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ZT610/ZT620

Industrial Printer with Color Touch Display



ZEBRA

User Guide

2025/12/16

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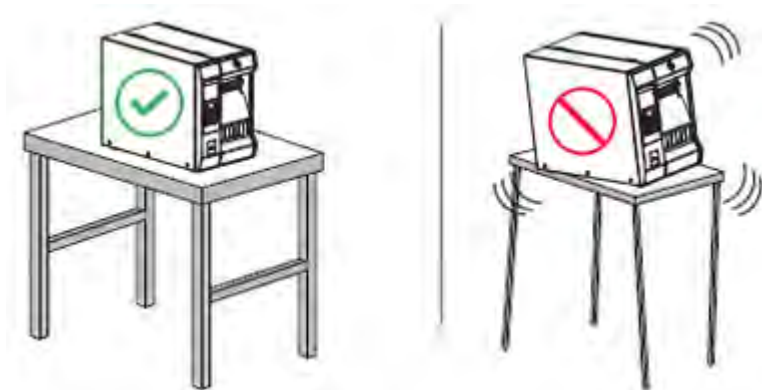
Printer Setup

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

Selecting 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 [Communication Interface Specifications](#) on page 204.
- **Operating conditions**—The printer is designed to function in a wide range of environmental and electrical conditions, including in a warehouse or on a factory floor. The following table shows the temperature and relative humidity requirements for the printer when it is operating.

Table 1 Operating Temperature and Humidity

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

Ordering Supplies and Accessories

You need to purchase certain supplies before you set up your printer, and you may choose to purchase accessories for the printer.

The following things that you will need do NOT come with the printer:

- Communication/network cables (such as serial or wired Ethernet) other than USB
- Media
- Ribbon (if your printer has a thermal transfer option)

For recommended supplies to ensure optimal operation of your printer, go to zebra.com/supplies.

Media

The type and size of media that you choose should be appropriate for the options installed on the printer.

See [Determining the Media Handling Method](#) and [Media Specifications](#) on page 211 for minimum label lengths and other important things to consider.

For optimal printing quality and proper printer performance across the product lines, Zebra strongly recommends the use of Zebra Certified Supplies as part of the total solution. A wide range of paper, polypropylene, polyester, and vinyl stock has been specifically engineered to enhance the printing capabilities of the printer and prevent premature printhead wear. To purchase supplies, go to zebra.com/supplies.

The [Glossary](#) on page 259 includes terms associated with media, such as black mark media, gap/notch media, RFID media, fanfold media, and roll media. Use these terms to help determine which type of media will suit your needs.

Ribbon



NOTE: This section applies only to printers that have the Thermal Transfer option installed.

Do I need to use ribbon?	The media itself determines if you will need to use ribbon. • Thermal Transfer media—Requires ribbon. • Direct Thermal media—Does NOT require ribbon.
How can I tell if media is Direct Thermal or Thermal Transfer? (See direct thermal on page 260 and thermal transfer on page 267 for definitions.)	The easiest way to find out is to scratch the surface of the media rapidly with your fingernail. If a black mark appears where you scratched, the media is Direct Thermal, so you do NOT need ribbon.

What kind of ribbon can I use?	This printer can use ONLY ribbon coated on the outside, unless you purchase and install the optional spindle that allows the use of ribbon coated on the inside. Contact your authorized Zebra reseller for ordering information.
How can I tell which side of the ribbon is coated?	Use one of these two methods to determine which side of the ribbon is coated: • Performing an Adhesive Test on page 54. • Performing a Ribbon Scratch Test on page 54.

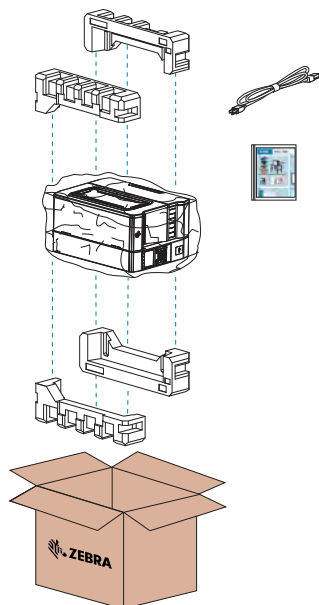
Inspecting the Contents of the Box

Make sure that the printer box contains all the items you need to set it up.



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

1. Carefully remove the printer from the box and verify that the items show here are included.



2. If anything is missing, notify your authorized Zebra reseller.
3. Immediately unwrap the printer 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.
4. 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.

5. Before setting up the printer, remove the protective items included in the box for shipping. This includes a film of plastic over the transparent window on the media door.

Modifying or Viewing Secured Features

Some features may be locked either by default or by choice, and you need to perform certain tasks before they can be viewed or modified.

EU RED

If you purchased your printer within European, Middle Eastern, or African (EMEA) countries on or after August 1, 2025, the printer comes with specific security features to meet the EU Radio Equipment Directive (RED) requirements. As part of the setup process, you must do the following before you can access the control panel parameters or modify certain settings using commands:

- set a Protected Mode password and configure Protected Mode
- set a front panel password/PIN to view the control panel parameters

For more information, go to zebra.com/asr or refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

Protected Mode

For printers that already have Protected Mode set up, you need to enter the Protected Mode (admin) password to change certain settings on the printer. For more information, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

Front Panel Password/PIN

The front panel display can be locked, limiting access to the control panel parameters until the front panel password is entered. This value is initially undefined and must be set before it can be used.

For more information about the front panel password, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

Connecting the Printer to a Device

After you have set up the printer, you are ready to connect the printer to your device (such as a computer, phone, or tablet).



NOTE: If you purchased your printer in the EMEA region on or after August 1, 2025, go to [Modifying or Viewing Secured Features](#) on page 10.

Connect to a Phone or Tablet

Download the free Zebra Printer Setup Utility app for your device.

- [Android devices](#)
- [Apple devices](#)

The applications support the following types of connectivity:

- Bluetooth Classic
- Bluetooth Low Energy (Bluetooth LE)
- Wired/Ethernet
- Wireless
- USB On-The-Go

For the User Guides for these printer setup utilities, go to zebra.com/setup.

Installing Drivers and Connecting to a Windows-Based Computer

To use your printer with a Microsoft Windows-based computer, you must install the correct drivers first.



IMPORTANT: You may connect your printer to your computer using any of the connections that you have available. However, do not connect any cables from your computer to the printer until you are instructed to do so. If you connect them at the wrong time, your printer will not install the correct printer drivers. To recover from incorrect driver installation, see [What to Do If You Forget to Install Printer Drivers First](#) on page 25.

Installing the Drivers

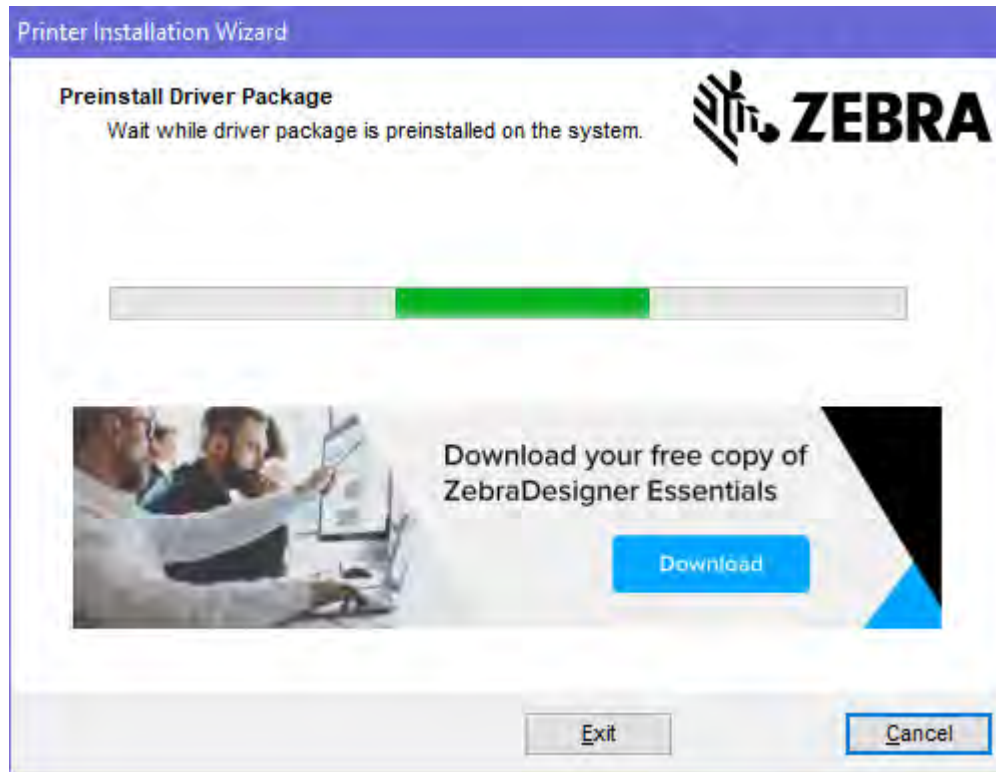
Follow these steps to install the correct drivers.

1. Navigate to zebra.com/drivers.
2. Click **Printers**.
3. Select your printer model.
4. On the printer product page, click **Drivers**.
5. Download the appropriate driver for Windows.

The driver executable file (such as `zd86423827-certified.exe`) is added to your Download folder.

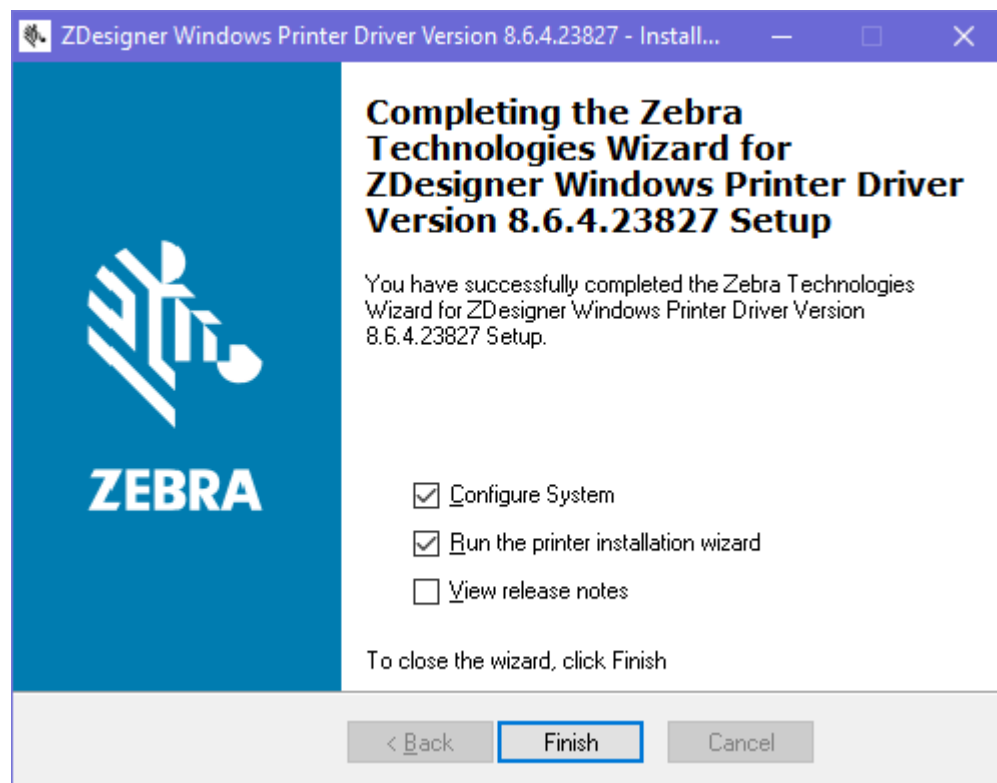
6. Run the executable file and follow the prompts.

When setup is complete, you may select to add all of the drivers to your system (**Configure System**) or to add/configure specific printers (see [Running the Printer Installation Wizard](#) on page 14).



7. Select **Configure System**, then click **Finish**.

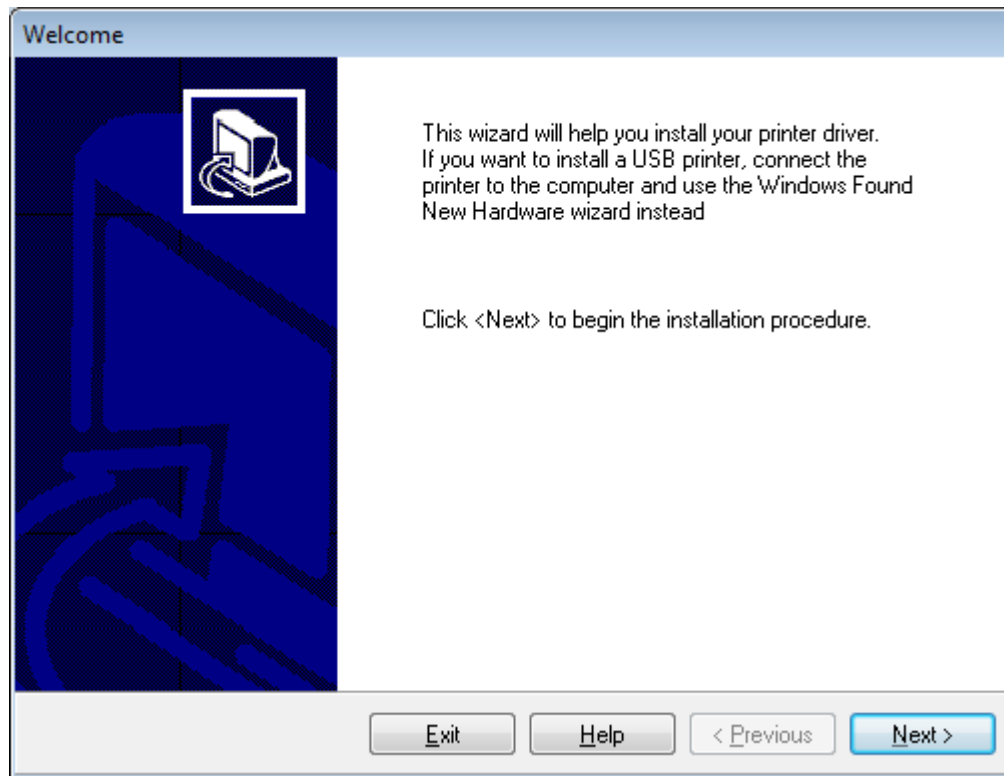
The Printer Installation Wizard installs the drivers.



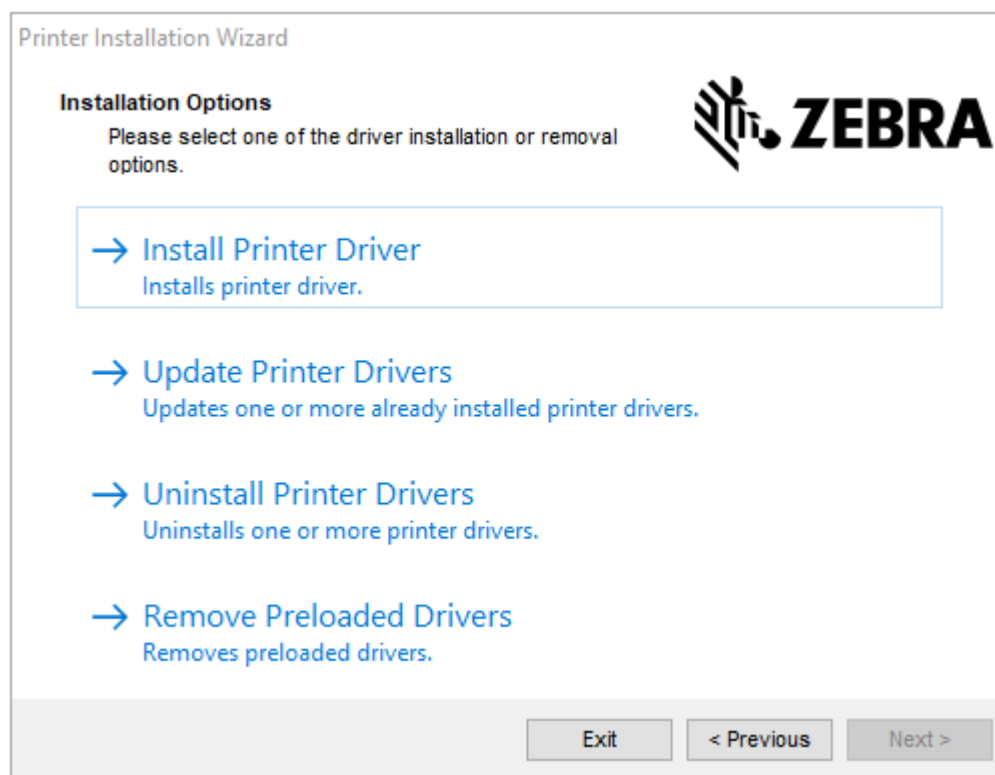
Running the Printer Installation Wizard

1. On the last screen of the driver installer, leave **Run the Printer Installation Wizard** checked, then click **Finish**.

The Printer Installation wizard displays.



2. Click **Next**.



3. Click **Install Printer Driver**.

The license agreement displays.



The image shows a screenshot of the 'Printer Installation Wizard' window. The title bar reads 'Printer Installation Wizard'. Inside the window, the 'License Agreement' section is active, with the instruction 'Please read license agreement before installing printer driver.' and the Zebra logo. A scrollable text box contains the 'END USER LICENSE AGREEMENT (UNRESTRICTED SOFTWARE)' text. Below the text box are two radio buttons: 'I accept the terms in the license agreement' (which is selected) and 'I do not accept the terms in the license agreement'. At the bottom right, there are three buttons: 'Exit', '< Previous', and 'Next >'.

Printer Installation Wizard

License Agreement
Please read license agreement before installing printer driver.

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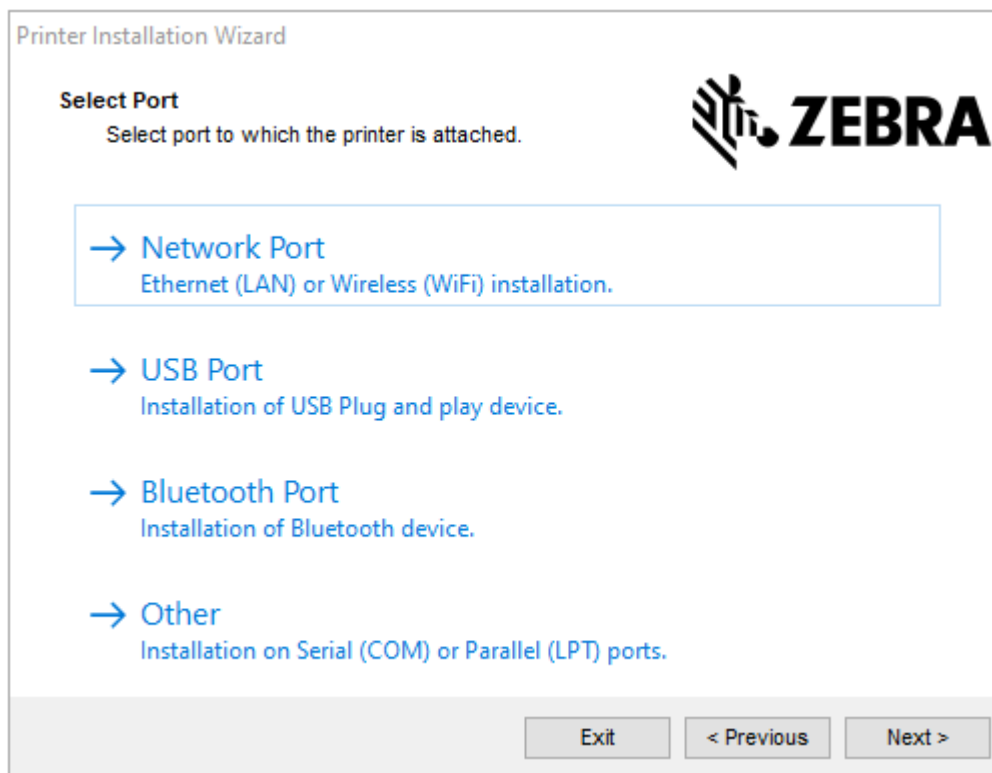
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☐ I accept the terms in the license agreement
☒ I do not accept the terms in the license agreement

Exit < Previous Next >

4. Read and accept the terms of the license agreement, then click **Next**.



5. Select the communication option that you want to configure for your printer:
- **Network Port**—To install printers with an Ethernet (LAN) or wireless (Wi-Fi) network connection. Wait for the driver to scan your local network for devices and follow the prompts. If necessary, set the values as directed in [Connecting to Your Network through the Printer's Ethernet Port](#) on page 20 or in [Connecting the Printer to Your Wireless Network](#) on page 24.
 - **USB Port**—To install printers connected with the USB cable. Connect the printer to the computer as shown in [Connecting the Printer to a Computer Using a USB Port](#). If the printer is already connected and powered on, you may need to remove the USB cable and install it again. The driver will automatically search for the model of the connected printer.
 - **Bluetooth Port**—To install printers with a Bluetooth connection.
 - **Other**—To install using another type of cable, such as Parallel (LPT) and Serial (COM). No additional configuration is necessary. See [Connecting to a Computer Using the Printer's Serial or Parallel Port](#) on page 23.

6. If prompted, select your printer model and resolution.

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

Part Number: XXXXXxY – xxxxxxxx

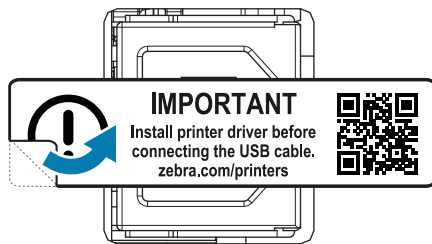
where

XXXXX = the printer model, and Y = the printer resolution (2 = 203 dpi, 3 = 300 dpi, 6 = 600 dpi).

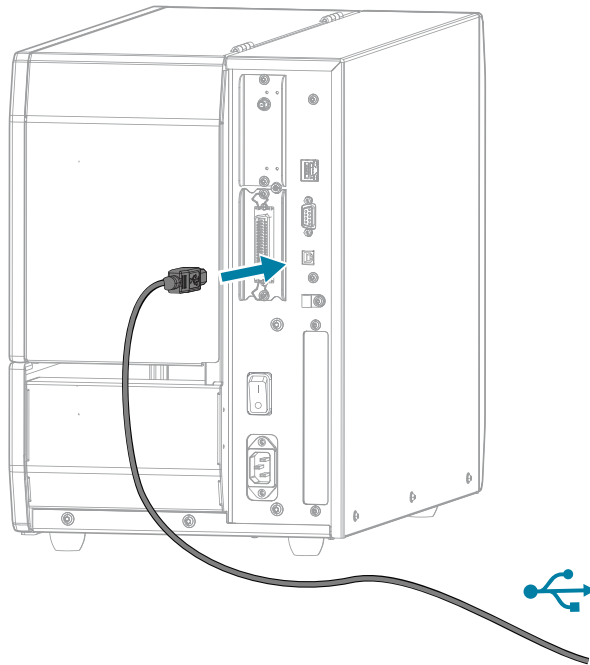
For example, in the part number ZT610x6 – xxxxxxxx, ZT610 indicates that the printer is a ZT610 model, and 6 indicates that the maximum printhead resolution is 600 dpi.

Connecting to a Computer Using the Printer's USB Port

1. After you install the drivers, remove the label that covers the USB port.

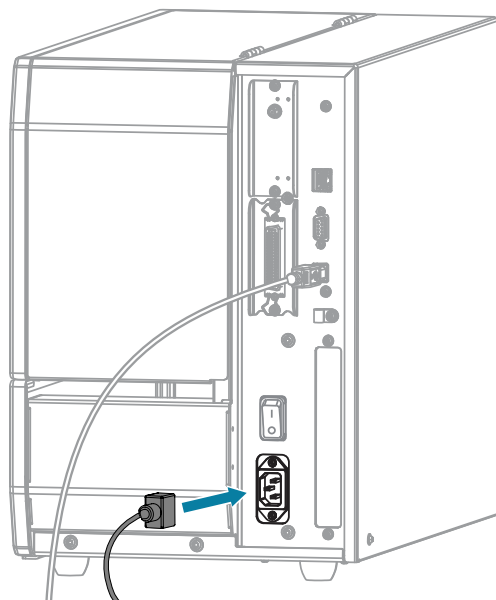


2. Connect the USB cord to the USB port on your printer.

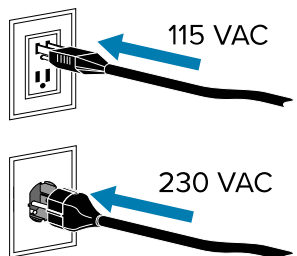


3. Connect the other end of the USB cord to your computer.

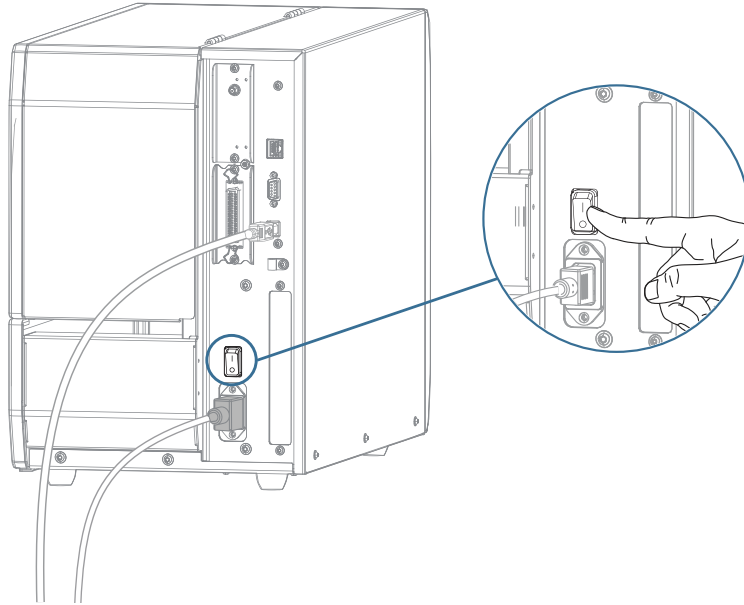
4. Plug the A/C power cord into the A/C power connector on the back of the printer.



5. Plug the A/C power cord into an appropriate power outlet.



6. Turn on (I) the printer.



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



CAUTION—PRODUCT DAMAGE: If you need to power cycle the printer, allow it to fully boot up first. Then after turning it off, wait 30 seconds before turning it back on. Power cycling the printer too quickly can cause issues.

If you did not install the drivers first, see [What to Do If You Forget to Install Printer Drivers First](#) on page 25.

Connecting to Your Network through the Printer's Ethernet Port



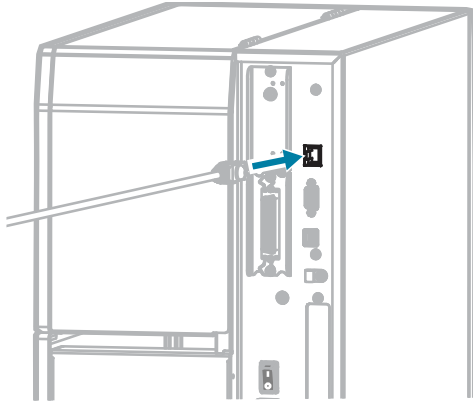
NOTE: For printers purchased in the EMEA region after August 1, 2025, you must configure a Protected Mode password and front panel password for the printer before you can perform wired or wireless setup. For additional information, go to zebra.com/asr or refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

For other printers with Protected Mode enabled, depending on the configuration, you may need to enter the Protected Mode password to change certain settings on the printer. For more information, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

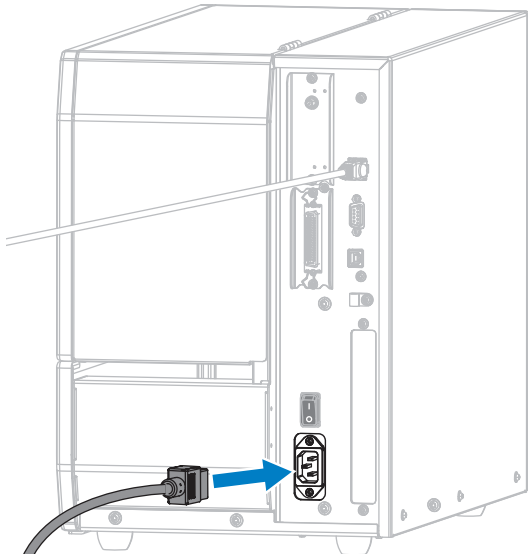
To use a wired print server (Ethernet) connection, you may need to configure the printer to communicate with your Local Area Network (LAN).

For additional information about Zebra print servers, refer to the ZebraNet Wired and Wireless Print Servers User Guide. To download the latest version of these guides, go to zebra.com/support.

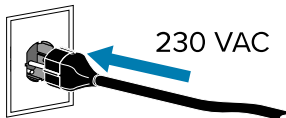
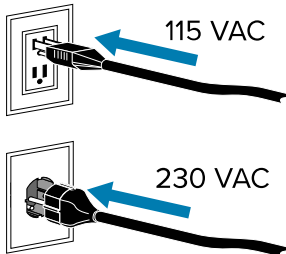
1. After you install the drivers (see [Installing the Drivers](#) on page 11), connect the printer to an Ethernet cable that is connected to your network.



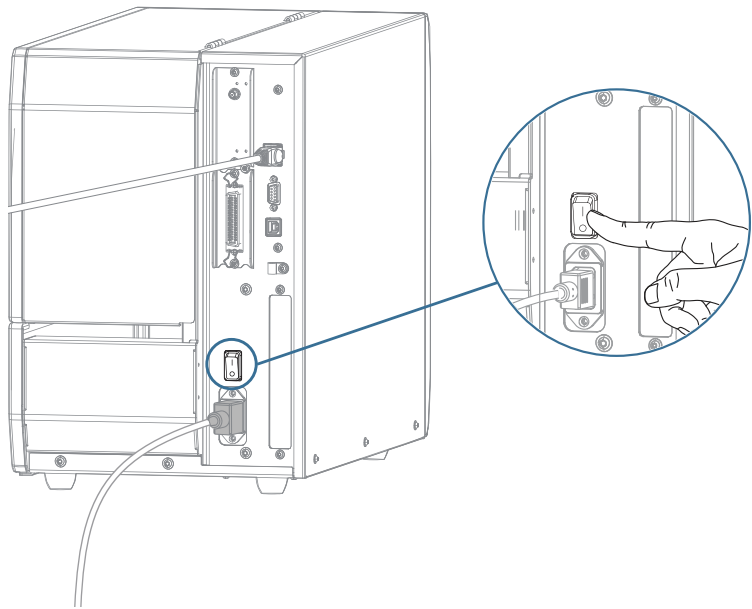
2. Plug the A/C power cord into the A/C power connector on the back of the printer.



3. Plug the A/C power cord into an appropriate power outlet. Your printer's electrical specifications are 100–240 VAC, 50-60 Hz.



4. Turn on (I) the printer.



The printer attempts to communicate with your network. If the search is successful, it fills in your LAN's gateway and subnet values and gets an IP address.

5. On the Home screen, touch the **Printer Info** tab. Check the display to see if an IP address was assigned to the printer.

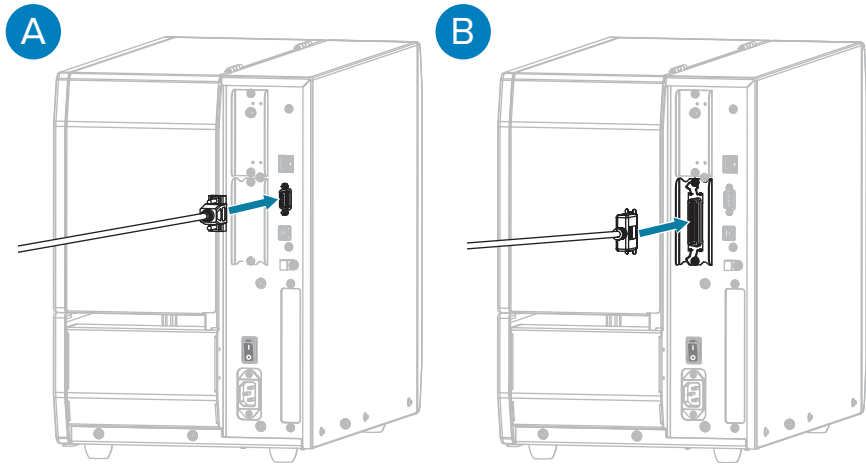
If the printer's IP address is...	Then...
0 . 0 . 0 . 0 or 000 . 000 . 000 . 000	The NETWORK light is off or displays steady red. See Indicator Lights for more information. a. Check the Ethernet connector on the back of the printer. If no light is on or if it is blinking, the Ethernet connection is not active. Check that both ends of the cord are plugged in correctly and that the network port that you are plugging into is active. When this issue is resolved, the printer should connect automatically. b. If necessary, configure the following printer settings to set a static IP address and then reset the network. Contact your network administrator for the proper values for your network. • Connection > Wired > Wired IP Protocol—Change the value from ALL to PERMANENT. • Connection > Wired > Wired Gateway—Match the gateway value of your LAN. • Connection > Wired > Wired Subnet—Match the subnet value of your LAN. • Connection > Wired > Wired IP Address—Assign a unique IP address to the printer.

If the printer's IP address is...	Then...
any other value	The connection was successful. The NETWORK light displays steady green or yellow, depending on the network. (See Indicator Lights for more information.)

6. Reset the network (see Reset Network in [Connection Menu](#)) to allow changes to the network settings to take effect.

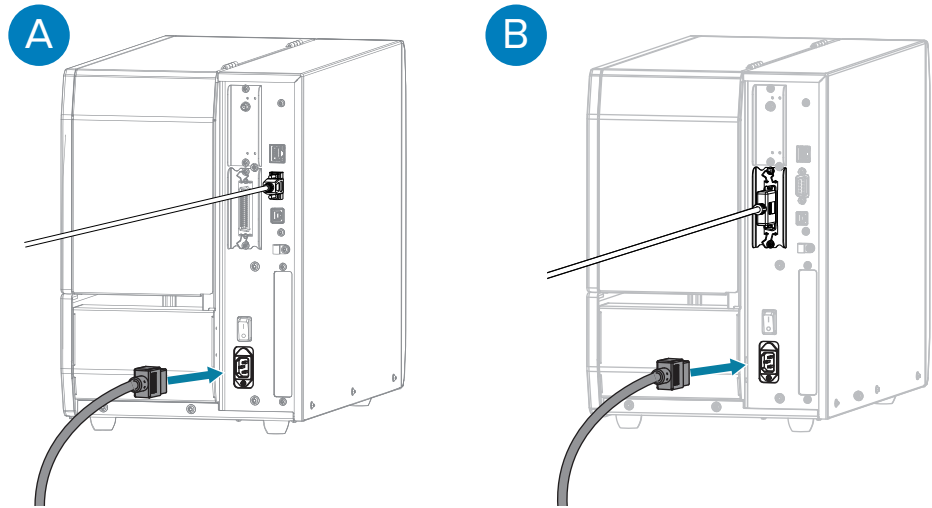
Connecting to a Computer Using the Printer's Serial or Parallel Port

1. Make sure printer power is OFF.
2. Connect the serial or parallel cable to the appropriate port on your printer.



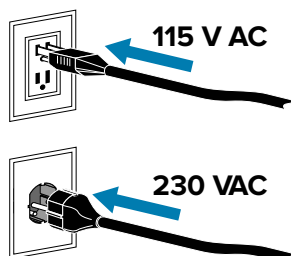
A	Serial cable connection	B	Parallel cable connection
---	-------------------------	---	---------------------------

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

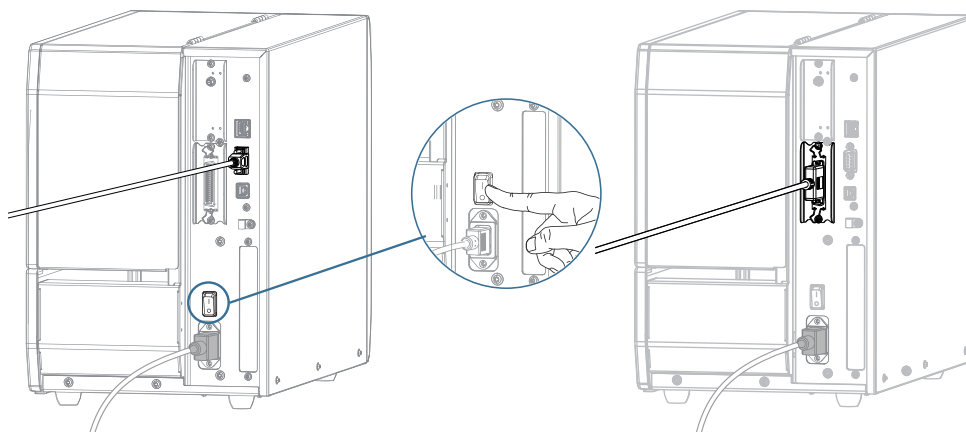


A	Serial cable connection	B	Parallel cable connection
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5. Plug the male end of the A/C power cord into an appropriate power outlet. Your printer can support 100–240 VAC, 50-60 Hz.



6. Run the Zebra Setup Utilities Printer Installation Wizard and turn printer power on (I) when the Wizard instructs you to do so. See [Running the Printer Installation Wizard](#) on page 14.



A	Serial cable connection	B	Parallel cable connection
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7. If necessary, adjust the printer's port settings to match those of your computer. For details on the settings, see [Connection Menu](#).

Connecting the Printer to Your Wireless Network

If you wish to use the printer's optional wireless print server, you must first connect the printer to your computer using one of the other available connections. While the printer is connected via one of those connections, you configure the printer to communicate with your Wireless Local Area Network (WLAN) through the wireless print server.



NOTE: For printers purchased in the EMEA region after August 1, 2025, you must configure a Protected Mode password and front panel password for the printer before you can perform wired or wireless setup. For additional information, go to zebra.com/asr or refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

For other printers with Protected Mode enabled, depending on the configuration, you may need to enter the Protected Mode password to change certain settings on the printer. For more information, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

For more information on this server, see the ZebraNet Wired and Wireless Print Server User Guide. You can download the latest version of this guide from zebra.com/manuals.

1. Install the drivers as instructed in [Installing Drivers and Connecting to a Windows-Based Computer](#) on page 11.

2. If necessary, specify the ESSID value that matches the value used by your wireless router. Check with your network administrator for the ESSID value to use. See ESSID in [Connection Menu](#) for ways to change the value.
3. If necessary, configure the following printer settings. (See [Connection Menu](#)). Contact your network administrator for the proper values for your network.
 - **Connection > WLAN > WLAN Subnet**—Match the subnet value of your WLAN.
 - **Connection > WLAN > WLAN Gateway**—Match the gateway value of your WLAN.
4. Reset the network (see Reset Network in [Connection Menu](#)) to allow changes to these network settings to take effect.
5. If the printer still does not connect, consider setting a static IP address by configuring the following additional settings, and then reset the network again (see Reset Network in [Connection Menu](#)). Contact your network administrator for the proper values for your network.
 - **Connection > WLAN > WLAN IP Protocol**—Change the value from ALL to PERMANENT.
 - **Connection > WLAN > WLAN IP Address**—Assign a unique IP address to the printer.

If needed, add the printer to your computer for management through Zebra Setup Utilities. For detailed instructions, see [Running the Printer Installation Wizard](#) on page 14 and [What to Do If You Forget to Install Printer Drivers First](#) on page 25.

What to Do If You Forget to Install Printer Drivers First

If you plug in your Zebra printer before installing the drivers, the printer displays as an Unspecified device.

