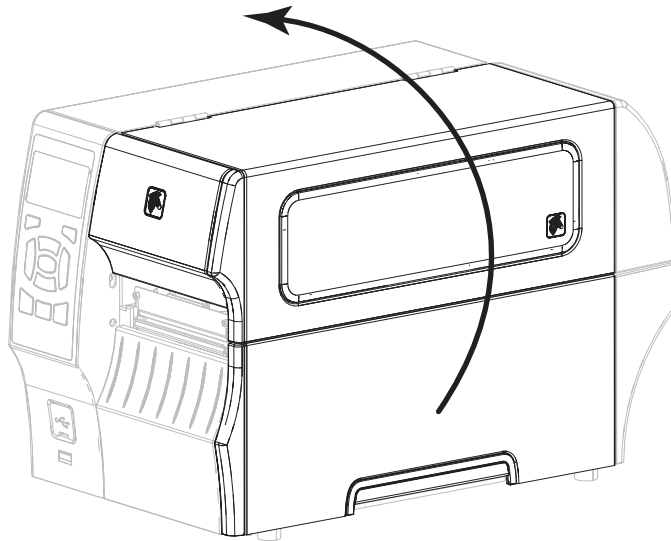
Caution • While performing any tasks near an open printhead, remove all rings, watches, hanging necklaces, identification badges, or other metallic objects that could touch the printhead. You are not required to turn off the printer power when working near an open printhead, but Zebra recommends it as a precaution. If you turn off the power, you will lose all temporary settings, such as label formats, and you must reload them before you resume printing.



Important • Use ribbon that is wider than the media to protect the printhead from wear. Ribbon must be coated on the outside.

To load ribbon, complete these steps:

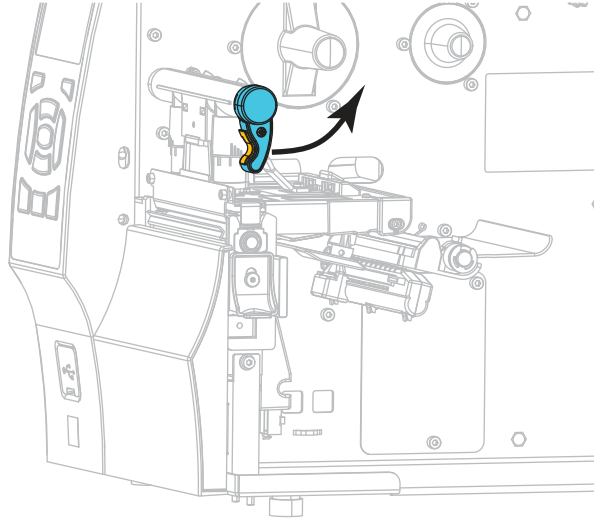
1. Raise the media door.



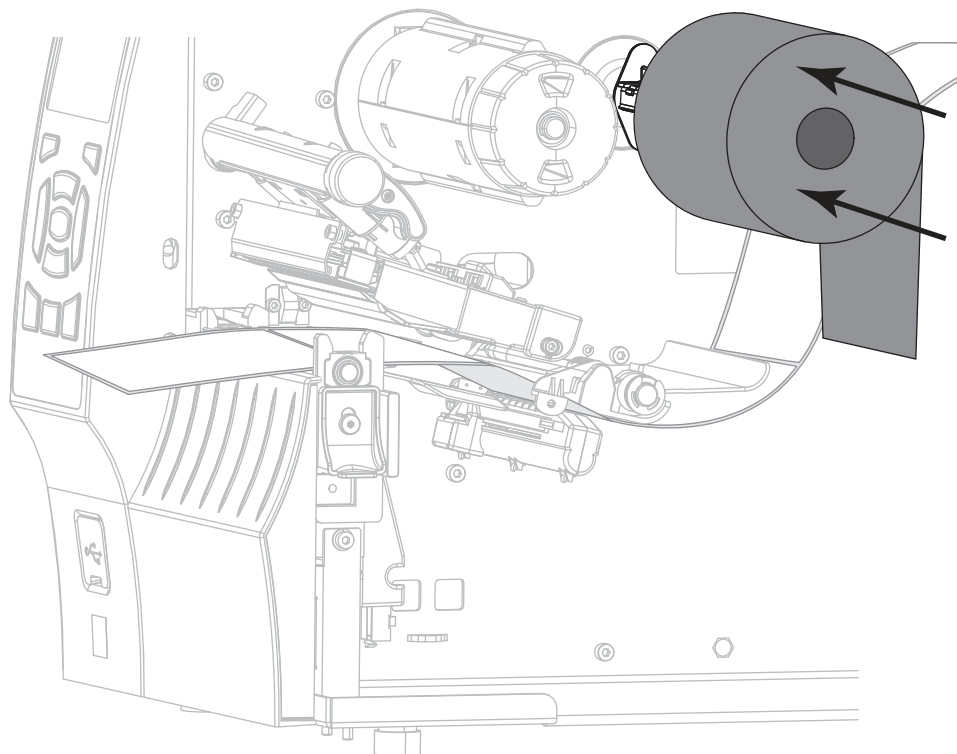


2. **Caution** • The printhead may be hot and could cause severe burns. Allow the printhead to cool.

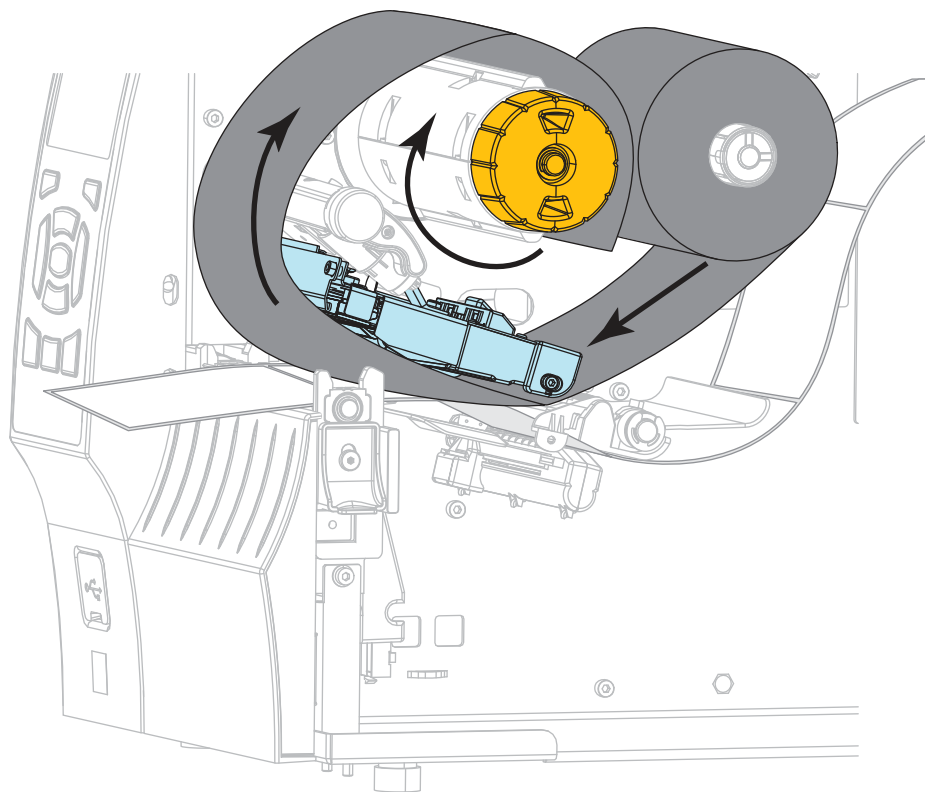
Open the printhead assembly by rotating the printhead-open lever.