1. Follow the instructions in [Installing Drivers and Connecting to a Windows-Based Computer](#) on page 11 to download and install the drivers.
2. From the Windows menu, open the Control Panel.
3. Click **Devices and Printers**.

In this example, the MZ320 is an incorrectly-installed Zebra printer.

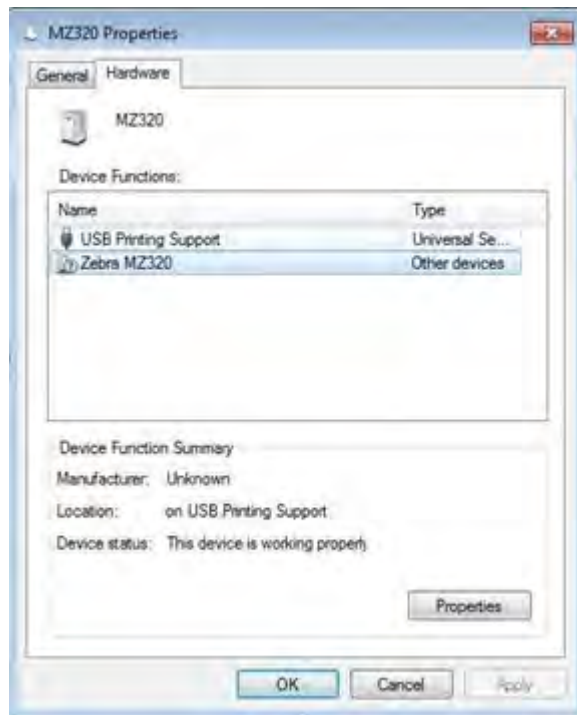


4. Right-click on the device, and select **Properties**.

The properties for the device display.

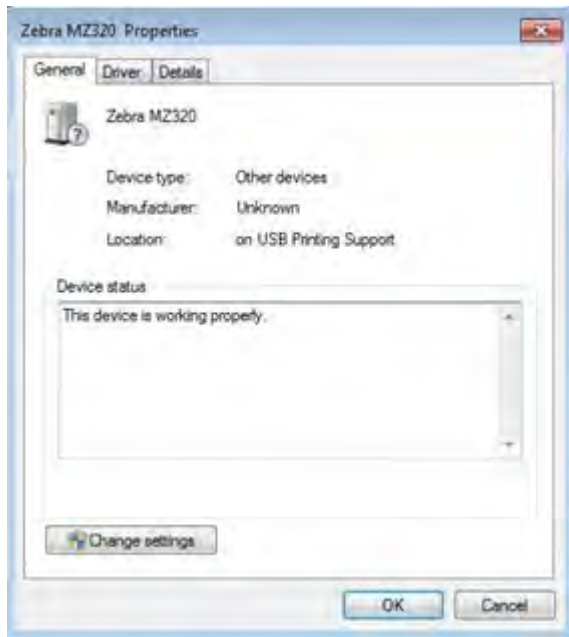


5. Click the **Hardware** tab.



6. Select the Zebra printer in the **Device Functions** list, then click **Properties**.

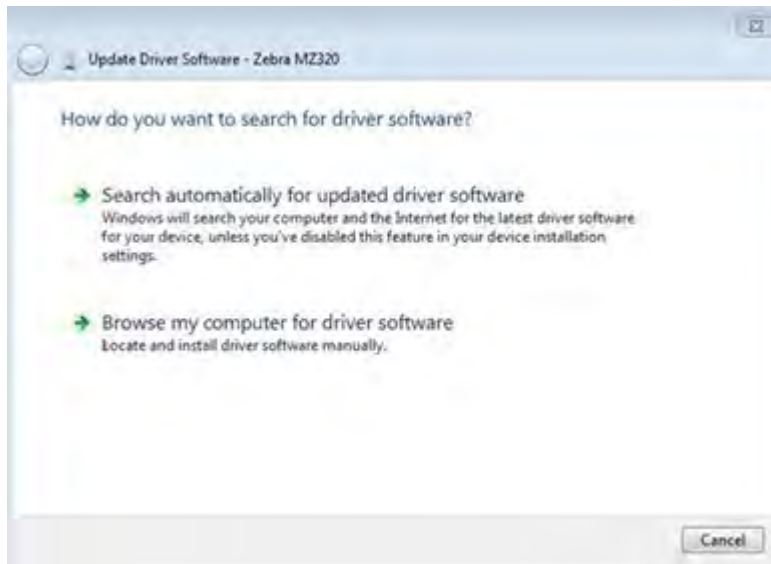
The properties display.



7. Click **Change settings**, then click the **Driver** tab.



8. Click **Update Driver**.



9. Click **Browse my computer for driver software**.
10. Click **Browse...** and navigate to the Downloads folder.
11. Click **OK** to select the folder.



12. Click **Next**.

The device is updated with the correct drivers.

Determining the Media Handling Method

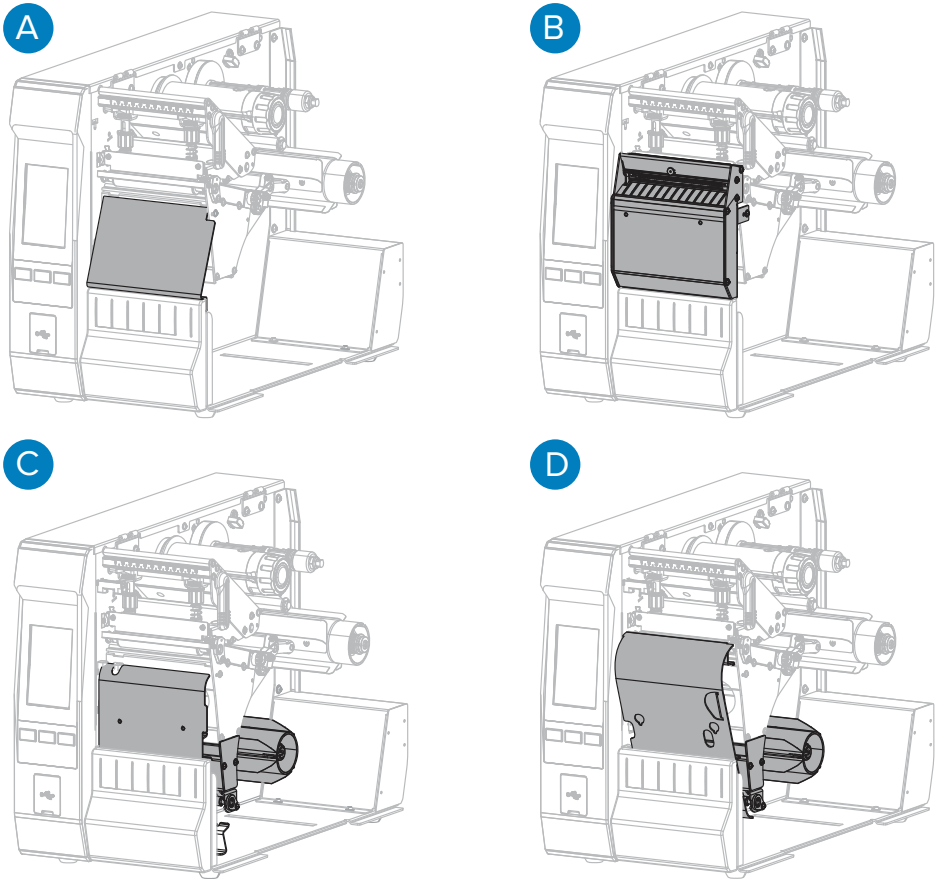
Before loading media, decide on a media handling method that matches the media being used and the printer options available.

Figure 1 Printer Options



NOTE: These images do not apply to the ZT610 with the 600 dpi Micro Label Printer option. For that printer, go to [ZT610 600 dpi Micro Label Printer](#).

Figure 2 Printer Options



A	Tear Off (standard)	B	Cutter
C	Rewind option – Peel Off mode setting	D	Rewind option – Rewind mode setting

Table 2 Media Handling Methods and Printer Options

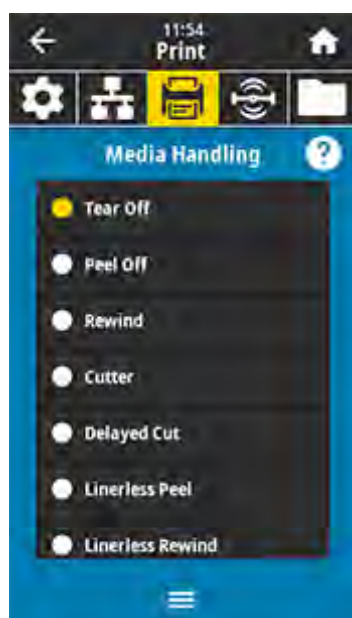
Method	Required Printer Option	Description
Tear Off	Can be used with any printer option and most media types.	The printer prints label formats as it receives them. The printer operator can tear off the printed labels when the printer stops.
Peel Off	Peel, Liner Take-Up, or Rewind option	The printer peels the label from the backing during printing and then pauses until the label is removed. The empty backing may be allowed to exit the front of the printer, or it may be wound onto the liner take-up spindle or rewind spindle.

Table 2 Media Handling Methods and Printer Options (Continued)

Method	Required Printer Option	Description
Rewind	Rewind option	The printer prints without pausing between labels. The media is wound onto a core after printing. The rewind plate is used to keep the labels from separating from the backing.
Cutter*	Cutter option	The printer cuts between labels after each one is printed.
Delayed Cut*	Cutter option	The printer waits for a delayed cut ZPL command (~JK) before it cuts the last printed label.
Applicator	Applicator port connection required. This mode is for use with a machine that applies labels.	The printer prints when it receives a signal from the applicator. Authorized Service Technicians should refer to the Maintenance Manual for additional information about the applicator interface.
 NOTE: Linerless Peel, Linerless Rewind, and Linerless Tear are options reserved for future use.		

1. On the Home screen, touch **Menu > Print > Image Adjust > Media Handling**.

The Media Handling options display.



2. Select a method that matches the media being used and the printer options available.
3. Touch the **Home** icon to return to the Home screen.

See Also

[Print Menu](#)

Loading the Media

Use the instructions in this section to load either roll or fanfold media for the media handling method you plan to use.



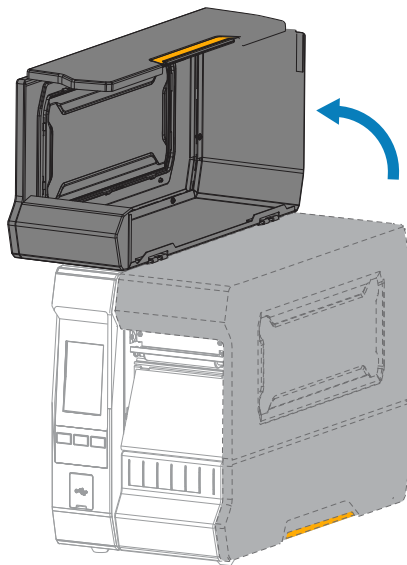
NOTE: This section does not apply to the ZT610 with the 600 dpi Micro Label Printer option. Go to [ZT610 600 dpi Micro Label Printer](#).



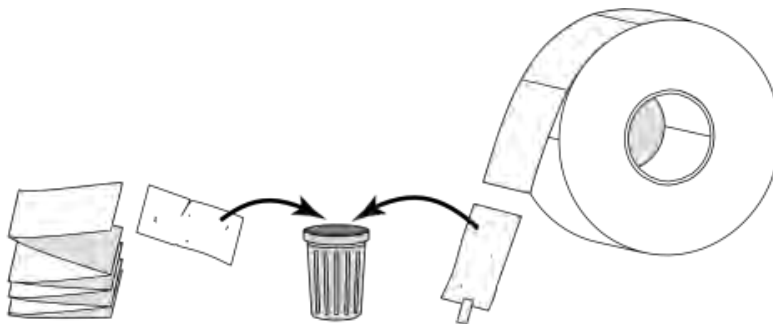
IMPORTANT: You do not have to turn the printer power off when working near an open printhead, but Zebra recommends it as a precaution. If you turn off the power, you will lose all temporary settings, such as label formats, and you must reload them before you resume printing.

The media path is the same for roll and fanfold media.

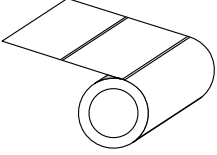
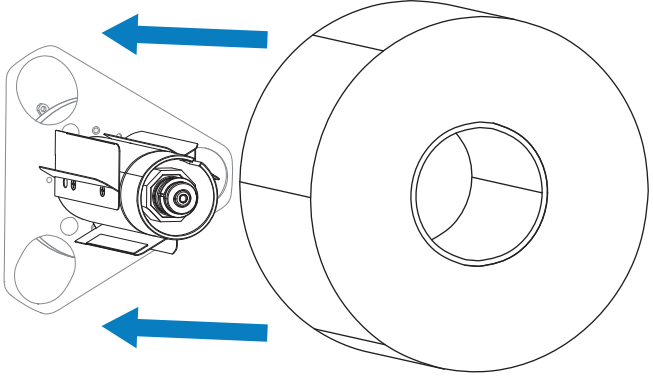
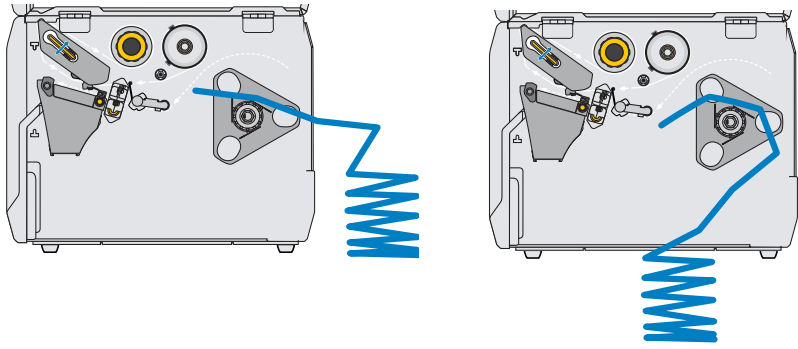
1. Raise the media door.



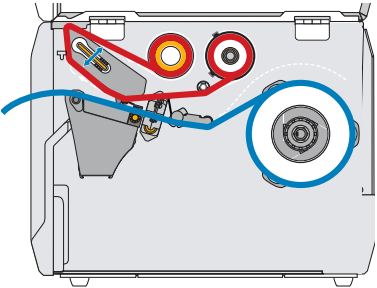
2. Remove and discard any tags or labels that are torn or dirty or that are held by adhesives or tape.

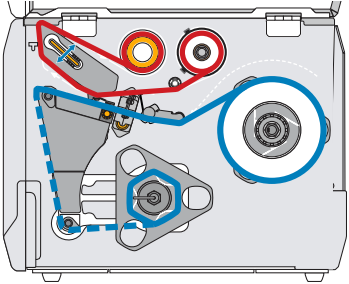
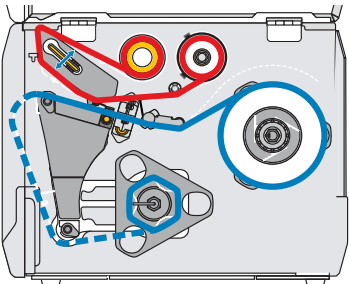
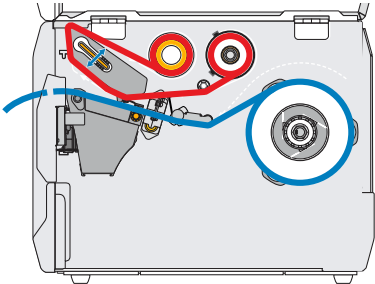


3. Insert roll or fanfold media into the printer. While the media loading path is the same for both media types, this step will be different.

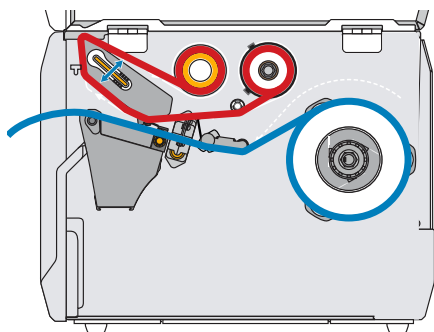
If using roll media... 	Place the roll on the media supply spindle and push the roll as far back as it will go. 
If using fanfold media... 	You can place the supplies and feed them one of two ways: - from behind the printer (see image on the left below), or - from under the printer, using the bottom access slot (see image on the right below). 

4. Use one of the links listed here to finish loading the media, depending on the media handling method you plan to use:

If using...	Complete the steps listed in...
Tear Off 	Finish Loading the Media – Tear-Off Mode on page 34.

If using...	Complete the steps listed in...
Peel Off or Applicator 	Finish Loading the Media – Peel-Off Mode or Applicator Mode on page 41.
Rewind 	Finish Loading the Media – Rewind Mode on page 47.
Cutter or Delayed Cut 	Finish Loading the Media – Cutter Mode or Delayed Cut Mode on page 37.

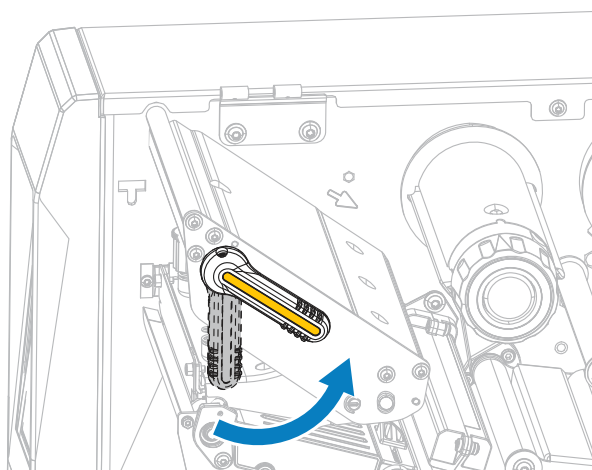
Finish Loading the Media – Tear-Off Mode



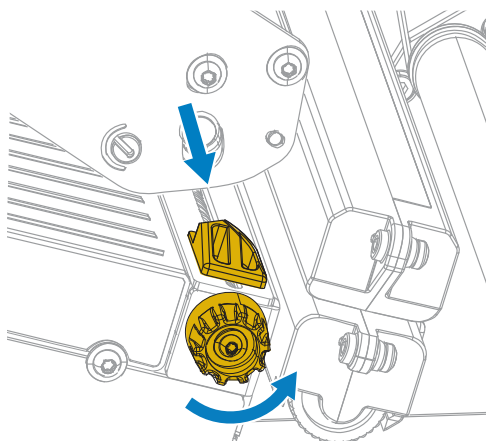
NOTE: This section does not apply to the ZT610 with the 600 dpi Micro Label Printer option. For that printer, go to [ZT610 600 dpi Micro Label Printer](#).

Before proceeding, if you have not already done so, complete the steps in [Loading the Media](#) on page 31.

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

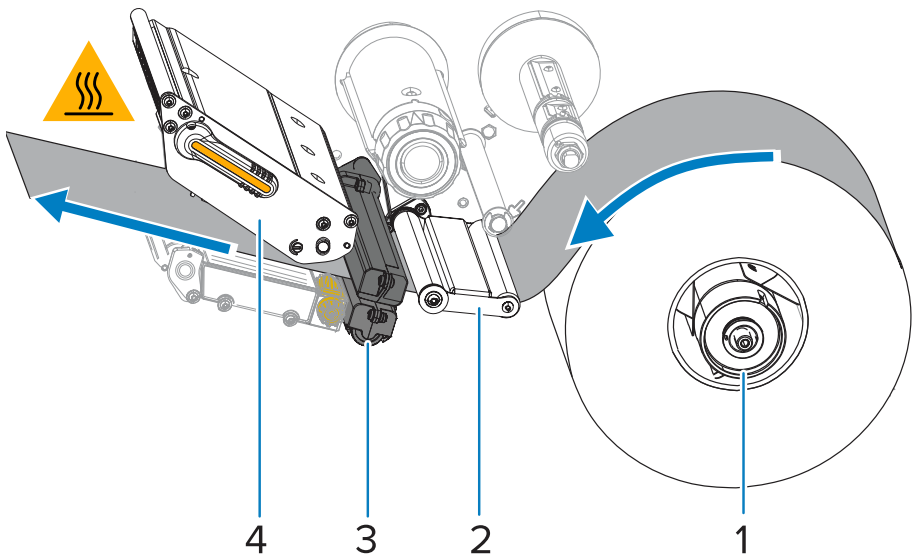


2. Rotate the media guide adjustment knob as shown until the media guide slides all the way out.

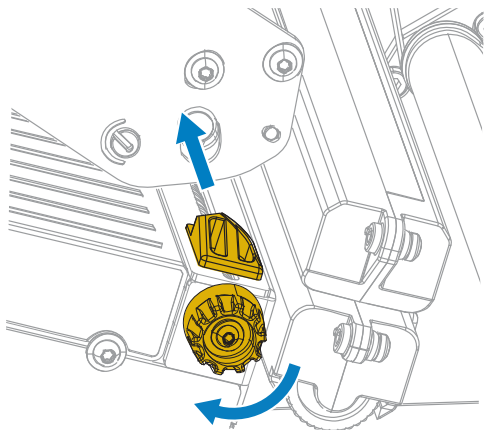


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

3. From the media spindle (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.



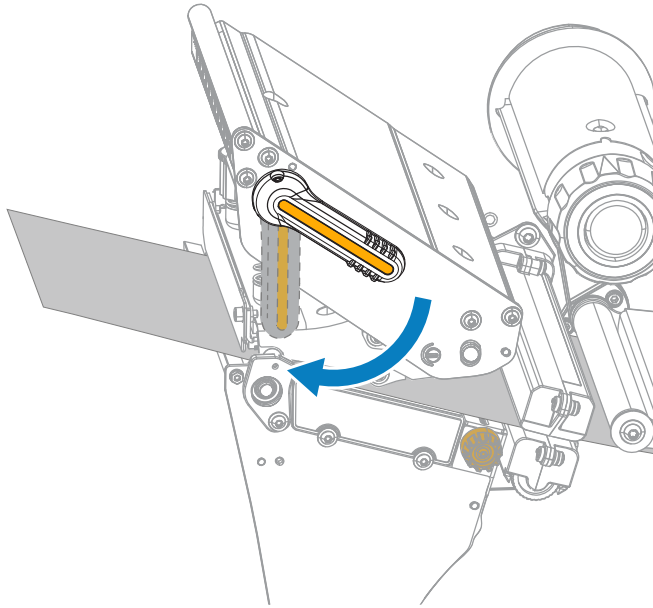
4. Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



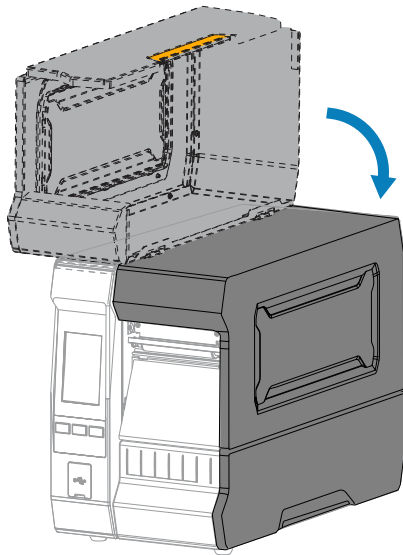
5. Does the media that you are using require ribbon for printing? If you are not sure, see [Ribbon](#) on page 8.

If using...	Then...
Direct Thermal media (no ribbon needed)	Continue to the next step in this procedure.
Thermal Transfer media (ribbon needed)	If you have not already done so, load ribbon in the printer. See Loading the Ribbon on page 55. Then continue to the next step in this procedure.

6. Rotate the printhead-open lever downward until it locks the printhead in place.

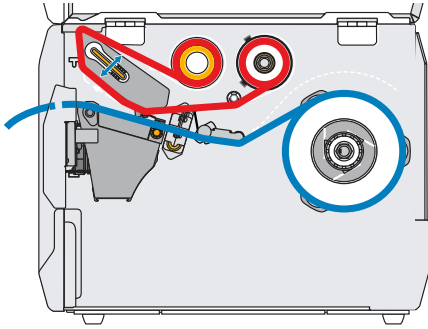


7. Close the media door.



8. Set the printer to the appropriate media handling method that is compatible with your printer (see [Print Menu > Label Position > Collection Method](#)).
9. Press **PAUSE** to exit pause mode and enable printing.
The printer may perform a label calibration or feed a label, depending on your settings.
10. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
11. If desired, print a configuration or other label to verify that your printer is able to print. See **System > Settings > Print: System Settings** in [System Menu](#).

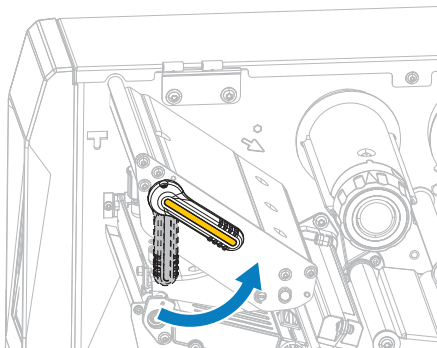
Finish Loading the Media – Cutter Mode or Delayed Cut Mode



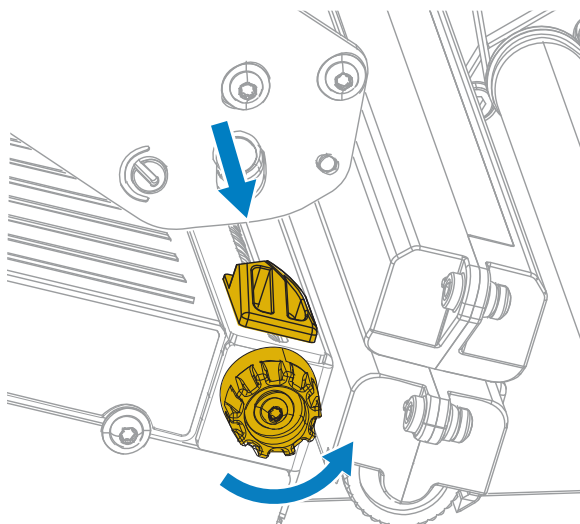
NOTE: This section does not apply to the ZT610 with the 600 dpi Micro Label Printer option. For that printer, go to [ZT610 600 dpi Micro Label Printer](#).

Before proceeding, if you have not already done so, complete the steps in [Loading the Media](#) on page 31.

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

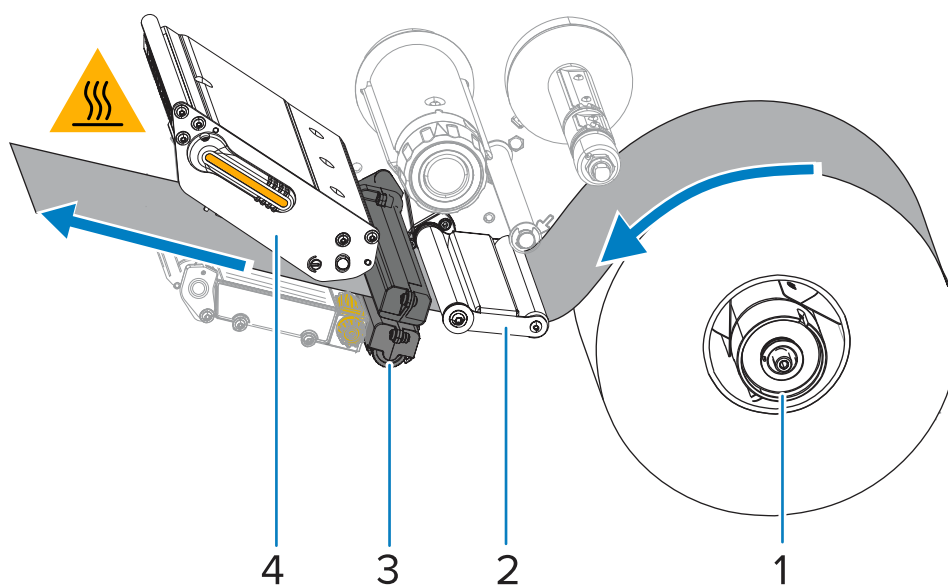


2. Rotate the media guide adjustment knob as shown until the media guide slides all the way out.



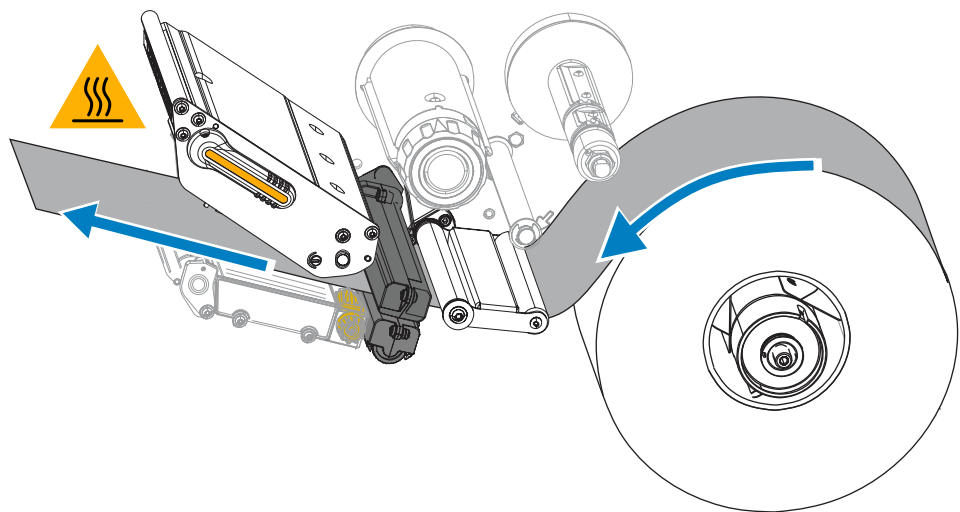
CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

3. From the media spindle (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.

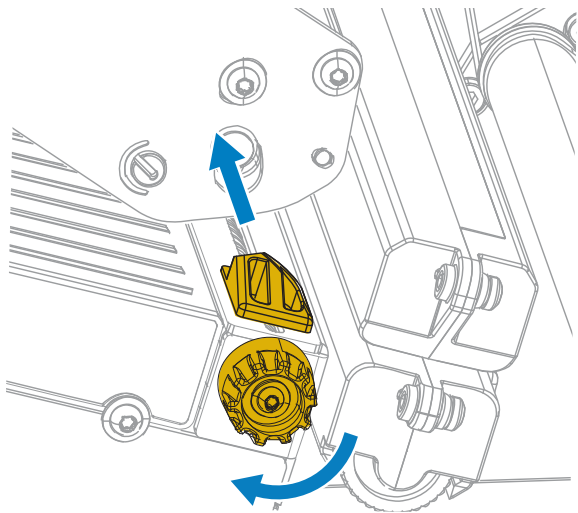


CAUTION: The cutter blade is sharp. Do not touch or rub the blade with your fingers.

4. Feed the media through the cutter.



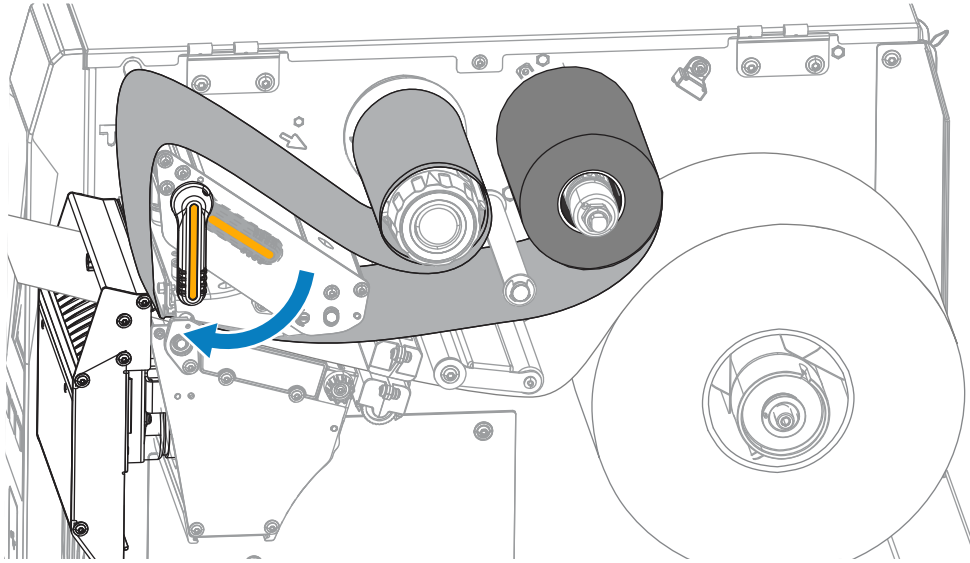
5. Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



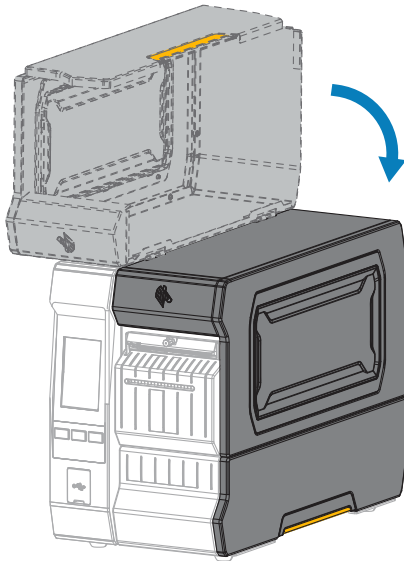
6. Does the media that you are using require ribbon for printing? If you are not sure, see [Ribbon](#) on page 8.

If using...	Then...
Direct Thermal media (no ribbon needed)	Continue to the next step in this procedure.
Thermal Transfer media (ribbon needed)	If you have not already done so, load ribbon in the printer. See Loading the Ribbon on page 55. Then continue to the next step in this procedure.

7. Rotate the printhead-open lever downward until it locks the printhead in place.

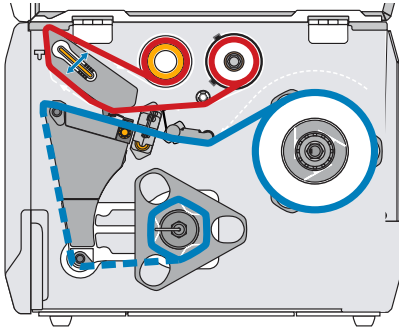


8. Close the media door.



9. Set the printer to the appropriate media handling method that is compatible with your printer (see [Print Menu > Label Position > Collection Method](#)).
10. Press **PAUSE** to exit pause mode and enable printing.
The printer may perform a label calibration or feed a label, depending on your settings.
11. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
12. If desired, print a configuration or other label to verify that your printer is able to print. See **System > Settings > Print: System Settings** in [System Menu](#).

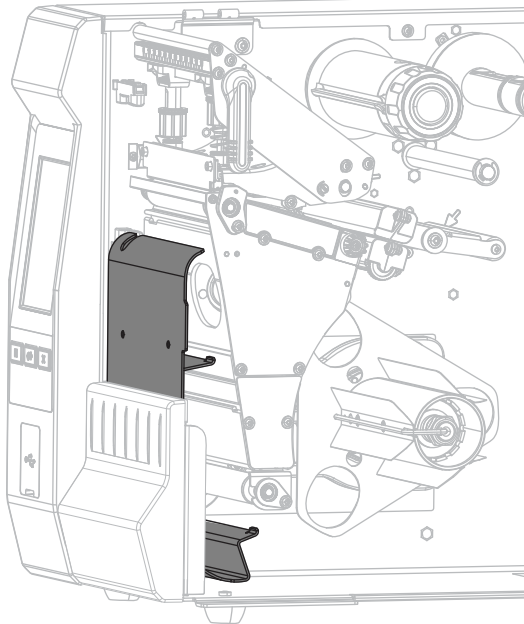
Finish Loading the Media – Peel-Off Mode or Applicator Mode



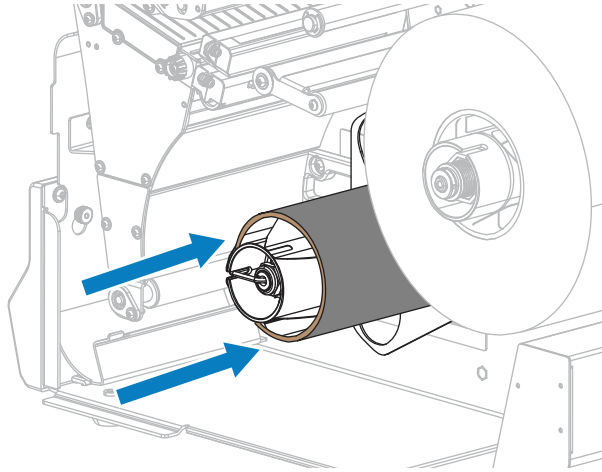
NOTE: This section does not apply to the ZT610 with the 600 dpi Micro Label Printer option. For that printer, go to [ZT610 600 dpi Micro Label Printer](#).

Before proceeding, if you have not already done so, complete the steps in [Loading the Media](#) on page 31.

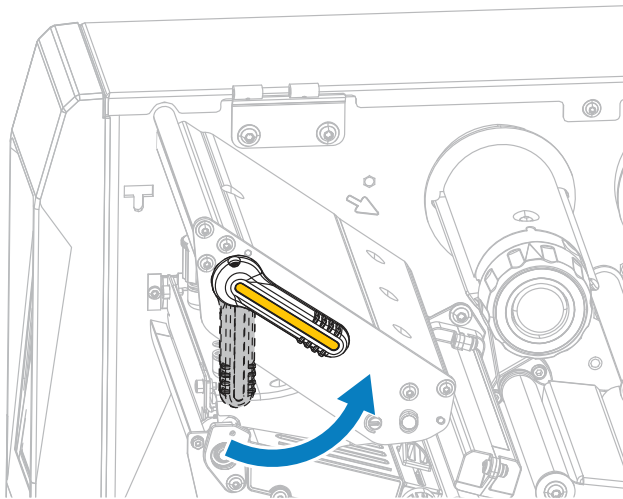
1. If necessary, install the rewind/liner take-up plate in the peel-off position as shown.



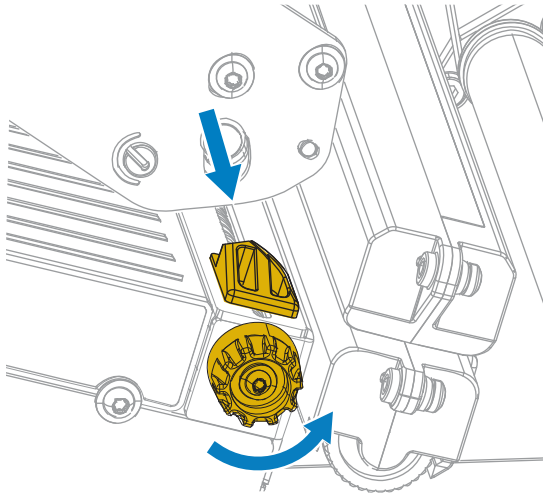
2. If desired, slide a core onto the rewind spindle until it is flush against the guide plate. A core is not necessary for liner take-up.



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

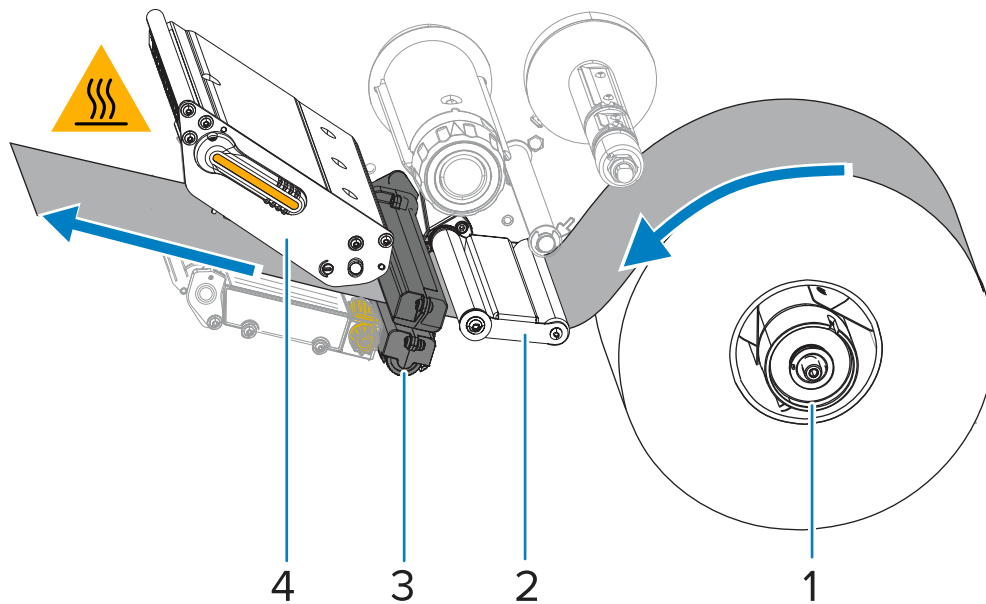


4. Rotate the media guide adjustment knob as shown until the media guide slides all the way out.

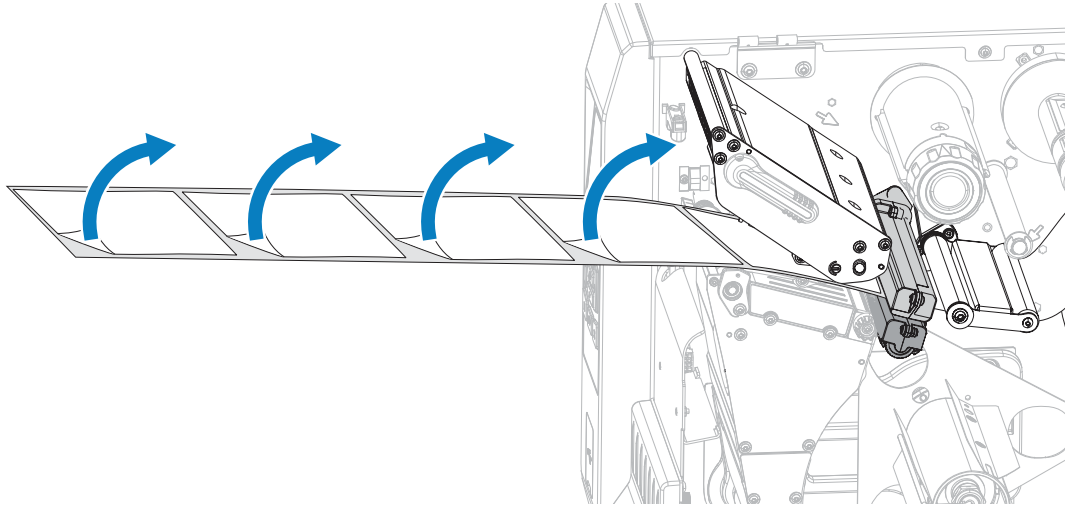


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

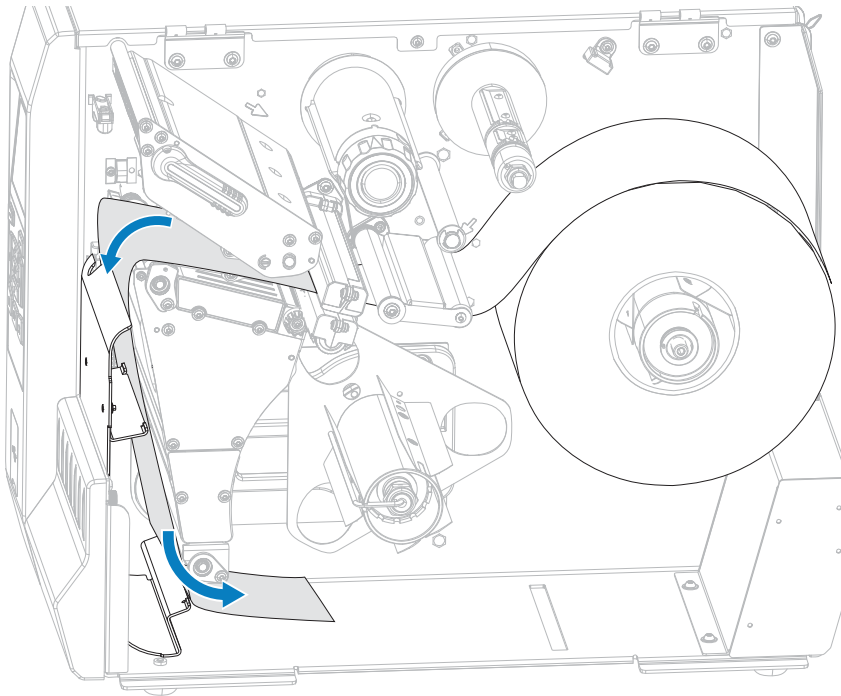
5. From the media spindle (1), feed the media under the dancer assembly (2), through the media sensor (3), and under the printhead assembly (4). Slide the media back until it touches the inside back wall of the media sensor.



6. Extend approximately 500 mm (18 in.) of media out of the printer. Remove and discard the labels from this exposed media, leaving just the liner.

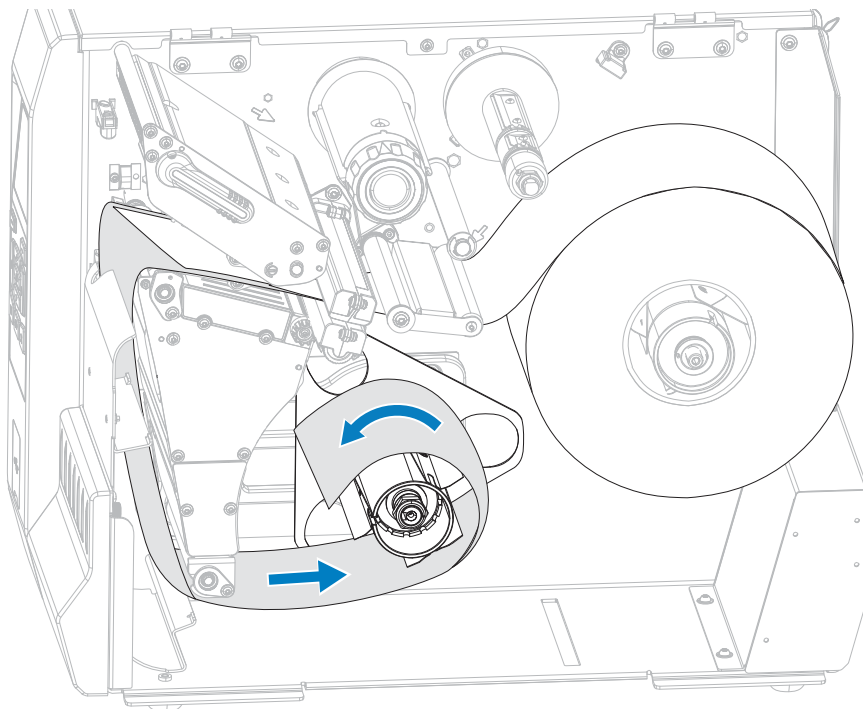


7. Feed the liner behind the rewind/liner take-up plate.

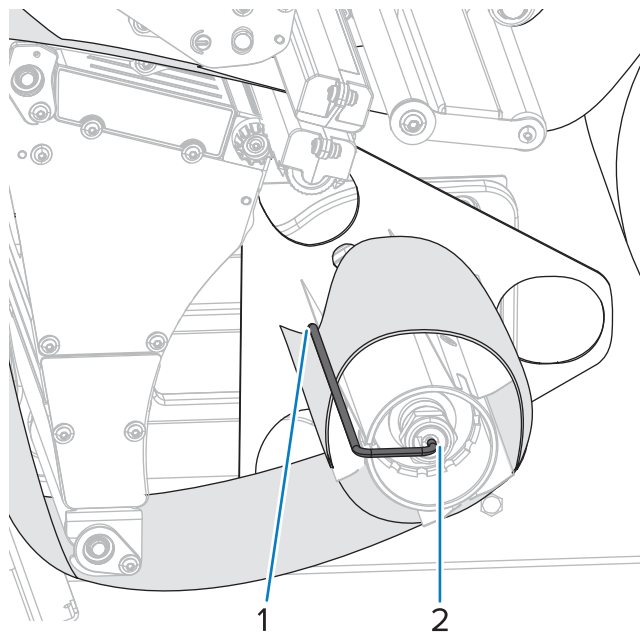


8. Remove the hook from the rewind spindle.

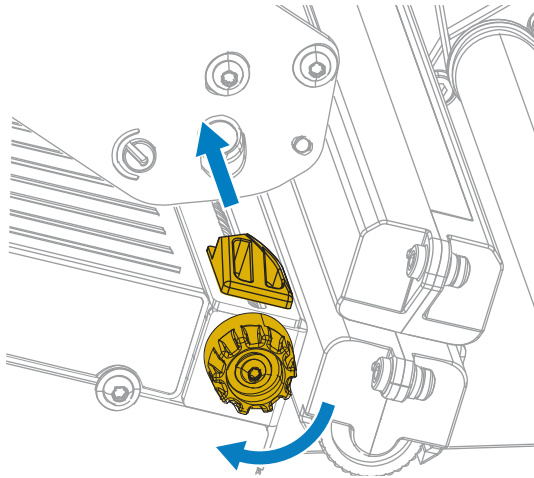
9. Wind the liner around the rewind spindle as shown. Rotate the rewind spindle several turns to tighten the liner and remove any slack.



10. Reinstall the spindle hook over the liner. Insert the long end of the hook into the small hole on the guide plate (1). Insert the short end of the hook into the hole in the center of the adjusting nut (2).



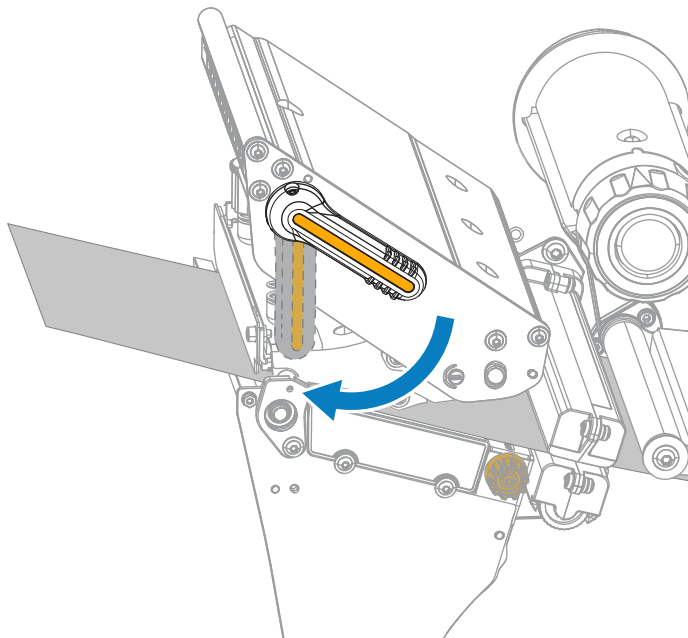
11. Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



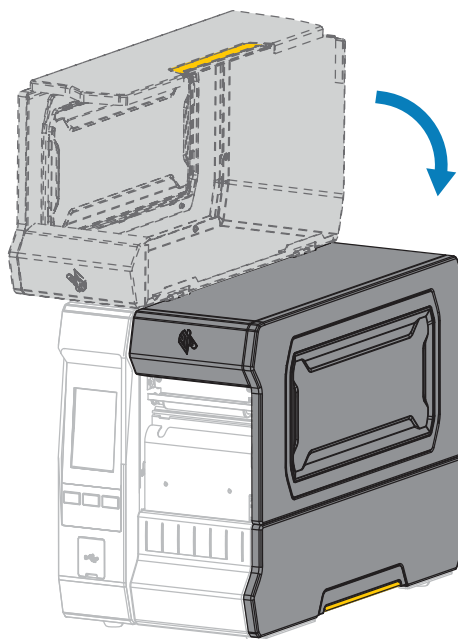
12. Does the media that you are using require ribbon for printing? If you are not sure, see [Ribbon](#) on page 8.

If using...	Then...
Direct Thermal media (no ribbon needed)	Continue to the next step in this procedure.
Thermal Transfer media (ribbon needed)	If you have not already done so, load ribbon in the printer. See Loading the Ribbon on page 55. Then continue to the next step in this procedure.

13. Rotate the printhead-open lever downward until it locks the printhead in place.

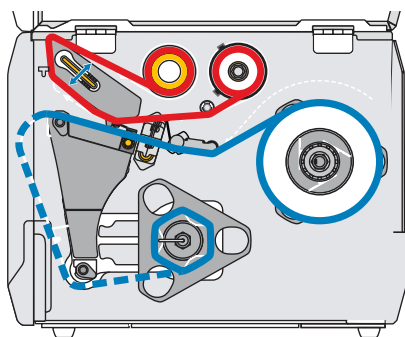


14. Close the media door.



15. Set the printer to the appropriate media handling method that is compatible with your printer (see [Print Menu > Label Position > Collection Method](#)).
16. Press **PAUSE** to exit pause mode and enable printing.
The printer may perform a label calibration or it may feed a label, depending on your settings.
17. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
18. If desired, print a configuration or other label to verify that your printer is able to print. See **System > Settings > Print: System Settings** in [System Menu](#).

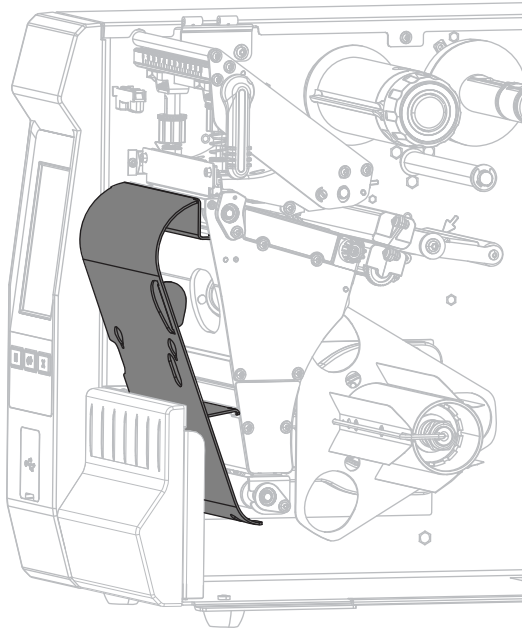
Finish Loading the Media – Rewind Mode



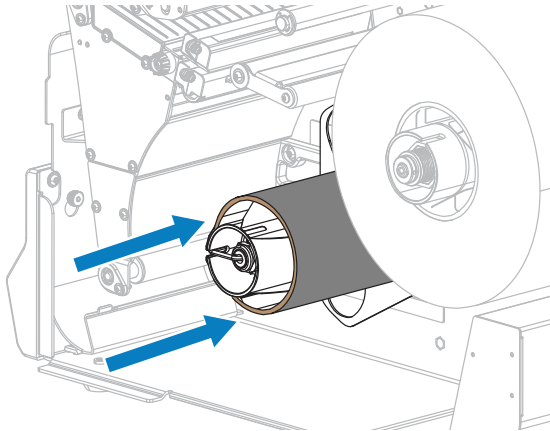
NOTE: This section does not apply to the ZT610 with the 600 dpi Micro Label Printer option. For that printer, go to [ZT610 600 dpi Micro Label Printer](#).

Before proceeding, if you have not already done so, complete the steps in [Loading the Media](#) on page 31.

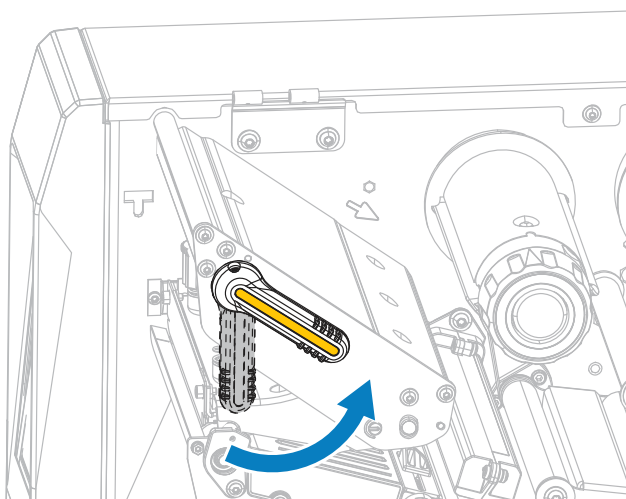
1. If necessary, install the rewind/liner take-up plate in the peel-off position as shown.



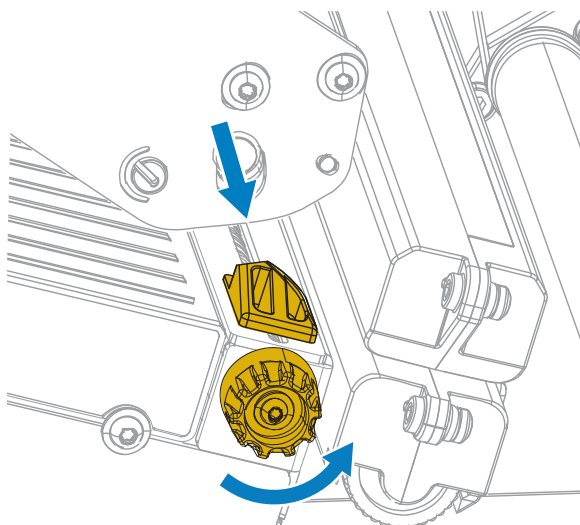
2. Slide a core onto the rewind spindle until it is flush against the guide plate.



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

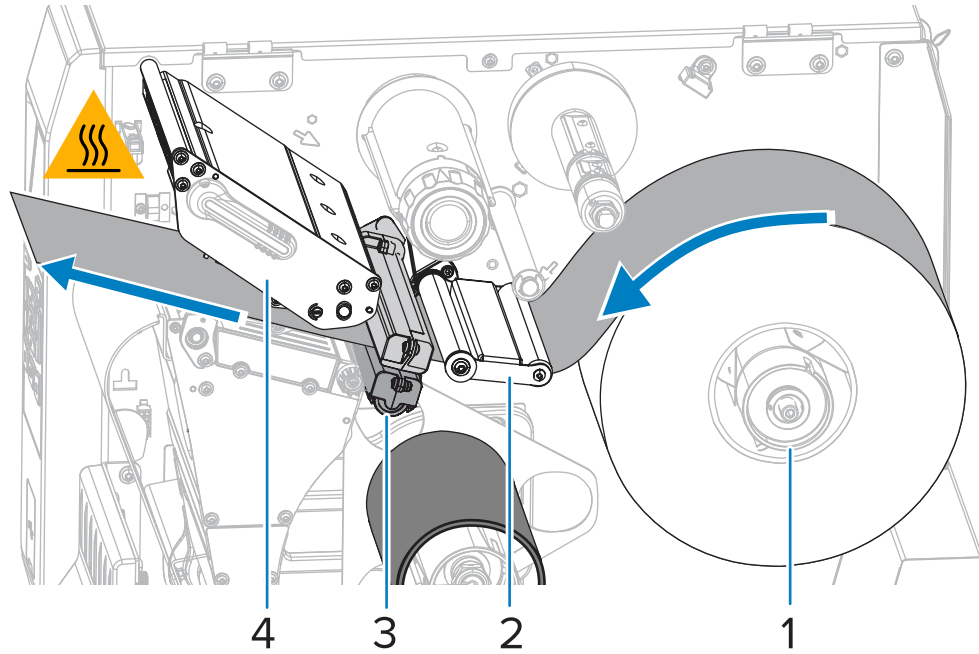


4. Rotate the media guide adjustment knob as shown until the media guide slides all the way out.

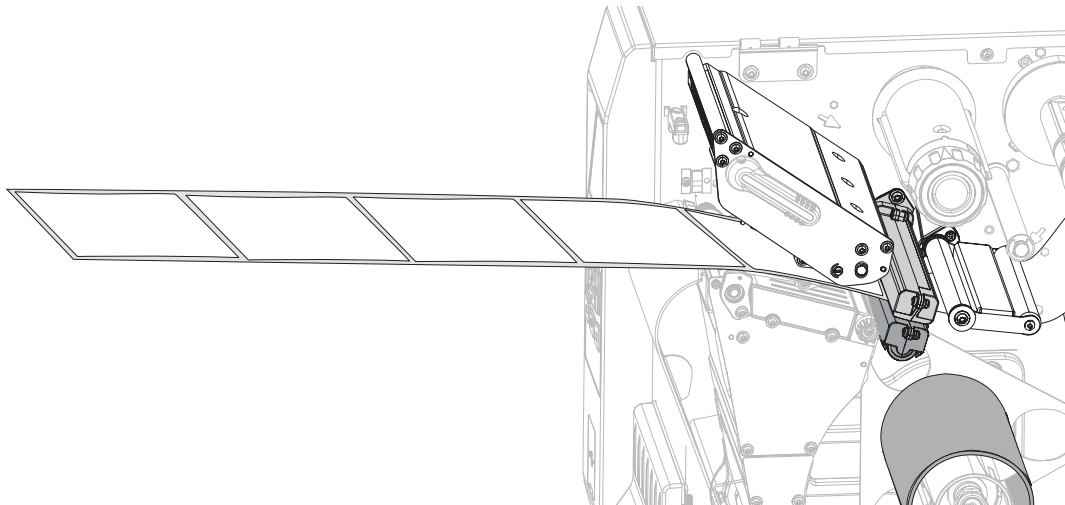


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

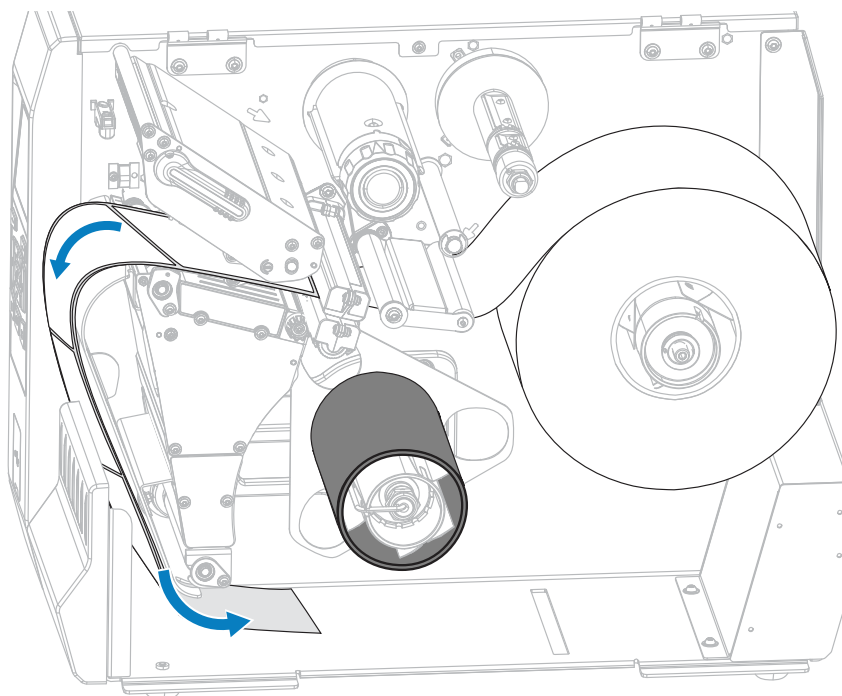
5. From the media spindle (1), feed the media under the dancer assembly (2), through the media sensor (3), and under the printhead assembly (4). Slide the media back until it touches the inside back wall of the media sensor.



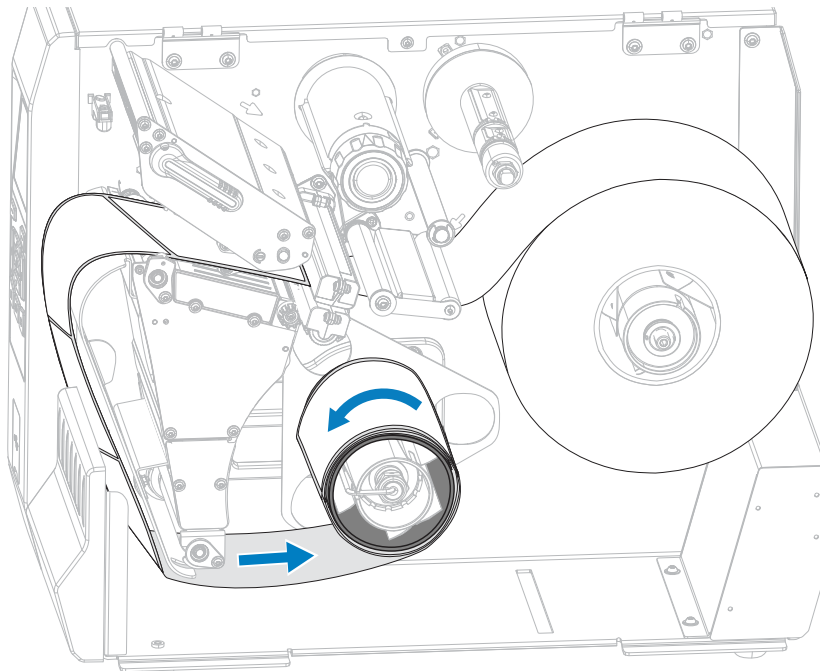
6. Extend approximately 500 mm (18 in.) of media out of the printer. Remove and discard the labels from this exposed media, leaving just the liner.



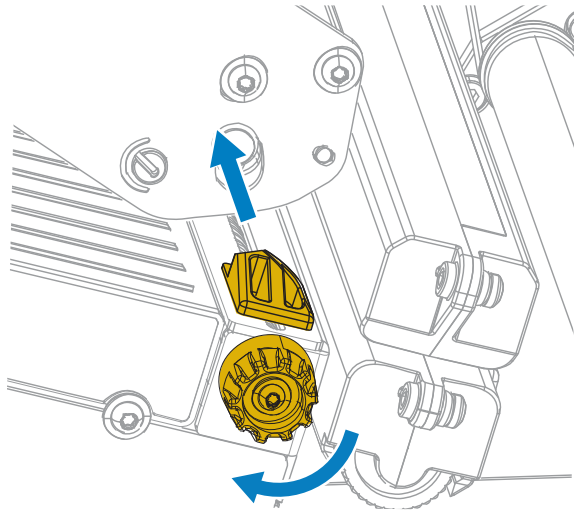
7. Feed the liner behind the rewind/liner take-up plate.



8. Wind the liner around the rewind spindle as shown. Rotate the rewind spindle several turns to tighten the liner and remove any slack.



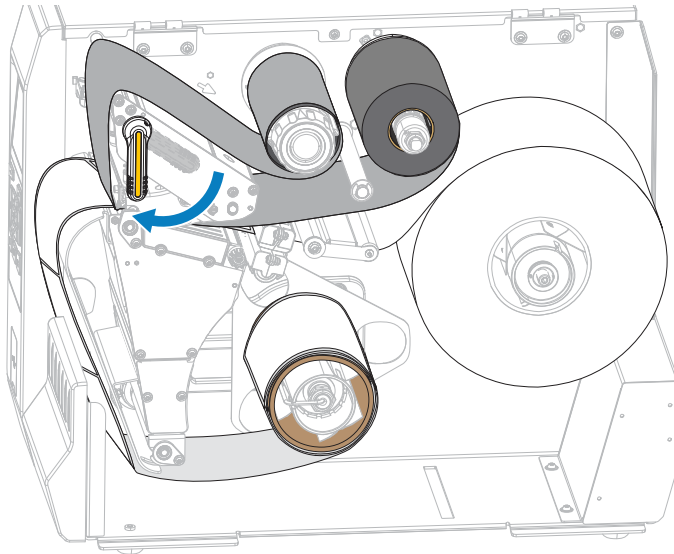
9. Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



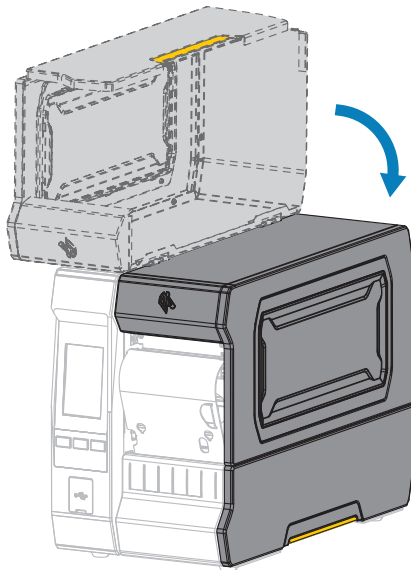
10. Does the media that you are using require ribbon for printing? If you are not sure, see [Ribbon](#) on page 8.

If using...	Then...
Direct Thermal media (no ribbon needed)	Continue to the next step in this procedure.
Thermal Transfer media (ribbon needed)	If you have not already done so, load ribbon in the printer. See Loading the Ribbon on page 55. Then continue to the next step in this procedure.

11. Rotate the printhead-open lever downward until it locks the printhead in place.



12. Close the media door.



13. Set the printer to the appropriate media handling method that is compatible with your printer (see [Print Menu > Label Position > Collection Method](#)).
14. Press **PAUSE** to exit pause mode and enable printing.
The printer may perform a label calibration or feed a label, depending on your settings.
15. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
16. If desired, print a configuration or other label to verify that your printer is able to print. See **System > Settings > Print: System Settings** in [System Menu](#).

Determining the Type of Ribbon to Use



NOTE: This section applies only to printers that have the Thermal Transfer option installed.

What Kind of Ribbon Can I Use?

Rolls of ribbon are wound with the coated surface of ink on the inside of the roll or on the outside of the roll. This printer with a standard Thermal Transfer option uses ribbon that is coated on the outside. An optional ribbon spindle is available to use ribbon that is coated on the inside. Contact your authorized Zebra reseller for ordering information.

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.

Performing an 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.

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 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 it can be used in this printer.	
Did not adhere to the label	The ribbon is coated on the inside and it cannot be used in the standard printer. To verify this result, repeat the test on the other surface of the roll of ribbon.	

Performing a Ribbon Scratch Test

Perform the ribbon scratch test when labels are unavailable.

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 it can be used in this printer.	
Did not leave a mark on the paper	The ribbon is coated on the inside and it cannot be used in the standard printer. To verify this result, repeat the test on the other surface of the roll of ribbon.	

Loading the Ribbon



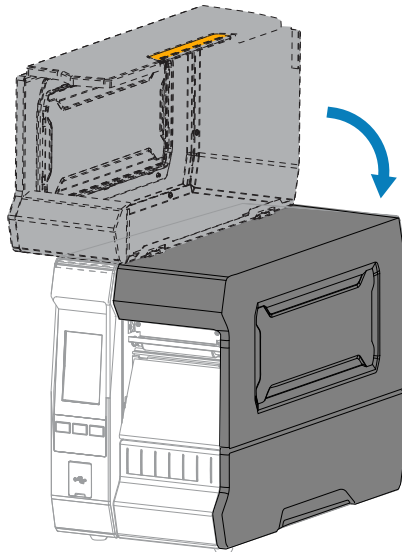
IMPORTANT: You do not have to turn printer power off when working near an open printhead, but Zebra recommends it as a precaution. If you turn off the power, you will lose all temporary settings, such as label formats, and you must reload them before you resume printing.



IMPORTANT: To protect the printhead from wear, use ribbon that is wider than the media.

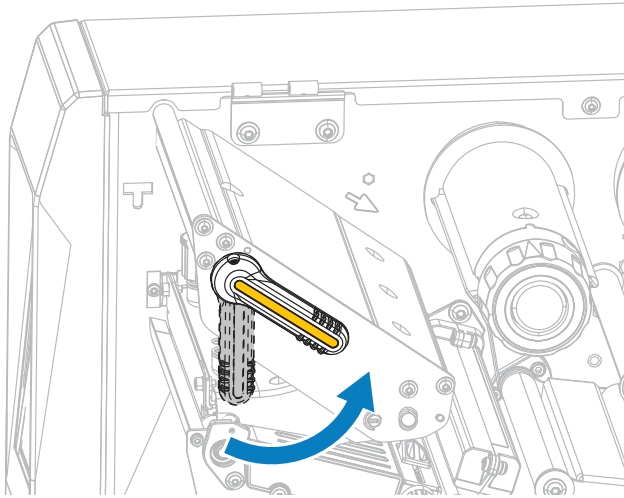
Ribbon must be coated on the outside for use in a standard printer. For more information, see [What Kind of Ribbon Can I Use?](#) on page 54.

1. Raise the media door.

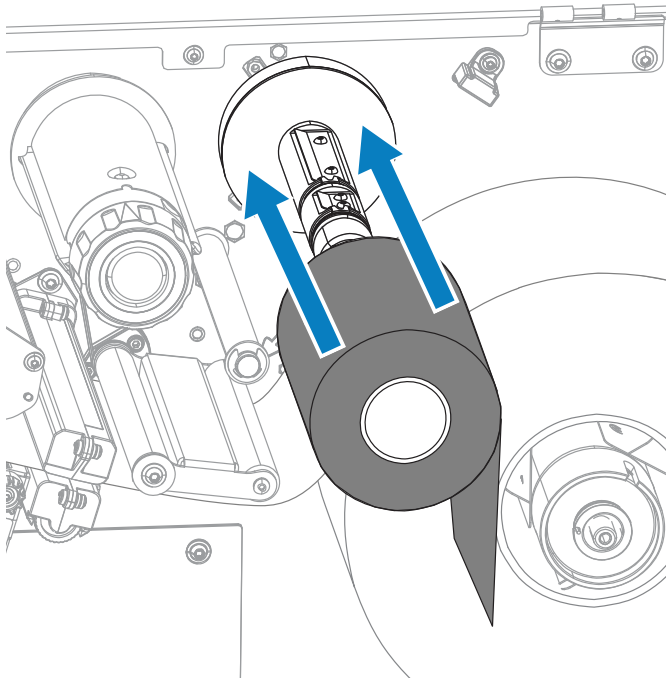


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

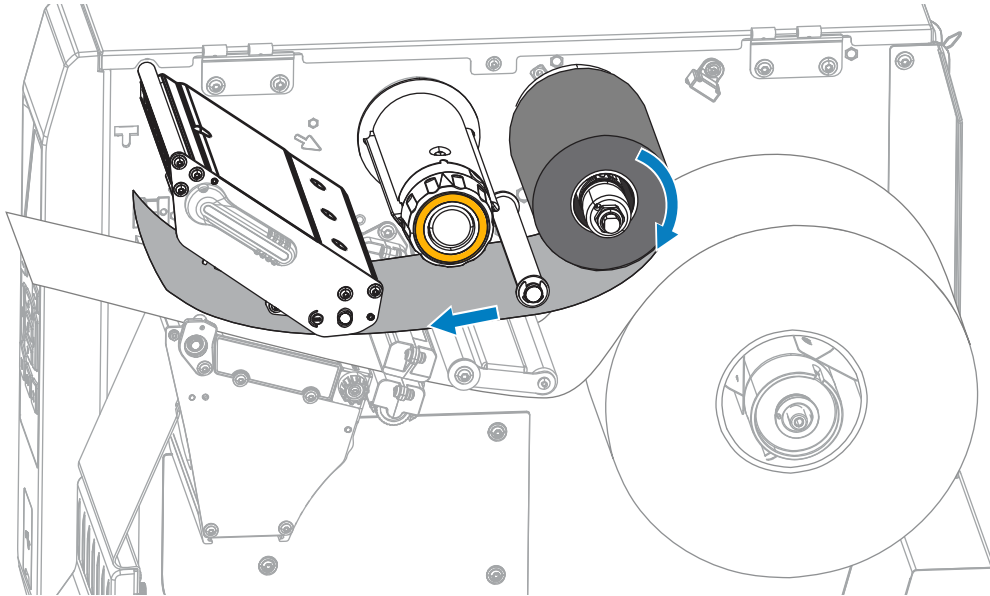
2. Open the printhead assembly by rotating the printhead-open lever upward.



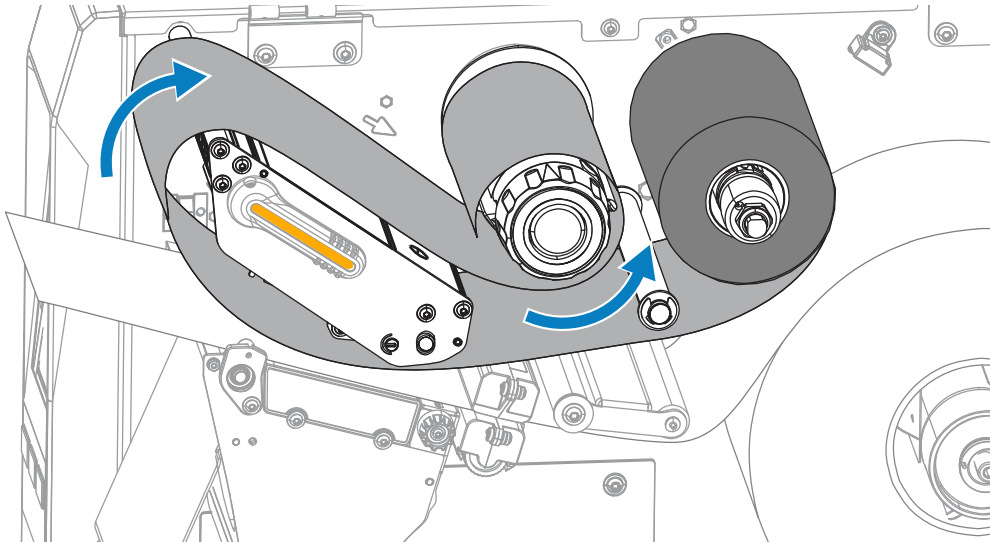
3. Place the roll of ribbon on the ribbon supply spindle with the loose end of the ribbon unrolling as shown. Push the roll back as far as it will go.



- 4.** Bring the ribbon under the printhead assembly and around its left side, as shown.

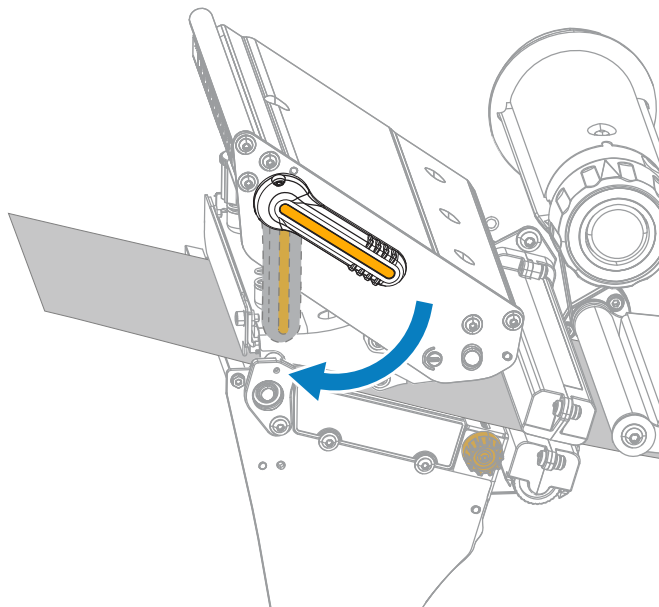


- 5.** With the ribbon tracking as far back as it can under the printhead assembly, wrap the ribbon around the ribbon take-up spindle. Rotate the spindle several turns in the direction shown to tighten and align the ribbon.