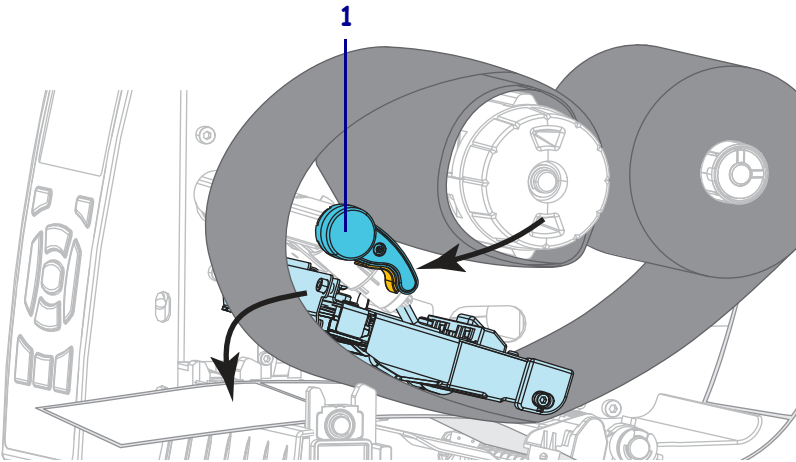
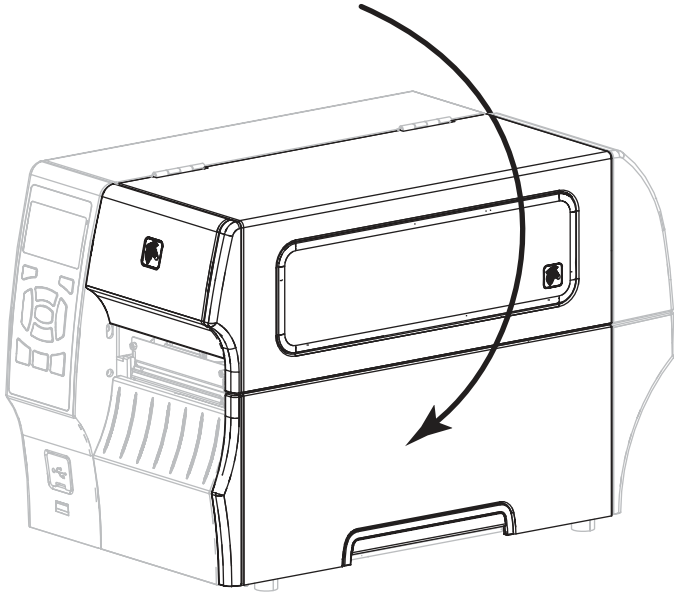
3. Place the roll of ribbon on the ribbon supply spindle with the loose end of the ribbon unrolling as shown. Push the roll back as far as it will go.



4. Bring the ribbon under the printhead assembly, and then wrap it several turns around the ribbon take-up spindle.



5. Is media already loaded in the printer?

If...	Then...
No	Continue with step 2 on page 33 to load media in the printer.
Yes	<p>a. Rotate the printhead-open lever (1) downward until it locks the printhead in place.</p>  <p>b. Close the media door.</p>  <p>c. If necessary, press PAUSE to enable printing.</p>

Install the Printer Driver and Connect the Printer to the Computer

In this section, you are shown how to use the Zebra Setup Utilities program to prepare a computer running Microsoft Windows® for the printer driver before connecting the printer to any of the computer's data communication interfaces. Use this section for directions to install this program if you have not already done so. You may connect your printer to your computer using any of the connections that you have available.



Important • You must install the Zebra Setup Utilities program before connecting the printer to your computer. Your computer will not install the correct printer drivers if you connect the printer to it without the Zebra Setup Utilities program.

Install Zebra Setup Utilities

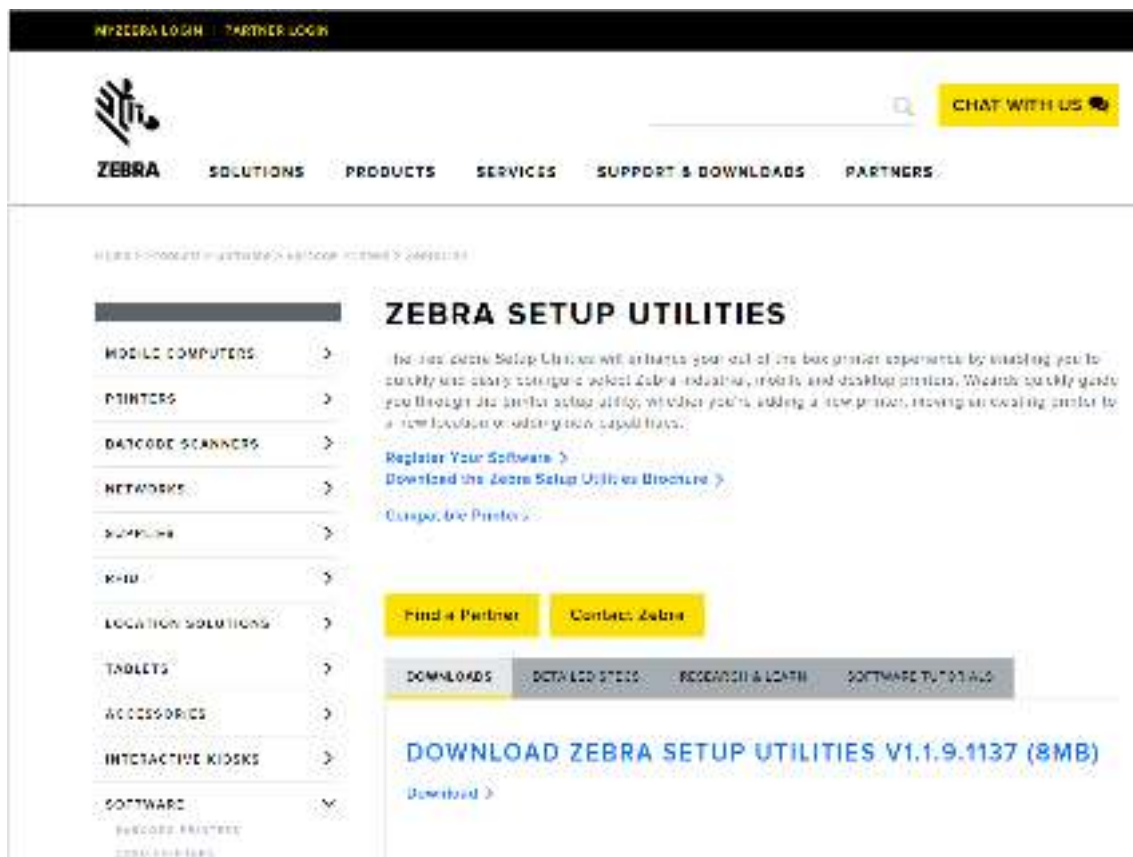
Follow the directions in this section if you do not have Zebra Setup Utilities installed on your computer or if you want to update an existing version of the program. You do not need to uninstall any older versions or any Zebra printer drivers to do so.

To install the Zebra Setup Utilities program, complete these steps:

Download the Zebra Setup Utilities Installer

1. Go to <http://www.zebra.com/setup>.

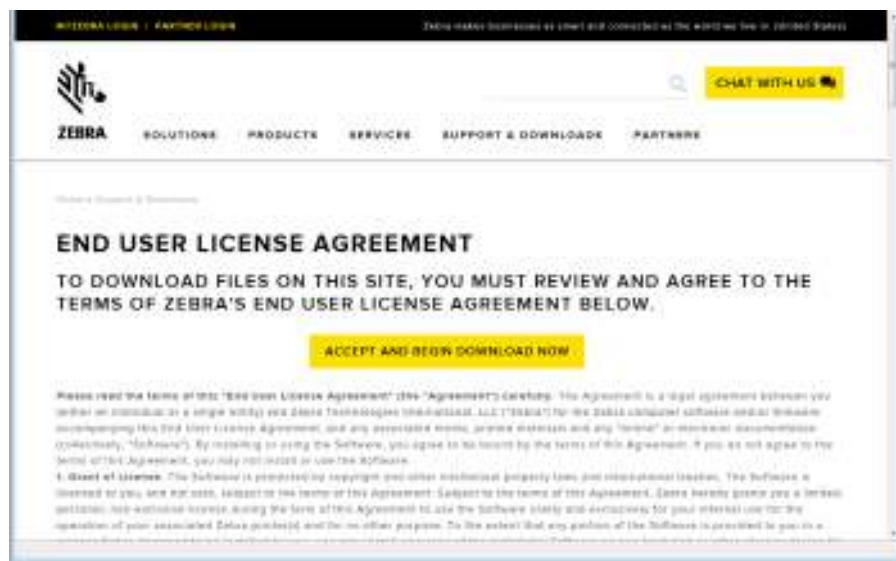
The Zebra Setup Utilities page appears.



2. On the DOWNLOADS tab, click Download under the ZEBRA SETUP UTILITIES option.



You are prompted to read and accept the End User License Agreement (EULA).