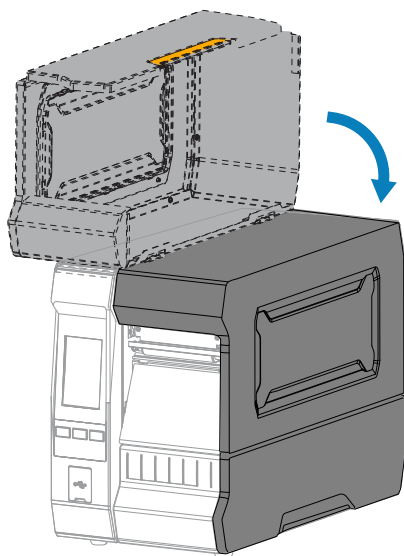


- 6.** If media is not loaded in the printer, complete the steps in [Loading the Media](#) on page 31, continue with the next steps in this procedure. If media is loaded, proceed to the next step.

7. Rotate the printhead-open lever downward until it locks the printhead in place.



8. Close the media door.



9. If necessary, press **PAUSE** to enable printing.

Running the Print Wizard and Printing a Test Label

The Print Wizard configures the printer, prints test labels, and adjusts print quality based on the results of the test labels.



IMPORTANT: When using the Wizards, do not send data to the printer from the host.

For optimal results, use full-width media running the **Print Wizard** or **Set All Wizard**. If the media is smaller than the image to be printed, the results may be truncated or printed across multiple labels.

After you have completed the printer setup procedures and run the printer setup wizard, use 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 print settings.

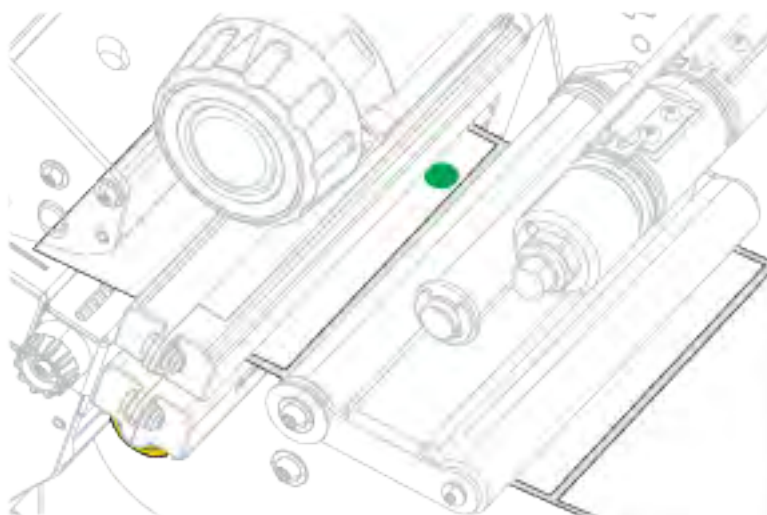
1. On the Home screen, touch **Wizards > Print > Start Print**.

2. Follow the prompts to specify the following information:

- print type (Thermal Transfer or Direct Thermal)
- label type (Continuous, Gap/Notch, or Mark)
- label width
- collection method (tear off, peel off, rewind, cutter, delayed cut, linerless peel, linerless rewind, linerless tear, or applicator)

After you have specified these, the wizard instructs you to load media and then place a label over the media sensor.

3. Load media so that a label is over the green light from the media sensor, then touch the checkmark. See [Loading the Media](#) on page 31.



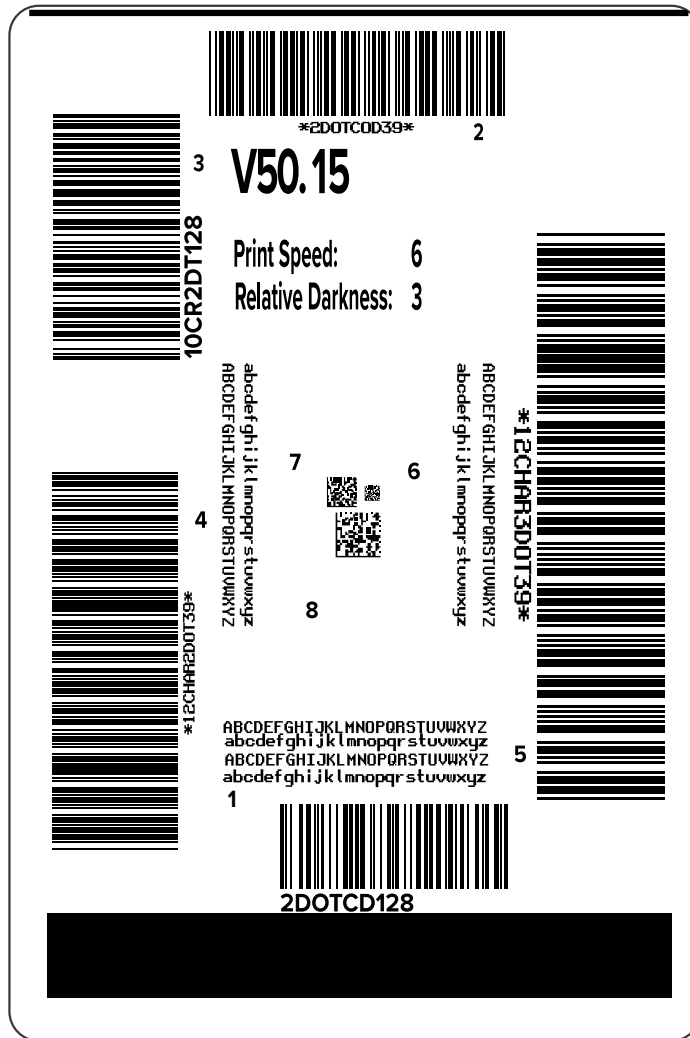
4. At the prompt, close the printhead, and then touch the **Next** checkmark.

The printer calibrates and then asks if you would like to print a test label.

5. Follow the prompts until the printer completes auto calibration.

- When asked to print a test label, touch the checkmark.

A test label similar to this one prints. If your labels are smaller than the image, only a portion of the test label will print.

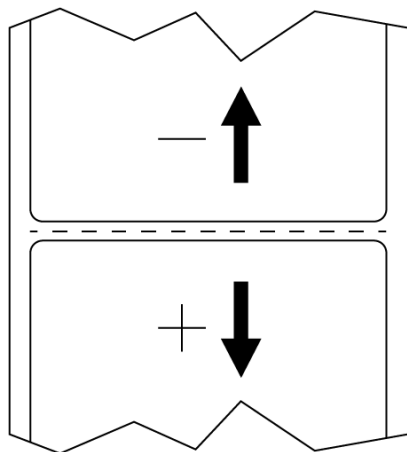


7. Examine the position of the label over the tear bar. If necessary, shift the position of the media over the tear-off bar after printing.

- If the space between labels falls on the tear bar, continue with the next step.
- If the space between labels does not fall directly on the tear bar, shift the position of the media over it after printing.

Lower numbers move the media into the printer by the specified number of dots (the tear line moves closer to the edge of the label just printed).

Higher numbers move the media out of the printer (the tear line moves closer to the leading edge of the next label).



8. Examine the quality of the image on the test label. Is the quality of the barcode and text on the test label acceptable? See [Evaluating Barcode Quality](#) on page 153 for assistance.

- If yes, touch the checkmark, and then look for any other issues that may be affecting print quality. See [Printing or Print Quality Issues](#) on page 171.
- If no, adjust the print quality manually by changing darkness and speed settings through the printer's menu system, or run the Print Quality Assistance wizard. See [Using the Print Quality Assistance Wizard](#) on page 61.

Using the Print Quality Assistance Wizard

1. From the last step of the Print wizard, touch **Print Quality Assistance**.

The printer prompts for the number of test labels to print. The more labels you choose to print, the more choices that you will have available to decide on label quality. In general, if your test label from the previous wizard was acceptable, a lower number of test labels in this step will probably suffice.

2. Select a number of test labels to print.

The printer prints the specified number of test labels and prompts you for the preferred test label.

3. Decide which test label is the optimal quality. (Refer to [Evaluating Barcode Quality](#) on page 153 for assistance.) If none of the labels are acceptable, use the arrow to back up a screen in the wizard, and select a larger number of test labels.

4. In the list on the display, select the identifier for the test label with the specified quality, and then touch the checkmark.

The printer changes the darkness and speed to the levels used on the preferred test label.

5. If necessary, see [Printing or Print Quality Issues](#) on page 171 to see what other issues may be affecting your print quality.

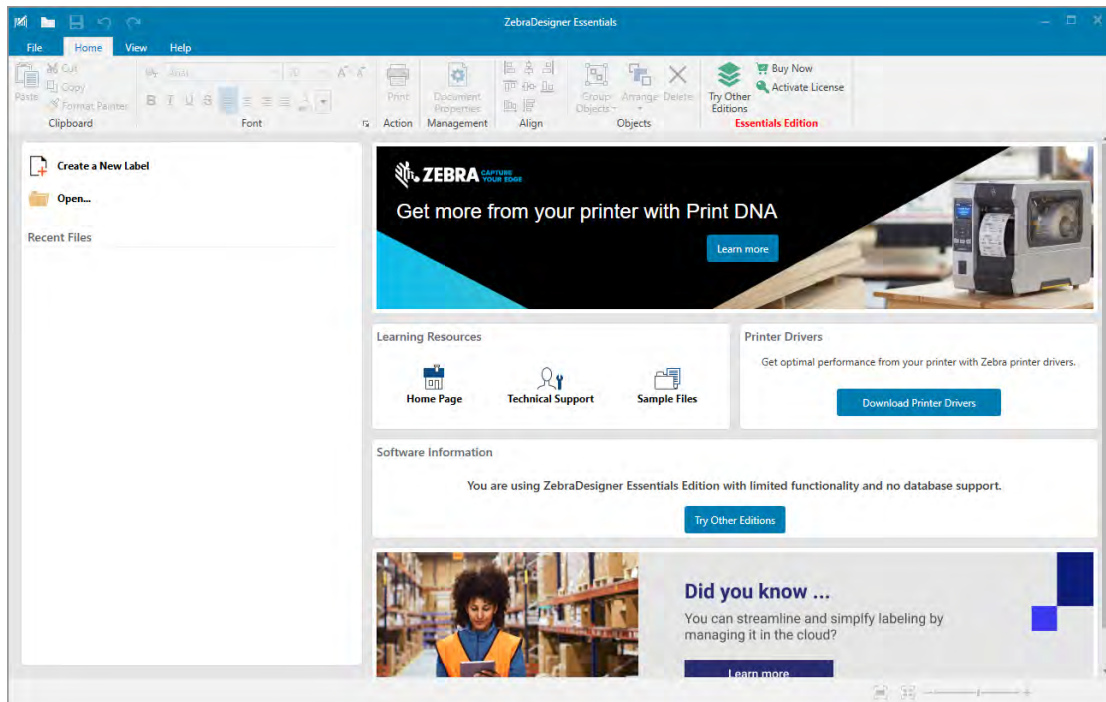
The print setup procedure is complete.

Installing Label Design Software

Select and install the software that you will use to create label formats for your printer.

One option is ZebraDesigner, which you can download from zebra.com/zebradesigner. You can choose to use ZebraDesigner Essentials for free or purchase ZebraDesigner Professional for a more robust toolset.

Figure 3 Sample ZebraDesigner Essentials Screen



ZebraDesigner System Requirements

System requirements for the ZebraDesigner label-format design application are listed below:

- 32-bit or 64-bit Windows 10 desktop editions, Windows 11 desktop editions, Windows Server 2016, Windows Server 2019, Windows Server 2022 operating systems.
- CPU: Intel or compatible x86 family processor
- Memory: 2 GB or more RAM
- Hard drive: 1 GB of available disk space
- Microsoft.NET Framework Version 4.7.2
- Display: 1366 × 768 or higher resolution monitor
- ZDesigner printer drivers



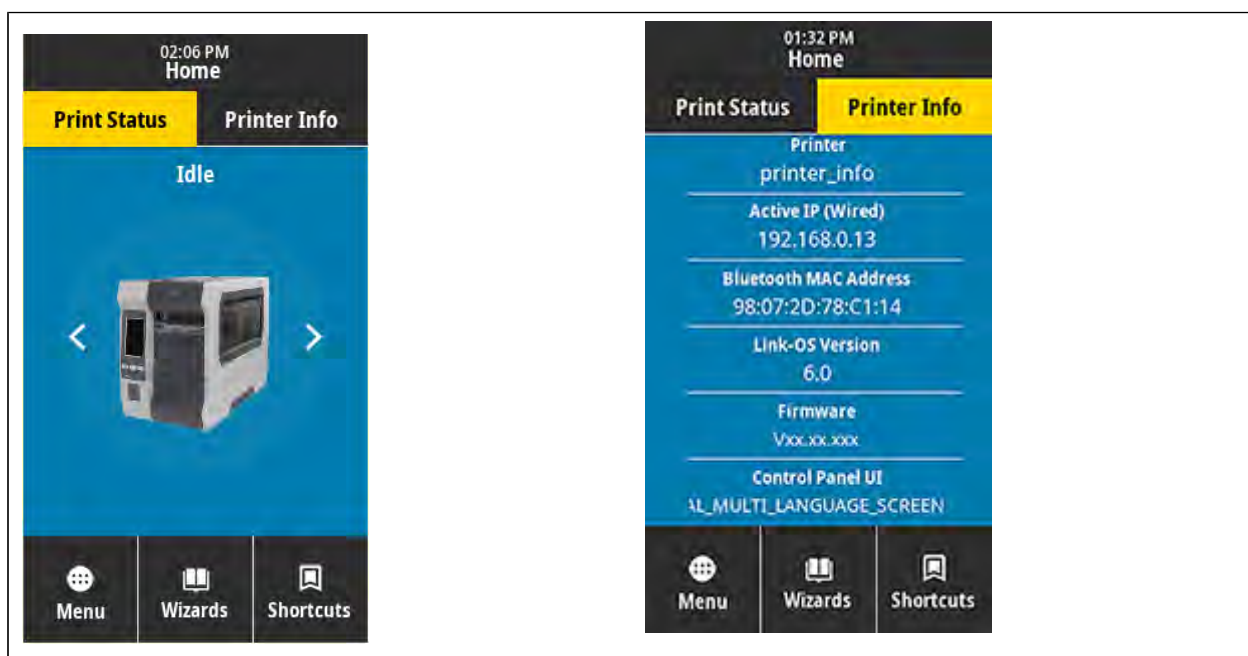
NOTE: Remote Desktop Services and Virtual Machines are not supported.

Printer Configuration and Adjustment

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

Home Screen

The printer's Home screen shows you the printer's current status and allows you to access the printer's menus. You can rotate the image of the printer 360 degrees to view it from all angles.



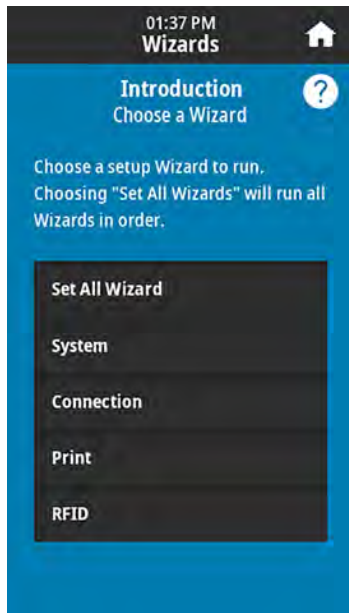
NOTE: If the background color of the Home screen is yellow or red, the printer is in an alert or error state. For more information, see [Alert and Error States](#).

The following items are located on the Home screen **Print Status** tab:

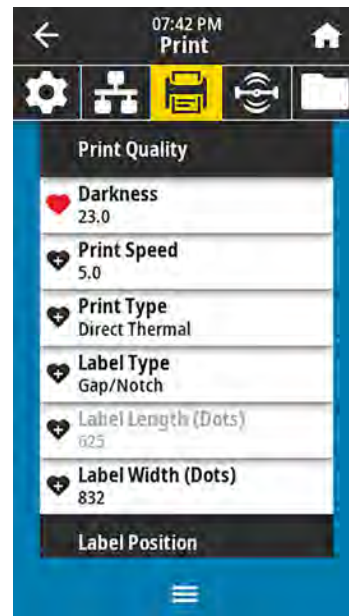
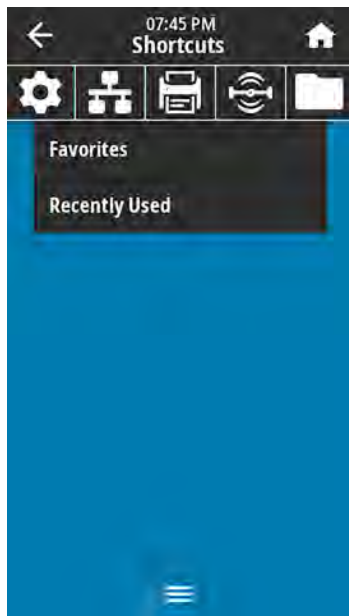
- Menu—Allows you to change the printer settings. See [User Menus](#).

Printer Configuration and Adjustment

- Wizards—Allows you to change printer settings by going through prompts. See [Printer Wizards](#).



- Shortcuts—Allows you to quickly access the most recent menu items and to save your favorites. Touch the darkened heart icon next to a menu item to save it to your list of favorites. Items in the favorites are shown in the order in which they were saved.



Print Wizards

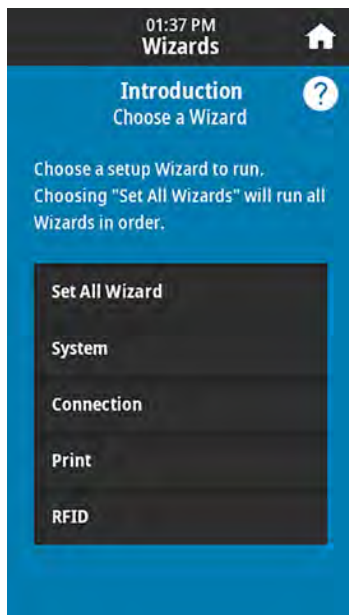
Printer wizards walk you through the setup process for various printer settings and features.

The following wizards are available:

- Set All Wizard—Runs all the wizards in sequence.
- System Wizard—Sets up non-print related operating system settings.
- Connection Wizard—Configures the printer's connectivity options.
- Print Wizard—Configures key printing parameters and features. See [Running the Print Wizard and Printing a Test Label](#) on page 58.
- RFID Wizard—Sets up the RFID subsystem's operations.

On the Home screen, touch **Wizards** to see the available options.

For more information about individual settings set by any of the wizards, see [User Menus](#) on page 67.



IMPORTANT: When using the Wizards, do not send data to the printer from the host.

For optimal results, use full-width media when running Print Wizard or Set All Wizards. If the media is shorter than an image to be printed, the image may be truncated or print across multiple labels.

User Menus

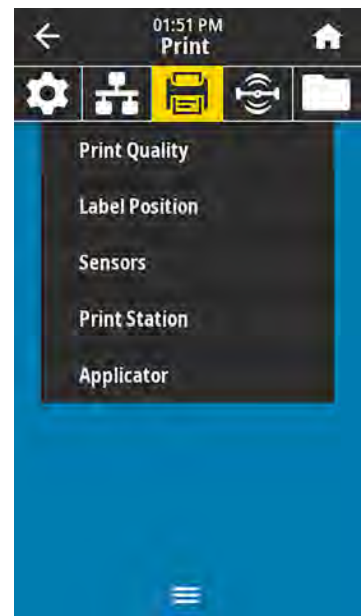
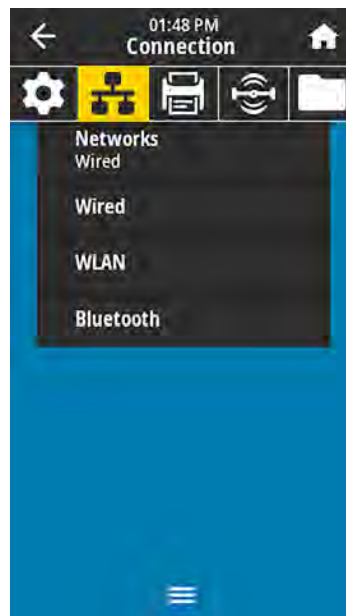
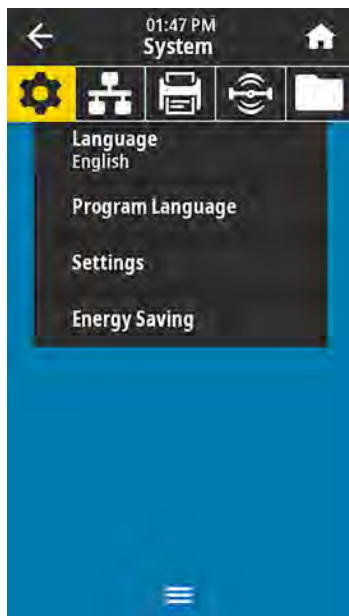
Use the printer user menus to configure the printer as needed.

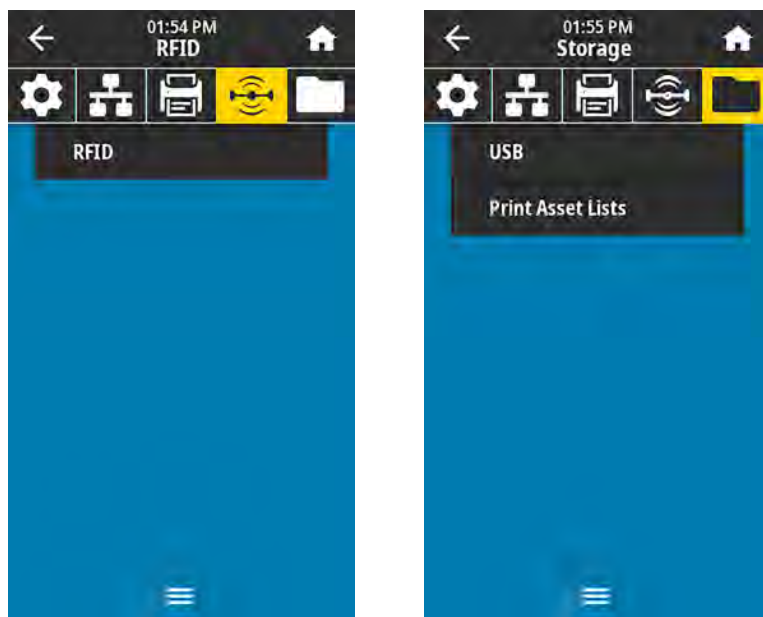
For detailed information on each of these menus, see:

- [System Menu](#).
- [Connection Menu](#).
- [Print Menu](#).
- [RFID Menu](#).
- [Storage Menu](#).

You can modify printer settings through the user menus or optionally using the methods listed below. The user menu descriptions in this section include information on these optional methods where applicable.

- ZPL and Set/Get/Do (SGD) commands. See the Zebra Programming Guide at zebra.com/manuals for more information.
- The printer's web pages, in cases where the printer has an active wired or wireless print server connection. See the ZebraNet Wired and Wireless Print Servers User Guide at zebra.com/manuals for details.

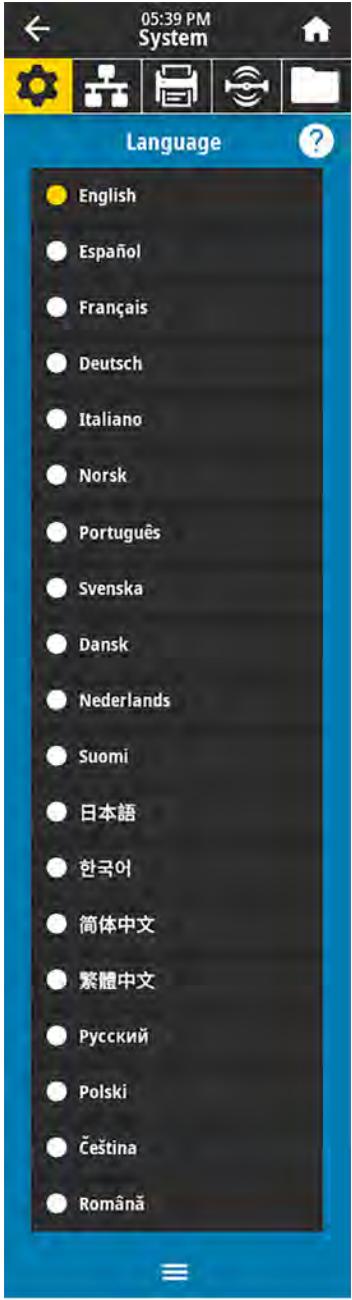


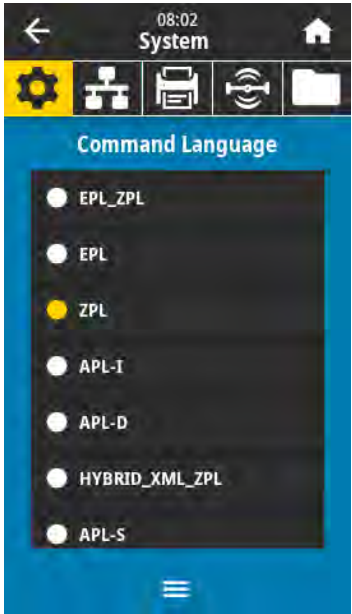


You can also use the printer's task wizards to change some settings. See [Print Wizards](#) on page 66.

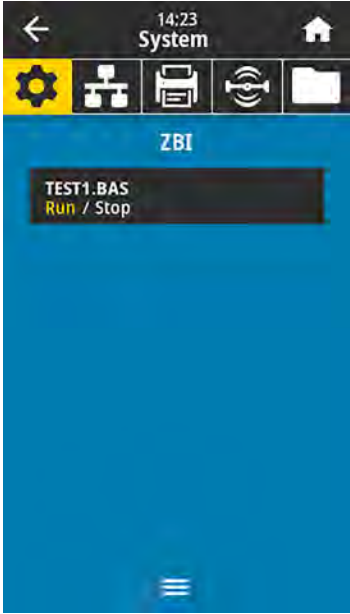
System Menu

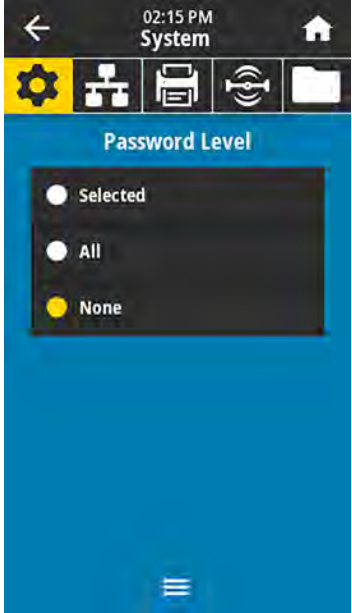
This table lists the System Menu items.

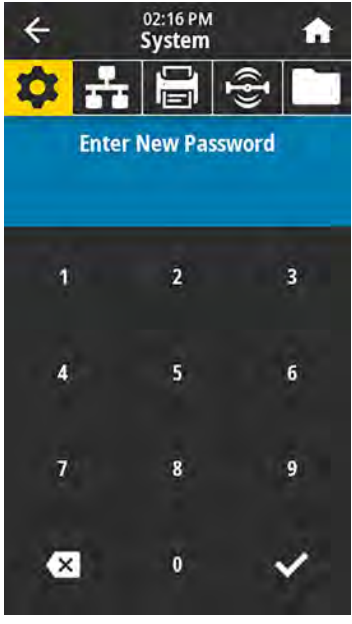
Menu Display	Menu Option Description	
	System > Language If necessary, change the language that the printer displays. This change affects the words shown on the following: - the Home screen - the user menus - error messages - the printer configuration label, the network configuration label, and other labels that you can select to print through the user menus	
	Accepted values:	ENGLISH, SPANISH, FRENCH, GERMAN, ITALIAN, NORWEGIAN, PORTUGUESE, SWEDISH, DANISH, DUTCH, FINNISH, CZECH, JAPANESE, KOREAN, ROMANIAN, RUSSIAN, POLISH, SIMPLIFIED CHINESE, TRADITIONAL CHINESE The selections for this parameter are displayed in the actual languages to make it easier for you to find one that you are able to read.
	Related ZPL command(s):	^KL
	SGD command used:	display.language
	Printer web page:	View and Modify Printer Settings > General Setup > Language

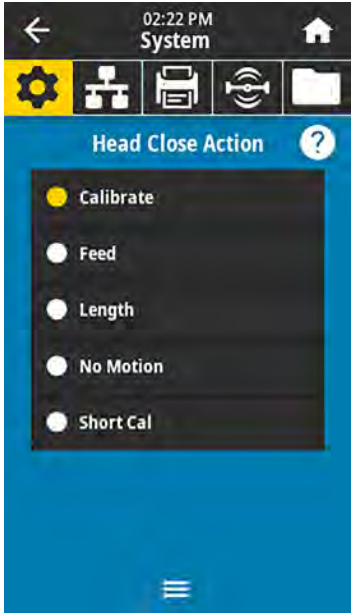
Menu Display	Menu Option Description								
	System > Program Language > Diagnostic Mode Use this diagnostics tool to make the printer output hexadecimal values for all data received by the printer. (For more information, see Using Communication Diagnostics Mode on page 160.) <table border="1"> <tr> <td data-bbox="724 401 1036 982">Accepted values:</td><td data-bbox="1036 401 1521 982"> PRINT—The printer prints the text and hexadecimal representation of data bytes received instead of printing the formatted labels which that data might represent. E: Drive—The printer saves the information to its E: drive. USB Host—The printer saves the information to a USB Host memory device if one is present. OFF—The printer's normal operating mode. Cycling power also returns the printer to OFF mode.  NOTE: This command does not capture a network packet trace. </td></tr> <tr> <td data-bbox="724 982 1036 1077">Related ZPL command(s):</td><td data-bbox="1036 982 1521 1077">~JD to enable ~JE to disable</td></tr> <tr> <td data-bbox="724 1077 1036 1129">SGD command used:</td><td data-bbox="1036 1077 1521 1129">input.capture</td></tr> <tr> <td data-bbox="724 1129 1036 1213">Control panel key(s):</td><td data-bbox="1036 1129 1521 1213">Hold PAUSE + FEED for 2 seconds when the printer is in the Ready state.</td></tr> </table>	Accepted values:	PRINT—The printer prints the text and hexadecimal representation of data bytes received instead of printing the formatted labels which that data might represent. E: Drive—The printer saves the information to its E: drive. USB Host—The printer saves the information to a USB Host memory device if one is present. OFF—The printer's normal operating mode. Cycling power also returns the printer to OFF mode.  NOTE: This command does not capture a network packet trace.	Related ZPL command(s):	~JD to enable ~JE to disable	SGD command used:	input.capture	Control panel key(s):	Hold PAUSE + FEED for 2 seconds when the printer is in the Ready state.
Accepted values:	PRINT—The printer prints the text and hexadecimal representation of data bytes received instead of printing the formatted labels which that data might represent. E: Drive—The printer saves the information to its E: drive. USB Host—The printer saves the information to a USB Host memory device if one is present. OFF—The printer's normal operating mode. Cycling power also returns the printer to OFF mode.  NOTE: This command does not capture a network packet trace.								
Related ZPL command(s):	~JD to enable ~JE to disable								
SGD command used:	input.capture								
Control panel key(s):	Hold PAUSE + FEED for 2 seconds when the printer is in the Ready state.								
	System > Program Language > Command Language  NOTE: Not all values are accepted on all printers. Use the ! U1 getvar "allcv" command to see the range of values that your printer supports. Values other than those listed may be available depending on the firmware version being used.  NOTE: "zpl" and "hybrid_xml_zpl" are equivalent. When the setvar is set to "zpl", the getvar result will always be "hybrid_xml_zpl". Select the appropriate command language. <table border="1"> <tr> <td data-bbox="724 1619 1036 1845">SGD command used:</td><td data-bbox="1036 1619 1521 1845">device.languages</td></tr> </table>	SGD command used:	device.languages						
SGD command used:	device.languages								

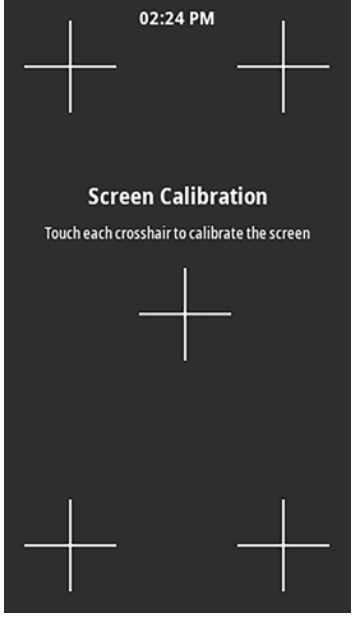
Menu Display	Menu Option Description
	System > Program Language > Emulation If any Emulation apps are installed on your printer, you may view or enable/disable them from this user menu. For more information, go to the User Guide for the appropriate Emulation, or contact your local reseller.)

Menu Display	Menu Option Description	
	System > Program Language > ZBI Zebra Basic Interpreter (ZBI 2.0™) is a programming option that may be purchased for your printer. If you would like to purchase this option, contact your Zebra reseller for more information. If ZBI programs have been downloaded to your printer, you may select one to run using this menu item. If no program exists on your printer, NONE is listed. When ZBI programs have been downloaded but none are running, the printer lists all available programs. To run one of them, touch Run (highlighted in white) under the program name. After a program is running, only that program is listed. Touch Stop (highlighted in white) to end the program. 	
	SGD command used:	<code>zbi.key</code>—Shows if a valid ZBI 2.0 license is installed on the printer. <code>zbi.enable</code>—Shows if the ZBI 2.0 option is enabled or disabled on the printer.  NOTE: <code>zbi.key</code> must be set to "enabled" and <code>zbi.enable</code> must be set to "on" to be able to use the ZBI feature.

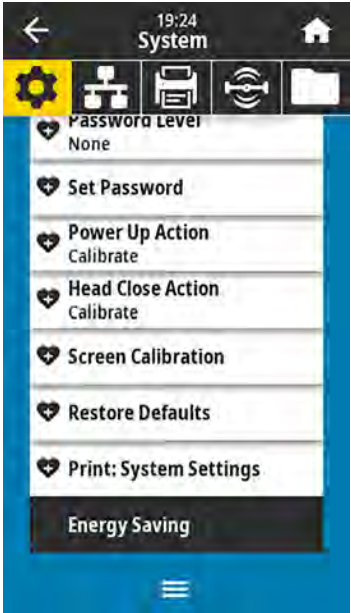
Menu Display	Menu Option Description	
	System > Settings > Display Time Format Select the time format used by the printer.	
	Accepted values:	12-Hour, 24-Hour
	SGD command used:	device.idle_display_value
	System > Settings > Password Level Select the level of password protection for user menu items.	
	Accepted values:	Selected, All, None
	SGD command used:	display.password.level

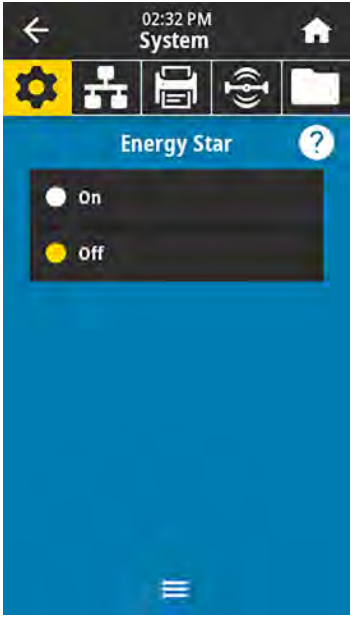
Menu Display	Menu Option Description	
	System > Settings > Set Password For printers purchased in the EMEA region after August 1, 2025: Out of the box, the printer requires the configuration of a front panel password/PIN before you can modify certain settings through the user menus. This front panel password is different than the Protected Mode password, which also must be configured. For additional information, go to zebra.com/asr . For all other printers: Set a new printer password for menu items protected by the previous parameter. The default printer password is 1234.	
	Accepted values:	0000 to 9999 (four digits)
	Related ZPL command(s):	^KP
	System > Settings > Power Up Action Set the action for the printer to take during the power-up sequence.	
	Accepted values:	CALIBRATE—Adjusts sensor levels and thresholds, determines the label length, and feeds the media to the next web. FEED—Feeds the labels to the first registration point. LENGTH—Determines the label length using current sensor values, and feeds the media to the next web. NO MOTION—Tells the printer not to move the media. You must manually ensure that the web is positioned correctly, or press feed to position the next web. SHORT CAL—Sets the media and web thresholds without adjusting sensor gain, determines the label length, and feeds the media to the next web.
	Related ZPL command(s):	^MF
	SGD command used:	ezpl.power_up_action
	Printer web page:	View and Modify Printer Settings > Calibration

Menu Display	Menu Option Description	
	System > Settings > Head Close Action Set the action for the printer to take when you close the printhead.	
	Accepted values:	CALIBRATE—Adjusts sensor levels and thresholds, determines the label length, and feeds the media to the next web. FEED—Feeds the labels to the first registration point. LENGTH—Determines the label length using current sensor values, and feeds the media to the next web. NO MOTION—Tells the printer not to move the media. You must manually ensure that the web is positioned correctly, or press feed to position the next web. SHORT CAL—Sets the media and web thresholds without adjusting sensor gain, determines the label length, and feeds the media to the next web.
	Related ZPL command(s):	^MF
	SGD command used:	ezpl.head_close_action
	System > Settings > Batch Counter Sets whether batch counters will be displayed on the printer's control panel.	
	Accepted values:	Yes, No
	SGD command used:	display.batch_counter

Menu Display	Menu Option Description	
	System > Settings > Precision Printing Precision printing changes the settings for calibration, Energy Star, front sensor, and hold current. When you enable this setting from the control panel, the printer restarts after you confirm the change.	
	Accepted values:	On, Off
	System > Settings > Screen Calibration Touch each crosshair to calibrate the screen.	