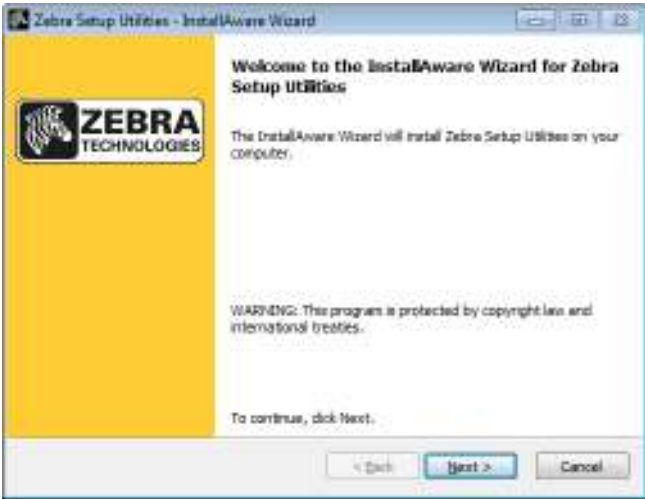
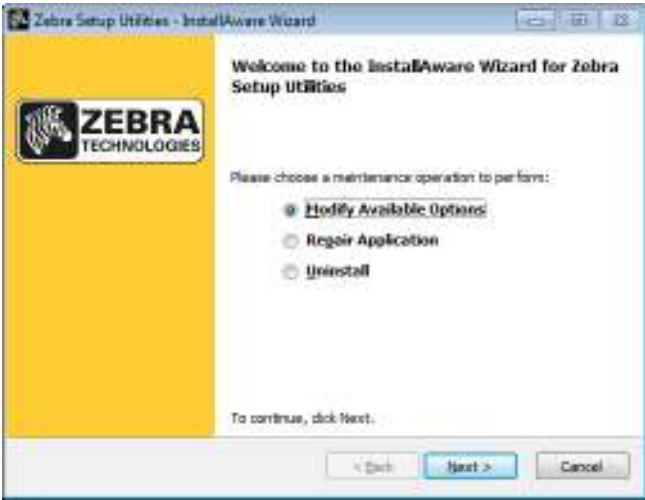
3. If you agree with the terms of the EULA, click
ACCEPT AND BEGIN DOWNLOAD NOW
Depending on your browser, you are given options to run or save the executable file.



Run the Zebra Setup Utilities Installer

4. Save the program to your computer. (Optional if your browser gave you the option to run the program instead of saving it.)
5. Run the executable file. If your computer prompts you for permission to run the file, click the appropriate button to allow it to run.

What the computer displays next depends on whether Zebra Setup Utilities was already installed. Follow the instructions based on what your computer prompts you to do.

If your computer...	Then...
Did not previously have the Zebra Setup Utilities installed	<p>a. The Zebra Setup Utilities - InstallAware Wizard displays the following.</p>  <p>b. Continue with <i>New Installations of Zebra Setup Utilities</i> on page 65.</p>
Did previously have the Zebra Setup Utilities installed	<p>a. The Zebra Setup Utilities - InstallAware Wizard displays the following.</p>  <p>b. Continue with <i>Updating Existing Installations of Zebra Setup Utilities</i> on page 67.</p>

New Installations of Zebra Setup Utilities

6. Click Next.

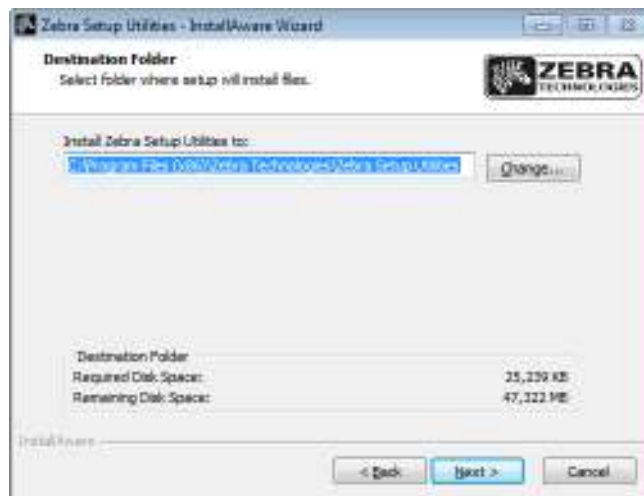
You are prompted again to read and accept the End User License Agreement (EULA).



7. If you agree with the terms of the EULA, check the box that says
I accept the terms of the license agreement

8. Click Next.

You are prompted to select where the files will be installed.

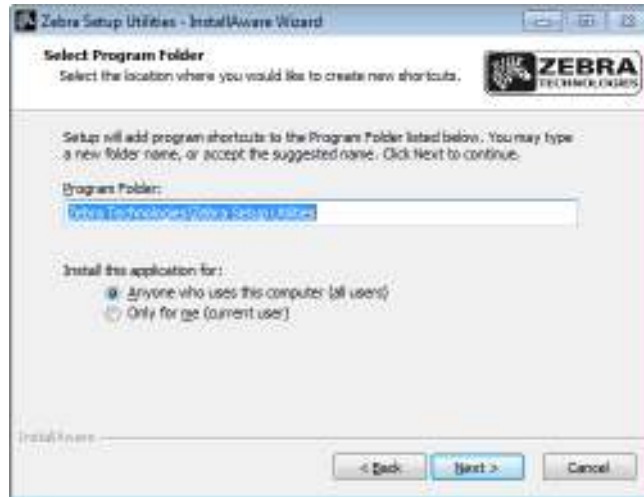


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Install the Printer Driver and Connect the Printer to the Computer

9. Change the destination folder, if necessary, and then click Next.

You are prompted to select a location for program shortcuts.



10. Change the location, if desired, and then click Next.

You are prompted to complete the InstallAware wizard.

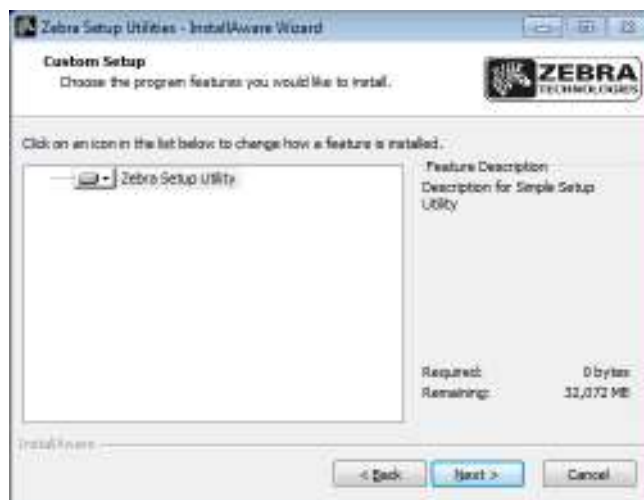


11. Skip to [Continuing with New or Updated Installations](#) on page 68.

Updating Existing Installations of Zebra Setup Utilities

12. Click Next.

You are prompted to choose the features that you would like to install.



13. Click Next.

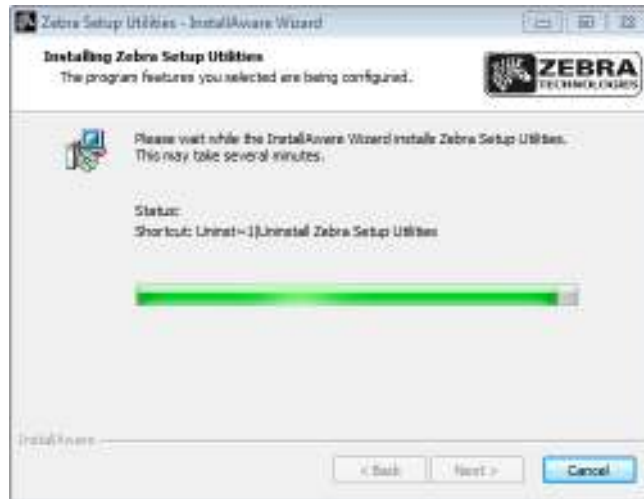
You are prompted to complete the InstallAware wizard.



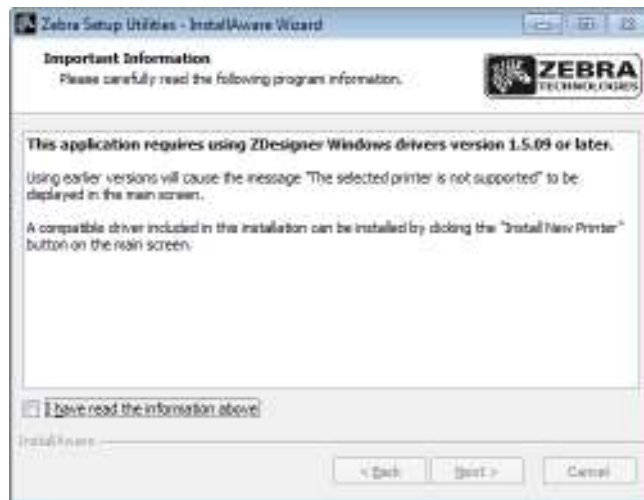
Continuing with New or Updated Installations

14. Click Next.

Installation begins.



During installation, you are presented with information about drivers.



15. Read the information, and then check the box that says
I have read the information above

16. Click Next.

You are shown options that can take place when the wizard exits the installation.



17. Check the box that says “Run Zebra Setup Utilities now.”

18. Click Finish.


What the computer displays next depends on whether any Zebra printer drivers are already installed on your computer. Follow the instructions based on what your computer displays.