Menu Display	Menu Option Description	
	System > Settings > Restore Defaults Restore specific printer, print server, and network settings back to the factory defaults. Use care when loading defaults because you will need to reload all settings that you changed manually. This menu item is available through two user menus with different default values for each.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide.	
	Accepted values:	PRINTER—Restores all printer settings other than the network settings back to the factory defaults. Use care when loading defaults because you will need to reload all settings that you changed manually. NETWORK—Reinitializes the printer's wired or wireless print server. With a wireless print server, the printer also re-associates with your wireless network. LAST SAVED—Loads settings from the last permanent save.
	Related ZPL command(s):	PRINTER— ^JUF NETWORK— ^JUN LAST SAVED— ^JUR
	Control panel key(s):	PRINTER—Hold FEED + PAUSE during printer power-up to reset the printer parameters to factory values. NETWORK—Hold CANCEL + PAUSE during printer power-up to reset the network parameters to factory values. LAST SAVED—N/A
	Printer web page:	PRINTER—View and Modify Printer Settings > Restore Default Configuration NETWORK—Print Server Settings > Reset Print Server LAST SAVED—View and Modify Printer Settings > Restore Saved Configuration

Menu Display	Menu Option Description	
 The screenshot shows the printer's menu system. At the top, there's a status bar with a back arrow, the time '19:24', and the word 'System'. Below this are five icons: a gear (Settings), a printer (Print), a document (System Settings), a network (Network), and a folder (Energy Saving). The 'Settings' icon is selected, showing a list of options: 'Password Level' (None), 'Set Password', 'Power Up Action' (Calibrate), 'Head Close Action' (Calibrate), 'Screen Calibration', 'Restore Defaults', and 'Print: System Settings' (highlighted). At the bottom, there's an 'Energy Saving' button.	System > Settings > Print: System Settings Prints a printer configuration label. The following is a sample label. <pre> PRINTER CONFIGURATION Zebra Technologies ETC ZT620R-2093d1 ZPL 76J162700886 +30.0.....DARKNESS 6.0 IPS.....PRINT SPEED -007.....TEAR OFF CONTINUOUS.....PRINT MODE TRANSMISSIVE.....MEDIA TYPE DIRECT-THERMAL.....SENSOR SELECT 1344.....PRINT METHOD 2000.....PRINT WIDTH P108888/00000.....PRINT HEAD ID 15.0IN 380MM.....LABEL LENGTH PRINT OFF.....MAXIMUM LENGTH CONNECTED.....EARLY WARNING BIDIRECTIONAL.....USB COMM. RS232.....PARALLEL COMM. 9600.....SERIAL COMM. 8 BITS.....BAUD NONE.....DATA BITS XON/XOFF.....PARITY NORMA.....HOST HANDSHAKE NORMA.....PROTOCOL NORMA.....COMMUNICATIONS 4<?.....CONTROL PREFIX <?>.....FORMAT PREFIX ZPL 11.....DELIMITER CHAR INACTIVE.....ZPL MODE FEED.....COMMAND OVERRIDE LENGTH.....MEDIA POWER UP DEFAULT.....HEAD CLOSE +000.....BACKFEED +0000.....LABEL TOP OFF.....LEFT POSITION ENABLED.....APPLICATION PORT PULSE MODE.....ERROR ON PAUSE DISABLED.....START PRINT SIG 080.....REPRINT MODE 090.....WEB SENSOR 090.....MEDIA SENSOR 025.....TACK LABEL 027.....MARK SENSOR 000.....MARK RED SENSOR 005.....TRANS GAIN 080.....TRANS BASE 002.....TRANS LED 100.....MARK GAIN DPCSMFXY.....MARK LED 1344 6/PM FULL.....MODES ENABLED 4.0.....MODES DISABLED V80.20.09.....RESOLUTION 1.3.....LINK-OS VERSION 6.6.0 22.89.....FIRMWARE 32788k.....XTL SCHEMA 524288k.....HARDWARE ID NONE.....RAM MM/DD/YYYY 24HR.....ONBOARD FLASH 05/11/17.....FORMAT CONVERT 08:40.....IDLE DISPLAY ENABLED.....RTC DATE 2.1.....RTC TIME READY.....ZBI THIRBE MICRO.....ZBI VERSION 20.00.00.01.....ZBI STATUS 01.03.00.10.....RFID READER USA/CANADA.....RFID H4 VERSION USA/CANADA.....RFID F4 VERSION RFID OK.....RFID REGION CODE 15.....RFID COUNTRY CODE 16.....RFID ERR STATUS 0.....RFID READ PAR 0.....RFID WRITE PAR 0.....PROG. POSITION 0.....RFID VALID CTR NONE.....RFID VOID CTR A4.....ADAPTIVE ANTENNA 570 LABELS.....RFID ANTENNA 570 LABELS.....NONRESET CNTR 570 LABELS.....RESET CNTR1 2.798 IN.....RESET CNTR2 2.798 IN.....NONRESET CNTR 2.798 IN.....RESET CNTR1 2.107 CH.....RESET CNTR2 2.107 CH.....NONRESET CNTR 001 WIRELESS.....RESET CNTR1 *** EMPTY.....RESET CNTR2 0.....SLOT 1 0.....SLOT 2 0.....PASS STORAGE COUNT 0.....HID COUNT OFF.....USB HOST LOCK OUT FIRMWARE IN THIS PRINTER IS COPYRIGHTED </pre>	
Related ZPL command(s):	~WC	
Control panel key(s):	Do one of the following.* - Hold CANCEL during printer power-up. (Formerly called a CANCEL self test.) - Hold FEED + CANCEL for 2 seconds when the printer is in the Ready state.  NOTE: * Prints a printer configuration label and a network configuration label.	

Menu Display	Menu Option Description	
	Printer web page:	View and Modify Printer Settings > Print Listings on Label *  NOTE: * Prints a printer configuration label and a network configuration label.
	System > Energy Saving > Energy Star When Energy Star mode is enabled, the printer goes into a “sleep” mode after a timeout period, thereby lowering power consumption. Press any button on the control panel to bring the printer back to an active state.	
	Accepted values:	On, Off
	SGD command used:	<code>power.energy_star.enable</code> <code>power.energy_star_timeout</code> (to set the amount of idle time before Energy Star is invoked)

Connection Menu

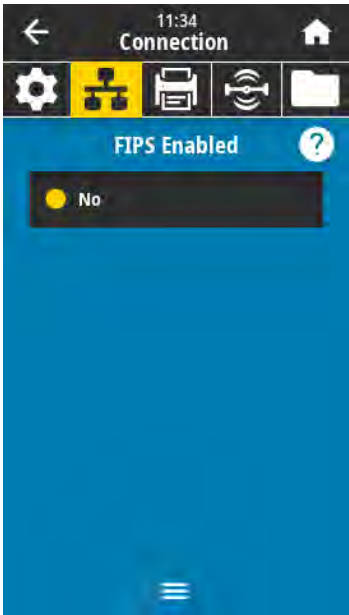
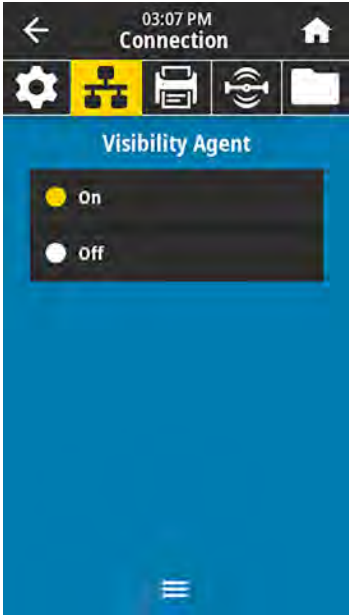


NOTE: For printers purchased in the EMEA region after August 1, 2025, certain connectivity options are disabled by default. To enable these options, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

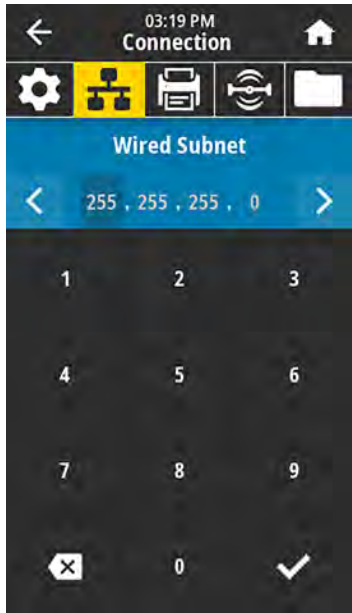
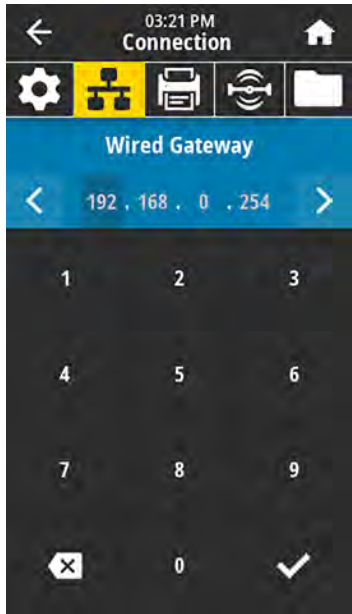
Menu Display	Menu Option Description	
	Connection > Networks > Reset Network This option resets the wired or wireless print server and saves any changes that you made to any network settings. IMPORTANT: You must reset the print server to allow changes to the network settings to take effect. NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Related ZPL command(s):	~WR
	Printer web page:	Print Server Settings > Reset Print Server
	Connection > Networks > Primary Network View or modify whether the wired or wireless print server is considered primary. You may select which one is primary. NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	Wired, WLAN
	Related ZPL command(s):	^NC
	SGD command used:	ip.primary_network

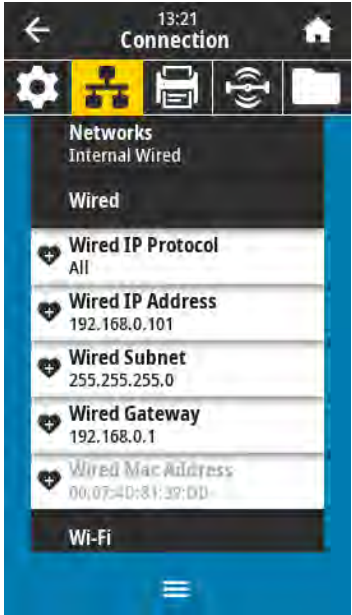
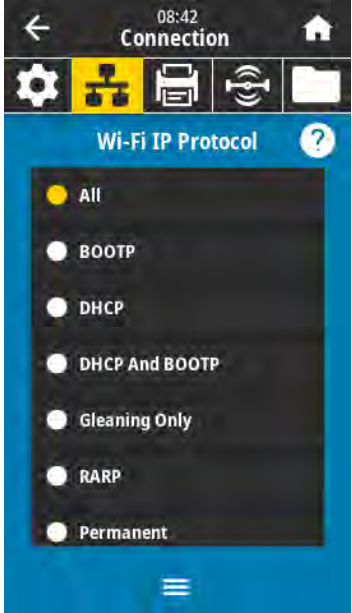
Menu Display	Menu Option Description	
	Connection > Networks > IP Port This printer setting refers to the internal wired print servers port number that the TCP print service is listening on. Normal TCP communications from the host should be directed to this port.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	SGD command used:	ip.port
	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings
	Connection > Networks > IP Alternate Port This command sets the port number of the alternate TCP port.  NOTE: Print servers supporting this command will monitor both the primary port and the alternate port for connections at the same time.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	SGD command used:	ip.port_alternate
	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings

Menu Display	Menu Option Description	
		Connection > Networks > Print: Network Info Prints the settings for any print server or Bluetooth device that is installed. The following is a sample label. <pre> Network Configuration Zebra Technologies ZTC ZTXXX-XXXXp1 ZPL XXXXXXXXXXXX Wired..... PRIMARY NETWORK PrintServer..... LOAD LAN FROM? INTERNAL WIRED..... ACTIVE PRINTSRVR Wired* ALL..... IP PROTOCOL 192.168.000.017... IP ADDRESS 255.255.255.000... SUBNET 192.168.000.254... GATEWAY 000.000.000.000... WINS SERVER IP YES..... TIMEOUT CHECKING 300..... TIMEOUT VALUE 000..... ARP INTERVAL 9100..... BASE RAW PORT 9200..... JSON CONFIG PORT Wireless ALL..... IP PROTOCOL 000.000.000.000... IP ADDRESS 255.255.255.000... SUBNET 000.000.000.000... GATEWAY 000.000.000.000... WINS SERVER IP YES..... TIMEOUT CHECKING 300..... TIMEOUT VALUE 000..... ARP INTERVAL 9100..... BASE RAW PORT 9200..... JSON CONFIG PORT INSERTED..... CARD INSERTED 02dFH..... CARD MFG ID 9134H..... CARD PRODUCT ID ac:3f:a4:b2:05:9c.. MAC ADDRESS YES..... DRIVER INSTALLED INFRASTRUCTURE... OPERATING MODE 125..... ESSID 1.0..... CURRENT TX RATE OPEN..... WEP TYPE WPA PSK..... WLAN SECURITY 000..... WEP INDEX LONG..... PDR SIGNAL PREAMBLE NO..... ASSOCIATED ON..... PULSE ENABLED 15..... PULSE RATE OFF..... INTL MODE USA/CANADA..... REGION CODE USA/CANADA..... COUNTRY CODE 0x7FF..... CHANNEL MASK Bluetooth 4.3.1p1..... FIRMWARE 02/13/2015..... DATE on..... DISCOVERABLE 3.0/4.0..... RADIO VERSION on..... ENABLED ac:3f:a4:b2:05:9d.. MAC ADDRESS 76J162700886..... FRIENDLY NAME no..... CONNECTED 1..... MIN SECURITY MODE nc..... CONN SECURITY MODE supported..... IOS FIRMWARE IN THIS PRINTER IS COPYRIGHTED </pre>
	Related ZPL command(s):	~WL
	Control panel key(s):	Do one of the following:* - Hold CANCEL during printer power-up. (Formerly called a CANCEL self test.) - Hold FEED + CANCEL for 2 seconds when the printer is in the Ready state.
	Printer web page:	View and Modify Printer Settings > Print Listings on Label *
	 NOTE: * Prints a printer configuration label and a network configuration label.	

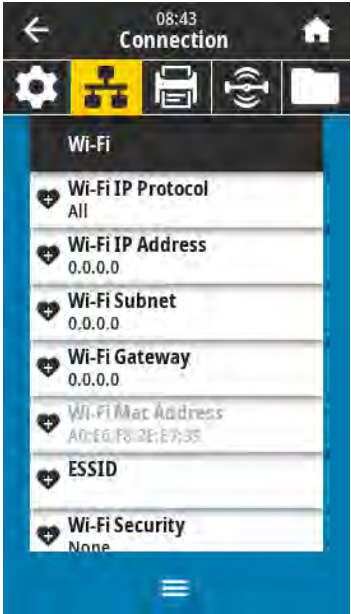
Menu Display	Menu Option Description							
	Connection > Networks > FIPS Enabled This setting cannot be modified on this printer.							
	Connection > Networks > Visibility Agent When the printer is connected to a wired or wireless network, it will attempt to connect to Zebra’s Asset Visibility Service via the Cloud-based Zebra Printer Connector using an encrypted, certificate-authenticated web socket connection. The printer sends Discovery Data and Settings and Alerts Data. Data printed via any label formats is NOT transmitted. To opt out of this feature, disable this setting. (For more information, see the “Opting Out of the Asset Visibility Agent” application note at zebra.com.)  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>ON, OFF</td></tr><tr><td>SGD command used:</td><td><code>weblink.zebra_connector.enable</code></td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Configuration > Cloud Connect Settings</td></tr></table>		Accepted values:	ON, OFF	SGD command used:	<code>weblink.zebra_connector.enable</code>	Printer web page:	View and Modify Printer Settings > Network Configuration > Cloud Connect Settings
Accepted values:	ON, OFF							
SGD command used:	<code>weblink.zebra_connector.enable</code>							
Printer web page:	View and Modify Printer Settings > Network Configuration > Cloud Connect Settings							

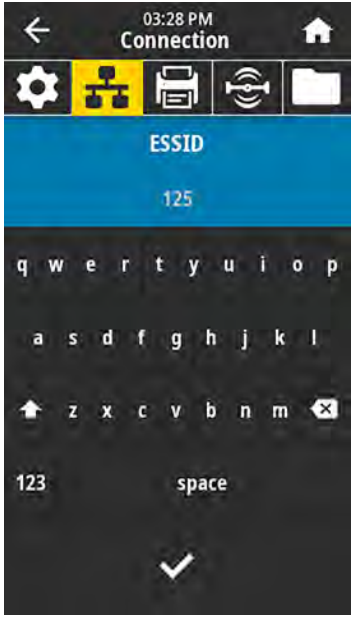
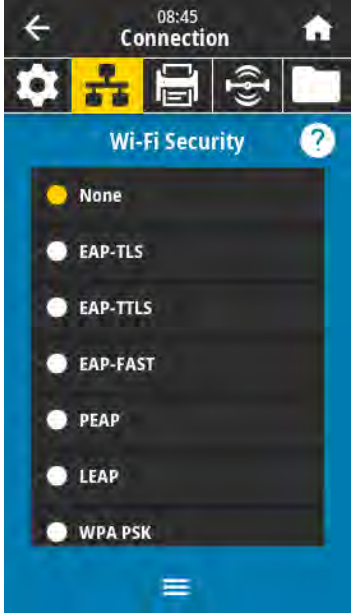
Menu Display	Menu Option Description								
	Connection > Wired > Wired IP Protocol This parameter indicates if the user (permanent) or the server (dynamic) selects the wired print server's IP address. When a dynamic option is chosen, this parameter tells the method(s) by which this print server receives the IP address from the server.  IMPORTANT: You must reset the print server to allow changes to the network settings to take effect. (See Connection > Networks > Reset Network.)  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>ALL, GLEANING ONLY, RARP, BOOTP, DHCP, DHCP & BOOTP, PERMANENT</td></tr><tr><td>Related ZPL command(s):</td><td>^ND</td></tr><tr><td>SGD command used:</td><td>internal_wired.ip.protocol</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings</td></tr></table>	Accepted values:	ALL, GLEANING ONLY, RARP, BOOTP, DHCP, DHCP & BOOTP, PERMANENT	Related ZPL command(s):	^ND	SGD command used:	internal_wired.ip.protocol	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings
Accepted values:	ALL, GLEANING ONLY, RARP, BOOTP, DHCP, DHCP & BOOTP, PERMANENT								
Related ZPL command(s):	^ND								
SGD command used:	internal_wired.ip.protocol								
Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings								
	Connection > Wired > Wired IP Address View and, if necessary, change the printer's wired IP address. To save changes to this setting, set Connection > Wired > Wired IP Protocol to PERMANENT, and then reset the print server (see Connection > Networks > Reset Network).  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>000 to 255 for each field</td></tr><tr><td>Related ZPL command(s):</td><td>^ND</td></tr><tr><td>SGD command used:</td><td>internal_wired.ip.addr</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings</td></tr></table>	Accepted values:	000 to 255 for each field	Related ZPL command(s):	^ND	SGD command used:	internal_wired.ip.addr	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings
Accepted values:	000 to 255 for each field								
Related ZPL command(s):	^ND								
SGD command used:	internal_wired.ip.addr								
Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings								

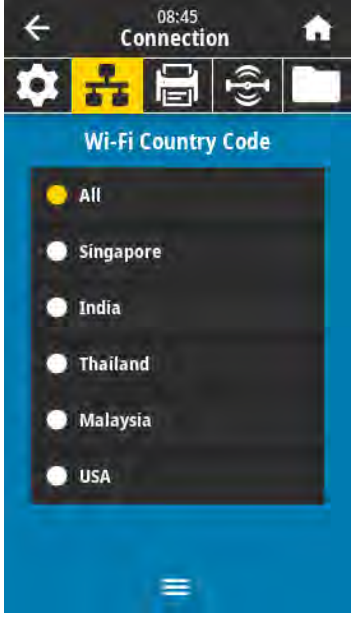
Menu Display	Menu Option Description								
	Connection > Wired > Wired Subnet View and, if necessary, change the wired subnet mask. To save changes to this setting, set Connection > Wired > Wired IP Protocol to PERMANENT, and then reset the print server (see Connection > Networks > Reset Network).  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>000 to 255 for each field</td></tr><tr><td>Related ZPL command(s):</td><td>^ND</td></tr><tr><td>SGD command used:</td><td>internal_wired.ip.netmask</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings</td></tr></table>	Accepted values:	000 to 255 for each field	Related ZPL command(s):	^ND	SGD command used:	internal_wired.ip.netmask	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings
Accepted values:	000 to 255 for each field								
Related ZPL command(s):	^ND								
SGD command used:	internal_wired.ip.netmask								
Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings								
	Connection > Wired > Wired Gateway View and, if necessary, change the default wired gateway. To save changes to this setting, set Connection > Wired > Wired IP Protocol to PERMANENT, and then reset the print server (see Connection > Networks > Reset Network).  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>000 to 255 for each field</td></tr><tr><td>Related ZPL command(s):</td><td>^ND</td></tr><tr><td>SGD command used:</td><td>internal_wired.ip.gateway</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings</td></tr></table>	Accepted values:	000 to 255 for each field	Related ZPL command(s):	^ND	SGD command used:	internal_wired.ip.gateway	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings
Accepted values:	000 to 255 for each field								
Related ZPL command(s):	^ND								
SGD command used:	internal_wired.ip.gateway								
Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings								

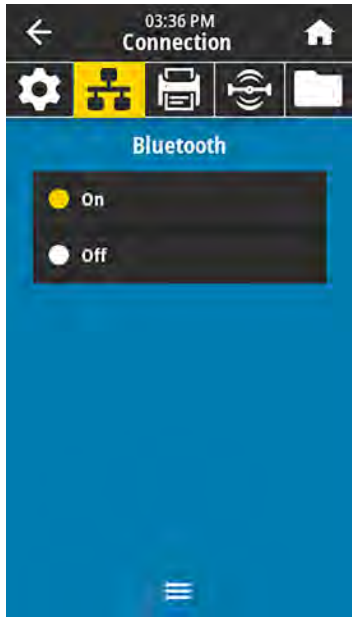
Menu Display	Menu Option Description	
	Connection > Wired > Wired MAC Address View the Media Access Control (MAC) address of the wired print server. This value cannot be modified.	
	SGD command used:	internal_wired.mac_addr
	Connection > Wi-Fi > Wi-Fi IP Protocol This parameter indicates if the user (permanent) or the server (dynamic) selects the wireless print server's IP address. When a dynamic option is chosen, this parameter tells the method(s) by which this print server receives the IP address from the server.	
	 NOTE: You must reset the print server to allow changes to the network settings to take effect. (See Connection > Networks > Reset Network).	
	 NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	ALL, GLEANING ONLY, RARP, BOOTP, DHCP, DHCP & BOOTP, PERMANENT
	Related ZPL command(s):	^ND
	SGD command used:	wlan.ip.protocol
	Printer web page:	View and Modify Printer Settings > Network Communications Setup > TCP/IP Settings

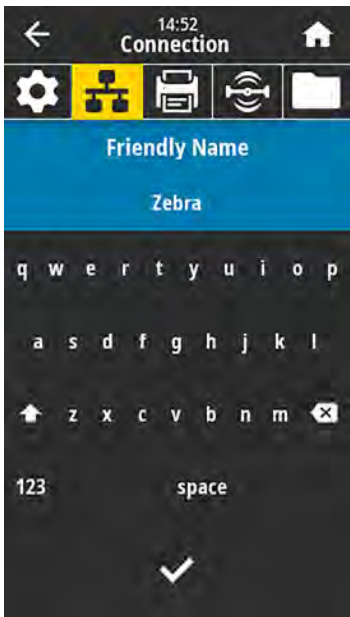
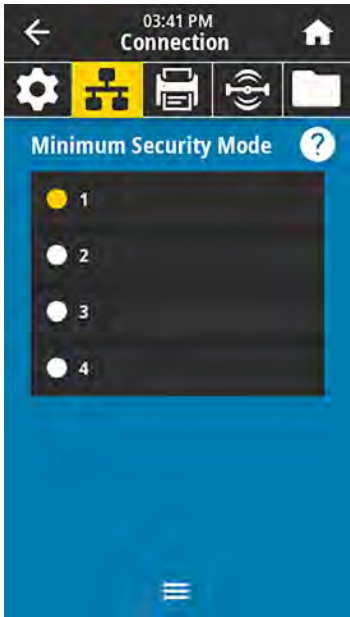
Menu Display	Menu Option Description								
	Connection > Wi-Fi > Wi-Fi IP Address View and, if necessary, change the printer’s wireless IP address. To save changes to this setting, set Connection > Wi-Fi > Wi-Fi IP Protocol to PERMANENT, and then reset the print server (see Connection > Networks > Reset Network).  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>000 to 255 for each field</td></tr><tr><td>Related ZPL command(s):</td><td>^ND</td></tr><tr><td>SGD command used:</td><td>wlan.ip.addr</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > Wireless Setup</td></tr></table>	Accepted values:	000 to 255 for each field	Related ZPL command(s):	^ND	SGD command used:	wlan.ip.addr	Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup
Accepted values:	000 to 255 for each field								
Related ZPL command(s):	^ND								
SGD command used:	wlan.ip.addr								
Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup								
	Connection > WLAN > Wi-Fi Subnet View and, if necessary, change the wireless subnet mask. To save changes to this setting, set Connection > Wi-Fi > Wi-Fi IP Protocol to PERMANENT, and then reset the print server (see Connection > Networks > Reset Network).  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table><tr><td>Accepted values:</td><td>000 to 255 for each field</td></tr><tr><td>Related ZPL command(s):</td><td>^ND</td></tr><tr><td>SGD command used:</td><td>wlan.ip.netmask</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > Wireless Setup</td></tr></table>	Accepted values:	000 to 255 for each field	Related ZPL command(s):	^ND	SGD command used:	wlan.ip.netmask	Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup
Accepted values:	000 to 255 for each field								
Related ZPL command(s):	^ND								
SGD command used:	wlan.ip.netmask								
Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup								

Menu Display	Menu Option Description	
	Connection > WLAN > Wi-Fi Gateway View and, if necessary, change the default wireless gateway. To save changes to this setting, set Connection > Wi-Fi > Wi-Fi IP Protocol to PERMANENT , and then reset the print server (see Connection > Networks > Reset Network).  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	000 to 255 for each field
	Related ZPL command(s):	^ND
	SGD command used:	wlan.ip.gateway
	Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup
	Connection > Wi-Fi > Wi-Fi MAC Address View the Media Access Control (MAC) address of the wireless print server. This value cannot be modified.	
	SGD command used:	wlan.mac_addr
	Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup

Menu Display	Menu Option Description						
	Connection > Wi-Fi > ESSID The Extended Service Set Identification (ESSID) is an identifier for your wireless network. Specify the ESSID for the current wireless configuration.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table border="1"> <tr> <td>Accepted values:</td><td>32-character alphanumeric string (default 125)</td></tr> <tr> <td>SGD command used:</td><td>wlan.essid</td></tr> <tr> <td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > Wireless Setup</td></tr> </table>	Accepted values:	32-character alphanumeric string (default 125)	SGD command used:	wlan.essid	Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup
Accepted values:	32-character alphanumeric string (default 125)						
SGD command used:	wlan.essid						
Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Setup						
	Connection > Wi-Fi > Wi-Fi Security Select the security type being used on your wireless network.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide. <table border="1"> <tr> <td>Related ZPL command(s):</td><td>^WX</td></tr> <tr> <td>SGD command used:</td><td>wlan.security</td></tr> <tr> <td>Printer web page:</td><td>View and Modify Printer Settings > Network Communications Setup > Wireless Encryption Setup</td></tr> </table>	Related ZPL command(s):	^WX	SGD command used:	wlan.security	Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Encryption Setup
Related ZPL command(s):	^WX						
SGD command used:	wlan.security						
Printer web page:	View and Modify Printer Settings > Network Communications Setup > Wireless Encryption Setup						

Menu Display	Menu Option Description	
	Connection > Wi-Fi > Wi-Fi Band Set a preferred band to connect with via Wi-Fi.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	2.4, 5, None
	SGD command used:	wlan.band_preference
	Connection > Wi-Fi > Wi-Fi Country Code The country code defines the regulatory country for which the wireless radio is currently configured.  IMPORTANT: The list of country codes is specific to each printer and depends on the printer model and its wireless radio configuration. The list is subject to change, addition, or deletion with any firmware update, at any time, without notice. To determine the country codes available on your printer, issue the <code>! U1 getvar "wlan"</code> command to return all commands related to WLAN settings. Locate the <code>wlan.country.code</code> command in the results and view the country codes available for your printer.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	SGD command used:	wlan.country_code

Menu Display	Menu Option Description	
	Connection > Bluetooth > Bluetooth Select if the printer is enabled for Bluetooth device pairing.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	ON—Enables the Bluetooth radio. OFF—Disables the Bluetooth radio.
	SGD command used:	<code>bluetooth.enable</code>
	Connection > Bluetooth > Bluetooth Discovery Select if the printer is “Discoverable” for Bluetooth device pairing.  NOTE: For security, leave this set to OFF when Bluetooth is not in use.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	ON—Enables Bluetooth discoverable mode. OFF—Disables Bluetooth discoverable mode.
	SGD command used:	<code>bluetooth.discoverable</code>

Menu Display	Menu Option Description	
	Connection > Bluetooth > Friendly Name This command sets the friendly name, which is used during service discovery. For changes to take effect, you must power cycle the printer or issue the <code>device.reset</code> command (see Connection > Networks > Reset Network). If you do not set a friendly name, the setting will default to the printer serial number.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide.	
	Accepted values:	17-character text string
	SGD command used:	<code>bluetooth.friendly_name</code>
	Connection > Bluetooth > Minimum Security Mode This printer setting parameter sets the Bluetooth Minimum Security mode. Minimum Security Mode provides for different levels of security, depending on the printer radio version and printer firmware. See the Zebra Programming Guide at zebra.com/manuals for more information.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide.	
	Accepted values:	1, 2, 3, 4
	SGD command used:	<code>bluetooth.minimum_security_mode</code>

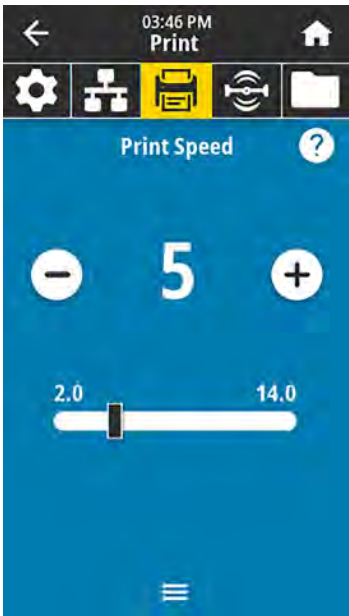
Menu Display		Menu Option Description	
	Connection > Bluetooth > Specification Version This parameter displays the Bluetooth library version number.	SGD command used:	bluetooth.version
	Connection > Bluetooth > MAC Address This parameter displays the Bluetooth device address.	SGD command used:	bluetooth.address

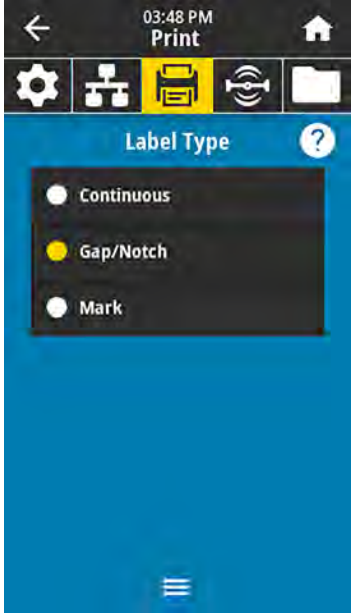
Menu Display	Menu Option Description	
	Connection > Bluetooth > Bluetooth Auth. PIN Set the PIN used when Bluetooth authentication is enabled.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	SGD command used:	<code>bluetooth.bluetooth_pin</code> (to set the PIN) <code>bluetooth.authentication</code> (to enable authentication)
	Connection > Bluetooth > Bluetooth Bonding Controls whether the Bluetooth stack will “bond” or save link keys for devices that successfully connect to the printer.  NOTE: For printers with Protected Mode enabled, you cannot modify this setting from the front panel. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .	
	Accepted values:	ON—Enables Bluetooth bonding. OFF—Disables Bluetooth bonding.
	SGD command used:	<code>bluetooth.bonding</code>

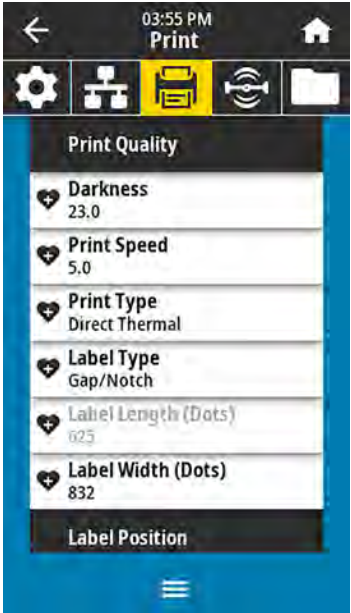
Print Menu

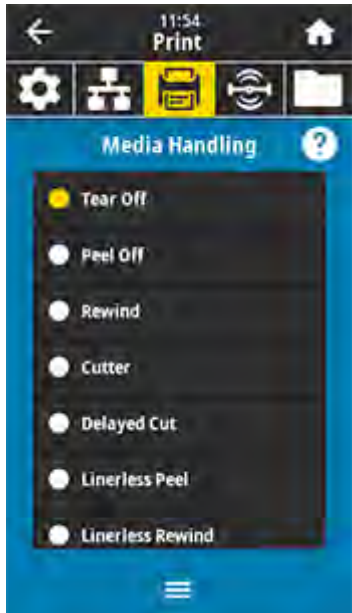
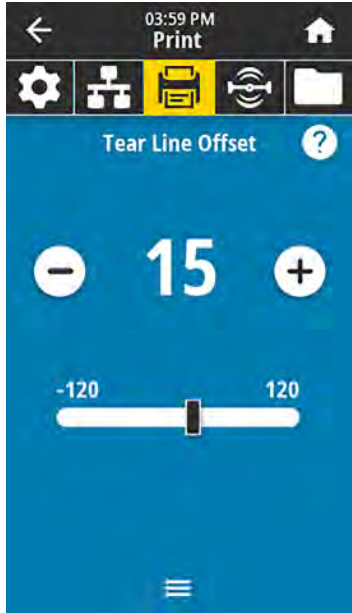
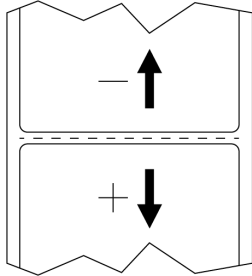


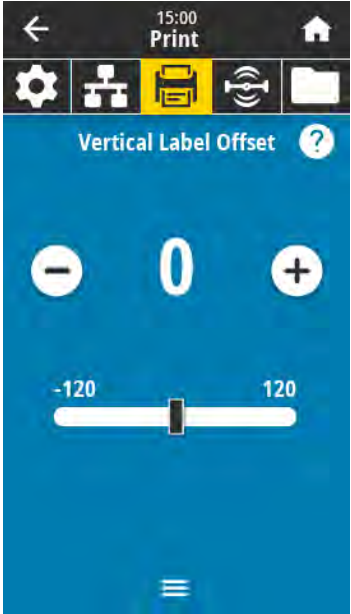
NOTE: if your printer's display does not match the items in this section, update the printer firmware.

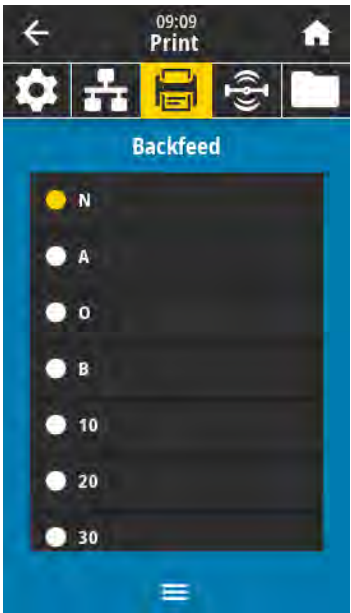
Menu Display	Menu Option Description	
	Print > Print Quality > Darkness Set the print darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, barcodes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely.	
	Accepted values:	0.0 to 30.0
	Related ZPL command(s):	^MD ~SD
	SGD command used:	print.tone
	Printer web page:	View and Modify Printer Settings > General Setup > Darkness
	Print > Print Quality > Print Speed Select the speed, in inches per second (ips), for printing a label. Slower print speeds typically yield better print quality.	
	Accepted values:	ZT610 203 dpi = 2 to 14 ips ZT610 300 dpi = 2 to 12 ips ZT610 600 dpi = 1 to 6 ips ZT620 203 dpi = 2 to 12 ips ZT620 300 dpi = 2 to 8 ips
	Related ZPL command(s):	^PR
	SGD command used:	media.speed
	Printer web page:	View and Modify Printer Settings > General Setup > Print Speed

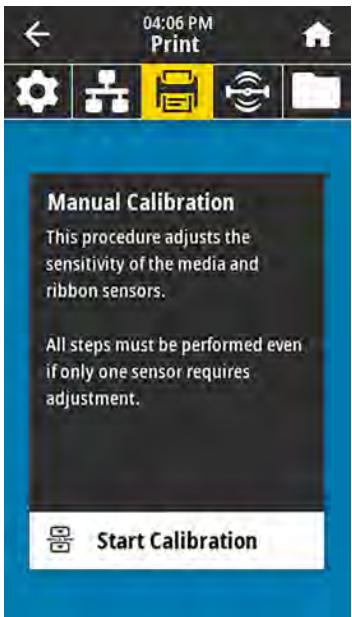
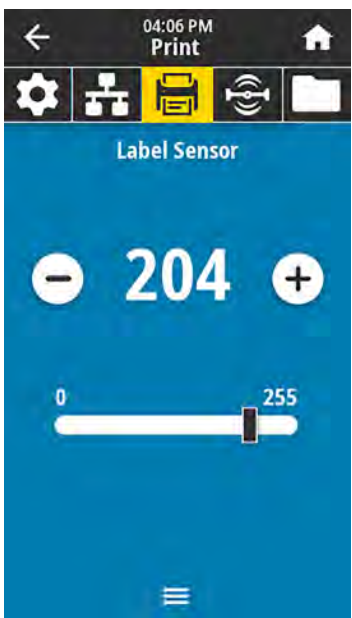
Menu Display	Menu Option Description
	Print > Print Quality > Print Type Specify if the printer needs to use ribbon for printing.
	Accepted values: - Thermal Transfer—Uses ribbon and thermal transfer media. - Direct Thermal—Uses direct thermal media and no ribbon.
	Related ZPL command(s): ^MT
	SGD command used: ezpl.print_method
	Printer web page: View and Modify Printer Settings > Media Setup > Print Method
	Print > Print Quality > Label Type Select the type of media that you are using.
	Accepted values: Continuous, Gap/Notch, Mark 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.
	Related ZPL command(s): ^MN
	SGD command used: ezpl.media_type
	Printer web page: View and Modify Printer Settings > Media Setup > Media Type

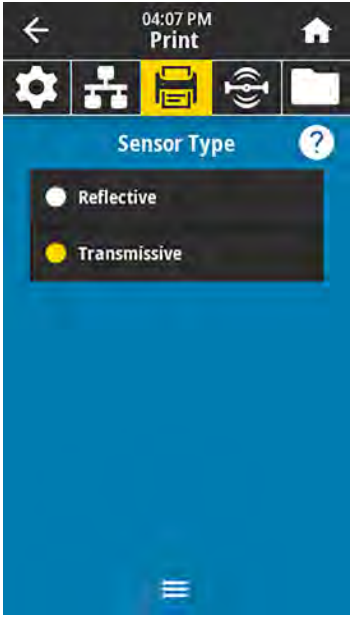
Menu Display	Menu Option Description	
	Print > Print Quality > Label Length View the calibrated label length in dots. This value may be modified only under one of these conditions: - the printer is set for continuous media - the second parameter of ^LL is set to Y	
	Related ZPL command(s):	^LL
	Print > Print Quality > Label Width (Dots) 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.	
	Accepted values:	 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 beyond 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. ZT610 203 dpi = 0002 to 832 ZT610 300 dpi = 0002 to 1248 ZT610 600 dpi = 0002 to 2496 ZT620 203 dpi = 0002 to 1344 ZT620 300 dpi = 0002 to 1984
	Related ZPL command(s):	^PW
	SGD command used:	ezpl.print_width
	Printer web page:	View and Modify Printer Settings > Media Setup > Print Width