If your computer...	Then...	
Did not previously have any Zebra printer drivers installed	The System Prepare Wizard displays.	
	To connect by...	Then...
	USB port	Continue with Connect a Computer to the Printer's USB Port on page 71.
	Serial or optional parallel port	Continue with Connect a Computer to the Printer's Serial or Parallel Port on page 75.

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Printer Setup and Operation

Install the Printer Driver and Connect the Printer to the Computer

If your computer...		Then...
Did previously have any Zebra printer drivers installed		<div>The Zebra Setup Utilities screen displays.</div> <div></div>
To connect by the...		Then...
USB port		Continue with <i>Connecting the printer to a USB port on your computer on page 72.</i>
Serial or optional parallel port		Continue with <i>Adding a Printer from the Zebra Setup Utilities Screen on page 78.</i>

Connect a Computer to the Printer's USB Port

Complete the steps in this section only after you have installed the Zebra Setup Utilities program. If necessary, complete the steps in [Install Zebra Setup Utilities on page 62](#) before continuing.



Important • You must install the Zebra Setup Utilities program before connecting the printer to your computer. Your computer will not install the correct printer drivers if you connect the printer to it without the Zebra Setup Utilities program.

Caution • Ensure that the printer power is off (O) before connecting data communications cables. Connecting a data communications cable while the power is on (I) may damage the printer.

To connect the printer to your computer by USB, complete these steps:

Running the System Prepare Wizard

If you are at the Zebra Setup Utilities screen, you do not need to complete this section. Continue with [Connecting the printer to a USB port on your computer on page 72](#).

The first time that you install the Zebra Setup Utilities program and printer drivers, you are prompted to follow the System Prepare Wizard.

Figure 9 • System Prepare Wizard



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Install the Printer Driver and Connect the Printer to the Computer—USB

1. Click Next.

The System Prepare Wizard prompts you to connect the printer to the USB port on your computer.



2. Click Finish.

The Zebra Setup Utilities screen displays.

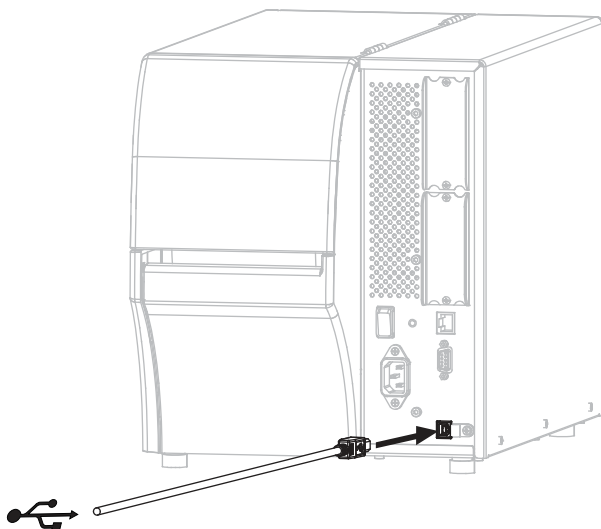
Connecting the printer to a USB port on your computer

Complete the steps in this section only after the System Prepare Wizard prompts you to do so or after you have opened the Zebra Setup Utilities program. If necessary, complete the steps in [Install Zebra Setup Utilities on page 62](#) before continuing.

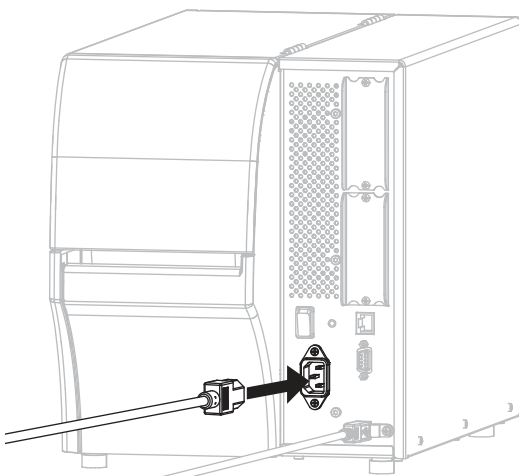
Figure 10 • Zebra Setup Utilities Screen



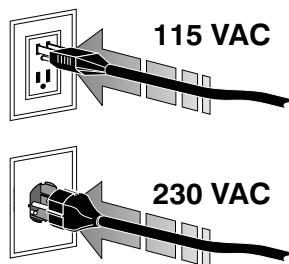
3. Connect the USB cord to the USB port on your printer.



4. Connect the other end of the USB cord to your computer.
5. Plug the female end of the A/C power cord into the A/C power connector on the back of the printer.



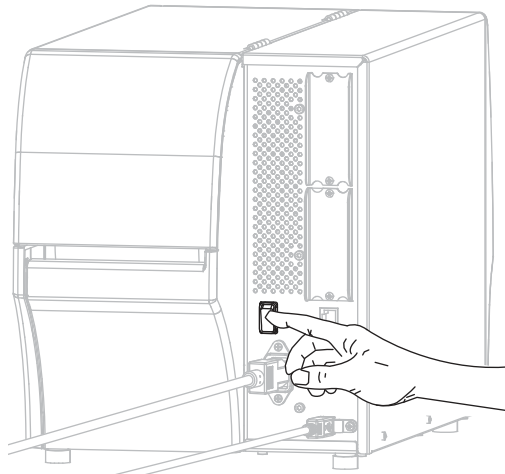
6. Plug the male end of the A/C power cord into an appropriate power outlet.



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Install the Printer Driver and Connect the Printer to the Computer—USB

7. Turn on (I) the printer.



As the printer boots up, your computer completes the driver installation and recognizes your printer.

The installation for the USB connection is complete.

Connect a Computer to the Printer's Serial or Parallel Port

Complete the steps in this section only after you have installed the Zebra Setup Utilities program. If necessary, complete the steps in [Install Zebra Setup Utilities on page 62](#) before continuing.



Important • You must install the Zebra Setup Utilities program before connecting the printer to your computer. Your computer will not install the correct printer drivers if you connect the printer to it without the Zebra Setup Utilities program.

Caution • Ensure that the printer power is off (O) before connecting data communications cables. Connecting a data communications cable while the power is on (I) may damage the printer.

To connect the printer to your computer by USB, complete these steps:

If you are at the Zebra Setup Utilities screen, you do not need to complete this section. Continue with [Adding a Printer from the Zebra Setup Utilities Screen on page 78](#).

Running the System Prepare Wizard

The first time that you install the Zebra Setup Utilities program and printer drivers, you are prompted to follow the System Prepare Wizard.

Figure 11 • System Prepare Wizard



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Install the Printer Driver and Connect the Printer to the Computer—Serial or Parallel

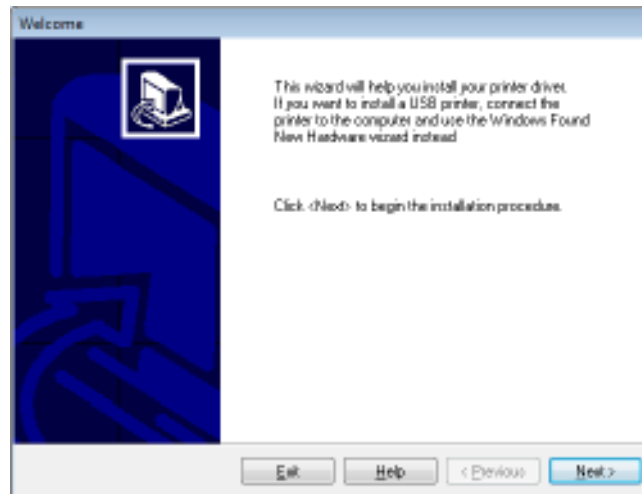
1. Select “Other computer ports (Parallel Port, Serial Port, TCP-IP Port, ...), and then click Next.

The new printer wizard prompts you to begin the installation procedure.



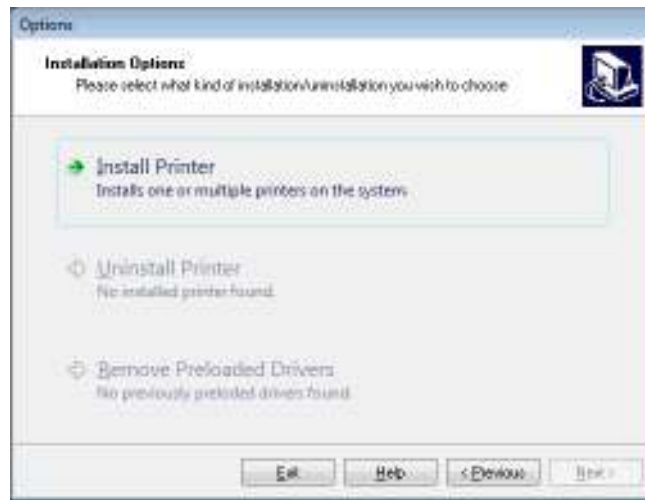
2. Click Finish.

The printer driver wizard displays.



3. Click Next.

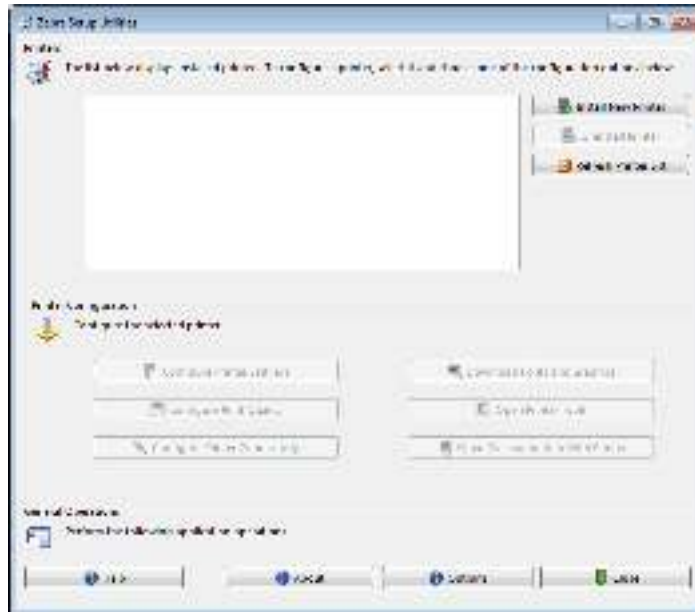
You are prompted to select an installation option.



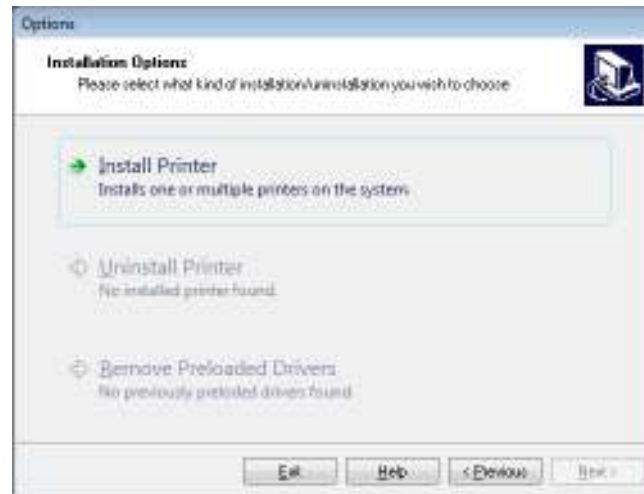
4. Continue with [step 6 on page 79](#).

Adding a Printer from the Zebra Setup Utilities Screen

Figure 12 • Zebra Setup Utilities Screen

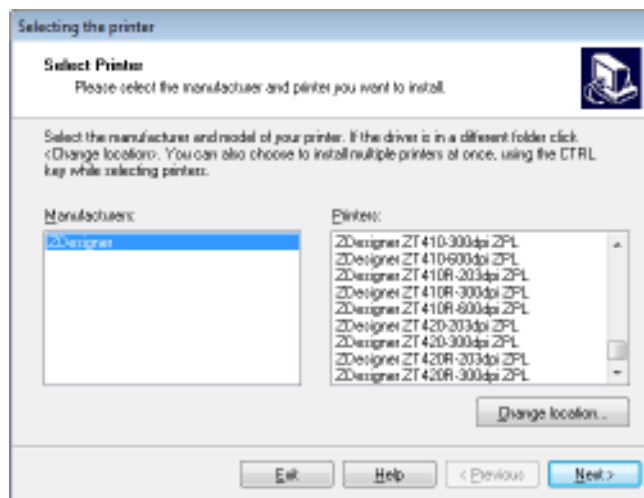


5. On the Zebra Setup Utilities screen, click Install New Printer.
You are prompted to select an installation option.



6. Click Install Printer.

You are prompted to select a printer type.



7. Select your printer model and resolution.

The model and resolution are on a part number sticker on the printer, usually located below the media hanger. The information will be in the following format:

Part Number: XXXXXxY - xxxxxxxx

where

XXXXX = the printer model

Y = the printer resolution (2 = 203 dpi, 3 = 300 dpi, 6 = 600 dpi)

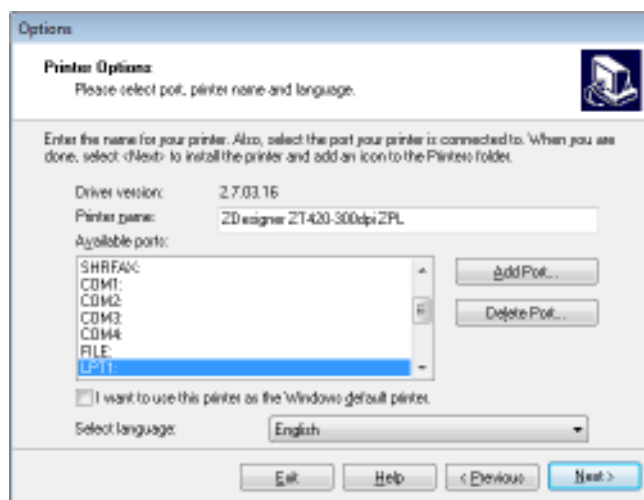
For example, in the part number **ZT420x3 - xxxxxxxx**

ZT420 indicates that the printer is a ZT420 model

3 indicates that the printhead resolution is 300 dpi

8. Click Next.

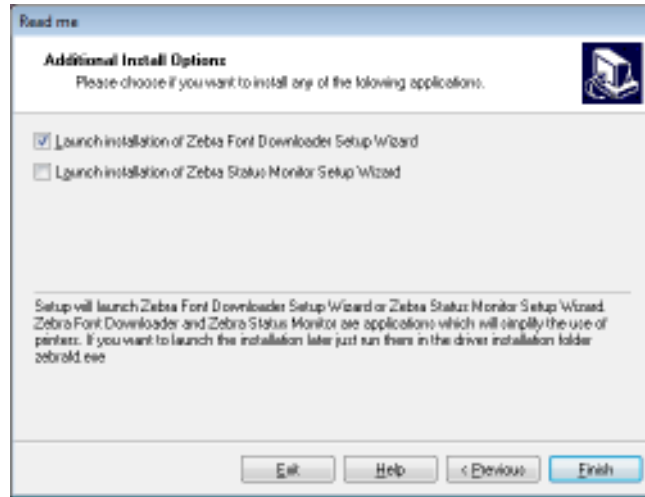
You are prompted for a printer name, the port to which the printer will be connected, and the language for the program.



9. Change the printer name (if desired), and select the appropriate port and language.

10. Click Next.

You are prompted to launch other setup wizards.

**11. Check the desired options, and then click Finish.**

The printer driver is installed. If you are prompted that other programs might be affected, click Next.

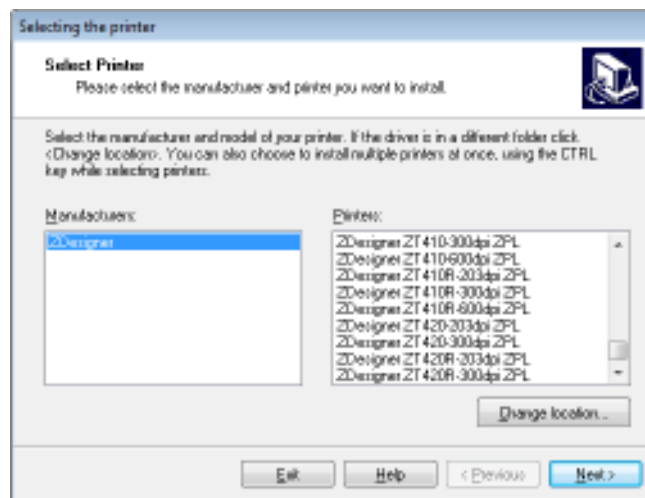
6. Click Next.

You are prompted to select an installation option.



7. Click Install Printer.

You are prompted to select a printer type.