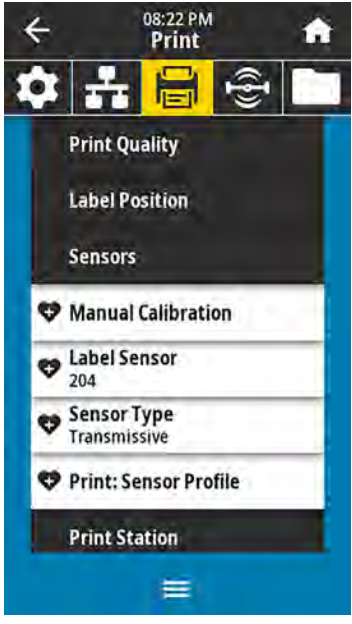
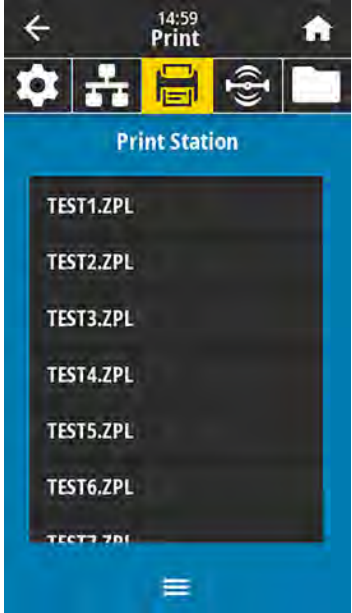
Menu Display	Menu Option Description								
	Print > Image Adjust > Media Handling Select a media handling method that is compatible with the options available on your printer. <table><tr><td>Accepted values:</td><td>Tear Off, Peel Off, Rewind, Cutter, Delayed Cut, Linerless Peel, Linerless Rewind, Linerless Tear, Applicator, Linerless Cut, Linerless Delayed Cut</td></tr><tr><td>Related ZPL command(s):</td><td>^MM</td></tr><tr><td>SGD command used:</td><td>media.printmode</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > General Setup > Print Mode</td></tr></table>	Accepted values:	Tear Off, Peel Off, Rewind, Cutter, Delayed Cut, Linerless Peel, Linerless Rewind, Linerless Tear, Applicator, Linerless Cut, Linerless Delayed Cut	Related ZPL command(s):	^MM	SGD command used:	media.printmode	Printer web page:	View and Modify Printer Settings > General Setup > Print Mode
Accepted values:	Tear Off, Peel Off, Rewind, Cutter, Delayed Cut, Linerless Peel, Linerless Rewind, Linerless Tear, Applicator, Linerless Cut, Linerless Delayed Cut								
Related ZPL command(s):	^MM								
SGD command used:	media.printmode								
Printer web page:	View and Modify Printer Settings > General Setup > Print Mode								
	Print > Image Adjust > Tear Line Offset If necessary, shift the position of the media over the tear-off bar after printing. • Lower numbers move the media into the printer by the specified number of dots (the tear line moves closer to the edge of the label just printed). • Higher numbers move the media out of the printer (the tear line moves closer to the leading edge of the next label).  <table><tr><td>Accepted values:</td><td>-120 to +120</td></tr><tr><td>Related ZPL command(s):</td><td>~TA</td></tr><tr><td>SGD command used:</td><td>ezpl.tear_off</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > General Setup > Tear Off</td></tr></table>	Accepted values:	-120 to +120	Related ZPL command(s):	~TA	SGD command used:	ezpl.tear_off	Printer web page:	View and Modify Printer Settings > General Setup > Tear Off
Accepted values:	-120 to +120								
Related ZPL command(s):	~TA								
SGD command used:	ezpl.tear_off								
Printer web page:	View and Modify Printer Settings > General Setup > Tear Off								

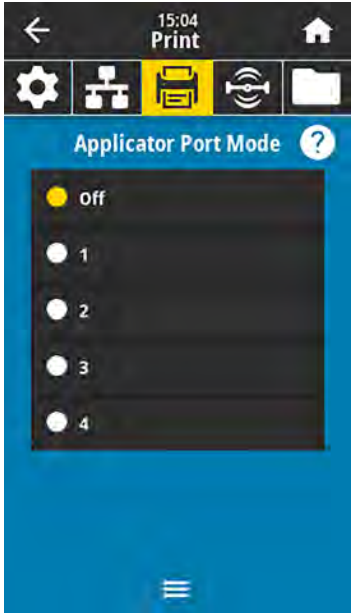
Menu Display	Menu Option Description								
	Print > Image Adjust > Horizontal Label Offset If necessary, shift the position of the image horizontally on the label. - Negative numbers move the left edge of the image toward the left edge of the label by the number of dots selected. - Positive numbers move the edge of the image toward the right edge of the label. <table border="1"> <tr> <td>Accepted values:</td><td>–9999 to 9999</td></tr> <tr> <td>Related ZPL command(s):</td><td>^LS</td></tr> <tr> <td>SGD command used:</td><td>zpl.left_position</td></tr> <tr> <td>Printer web page:</td><td>View and Modify Printer Settings > Advanced Setup > Left Position</td></tr> </table>	Accepted values:	–9999 to 9999	Related ZPL command(s):	^LS	SGD command used:	zpl.left_position	Printer web page:	View and Modify Printer Settings > Advanced Setup > Left Position
Accepted values:	–9999 to 9999								
Related ZPL command(s):	^LS								
SGD command used:	zpl.left_position								
Printer web page:	View and Modify Printer Settings > Advanced Setup > Left Position								
	Print > Image Adjust > Vertical Label Offset If necessary, shift the position of the image vertically on the label. - Lower numbers move the image higher on the label (toward the printhead). - Higher numbers move the image farther down on the label (away from the printhead) by the specified number of dots. <table border="1"> <tr> <td>Accepted values:</td><td>–120 to +120</td></tr> <tr> <td>Related ZPL command(s):</td><td>^LT</td></tr> </table>	Accepted values:	–120 to +120	Related ZPL command(s):	^LT				
Accepted values:	–120 to +120								
Related ZPL command(s):	^LT								

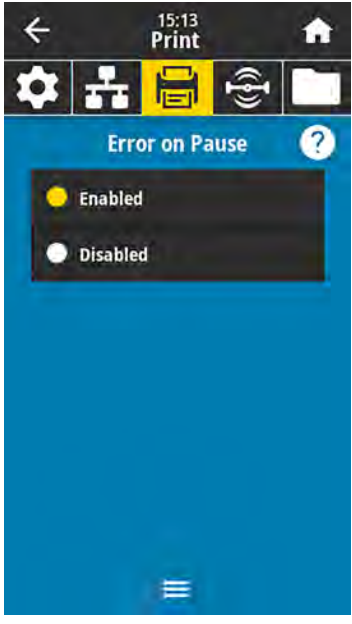
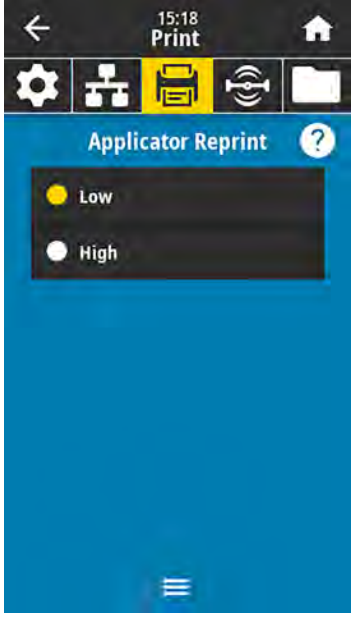
Menu Display	Menu Option Description	
	SGD command used:	zpl.label_top
	Printer web page:	View and Modify Printer Settings > General Setup > Label Top
	Print > Image Adjust > Invert Label When this is on, the label orientation is inverted.	
	Accepted values:	On, Off
	Related ZPL command(s):	^P0
	Print > Image Adjust > Backfeed Specify the backfeed order in relation to printing	
	Accepted values:	N = normal — 90 percent backfeed after label is printed A = 100 percent backfeed after printing and cutting O = off — turn backfeed off completely B = 0 percent backfeed after printing and cutting, and 100 percent before printing the next label 10 to 90 = percentage value
	Related ZPL command(s):	~JS

Menu Display	Menu Option Description								
	Print > Sensors > Manual Calibration Calibrate the printer to adjust the sensitivity of the media and ribbon sensors. For complete instructions on how to perform a calibration procedure, see Calibrating the Ribbon and Media Sensors on page 116. <table border="1"> <tr> <td>Related ZPL command(s):</td><td>~JC</td></tr> <tr> <td>SGD command used:</td><td>ezpl.manual_calibration</td></tr> <tr> <td>Control panel key(s):</td><td>Hold PAUSE + FEED + CANCEL for 2 seconds to initiate calibration.</td></tr> <tr> <td>Printer web page:</td><td> The calibration procedure cannot be initiated through the web pages. See the following web page for settings that are set during sensor calibration: View and Modify Printer Settings > Calibration IMPORTANT: Do not change these settings unless you are told to do so by Zebra Technical Support or by an authorized service technician. </td></tr> </table>	Related ZPL command(s):	~JC	SGD command used:	ezpl.manual_calibration	Control panel key(s):	Hold PAUSE + FEED + CANCEL for 2 seconds to initiate calibration.	Printer web page:	The calibration procedure cannot be initiated through the web pages. See the following web page for settings that are set during sensor calibration: View and Modify Printer Settings > Calibration IMPORTANT: Do not change these settings unless you are told to do so by Zebra Technical Support or by an authorized service technician.
Related ZPL command(s):	~JC								
SGD command used:	ezpl.manual_calibration								
Control panel key(s):	Hold PAUSE + FEED + CANCEL for 2 seconds to initiate calibration.								
Printer web page:	The calibration procedure cannot be initiated through the web pages. See the following web page for settings that are set during sensor calibration: View and Modify Printer Settings > Calibration IMPORTANT: Do not change these settings unless you are told to do so by Zebra Technical Support or by an authorized service technician.								
	Print > Sensors > Label Sensor Set the sensitivity of the label sensor. IMPORTANT: This value is set during sensor calibration. Do not change these settings unless you are told to do so by Zebra Technical Support or by an authorized service technician. <table border="1"> <tr> <td>Accepted values:</td><td>0 to 255</td></tr> <tr> <td>SGD command used:</td><td>ezpl.label_sensor</td></tr> <tr> <td>Printer web page:</td><td>View and Modify Printer Settings > Calibration</td></tr> </table>	Accepted values:	0 to 255	SGD command used:	ezpl.label_sensor	Printer web page:	View and Modify Printer Settings > Calibration		
Accepted values:	0 to 255								
SGD command used:	ezpl.label_sensor								
Printer web page:	View and Modify Printer Settings > Calibration								

Menu Display	Menu Option Description	
	Print > Sensors > Sensor Type Select the media sensor that is appropriate for the media that you are using. The reflective sensor typically is used for black mark media. The transmissive sensor is typically used for other media types.	
	Accepted values:	TRANSMISSIVE, REFLECTIVE
	Related ZPL command(s):	^JS
	SGD command used:	device.sensor_select
	Printer web page:	View and Modify Printer Settings > Media Setup
	Print > Sensors > Front Sensor With the ZT610 600 dpi Micro Label printer, use this parameter to disable the front sensor for media that does not meet the specifications. See ZT610 600 dpi Micro Label Specifications .	
	Accepted values:	Enabled, Disabled
	SGD command used:	print.front_sensor

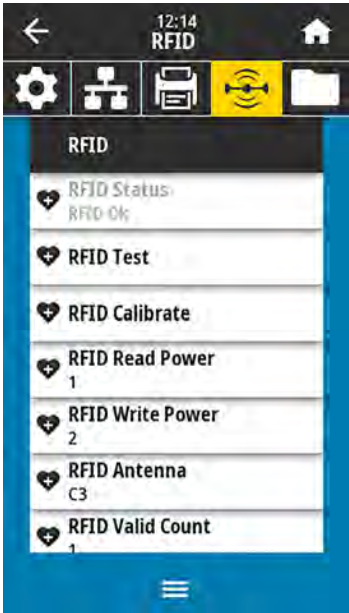
Menu Display	Menu Option Description	
	Print > Sensors > Print: Sensor Profile Shows the sensor settings compared to actual sensor readings. To interpret the results, see Sensor Profile on page 158.	
	Related ZPL command(s):	~JG
	Control panel key(s):	Hold FEED + CANCEL during printer power-up.
	Printer web page:	View and Modify Printer Settings > Print Listings on Label >
	Print > Print Station Use this menu item to fill in variable fields in a label format and print the label using a Human Input Device (HID), such as a USB keyboard, scale, or barcode scanner. A suitable label format must be stored on the E: drive of the printer to use this option. See the exercises in Using a USB Host Port and the Print Touch Feature on page 189 for an exercise using this capability. When you plug an HID into one of the printer's USB host ports, use this user menu to select a form on the printer's E: drive. After you have been prompted to fill in each variable ^FN field on the form, you can specify the desired quantity of labels to print. For more information about using the ^FN command or the SGD commands related to this feature, see the Zebra Programming Guide at zebra.com/manuals for more information.	
	SGD command used:	 NOTE: This menu item can be used only if a USB device is connected to a USB host port on the printer. usb.host.keyboard_input (must be set to ON) usb.host.template_list usb.host.fn_field_list usb.host.fn_field_data usb.host.fn_last_field usb.host.template_print_amount

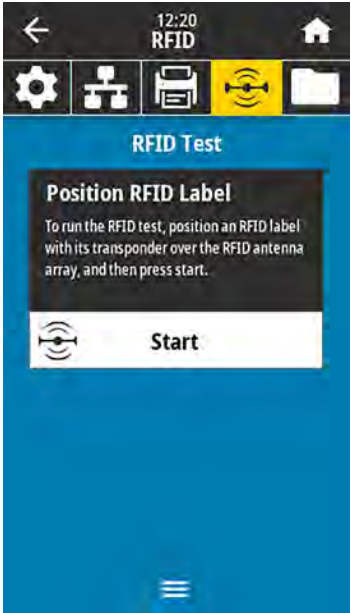
Menu Display	Menu Option Description						
	Print > Applicator > Applicator Port Mode Controls the way in which the applicator port's "End Print" signal functions. <table border="1"> <tr> <td>Accepted values:</td><td> Off 1 = End Print signal normally high, and low only when the printer is moving the label forward. 2 = End Print signal normally low, and high only when the printer is moving the label forward. 3 = End Print signal normally high, and low for 20 ms when a label has been printed and positioned. 4 = End Print signal normally low, and high for 20 ms when a label has been printed and positioned. </td></tr> <tr> <td>Related ZPL command(s):</td><td><code>^JJ</code></td></tr> <tr> <td>SGD command used:</td><td><code>device.applicator.end_print</code></td></tr> </table>	Accepted values:	Off 1 = End Print signal normally high, and low only when the printer is moving the label forward. 2 = End Print signal normally low, and high only when the printer is moving the label forward. 3 = End Print signal normally high, and low for 20 ms when a label has been printed and positioned. 4 = End Print signal normally low, and high for 20 ms when a label has been printed and positioned.	Related ZPL command(s):	<code>^JJ</code>	SGD command used:	<code>device.applicator.end_print</code>
Accepted values:	Off 1 = End Print signal normally high, and low only when the printer is moving the label forward. 2 = End Print signal normally low, and high only when the printer is moving the label forward. 3 = End Print signal normally high, and low for 20 ms when a label has been printed and positioned. 4 = End Print signal normally low, and high for 20 ms when a label has been printed and positioned.						
Related ZPL command(s):	<code>^JJ</code>						
SGD command used:	<code>device.applicator.end_print</code>						
	Print > Applicator > Start Print Mode Determines if the applicator port's "Start Print" signal is in level mode or pulse mode. <table border="1"> <tr> <td>Accepted values:</td><td> Pulse—Start Print signal must be deasserted before it can be asserted for the next label. Level—Start Print signal does not need to be deasserted to print the next label. As long as the Start Print signal is low and a label is formatted, a label prints. </td></tr> <tr> <td>Related ZPL command(s):</td><td><code>^JJ</code></td></tr> <tr> <td>SGD command used:</td><td><code>device.applicator.start_print</code></td></tr> </table>	Accepted values:	Pulse—Start Print signal must be deasserted before it can be asserted for the next label. Level—Start Print signal does not need to be deasserted to print the next label. As long as the Start Print signal is low and a label is formatted, a label prints.	Related ZPL command(s):	<code>^JJ</code>	SGD command used:	<code>device.applicator.start_print</code>
Accepted values:	Pulse—Start Print signal must be deasserted before it can be asserted for the next label. Level—Start Print signal does not need to be deasserted to print the next label. As long as the Start Print signal is low and a label is formatted, a label prints.						
Related ZPL command(s):	<code>^JJ</code>						
SGD command used:	<code>device.applicator.start_print</code>						

Menu Display	Menu Option Description	
	Print > Applicator > Error on Pause Determines how applicator port errors are treated by the printer. Enabling this feature also causes the “Service Required” pin to be asserted.	
	Accepted values:	ENABLED, DISABLED
	SGD command used:	device.applicator.error_on_pause
	Printer web page:	View and Modify Printer Settings > Advanced Setup > Error on Pause
	Print > Applicator > Applicator Reprint Specifies if a high or low value is required for an applicator to reprint a label. Enables or disables the ~PR command, which when enabled reprints the last printed label. It also enables the Reprint button on the Home screen.	
	Related ZPL command(s):	^JJ and ~PR
	SGD command used:	device.applicator.reprint

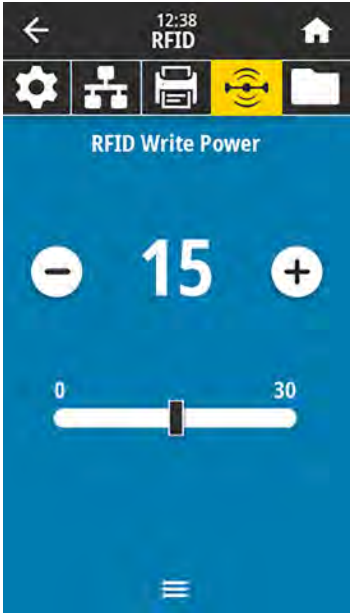
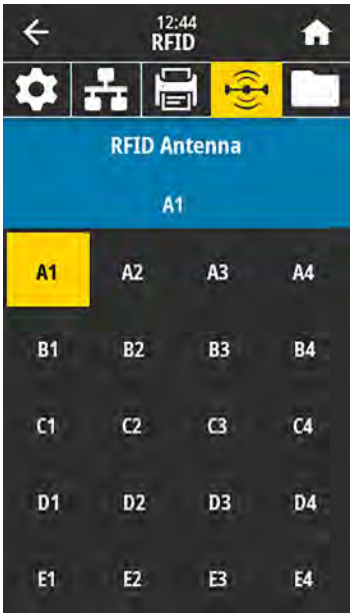
RFID Menu

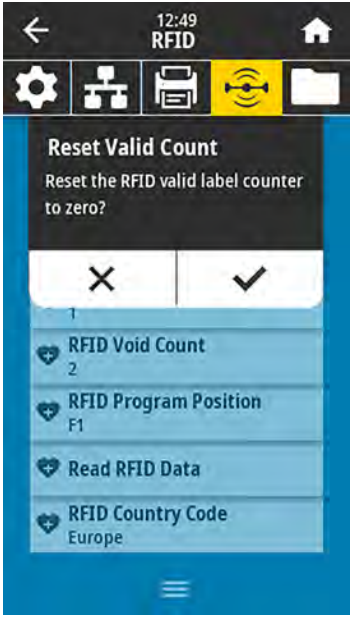
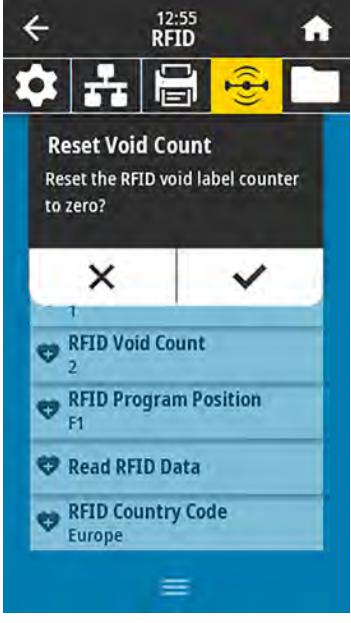
This table lists the RFID Menu items.

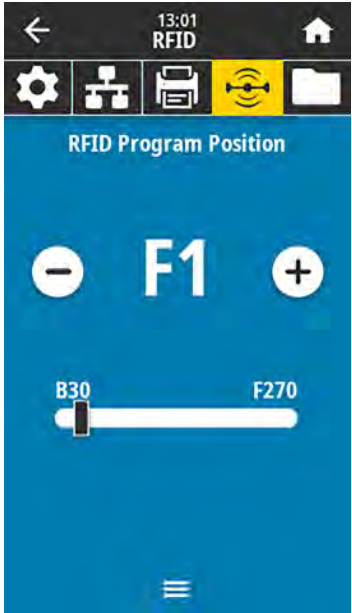
Menu Display	Menu Option Description	
	RFID > RFID Status Display the status of the RFID subsystem of the printer.	
	Related ZPL command(s):	^HL or ~HL
	SGD command used:	rfid.error.response

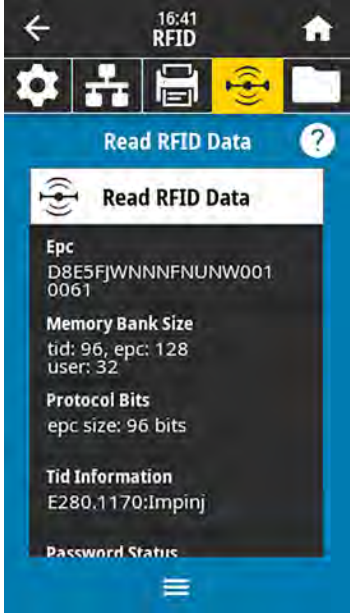
Menu Display	Menu Option Description	
	RFID > RFID Test During the RFID test, the printer attempts to read and write to a transponder. No printer movement occurs with this test. To test an RFID label: 1. Position the RFID label with its transponder over the RFID antenna array. 2. Touch Start. The results of the test appear on the display. 	
	SGD command used:	rfid.tag.test.content and rfid.tag.test.execute

Menu Display	Menu Option Description								
	RFID > RFID Calibrate Initiate tag calibration for RFID media. (This is not the same as media and ribbon calibration.) During the process, the printer moves the media, calibrates the RFID tag position, and determines the optimal settings for the RFID media being used. These settings include the programming position, the antenna element to use, and the read/write power level to use. See <i>RFID Programming Guide 3</i> for more information. Go to zebra.com/support and use the search facility to find and download the guide.  NOTE: Before running this command, load the printer with RFID media, calibrate your printer, close the printhead, and feed at least one label to make sure that tag calibration will begin from the correct position. Leave all transponders before and after the tag that is being calibrated. This allows the printer to determine RFID settings which do not encode the adjacent tag. Allow a portion of media to extend out the front of the printer to allow for backfeed during the tag calibration procedure. <table border="1" data-bbox="711 930 1521 1119"> <tr> <td>Related ZPL command(s):</td><td>^HR</td></tr> <tr> <td>SGD command used:</td><td>rfid.tag.calibrate</td></tr> </table>	Related ZPL command(s):	^HR	SGD command used:	rfid.tag.calibrate				
Related ZPL command(s):	^HR								
SGD command used:	rfid.tag.calibrate								
	RFID > Read Power If the desired read power is not achieved through RFID tag calibration, a value may be specified. <table border="1" data-bbox="711 1255 1521 1539"> <tr> <td>Accepted values:</td><td>0 to 30</td></tr> <tr> <td>Related ZPL command(s):</td><td>^RW</td></tr> <tr> <td>SGD command used:</td><td>rfid.reader_1.power.read</td></tr> </table> <table border="1" data-bbox="711 1539 1521 1749"> <tr> <td>Printer web page:</td><td>View and Modify Printer Settings > RFID Setup > RFID READ PWR</td></tr> </table>	Accepted values:	0 to 30	Related ZPL command(s):	^RW	SGD command used:	rfid.reader_1.power.read	Printer web page:	View and Modify Printer Settings > RFID Setup > RFID READ PWR
Accepted values:	0 to 30								
Related ZPL command(s):	^RW								
SGD command used:	rfid.reader_1.power.read								
Printer web page:	View and Modify Printer Settings > RFID Setup > RFID READ PWR								

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

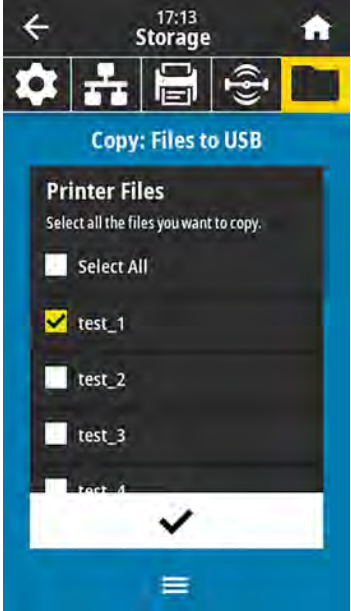
Menu Display	Menu Option Description	
	RFID > RFID Valid Count Resets the RFID valid label counter to zero.	
	Related ZPL command(s):	~R0
	SGD command used:	odometer.rfid.valid_resetable
	RFID > RFID Void Count Resets the RFID void label counter to zero.	
	Related ZPL command(s):	~R0
	SGD command used:	odometer.rfid.void_resetable

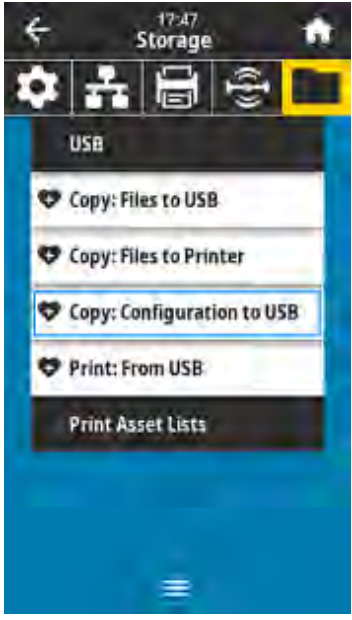
Menu Display	Menu Option Description
	RFID > RFID Program Position If the desired programming position (read/write position) is not achieved through RFID tag calibration, a value may be specified.
	Accepted values: F0 to Fxxx (where xxx is the label length in millimeters or 999, whichever is less)—The printer feeds the label forward for the specified distance and then begins programming. B0 to B30—The printer backfeeds the label for the specified distance and then begins programming. To account for the backfeed, allow empty media liner to extend out of the front of the printer when using a backward programming position.
	Related ZPL command(s): ^RS
	SGD command used: rfid.position.program
	Printer web page: View and Modify Printer Settings > RFID Setup > PROGRAM POSITION

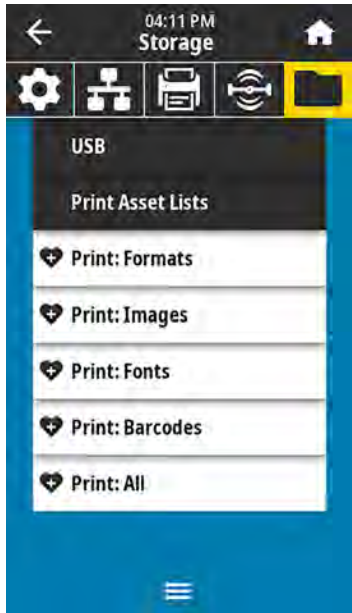
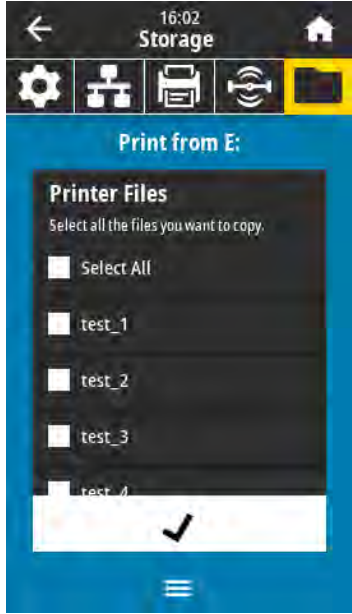
Menu Display	Menu Option Description	
		RFID > Read RFID Data Read and return the specified tag data from the RFID tag located over the RFID antenna. No printer movement occurs while tag data is being read. The printhead can be open or closed. To read and display the information stored on an RFID tag: 1. Position the RFID label with its transponder over the RFID antenna. 2. Touch Read RFID Data. The results of the test are shown on the display. 
	Related ZPL command(s):	^RF
	SGD command used:	rfid.tag.read.content rfid.tag.read.execute

Storage Menu

This table lists the Storage Menu items.

Menu Display	Menu Option Description	
	Storage > USB > Copy: Files to USB Select files from the printer to store on a USB Flash drive. To copy files from the printer to a USB Flash drive: 1. Insert a USB flash drive into the printer's USB host port. The printer lists available files. 2. Touch the box next to the desired files. Select All is also available. 3. Touch the checkmark to copy the selected files.	
SGD command used:	<pre>usb.host.write_list</pre>	
	Storage > USB > Copy: Files to Printer Select files to copy to the printer from a USB Flash drive. To copy files to the printer from a USB Flash drive: 1. Insert a USB flash drive into the printer's USB host port. The printer lists available files. 2. Touch the box next to the desired files. Select All is also available. 3. Touch the check mark to copy the selected files.	
SGD command used:	<pre>usb.host.read_list</pre>	

Menu Display	Menu Option Description	
		Storage > USB > Copy: Configuration to USB Use this function to copy the printer's configuration information to a USB mass storage device, such as a USB Flash drive, that is plugged into one of the printer's USB host ports. This makes the information accessible without having to print physical labels.
	Related ZPL command(s):	^HH—Returns the printer configuration information returned to the host computer.
	Printer web page:	Printer Home Page > View Printer Configuration (to view printer configuration information on your web browser) View and Modify Printer Settings > Print Listings on Label (to print the configuration information on labels)
		Storage > USB > Print: From USB Select files to print from a USB Flash drive. To print files from a USB Flash drive: 1. Insert a USB flash drive into the printer's USB host port. The printer lists available files. 2. Touch the box next to the desired files. Select All is also available. 3. Touch the check mark to print the selected files.
	SGD command used:	usb.host.read_list

Menu Display	Menu Option Description						
	Storage > Print Asset Lists Print the specified information on one or more labels. <table><tr><td>Accepted values:</td><td> Formats—Prints the available formats stored in the printer’s RAM or Flash memory. Images—Prints the available images stored in the printer’s RAM or Flash memory. Fonts—Prints the available fonts in the printer, including standard printer fonts plus any optional fonts. Fonts may be stored in RAM or Flash memory. Barcodes—Prints the available barcodes in the printer. Barcodes may be stored in RAM or Flash memory. All—Prints the previous labels plus the printer configuration label and the network configuration label. </td></tr><tr><td>Related ZPL command(s):</td><td>^WD</td></tr><tr><td>Printer web page:</td><td>View and Modify Printer Settings > Print Listings on Label</td></tr></table>	Accepted values:	Formats—Prints the available formats stored in the printer’s RAM or Flash memory. Images—Prints the available images stored in the printer’s RAM or Flash memory. Fonts—Prints the available fonts in the printer, including standard printer fonts plus any optional fonts. Fonts may be stored in RAM or Flash memory. Barcodes—Prints the available barcodes in the printer. Barcodes may be stored in RAM or Flash memory. All—Prints the previous labels plus the printer configuration label and the network configuration label.	Related ZPL command(s):	^WD	Printer web page:	View and Modify Printer Settings > Print Listings on Label
Accepted values:	Formats—Prints the available formats stored in the printer’s RAM or Flash memory. Images—Prints the available images stored in the printer’s RAM or Flash memory. Fonts—Prints the available fonts in the printer, including standard printer fonts plus any optional fonts. Fonts may be stored in RAM or Flash memory. Barcodes—Prints the available barcodes in the printer. Barcodes may be stored in RAM or Flash memory. All—Prints the previous labels plus the printer configuration label and the network configuration label.						
Related ZPL command(s):	^WD						
Printer web page:	View and Modify Printer Settings > Print Listings on Label						
	Storage > Print from E: Print one or more files stored on the printer.						

Calibrating the Ribbon and Media Sensors

Printer calibration adjusts the sensitivity of the media and ribbon sensors. It also helps ensure proper alignment of the image being printed and optimal print quality.

Perform calibration in the following situations:

- You switched to a different size or type of ribbon or media.
- The printer experiences any of the following issues:
 - Skips labels.
 - The printed image wanders or drifts side to side or up and down.
 - Ribbon is not being detected either when it is installed or when it runs out.
 - Non-continuous labels are being treated as continuous labels.

Performing Auto Calibration

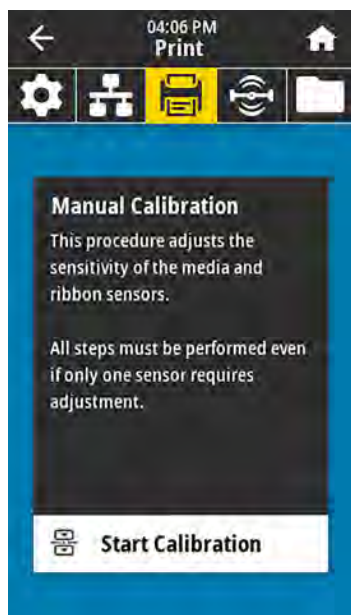
You can set the printer to perform an auto calibration (CALIBRATE) or a short calibration (SHORT CAL) using the `POWER UP ACTION` or `HEAD CLOSE ACTION` parameters.

- **CALIBRATE**—Adjusts sensor levels and thresholds, determines the label length, and feeds the media to the next web.
- **SHORT CAL**—Sets the media and web thresholds without adjusting sensor gain, determines the label length, and feeds the media to the next web.

Performing Manual Sensor Calibration

You may need to manually calibrate the printer if you see issues with the print output.

1. Touch **Print** > **Sensors** > **Manual Calibration**.



2. Touch **Start Calibration**.
3. Follow the steps in the calibration procedure as prompted.



IMPORTANT: Follow the calibration procedure exactly as presented.

- Touch **Next** to advance to the next prompt.

- You may press and hold **CANCEL** on the control panel at any step in the procedure to cancel the calibration process.

Table 3 ZT610/ZT620 Media Calibration Sequence

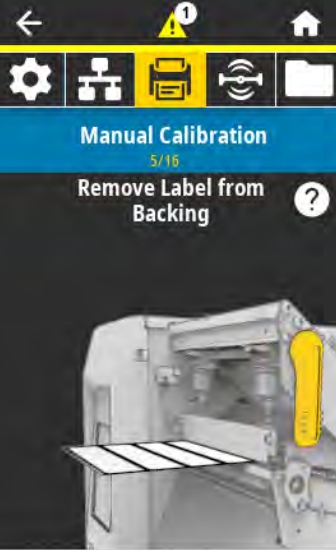
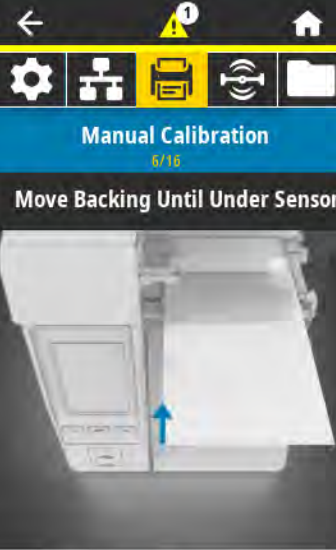
 Manual Calibration 1/15 Raise the Media Door Next	 Manual Calibration 2/15 Open the Printhead Assembly Next	 Manual Calibration 3/15 Remove the Ribbon ? Next
 Manual Calibration 4/15 Locate the Media Sensor ? Next	 Manual Calibration 5/15 Remove Label from Backing ? Next	 Manual Calibration 6/15 Move Backing Until Under Sensor Next

Table 3 ZT610/ZT620 Media Calibration Sequence (Continued)

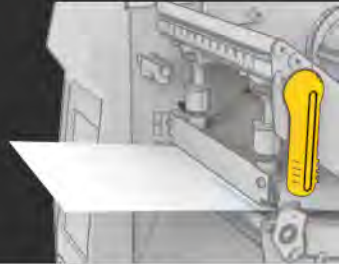
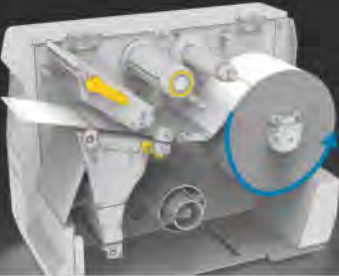
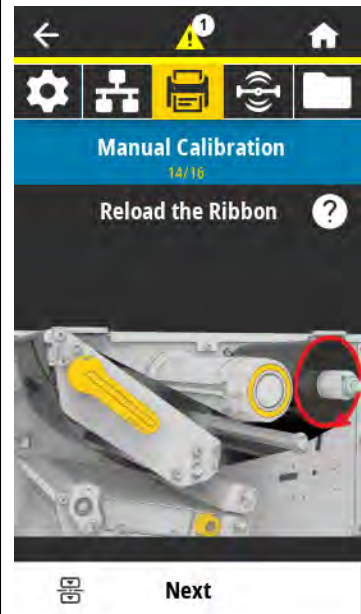
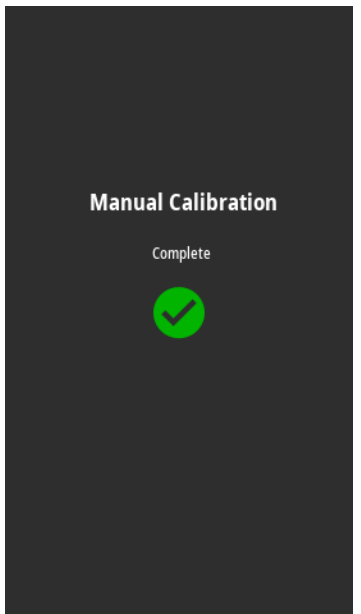
Manual Calibration 7/16 Move Backing Until Under Sensor  Next	Manual Calibration 8/16 Close the Printhead Assembly  Next	Manual Calibration 9/16 Remove Excess Backing  Next
Manual Calibration 10/16 Start Media Calibration To continue, press the 'Calibrate' button. Calibrate	Media Calibration Complete 	Manual Calibration 13/16 Reload the Media ?  Next

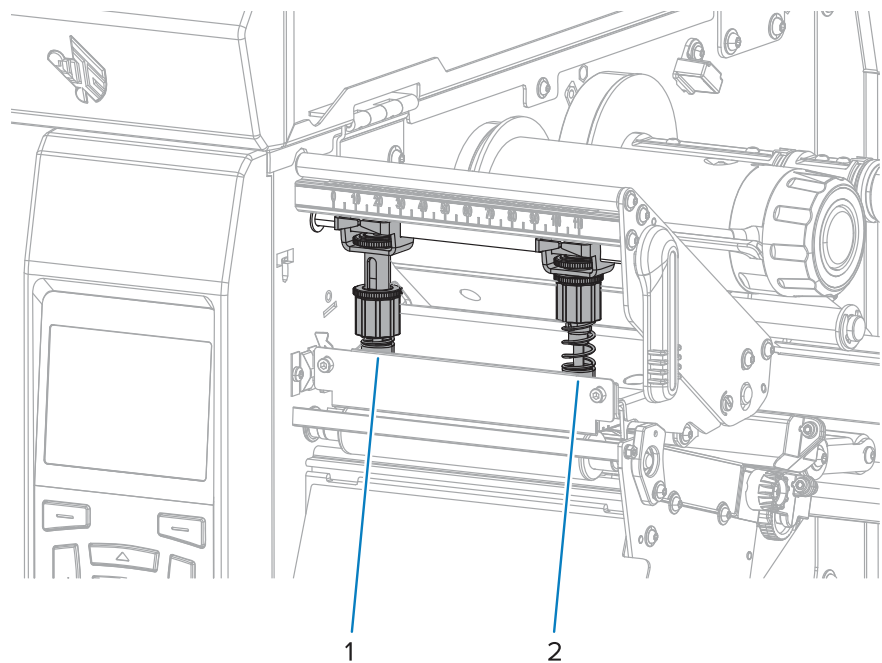
Table 3 ZT610/ZT620 Media Calibration Sequence (Continued)

		
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4. When calibration is complete, press **PAUSE** to exit pause mode and enable printing.

Adjusting the Printhead Pressure, Toggle Position, and Balance

The printhead pressure toggles can be adjusted to create more or less pressure, as needed. They can also be moved from side to side to adjust the pressure in certain areas. For more complex issues, adjusting the printhead balance may help.



1	Inside toggle (left)
2	Outside toggle (right)

You may need to adjust printhead pressure and the toggle position if one or more of these occur:

- You use thick or narrow media.
- Printing is too light on one side.
- The ribbon wrinkles during printing. (Go to [Ribbon Issues](#).)
- Media or ribbon tend to slip.
- Media drifts from side to side during printing.