8. Select your printer model and resolution.

The model and resolution are on a part number sticker on the printer, usually located below the media hanger. The information will be in the following format:

Part Number: XXXXXY – xxxxxxxx

where

XXXXX = the printer model

Y = the printer resolution (2 = 203 dpi, 3 = 300 dpi, 6 = 600 dpi)

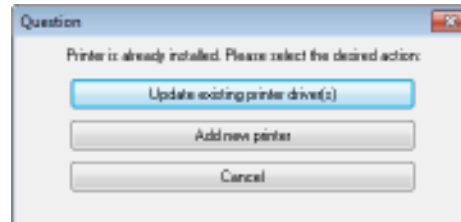
For example, in the part number **ZT420x3 – xxxxxxxx**

ZT420 indicates that the printer is a ZT420 model

3 indicates that the printhead resolution is 300 dpi

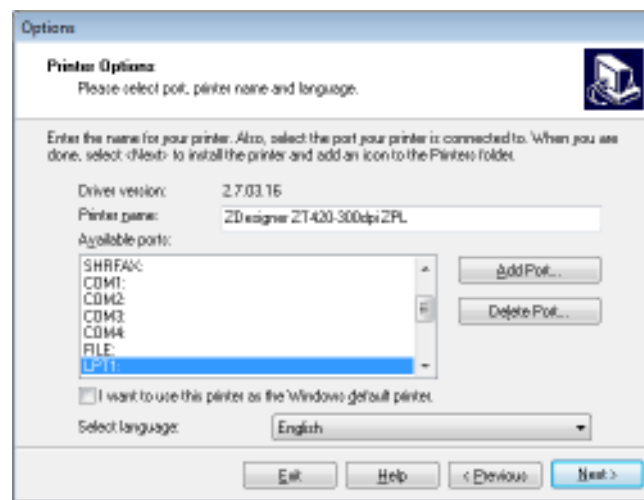
9. Click Next.

You are notified that the printer is already installed.



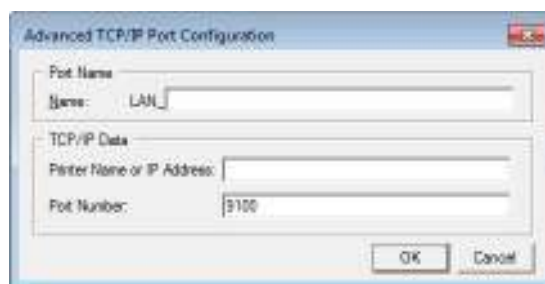
10. Click Add new printer.

You are prompted for a printer name, the port to which the printer will be connected, and the language for the printer display.



11. Click Add Port.

The wizard prompts you for a name for the port and the IP address of your printer.



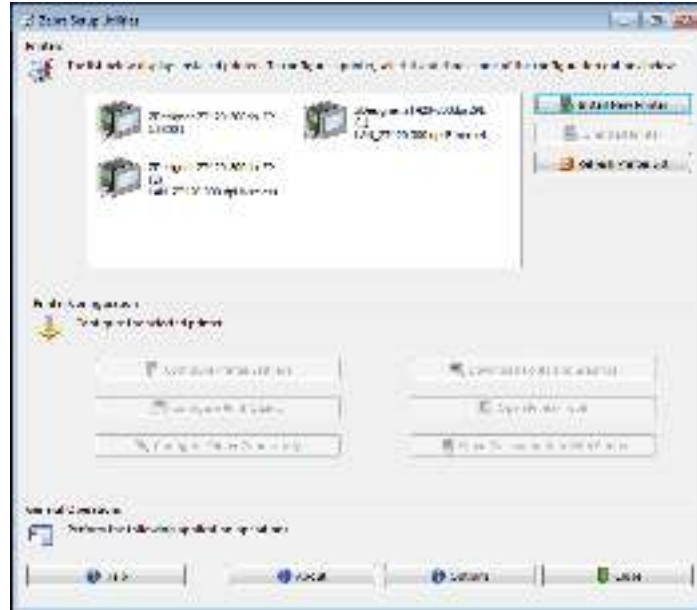
Note • If you have other applications open, you may be prompted that the driver is locked by another process. You may click Next to continue or Exit to allow you to save your work before continuing with this installation.

Print a Test Label and Make Adjustments

After you have loaded media, loaded ribbon (if using Thermal Transfer mode), installed the printer driver, and connected your printer to your computer, use the directions in this section to print a test label. Printing this label allows you to see if your connection is working and if you need to adjust any of the printer settings.

To print a test label and adjust the printer (if necessary), complete these steps:

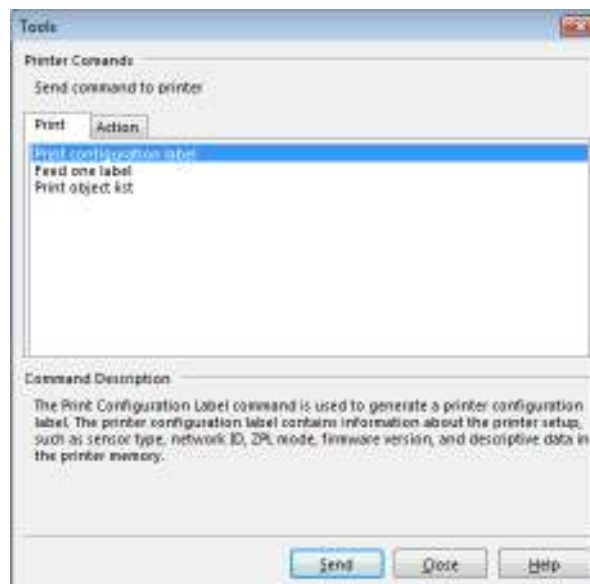
1. Open the Zebra Setup Utilities to return to the Zebra Setup Utilities screen.



2. Click on one of the available print drivers for your printer.

3. Click Open Printer Tools.

The Tools window displays the available printer commands.



5. Did the printer configuration label print, and is the print quality acceptable?

If...	Then...
The label printed and the print quality is acceptable	Your printer is ready for printing. Continue with the label designer program of your choice. You may use ZebraDesigner™, which you can download from http://www.zebra.com .
The label did not print	<ol style="list-style-type: none">Close the Tools window and make sure that you selected the correct printer driver before you click Open Printer Tools. Try printing the label again.If the label still did not print, check the connections between your printer and your computer or your printer and your network.If necessary, modify the printer's settings to make them match your computer's settings.
The label prints, but with poor quality or other issues	See <i>Printing Issues</i> on page 172 for troubleshooting instructions.

Printer Configuration and Adjustment

This section assists you with configuration of and adjustments to the printer.

Contents

Adjust Printer Settings	100
Print Settings	101
Tools	108
Network Settings	119
RFID Settings	126
Language Settings	132
Sensor Settings	136
Port Settings	138
Bluetooth Settings	140
Calibrate the Ribbon and Media Sensors	142
Adjust the Printhead Pressure	147
Remove Used Ribbon	151

Adjust Printer Settings

This section presents the printer settings that you can change and identifies the tools for changing them. These tools include the following:

- ZPL and Set/Get/Do (SGD) commands (See the *Zebra® Programming Guide* for more information.)
- The printer's **user menus** (See *Idle Display, Home Menu, and User Menus* on page 19 for more information.)
- The printer's **web pages** when the printer has an active wired or wireless print server connection (See the *ZebraNet Wired and Wireless Print Servers User Guide* for more information.)

Copies of the referenced manuals are available at <http://www.zebra.com/manuals>.

This section contains the following subsections:

- *Print Settings* on page 101
- *Tools* on page 108
- *Network Settings* on page 119
- *RFID Settings* on page 126
- *Language Settings* on page 132
- *Sensor Settings* on page 136
- *Port Settings* on page 138
- *Bluetooth Settings* on page 140

Print Settings

Table 5 • Print Settings


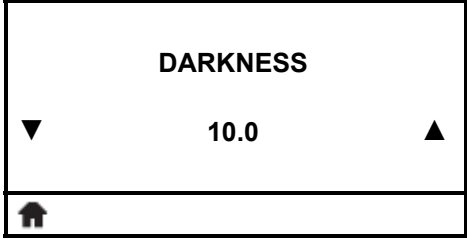

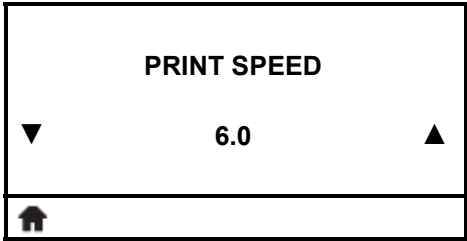
Print Darkness	Set the darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, bar codes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely. If desired, use the FEED Self Test on page 190 to determine the best darkness setting.
<i>User menu item:</i>	Main Menu >  SETTINGS 
<i>Accepted values:</i>	0.0 to 30.0
<i>Related ZPL command(s):</i>	^MD, ~SD
<i>SGD command used:</i>	print.tone
<i>Printer web page:</i>	View and Modify Printer Settings > General Setup > Darkness
Print Speed	Select the speed for printing a label (given in inches per second). Slower print speeds typically yield better print quality.
<i>User menu item:</i>	Main Menu >  SETTINGS 
<i>Accepted values:</i>	2, 3, 4, 5, 6
<i>Related ZPL command(s):</i>	^PR
<i>SGD command used:</i>	media.speed

Table 5 • Print Settings (Continued)


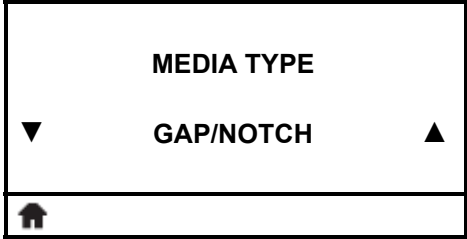

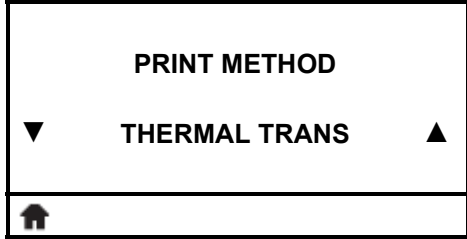
Media Type	Select the type of media that you are using.	
	<i>User menu item:</i>	Main Menu >  SETTINGS 
	<i>Accepted values:</i>	<ul style="list-style-type: none"> • CONTINUOUS • GAP/NOTCH • MARK <p>If you select CONTINUOUS, you must include a label length in your label format (^LL if you are using ZPL). If you select GAP/NOTCH or MARK for various noncontinuous media, the printer feeds media to calculate the label length. See Types of Media on page 21 for more information.</p>
	<i>Related ZPL command(s):</i>	^MN
	<i>SGD command used:</i>	ezpl.media_type
	<i>Printer web page:</i>	View and Modify Printer Settings > Media Setup > Media Type
Print Method	Specify if the printer needs to use ribbon for printing.	
	<i>User menu item:</i>	Main Menu >  SETTINGS 
	<i>Accepted values:</i>	<ul style="list-style-type: none"> • THERMAL TRANS—uses ribbon and thermal transfer media • DIRECT THERMAL—uses direct thermal media and no ribbon
	<i>Related ZPL command(s):</i>	^MT
	<i>SGD command used:</i>	ezpl.print_method
	<i>Printer web page:</i>	View and Modify Printer Settings > Media Setup > Print Method

Table 5 • Print Settings (Continued)


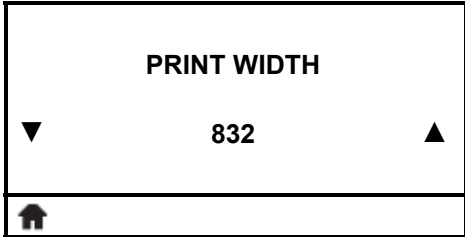

Print Width	Specify the width of the labels being used, in dots. The default value is the maximum width for the printer, based on the printhead's DPI value.	
<i>User menu item:</i>		Main Menu >  SETTINGS 
<i>Accepted values:</i>		 Note • Setting the width too narrow can result in portions of a label format not being printed on the media. Setting the width too wide wastes formatting memory and can cause the printer to print off of the label and onto the platen roller. This setting can affect the horizontal position of the label format if the image was inverted using the ^POI ZPL II command. ZT410 203 dpi = 0002 to 832 ZT410 300 dpi = 0002 to 1248 ZT410 600 dpi = 0002 to 2496 ZT420 203 dpi = 0002 to 1344 ZT420 300 dpi = 0002 to 1984
<i>Related ZPL command(s):</i>		^PW
<i>SGD command used:</i>		ezpl.print_width
<i>Printer web page:</i>		View and Modify Printer Settings > Media Setup > Print Width

Table 5 • Print Settings (Continued)


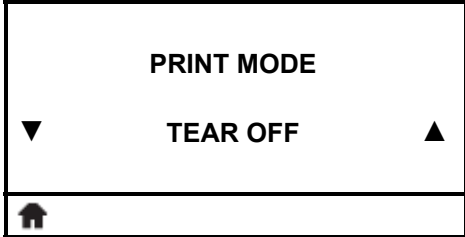

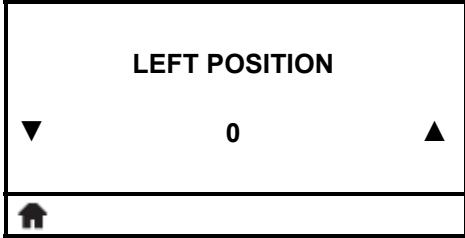
Print Mode	<p>Select a print mode that is compatible with your printer options.</p> <p>For information about how the print mode selections work with different printer options, see Select a Print Mode on page 28.</p>
<i>User menu item:</i>	<p>Main Menu >  SETTINGS</p> <div data-bbox="857 432 1318 667">  </div>
<i>Accepted values:</i>	<ul style="list-style-type: none"> • TEAR OFF • CUTTER • PEEL (use this value for peel-off or liner take-up printing) • REWIND
<i>Related ZPL command(s):</i>	^MM
<i>SGD command used:</i>	media.printmode
<i>Printer web page:</i>	View and Modify Printer Settings > General Setup > Print Mode
Label Left Position	<p>If necessary, shift the print position horizontally on the label. Positive numbers move the left edge of the image toward the center of the label by the number of dots selected, while negative numbers move the left edge of the image toward the left edge of the label.</p>
<i>User menu item:</i>	<p>Main Menu >  SETTINGS</p> <div data-bbox="857 1251 1318 1486">  </div>
<i>Accepted values:</i>	-9999 to 9999
<i>Related ZPL command(s):</i>	^LS
<i>SGD command used:</i>	zpl.left_position
<i>Printer web page:</i>	View and Modify Printer Settings > Advanced Setup > Left Position

Table 7 • Network Settings (Continued)




Gateway	<p>View and, if necessary, change the default gateway.</p> <p>To save changes to this setting, set IP Protocol on page 123 to PERMANENT, and then reset the print server (see Reset Network on page 125).</p>	
<i>User menu item:</i>	<p>Main Menu >  NETWORK</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">WIRED GATEWAY</p> <p style="text-align: center;">▼ 000.000.000.000 ▲</p> <p style="text-align: center;"> NEXT</p> </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">WLAN GATEWAY</p> <p style="text-align: center;">▼ 000.000.000.000 ▲</p> <p style="text-align: center;"> NEXT</p> </div>	
<i>Accepted values:</i>	000 to 255 for each field	
<i>Related ZPL command(s):</i>	^ND	
<i>SGD command used:</i>	<p>Wired: internal_wired.ip.gateway</p> <p>Wireless: wlan.ip.gateway</p>	
<i>Printer web page:</i>	<p>View and Modify Printer Settings ></p> <p>Network Communications Setup ></p> <p>TCP/IP Settings</p>	

Table 7 • Network Settings (Continued)


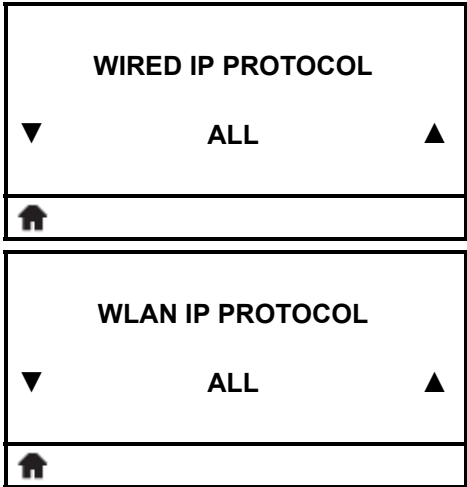
IP Protocol	This parameter tells if the user (permanent) or the server (dynamic) selects the IP address. When a dynamic option is chosen, this parameter tells the method(s) by which the wired or wireless print server receives the IP address from the server.	
<i>User menu item:</i>		Main Menu >  NETWORK 
<i>Accepted values:</i>		<ul style="list-style-type: none"> • ALL • GLEANNING ONLY • RARP • BOOTP • DHCP • DHCP & BOOTP • PERMANENT
<i>Related ZPL command(s):</i>		^ND
<i>SGD command used:</i>		Wired: internal_wired.ip.protocol Wireless: wlan.ip.protocol
<i>Printer web page:</i>		View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings

Table 7 • Network Settings (Continued)






MAC Address	View the Media Access Control (MAC) address of the print server that is installed in the printer (wired or wireless).	
	<i>User menu item:</i>	Main Menu >  NETWORK <div style="border: 1px solid black; padding: 10px; margin: 10px 0; text-align: center;"> WIRED MAC ADDRESS 00:05:9A:3C:78:00 </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0; text-align: center;">  </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0; text-align: center;"> WLAN MAC ADDRESS 00:05:9A:3C:78:00 </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0; text-align: center;">  </div>
	<i>SGD command used:</i>	Wired: internal_wired.mac_addr Wireless: wlan.mac_addr
	<i>Printer web page:</i>	View and Modify Printer Settings > Network Communications Setup > Wireless Setup
ESSID	The Extended Service Set Identification (ESSID) is an identifier for your wireless network. This setting, which cannot be modified from the control panel, gives the ESSID for the current wireless configuration.	
	<i>User menu item:</i>	Main Menu >  NETWORK <div style="border: 1px solid black; padding: 10px; margin: 10px 0; text-align: center;"> ESSID 125 </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0; text-align: center;">  </div>
	<i>Accepted values:</i>	32-character alphanumeric string (default 125)
	<i>SGD command used:</i>	wlan.essid
	<i>Printer web page:</i>	View and Modify Printer Settings > Network Communications Setup > Wireless Setup