See Also

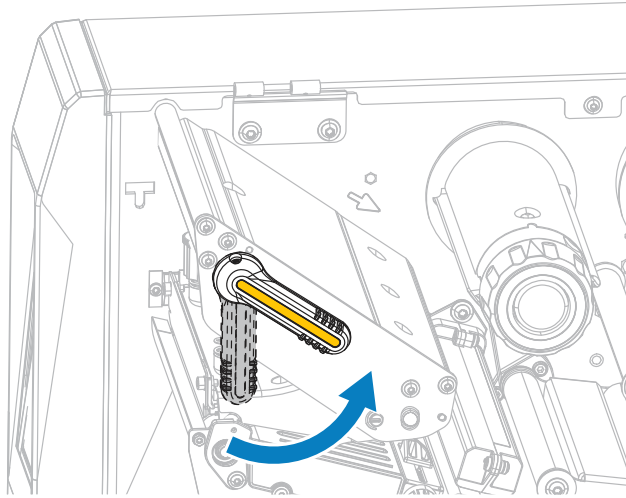
- [Adjusting the Printhead Pressure](#)
- [Adjusting the Toggle Position](#)
- [Setting the Printhead Balance](#)

Adjusting the Toggle Position

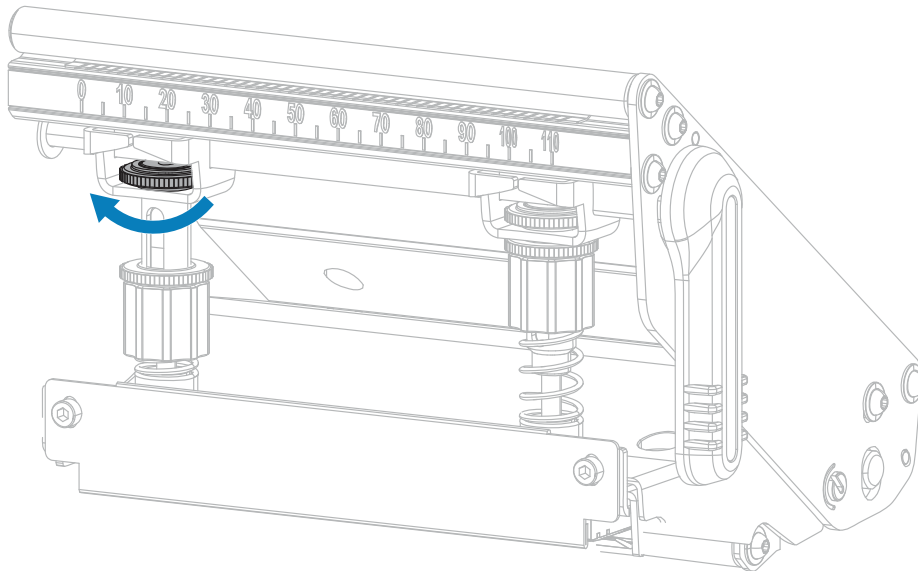
If the toggles are not positioned correctly or adjusted to apply the correct pressure, you may see issues while printing. Use these steps to adjust the toggle position.

For details on the circumstances in which the toggle pressure may need adjusting, see [Adjusting the Printhead Pressure, Toggle Position, and Balance](#) on page 121.

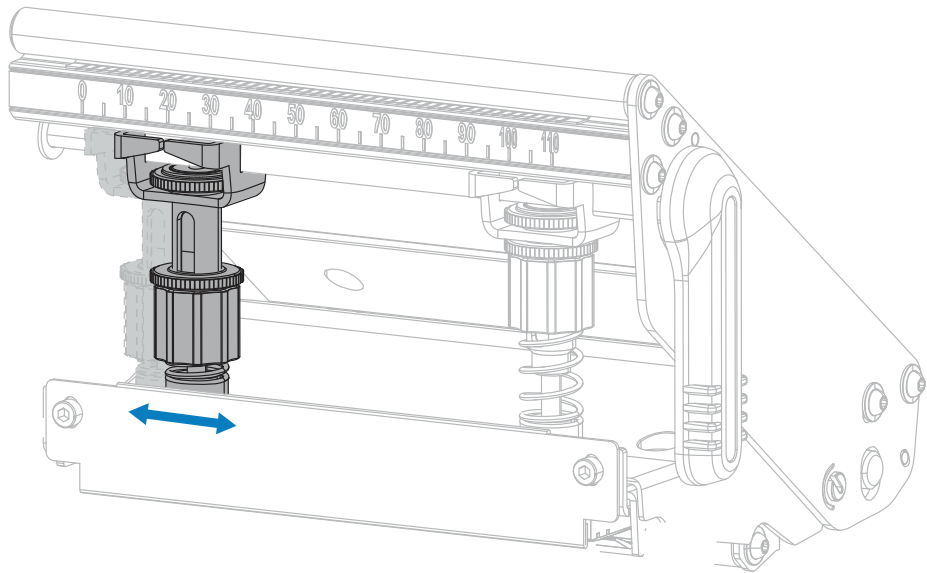
1. Open the printhead assembly to lessen the pressure on the toggles.



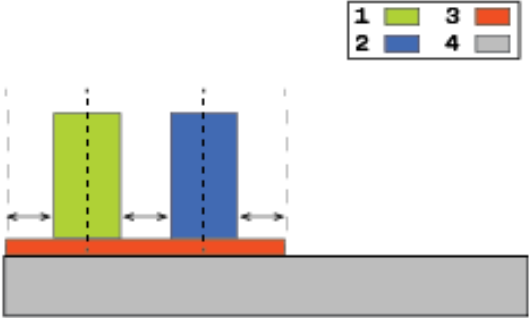
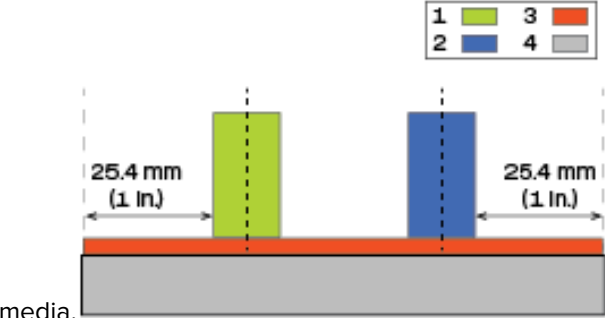
2. Loosen the locking nut at the top of the toggle you want to move.



3. Reposition the toggle as necessary to provide even pressure on the media.

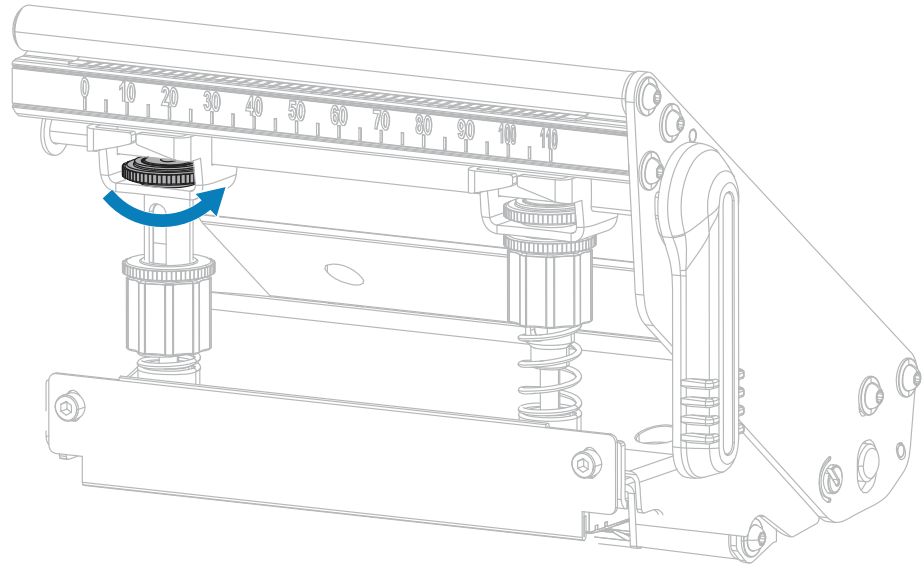


For media this size...	Position the toggles this way
less than 40 mm wide	Left toggle centered. No pressure on right toggle. 1 2 3 4
40 mm to 51 mm wide Option 1	Left toggle centered. No pressure on right toggle. 1 2 3 4
40 mm to 51 mm wide Option 2	Equal distances from each other and from both edges of the media.

For media this size...	Position the toggles this way
	
larger media widths	 media.

1	left toggle
2	right toggle
3	media
4	platen roller

4. Tighten the locking nut.



Adjusting the Printhead Pressure

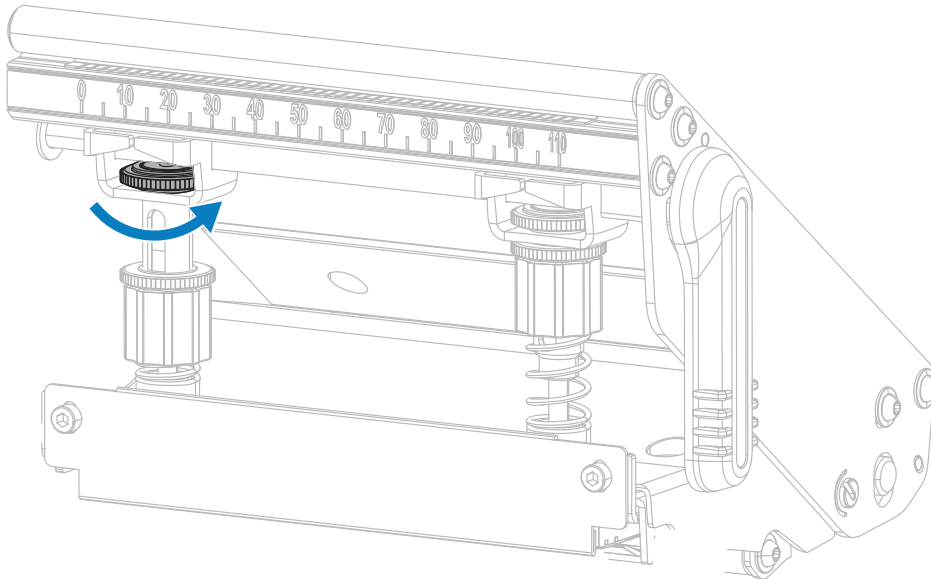
If positioning the toggles properly does not solve a print quality or other issue, try adjusting the printhead pressure. Maximize printhead life by using the lowest pressure that produces the desired print quality.

1. Initiate a [PAUSE Self-Test](#) on page 157.
2. While printing labels, use the control panel to lower the darkness setting until the labels are printing gray instead of black. (See **Print Quality > Darkness** in [Print Menu](#).)
3. Check if you experiencing any of the following issues:

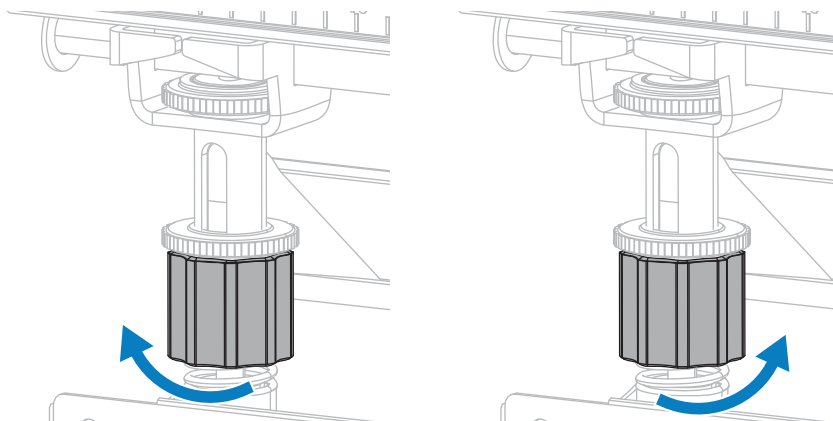
If the media...	Then...
Requires higher pressure overall to print well...	Increase the pressure on both toggles.
Requires lower pressure overall to print well...	Decrease the pressure on both toggles.
Prints too lightly on the left side of the label...	Increase the pressure on the inside toggle.
Prints too lightly on the right side of the label...	Increase the pressure on the outside toggle.
Shifts left while printing...	Increase the pressure on the outside toggle OR decrease the pressure on the inside toggle.
Shifts right while printing...	Increase the pressure on the inside toggle OR decrease the pressure on the outside toggle.

If none of these issues exist, do not continue with this procedure.

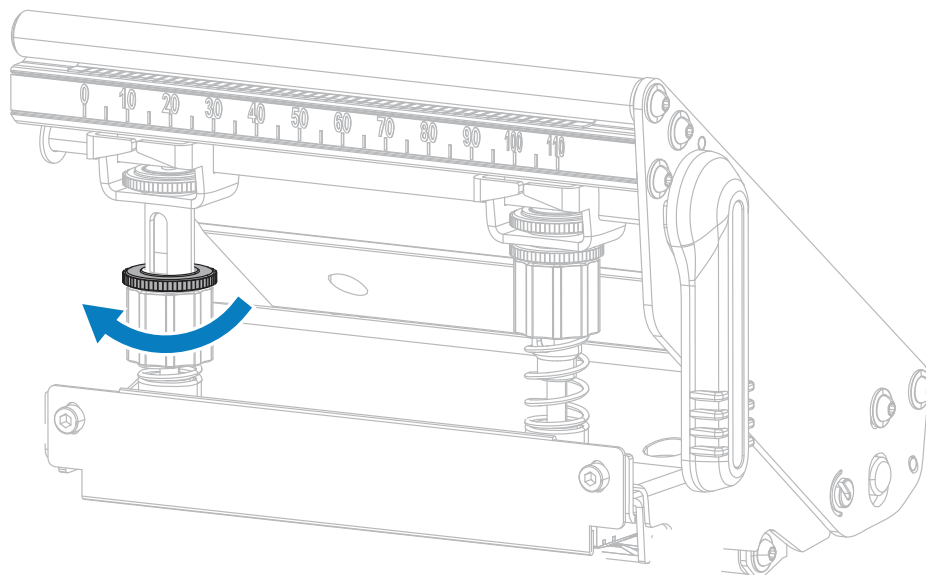
4. To make adjustments to the printhead pressure, loosen the upper knurled nut on the toggle to be adjusted.



5. Increase or decrease the pressure by rotating the lower nut. Rotate clockwise to increase the pressure (as shown below on the left) and counterclockwise to decrease the pressure (as shown below on the right).



6. Hold the lower nut in place and tighten the upper knurled nut.

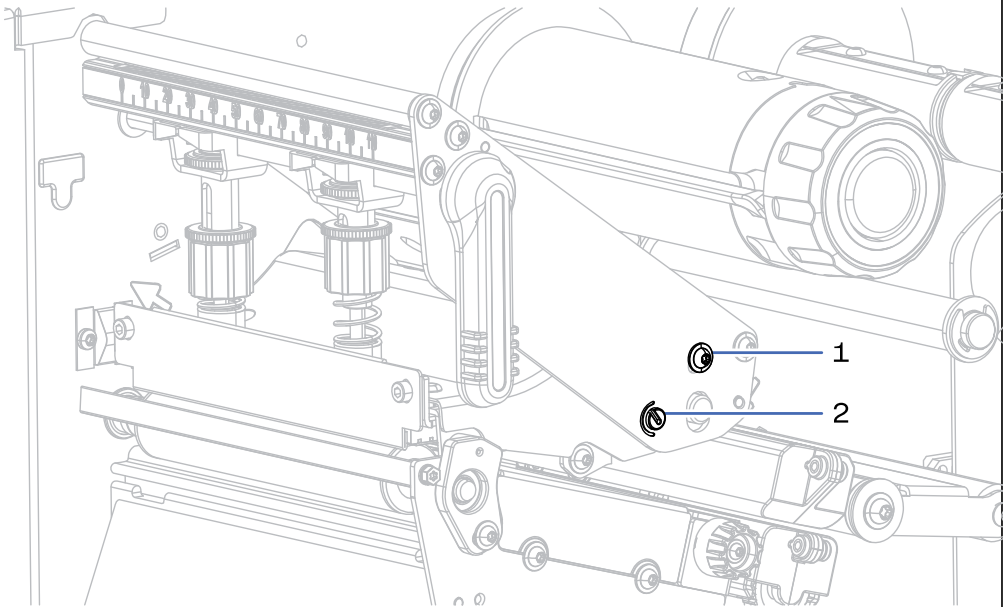


7. If necessary, re-initiate a [PAUSE Self-Test](#) on page 157.
8. While printing labels, use the control panel to raise the darkness setting until the labels are again printing black instead of gray. (See **Print Quality > Darkness** in [Print Menu](#).)
9. Check the print quality, and if necessary, repeat this procedure until the printhead pressure is adequate.

Setting the Printhead Balance

If positioning the toggles properly and adjusting the printhead pressure do not solve a print quality or other issue, try adjusting the printhead balance.

- 1. Initiate a [PAUSE Self-Test](#).
- 2. While printing labels, use the control panel to lower the darkness setting until the labels are printing gray instead of black.
- 3. Did the box on the label print with the same level of darkness on the left and right?

If...	Then...				
Yes	Continue with the next step.				
No	a. Loosen the balance plate lock screw slightly.  <table><tr><td>1</td><td>Balance plate lock screw</td></tr><tr><td>2</td><td>Balance plate eccentric</td></tr></table> b. Press PAUSE to restart the printer. c. Adjust the balance plate clockwise to reduce the pressure on the outboard side of the label or adjust it counterclockwise to increase the pressure on the outboard side of the label. d. When even print quality is achieved, hold the eccentric in position and tighten the balance plate lock screw. e. Press PAUSE to stop the printer. f. Continue with the next step	1	Balance plate lock screw	2	Balance plate eccentric
1	Balance plate lock screw				
2	Balance plate eccentric				

- 4. Press PAUSE to print additional test labels.
- 5. Increase the darkness setting until the labels are at optimum resolution and contrast.

6. Check the print quality, and if necessary, repeat this procedure until the printhead balance is adequate.
7. Press and hold CANCEL to exit the test sequence.

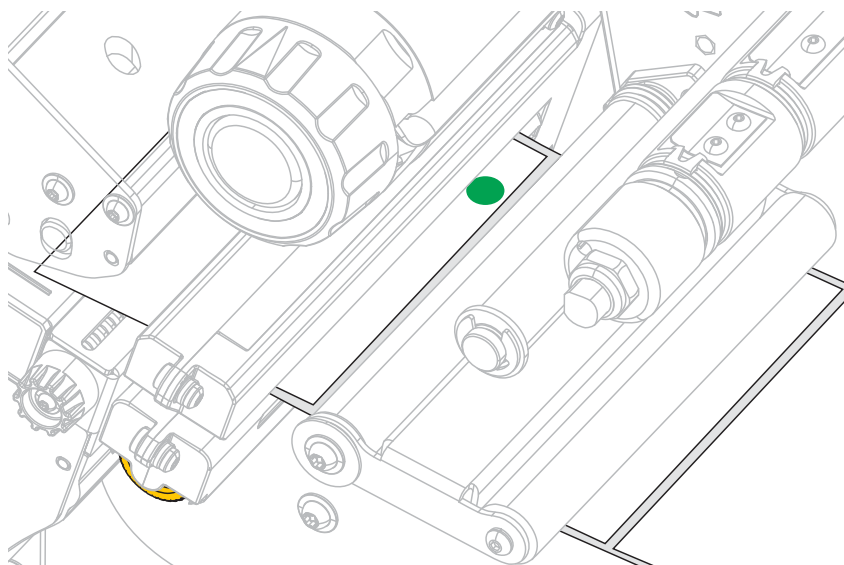
Adjusting the Transmissive Sensor Position

This adjustment is needed only if the printer cannot detect the top of the labels. In this situation, the display shows a media-out error even though there is media loaded in the printer. For non-continuous media with a notch or hole, the sensor must be positioned directly at the notch or hole.

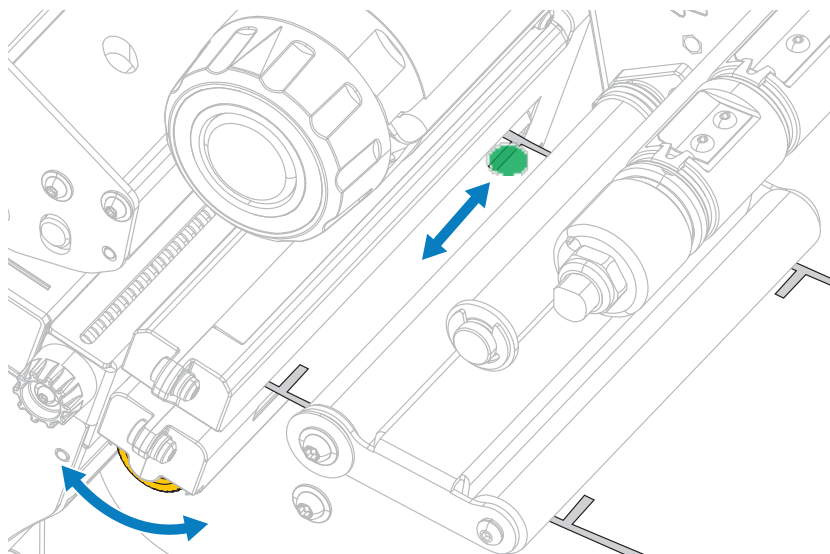
The transmissive media sensor assembly consists of two parts: a light source and a light sensor. The lower part of the media sensor is the light source, and the upper part of the media sensor is the light sensor. The media passes between the two parts.

For non-continuous media with a notch or hole, the sensor must be positioned directly at the notch or hole.

1. Remove the ribbon so you can clearly see the media path.
2. With media loaded, locate the green light that shines from the lower part of the media sensor.



3. If necessary, turn the gold transmissive sensor adjustment wheel to move the sensor until it is positioned at a notch or hole in the media.

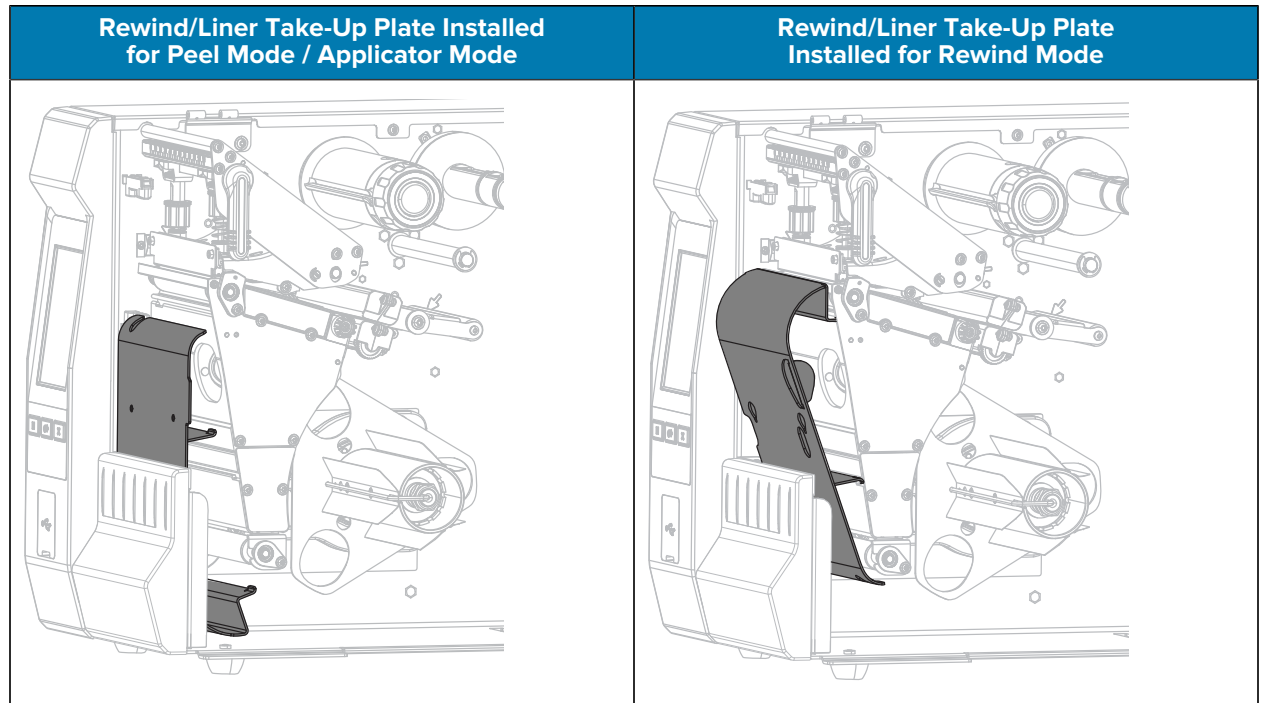


Rewind-Liner Take-Up Plate Installation

The rewind/liner take-up plate is installed in different positions for Rewind mode and Peel or Applicator modes.



NOTE: This section applies to standard ZT610/ZT620 printers. For installing the rewind plate or peel plate on a ZT610 600 dpi Miro Label Printer, go to [ZT610 600 dpi Micro Label Printer](#).



To install for Peel mode or Applicator mode, follow the steps in [Installing the Rewind/Liner Take-Up Plate – Peel Mode and Applicator Mode](#) on page 130.

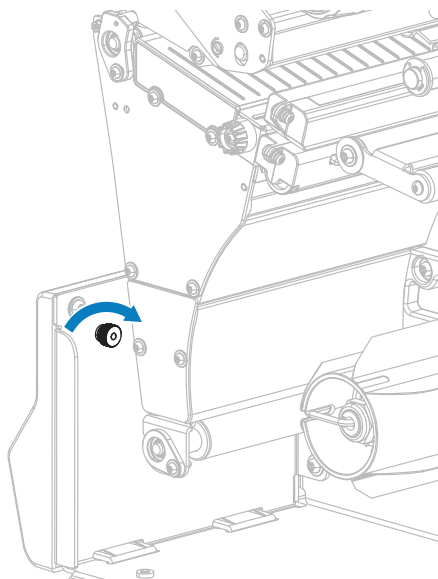
To install for Rewind mode, follow the steps in [Installing the Rewind/Liner Take-Up Plate – Rewind Mode](#) on page 133.

Installing the Rewind/Liner Take-Up Plate – Peel Mode and Applicator Mode

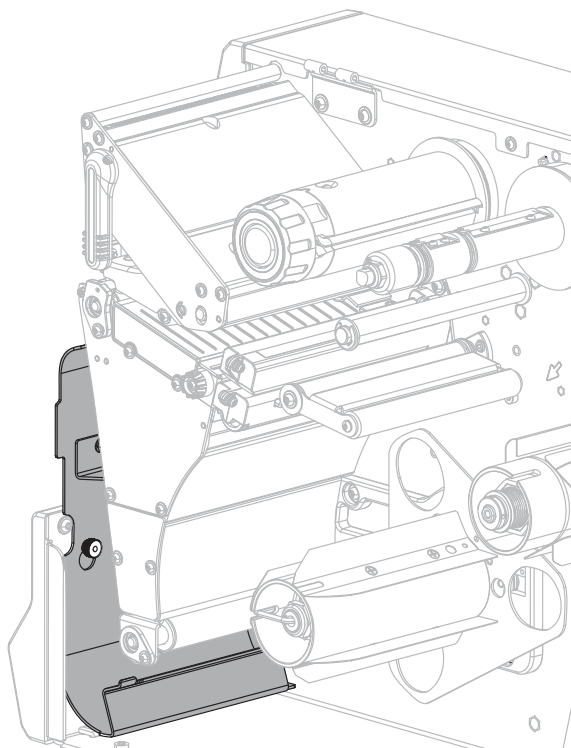


NOTE: These steps apply only to take-up plate installation for Peel mode and Applicator mode. To install the plate for Rewind mode, see [Installing the Rewind/Liner Take-Up Plate – Rewind Mode](#) on page 133.

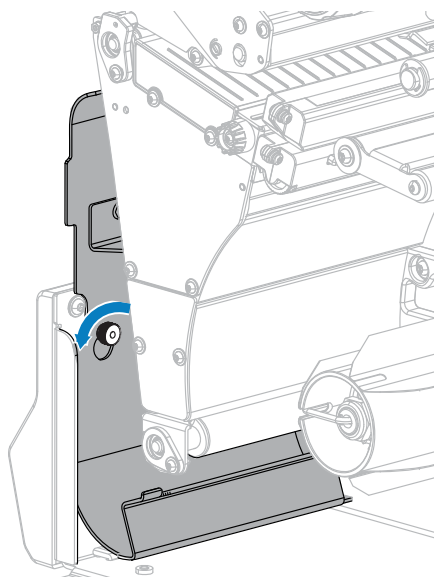
1. Loosen the knurled nut on the outside stud on the printer's base.



2. Align the large hole of the keyhole in the rewind/peel plate over the knurled nut, then slide the plate down until it hits the studs.



3. Tighten the knurled nut.

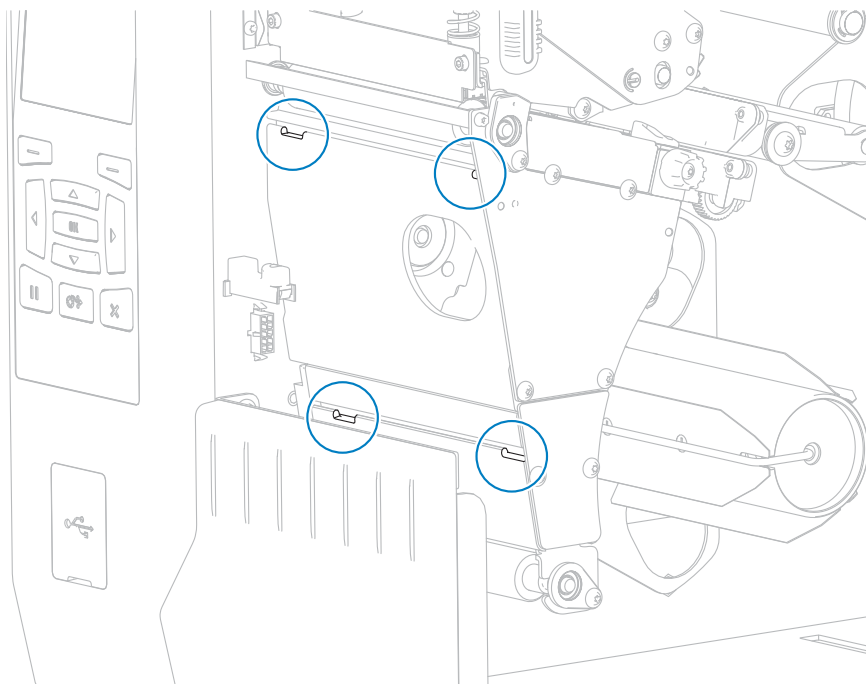


Installing the Rewind/Liner Take-Up Plate – Rewind Mode

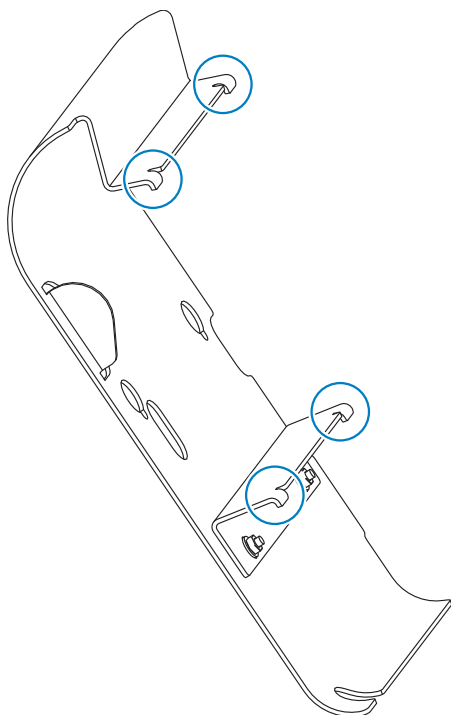


NOTE: These steps apply only to take-up plate installation for Rewind mode. To install the plate for Peel mode and Applicator mode, see [Installing the Rewind/Liner Take-Up Plate – Peel Mode](#) and [Applicator Mode](#) on page 130.

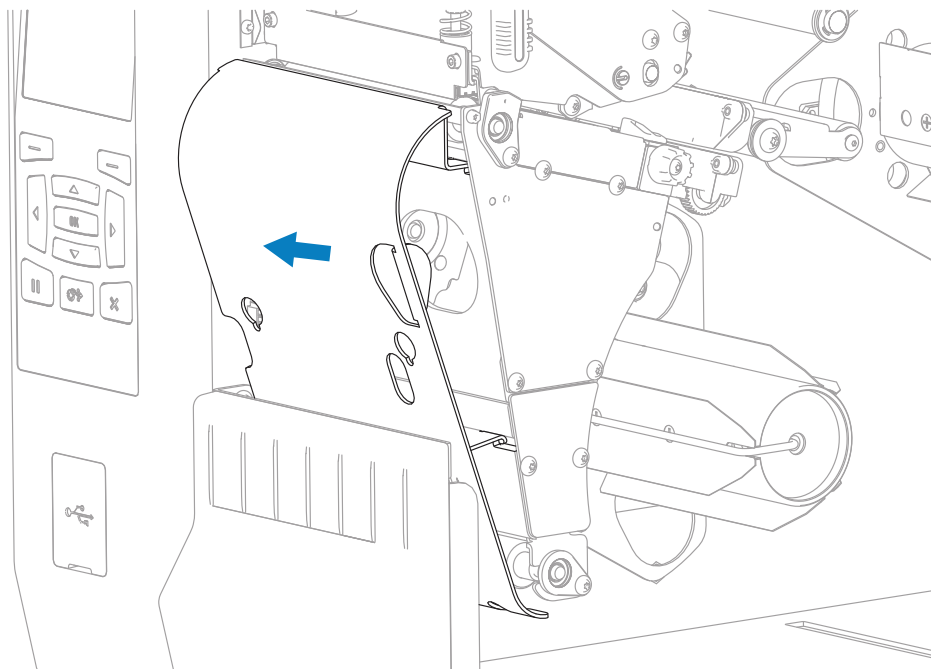
1. Locate the four mounting slots for the rewind/liner take-up plate.



2. Locate the four mounting tabs on the rewind/liner take-up plate.



3. Insert the mounting tabs of the rewind plate into the mounting slots of the printer, then slide the rewind plate to the left until it will not go any farther.



Routine Maintenance

This section provides routine cleaning and maintenance procedures.

Cleaning Schedule and Procedures

Routine preventive maintenance is a crucial part of normal printer operation. By taking good care of your printer, you can minimize potential problems and achieve/maintain the desired print quality standards.

Over time, the movement of media or ribbon across the printhead wears through the protective ceramic coating, exposing and eventually damaging the print elements (dots). To avoid abrasion:

- Clean the printhead frequently.
- Minimize printhead pressure and burn temperature (darkness) settings by optimizing the balance between the two.
- When using Thermal Transfer mode, ensure that the ribbon is either as wide or wider than the media. This is to avoid exposing printhead elements to the more abrasive label material.



IMPORTANT: Zebra is not responsible for damage caused by the use of cleaning fluids on this printer.

Specific cleaning procedures are included in this section. Follow the recommended cleaning schedule listed in the table below.



NOTE: These recommended cleaning intervals are intended as guidelines only. You may have to clean more often depending on your specific application and the media you use for printing.

Table 4 Recommended Cleaning Schedule

Area	Method	Interval
Printhead	Solvent*	Direct Thermal Mode: After every roll of media (or 500 feet of fanfold media). Thermal Transfer Mode: After every roll of ribbon.
Platen roller (standard, white)	Solvent*	
Platen roller (linerless, dark brown)	Dabbing with sticky side of linerless label**	
Media sensors	Air blow	
Ribbon sensor	Air blow	

Table 4 Recommended Cleaning Schedule (Continued)

Area		Method	Interval
Media path		Solvent*	
Ribbon path		Solvent*	
Pinch roller (part of Peel-Off option)		Solvent*	After every roll of media (or more often, depending upon your application and media).
Cutter module	If cutting continuous, pressure-sensitive media	Solvent*	
	If cutting tag stock or label liner material	Solvent* and air blow	After every two or three rolls of media.
Tear-off/peel-off bar		Solvent*	Once a month.
Take-label sensor		Air blow	Once every six months.
 NOTE: * Zebra recommends using the Preventive Maintenance Kit (p/n 47362 or p/n 105950-035 - multipack). In place of the Preventive Maintenance Kit, you may use a lint-free cloth dipped in 99.7% isopropyl alcohol. For 600 dpi printers, use Save-a-Printhead cleaning film. This specially-coated material removes contamination buildup without damaging the printhead. Call your authorized reseller or distributor for more information.			
 CAUTION—PRODUCT DAMAGE: ** Do not use solvents, including isopropyl alcohol or the Preventive Maintenance Kit swab, on a linerless platen roller as this could damage the finish.			

Clean the Exterior, the Media Compartment, and the Sensors

Over time, dust, grime, and other debris may build up on the outside and inside of your printer, particularly in a harsh operating environment.

Clean the Printer Exterior

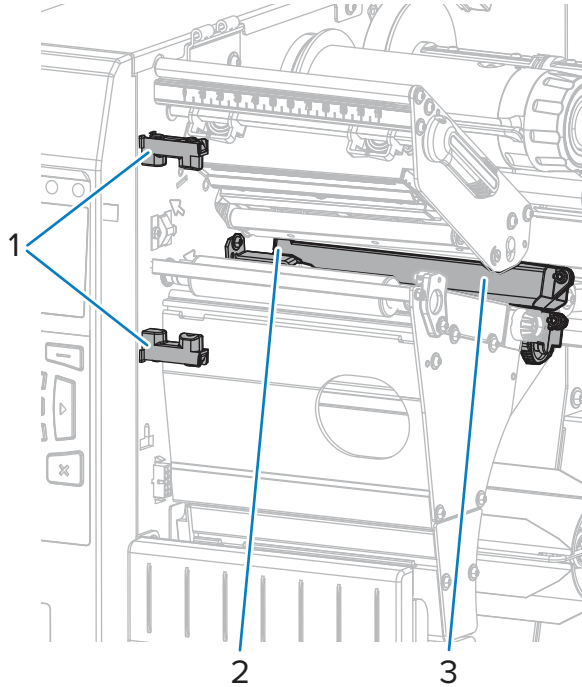
You may clean the exterior surfaces of the printer with a lint-free cloth and a small amount of a mild detergent, if necessary. Do not use harsh or abrasive cleaning agents or solvents.



IMPORTANT: Zebra is not responsible for damage caused by the use of cleaning fluids on this printer.

Cleaning the Media Compartment and the Sensors

1. Brush, air blow, or vacuum any accumulated paper lint and dust away from the media and ribbon paths.
2. Brush, air blow, or vacuum any accumulated paper lint and dust away from the sensors.



1	Label-taken sensor
2	Ribbon sensor
3	Media sensor

Cleaning the Printhead and Platen Roller

Inconsistent print quality, such as voids in the barcode or graphics, may indicate a dirty printhead. For the recommended cleaning schedule, see [Cleaning Schedule and Procedures](#) on page 135.



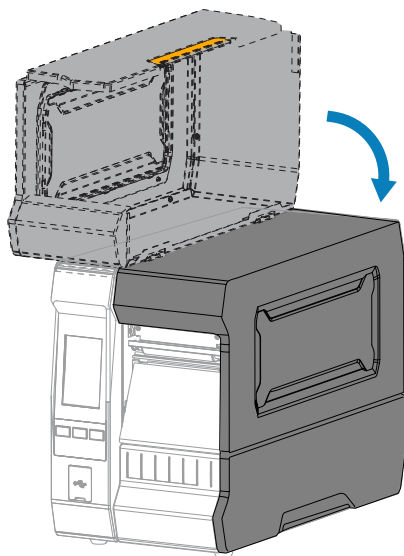
IMPORTANT: While you are not required to turn off printer power when working near an open printhead, Zebra recommends it as a precaution.