Table 8 • RFID Settings (Continued)


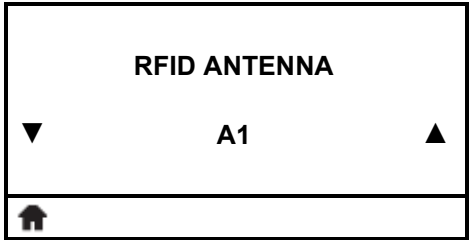

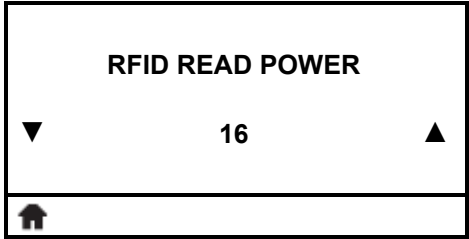
RFID Antenna Element	If the desired antenna is not achieved through RFID tag calibration, a value may be specified.	
	<i>User menu item:</i>	Main Menu >  RFID 
	<i>Accepted values:</i>	A1 , A2 , A3 , A4 B1 , B2 , B3 , B4 C1 , C2 , C3 , C4 D1 , D2 , D3 , D4 E1 , E2 , E3 , E4
	<i>Related ZPL command(s):</i>	^RW
	<i>SGD command used:</i>	rfid.reader_1.antenna_port
	<i>Printer web page:</i>	View and Modify Printer Settings > RFID Setup > RFID ANTENNA
RFID Read Power	If the desired read power is not achieved through RFID tag calibration, a value may be specified.	
	<i>User menu item:</i>	Main Menu >  RFID 
	<i>Accepted values:</i>	0 to 30
	<i>Related ZPL command(s):</i>	^RW
	<i>SGD command used:</i>	rfid.reader_1.power.read
	<i>Printer web page:</i>	View and Modify Printer Settings > RFID Setup > RFID READ PWR

Table 9 • Language Settings (Continued)






ZPL Override	<p>Enable this menu item to prevent the following ZPL commands from changing the printer's current settings:</p> <ul style="list-style-type: none"> • ^MM (print mode) • ^MT (Direct Thermal or Thermal Transfer print method) • ^MN (media type non-continuous or continuous) <p>When this menu item is disabled, these commands override the printer's settings.</p>
<i>User menu item:</i>	<p>Main Menu >  LANGUAGE</p> <div data-bbox="868 541 1331 781"> <p>ZPL OVERRIDE</p> <p>▼ DISABLED ▲</p> <p></p> </div>
<i>Accepted values:</i>	<ul style="list-style-type: none"> • DISABLED • ENABLED
<i>SGD command used:</i>	zpl.zpl_override
Command Character	<p>The format command prefix is a two-digit hex value used as a parameter place marker in ZPL/ZPL II format instructions. The printer looks for this hex character to indicate the start of a ZPL/ZPL II format instruction.</p> <p>Set the format command character to match what is used in your label formats.</p> <p> Important • You cannot use the same hex value for the format command prefix, control character, and delimiter characters. The printer must see different characters to work properly. If you are setting the value through the control panel, the printer will skip any value that is already in use.</p>
<i>User menu item:</i>	<p>Main Menu >  LANGUAGE</p> <div data-bbox="868 1276 1331 1516"> <p>COMMAND CHAR</p> <p>▼ ^ (5E) ▲</p> <p></p> </div>
<i>Accepted values:</i>	00 to FF
<i>Related ZPL command(s):</i>	^CC or ~CC
<i>SGD command used:</i>	zpl.caret
<i>Printer web page:</i>	View and Modify Printer Settings > ZPL Control

Table 9 • Language Settings (Continued)


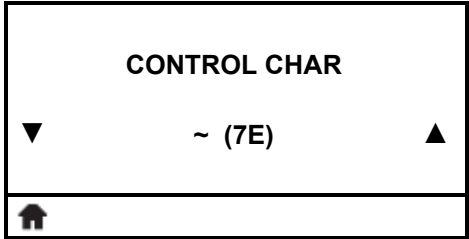

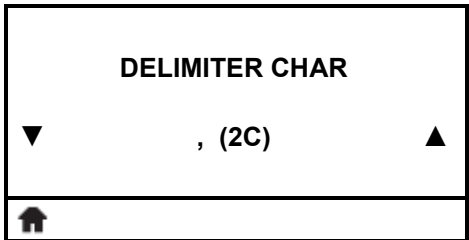

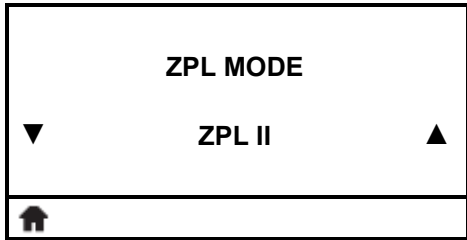

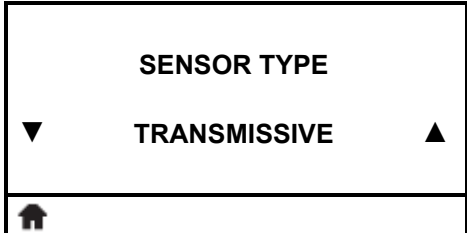


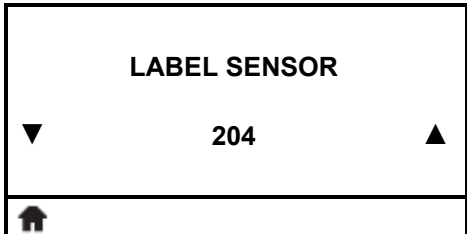
Control Character	The printer looks for this two-digit hex character to indicate the start of a ZPL/ZPL II control instruction. Set the control prefix character to match what is used in your label formats.	
	<i>User menu item:</i>	Main Menu >  LANGUAGE 
	<i>Accepted values:</i>	00 to FF
	<i>Related ZPL command(s):</i>	^CT or ~CT
	<i>SGD command used:</i>	zpl.control_character
	<i>Printer web page:</i>	View and Modify Printer Settings > ZPL Control
Delimiter Character	The delimiter character is a two-digit hex value used as a parameter place marker in ZPL/ZPL II format instructions. Set the delimiter character to match what is used in your label formats.	
	<i>User menu item:</i>	Main Menu >  LANGUAGE 
	<i>Accepted values:</i>	00 to FF
	<i>Related ZPL command(s):</i>	^CD or ~CD
	<i>SGD command used:</i>	zpl.delimiter
	<i>Printer web page:</i>	View and Modify Printer Settings > ZPL Control

Table 9 • Language Settings (Continued)

ZPL Mode	<p>Select the mode that matches what is used in your label formats.</p> <p>This printer accepts label formats written in either ZPL or ZPL II, eliminating the need to rewrite any ZPL formats that already exist. The printer remains in the selected mode until it is changed in one of the ways listed here.</p>	
<i>User menu item:</i>	<p>Main Menu >  LANGUAGE</p> 	
<i>Accepted values:</i>	<ul style="list-style-type: none"> • ZPL II • ZPL 	
<i>Related ZPL command(s):</i>	^SZ	
<i>SGD command used:</i>	zpl.zpl_mode	
<i>Printer web page:</i>	View and Modify Printer Settings > ZPL Control	

Sensor Settings

Table 10 • Sensor Settings

Sensor Type	Select the media sensor that is appropriate for the media that you are using. The reflective sensor typically is used only for black mark media. The transmissive sensor typically is used for other media types.	
	<i>User menu item:</i>	Main Menu >  SENSORS 
	<i>Accepted values:</i>	<ul style="list-style-type: none"> • TRANSMISSIVE • REFLECTIVE
	<i>Related ZPL command(s):</i>	^JS
	<i>SGD command used:</i>	device.sensor_select
	<i>Printer web page:</i>	View and Modify Printer Settings > Media Setup
Label Sensor	Set the sensitivity of the label sensor.  Important • This value is set during sensor calibration. Do not change this setting unless you are told to do so by Zebra Technical Support or by an authorized service technician.	
	<i>User menu item:</i>	Main Menu >  SENSORS 
	<i>Accepted values:</i>	0 to 255
	<i>SGD command used:</i>	ezpl.label_sensor
	<i>Printer web page:</i>	View and Modify Printer Settings > Calibration