If you turn off power, you will lose all temporary settings, such as label formats, and you must reload them before you resume printing.



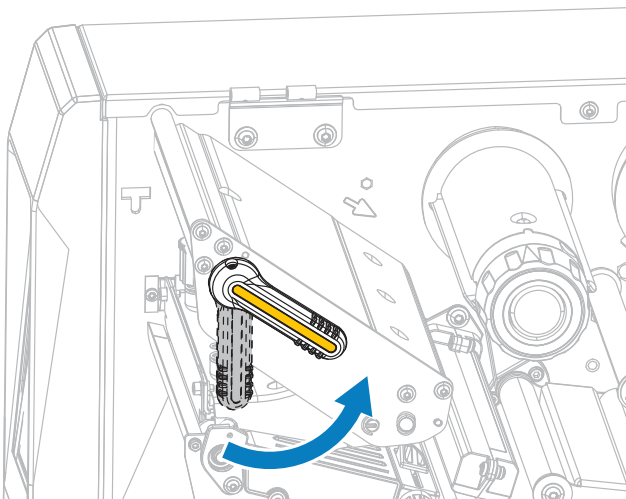
CAUTION—ESD: Before touching the printhead assembly, discharge any built-up static electricity by touching the metal printer frame or by using an anti-static wrist-strap and mat.

1. Raise the media door.



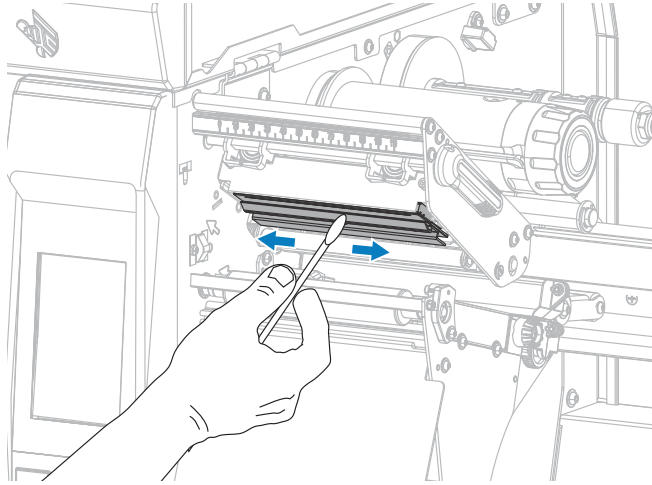
CAUTION: HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

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

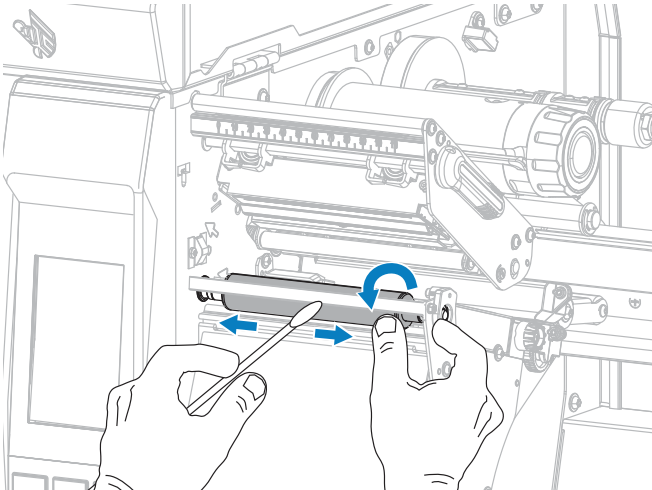


3. Remove the ribbon (if used) and the media.

4. Using the swab from a Zebra Preventive Maintenance Kit, wipe along the brown strip on the printhead assembly from end to end. In place of the Preventive Maintenance Kit, you may use a clean swab dipped in 99.7% isopropyl alcohol. Allow the solvent to evaporate.

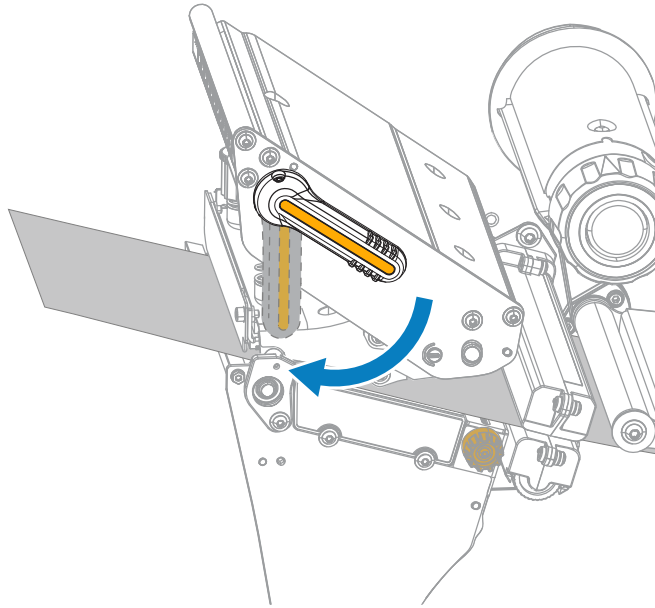


5. While manually rotating the platen roller, clean it thoroughly with the swab. Allow the solvent to evaporate.

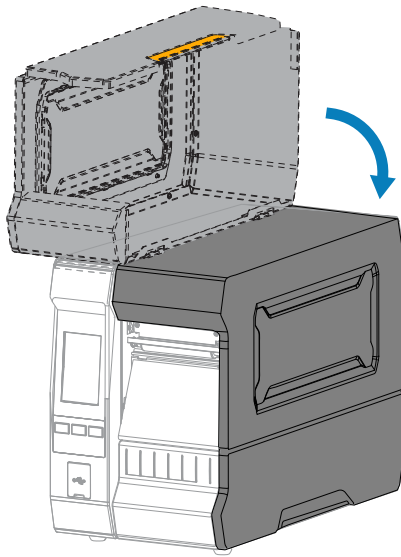


6. Reload the ribbon (if used) and the media. For instructions, see [Loading the Ribbon](#) on page 55 or [Loading the Media](#) on page 31.

7. Rotate the printhead-open lever downward until it locks the printhead in place.



8. Close the media door.



The printer is ready to operate.

9. Press **PAUSE** to exit pause mode and enable printing.

The printer may perform a label calibration or feed a label, depending on your settings.



NOTE: If performing this procedure does not improve print quality, try cleaning the printhead with Save-A-Printhead cleaning film. This specially coated material removes contamination build-up without damaging the printhead.

Call your authorized Zebra reseller for more information.

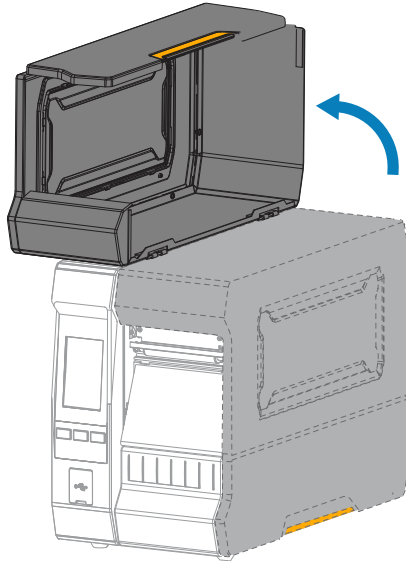
Cleaning and Lubricating the Cutter Module

If the cutter is not cutting the labels cleanly or if it jams with labels, clean the cutter blades. After cleaning the blades, apply lubrication to help extend the life of your cutter module.



CAUTION—ELECTRIC SHOCK: Turn off the printer (O) and disconnect it from the power source before performing the following procedure.

1. Turn off (O) the printer and disconnect the AC power cord.
2. Raise the media door.

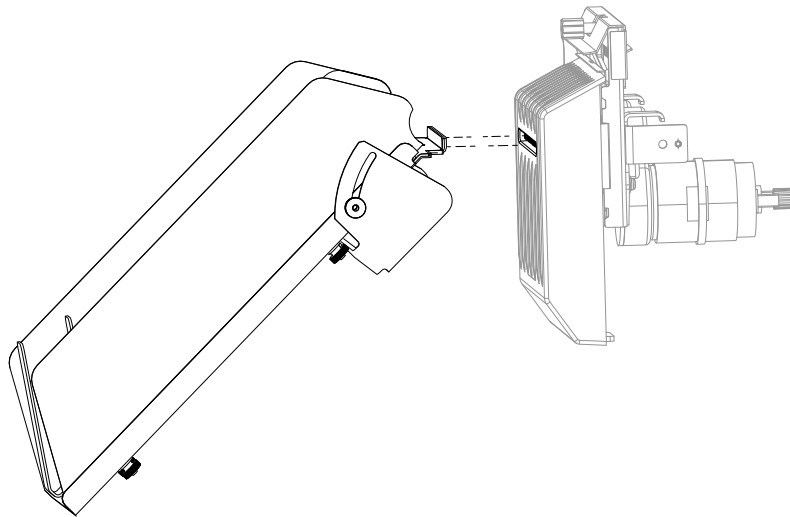


3. Remove media that is loaded through the cutter module.

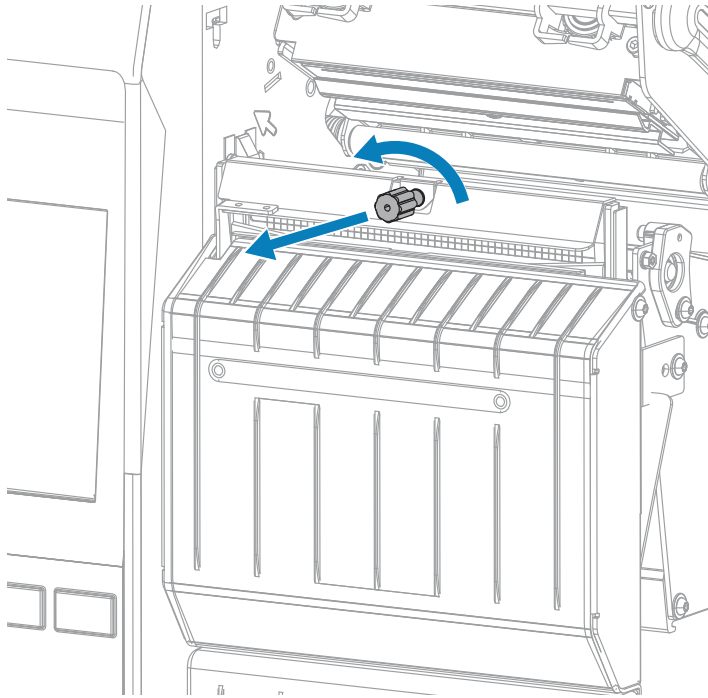


CAUTION: The cutter blade is sharp. Do not touch or rub the blade with your fingers.

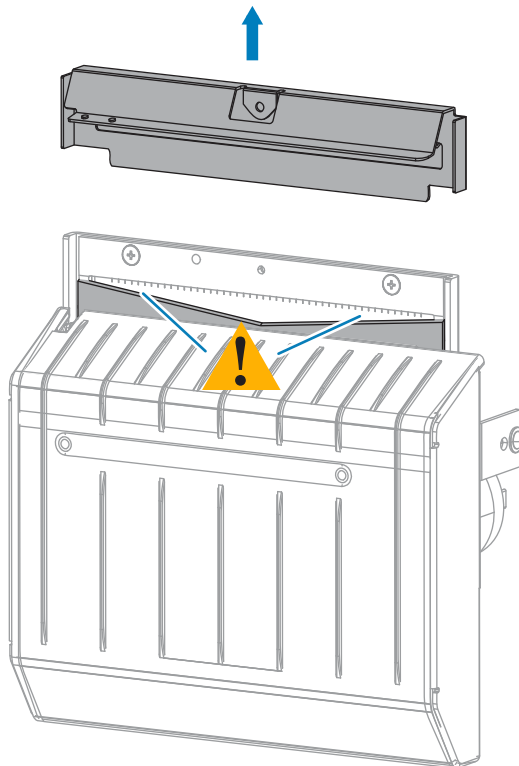
4. Remove the cutter catch tray (if used).



5. Loosen and remove the thumbscrew and lock washer on the cutter shield.

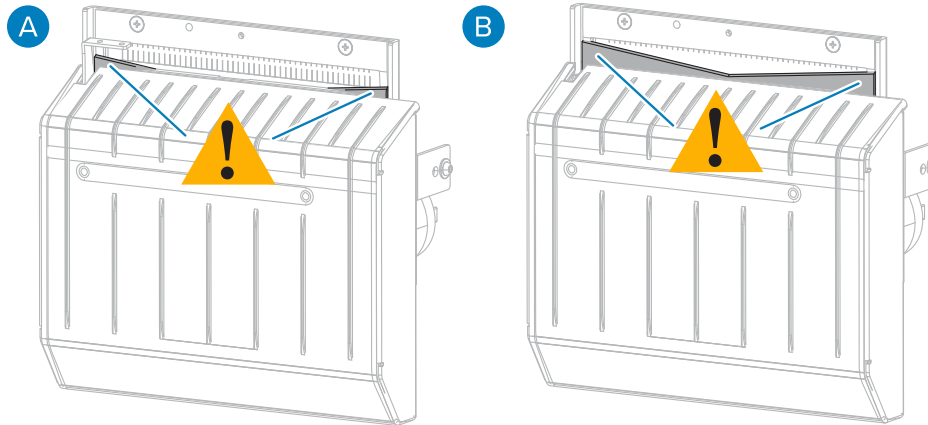


6. Remove the cutter shield.



CAUTION: The cutter blade is sharp. Do not touch or rub the blade with your fingers.

7. Is the cutter blade fully exposed?



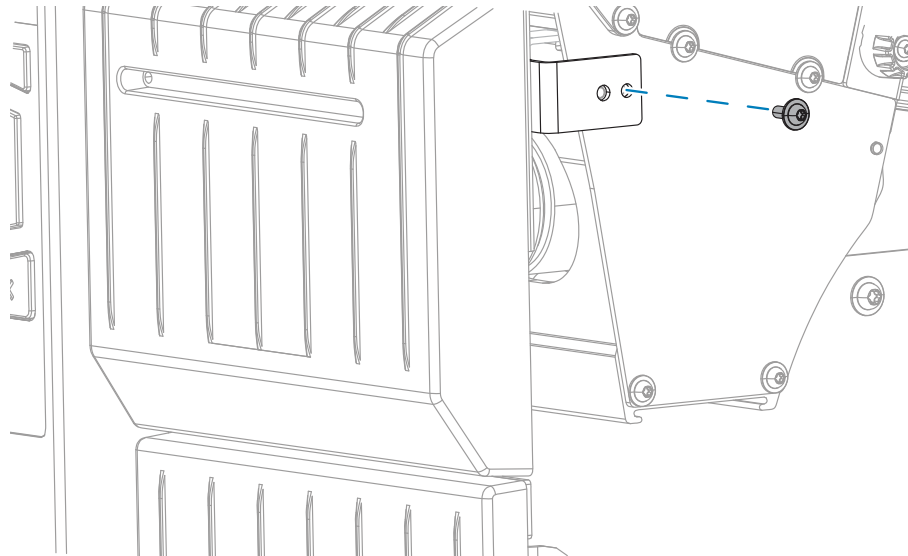
A	Blade in lowered position	B	Blade fully exposed
---	---------------------------	---	---------------------

If the blade is...	Then...
Lowered (A)	Perform the sub-steps in this step to remove the cutter module from the printer so that you can rotate the blade upward.
Fully exposed (B)	Skip to step 8 in this procedure.



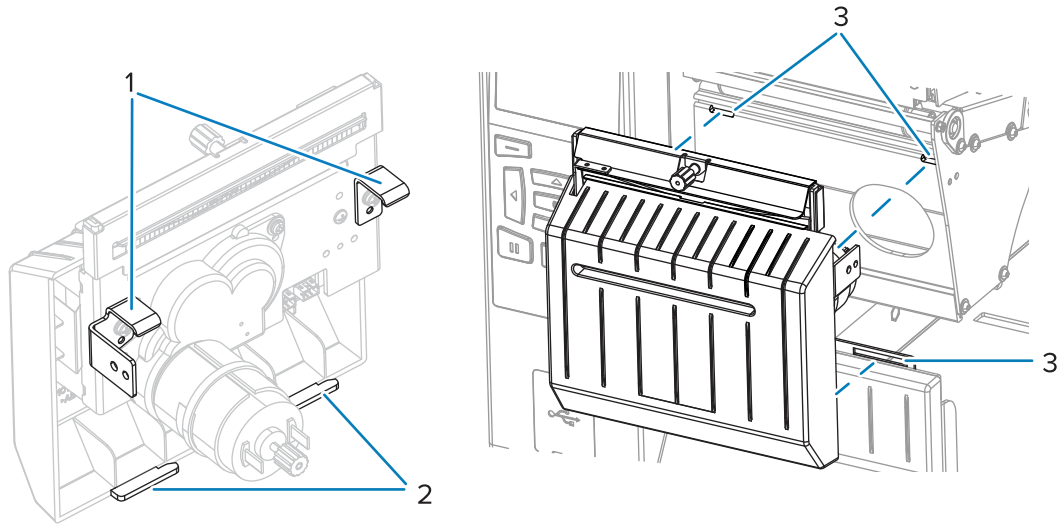
IMPORTANT: This part of the procedure should be performed **ONLY** by experienced users and only when the cutter blade is not fully exposed for cleaning, as shown in the previous step.

a) Remove the cutter mounting screw.



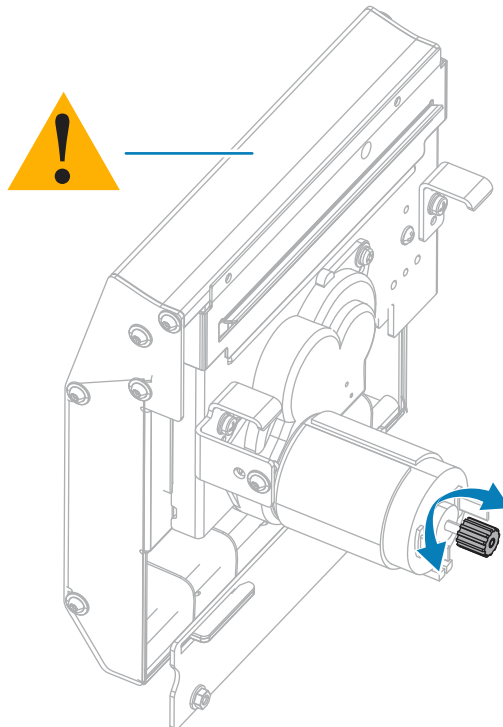
b) Using the image provided in this step as a reference, slide the cutter module to the right to align the cutter assembly tabs (1) and cutter cover tabs (2) with the corresponding slots (3) in the printer,

and then lift the cutter module out of the printer. Take care not to damage the wires that connect the cutter module to the printer. If desired, you may disconnect these wires.



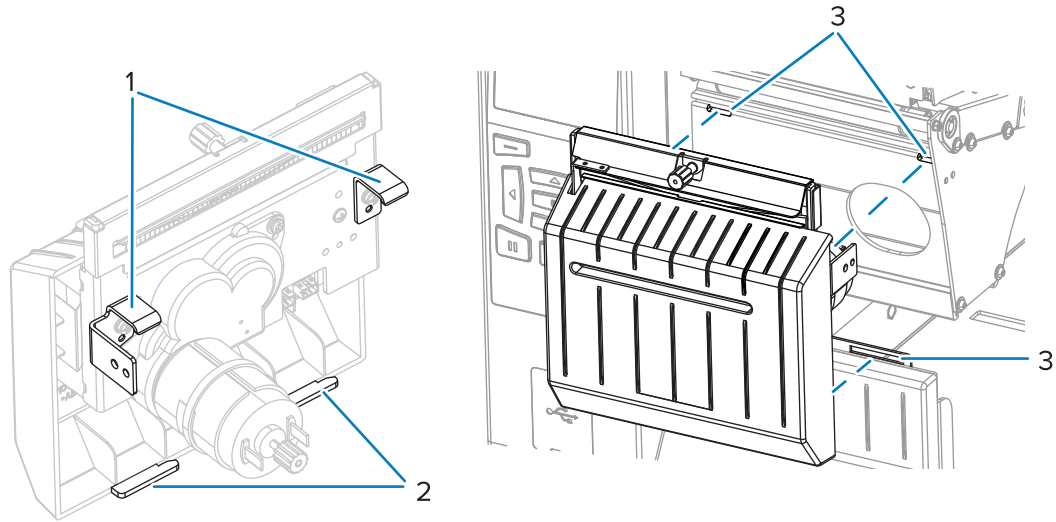
CAUTION: The cutter blade is sharp. Do not touch or rub the blade with your fingers.

- c) On the back of the cutter module, rotate the cutter motor thumbscrew to fully expose the cutter blade.

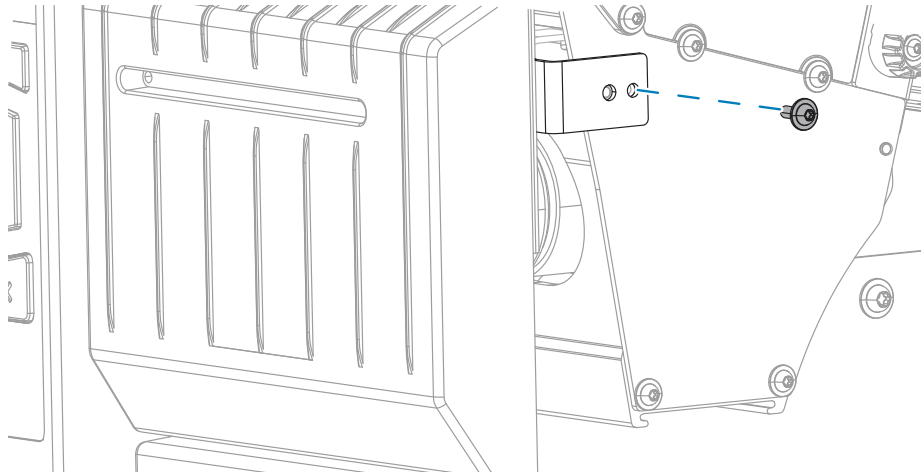


- d) If you disconnected the wires that connect the cutter module to the printer, reconnect them.
- e) Using the image provided in this step as a reference, align the cutter assembly tabs (1) and cutter cover tabs (2) with the corresponding slots (3) in the printer, and then slide the cutter assembly

back into the printer. Take care not to damage the wires that connect the cutter module to the printer.

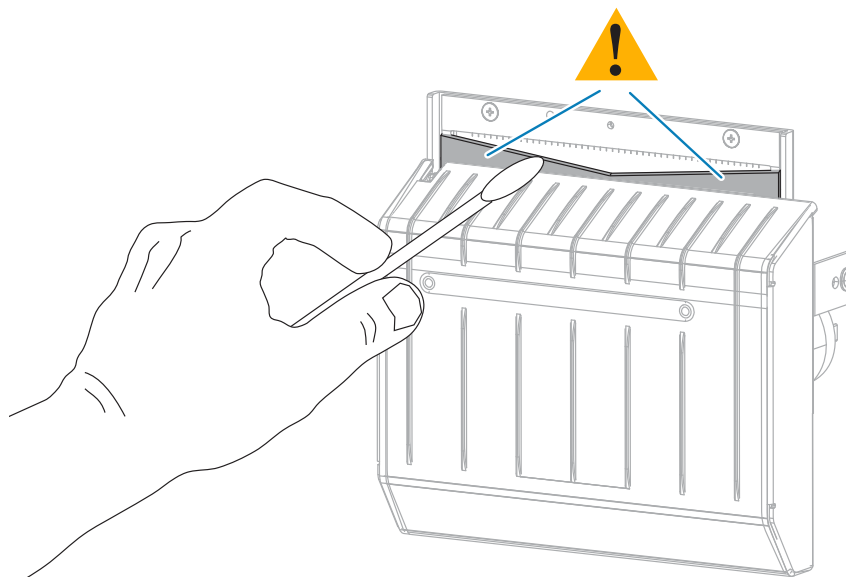


- f)** Slide the cutter module to the left, and then reinstall the cutter mounting screw.

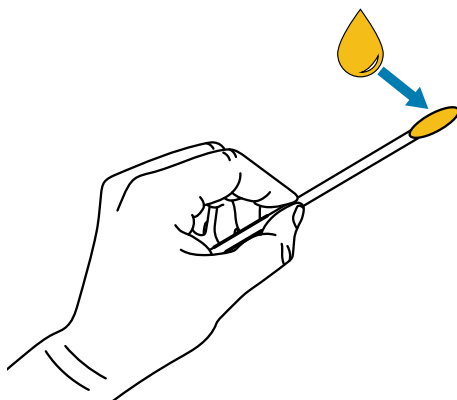


- g)** Continue with the next step in this procedure.

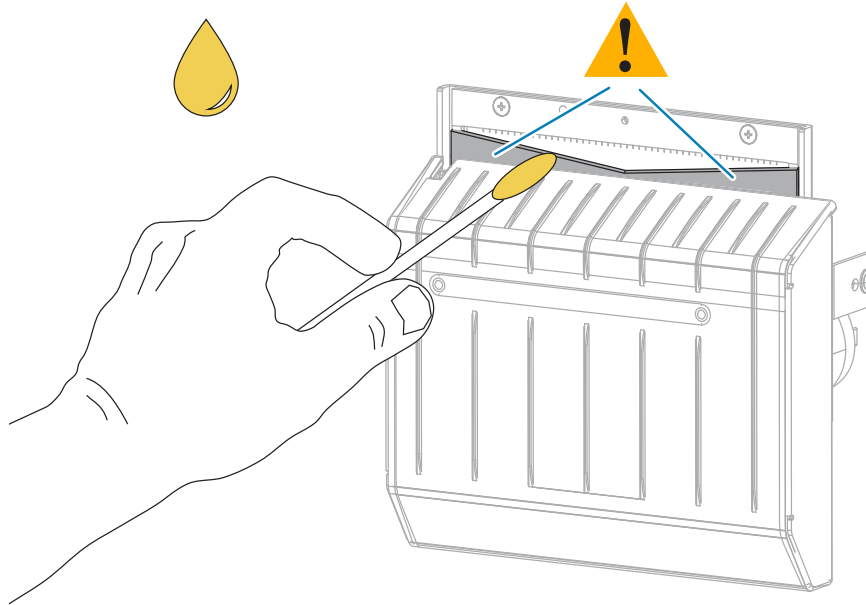
8. Using the swab from the Preventive Maintenance Kit (part number 47362), wipe along the upper cutting surface and the cutter blade. In place of the Preventive Maintenance Kit, you may use a clean swab dipped in 99.7% isopropyl alcohol. Allow the solvent to evaporate.



9. When the solvent has evaporated, soak a clean swab in a general-purpose, higher-viscosity silicone or PTFE oil lubricant.

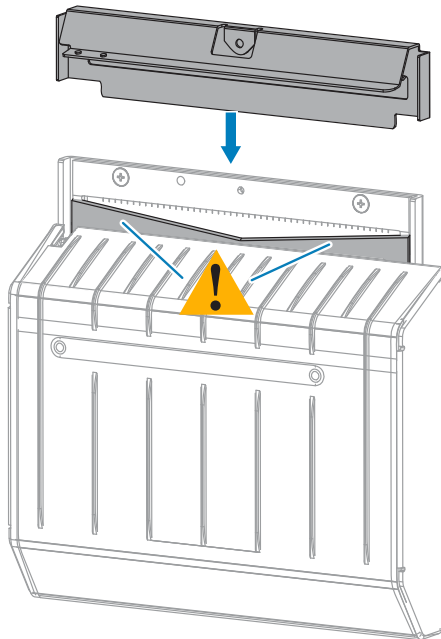


10. Apply an even layer along all exposed surfaces of both cutter blades. Remove any excess oil so that none of it comes in contact with the printhead or platen roller.

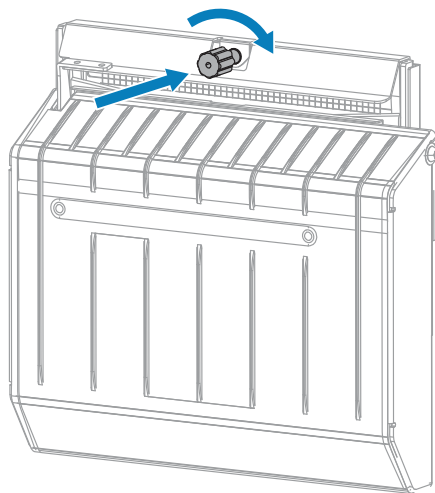


CAUTION: The cutter blade is sharp. For operator safety, replace the cutter shield.

11. Replace the cutter shield.

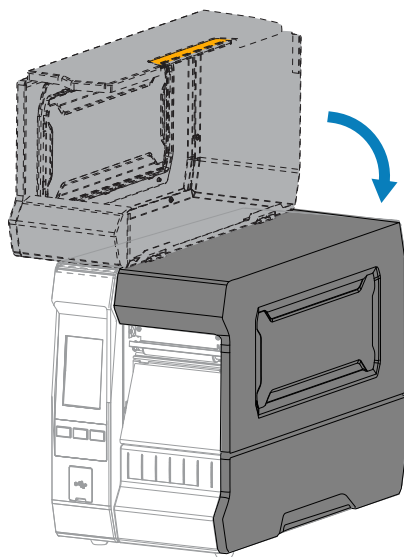


- 12.** Secure it with the thumbscrew and lock washer that you removed earlier.

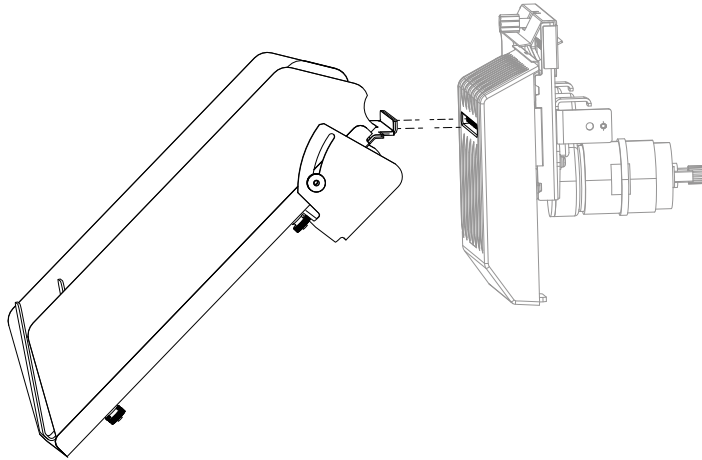


- 13.** Reload the media.

- 14.** Close the media door.



15. Reinstall the cutter catch tray (if used).



16. Plug the printer into its power source, and then turn on (I) the printer.

The cutter blade returns to its operating position.

If the cutter continues to perform unsatisfactorily after it is cleaned and lubricated using this procedure, contact an authorized service technician for assistance.

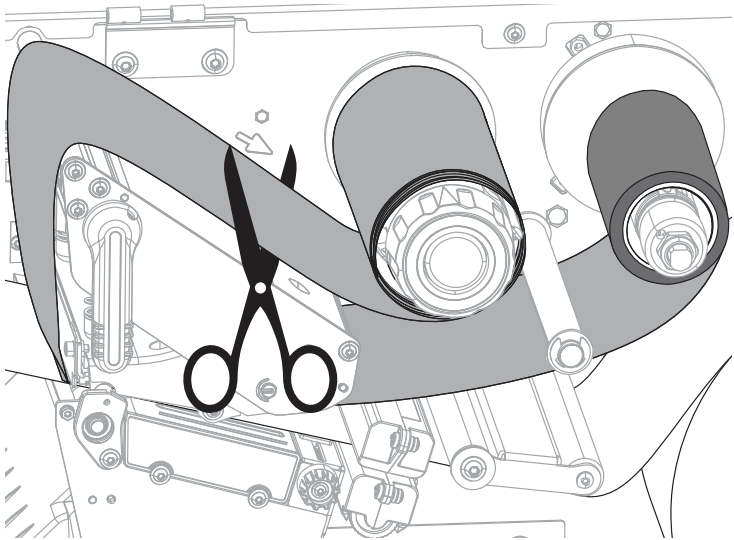
Removing Used Ribbon

At minimum, remove used ribbon from the ribbon take-up spindle each time you change the roll of ribbon.

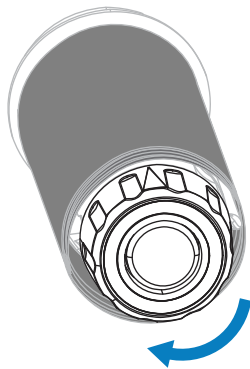
With ribbon that is half or less the width of the printhead, remove used ribbon each time you load a new roll of media. This ensures that uneven pressure on the ribbon take-up spindle does not interfere with the ribbon release bars on the spindle.

1. Has the ribbon run out?

If the ribbon...	Then
Ran out	Continue with the next step in this procedure.

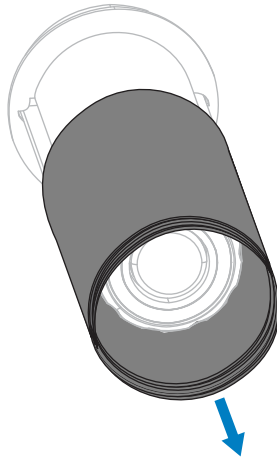
If the ribbon...	Then
Did not run out	Cut or break the ribbon before the ribbon take-up spindle.  CAUTION—PRODUCT DAMAGE: Do not cut the ribbon directly on the ribbon take-up spindle. Doing so may damage the spindle.

2. While holding the ribbon take-up spindle, turn the ribbon release knob to the left until it stops.



The ribbon release bars pivot down, easing the spindle's grip on the used ribbon.

3. Slide the used ribbon off the ribbon take-up spindle and discard.



Replacing Printer Components

Some printer components, such as the printhead and platen roller, may wear out over time and can be replaced easily. Regular cleaning may extend the life of some of these components.

See [Cleaning Schedule and Procedures](#) on page 135 for the recommended cleaning intervals.

Ordering Replacement Parts

Zebra printers are designed to work only with genuine Zebra printheads, thus maximizing safety and print quality. Contact your authorized Zebra reseller for part ordering information.

Recycling Printer Components



The majority of this printer's components are recyclable. The printer's main logic board may include a battery that you should dispose of properly.

Do not dispose of any printer components in unsorted municipal waste. Please dispose of the battery according to your local regulations, and recycle the other printer components according to your local standards. For more information, see zebra.com/environment.

Storing 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°C to 60°C)
- Relative humidity: 5% to 85% non-condensing

Lubrication

The only lubrication needed for this printer is for the cutter module.

Follow the instructions in [Cleaning and Lubricating the Cutter Module](#) on page 141.



NOTE: Do not lubricate any other parts of the printer.



CAUTION—PRODUCT DAMAGE: Some commercially available lubricants will damage the finish and the mechanical parts if used on this printer.

Diagnosis and Troubleshooting

This section provides diagnostic tests and other information that may help you to optimize printing or to troubleshoot issues with your printer.

Go to zebra.com/zt600-info for access to videos and additional online information that will help you set up and manage your printer.

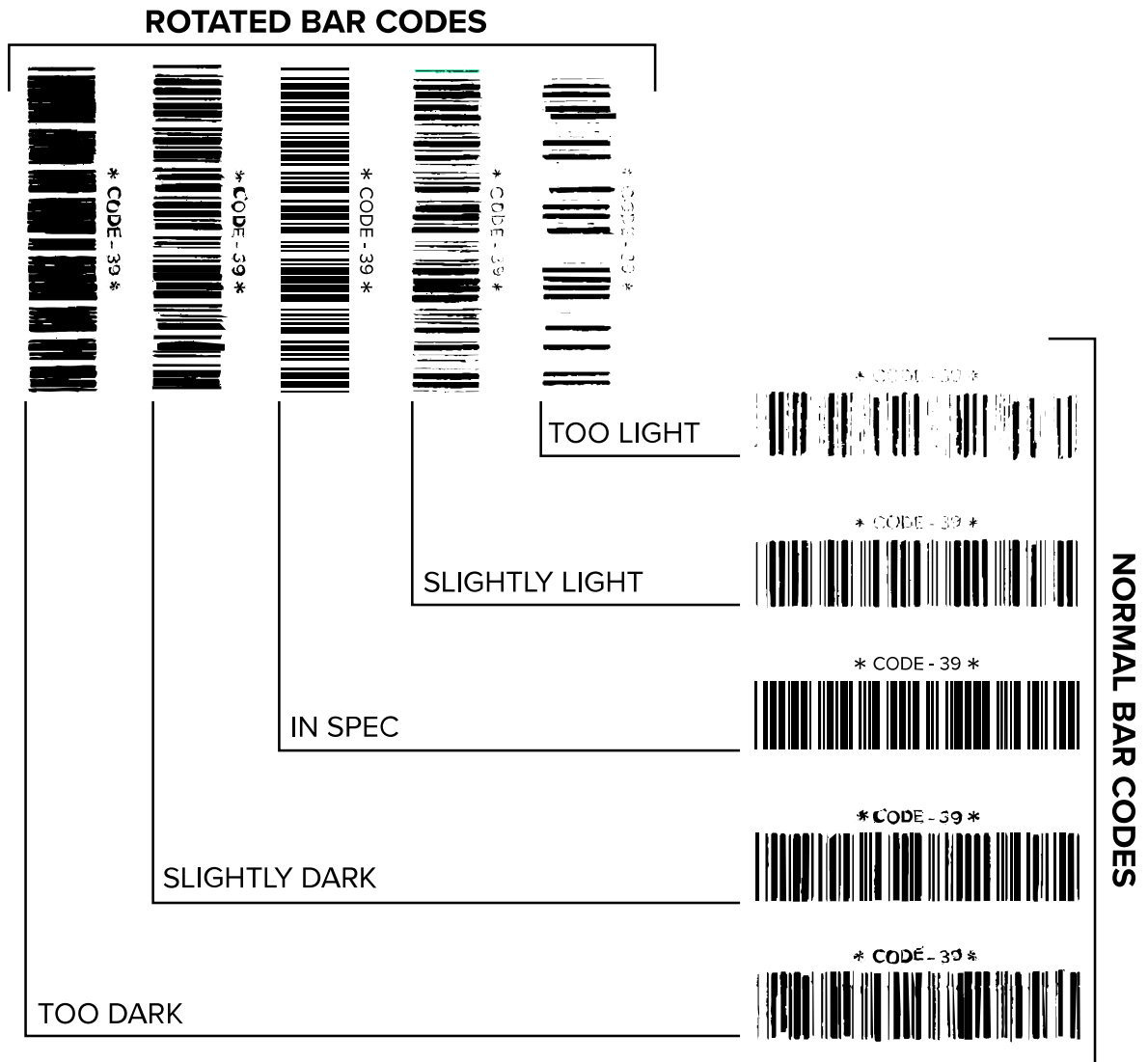


Evaluating Barcode Quality

The figure below shows how printer settings such as darkness and print speed can affect the quality of the printed barcodes.

Set the print darkness to the lowest setting that delivers good print quality. The Print Quality Assistant described in [Running the Print Wizard and Printing a Test Label](#) on page 58 can help you determine the most optimal settings.

Figure 4 Barcode Darkness Comparison



Appearance	Description
Too dark labels	Fairly obvious. These may be readable but are not “in-spec.” • The normal barcode bars increase in size. • The openings in small alphanumeric characters may fill in with ink. • Rotated barcode bars and spaces run together.
Slightly dark labels	Not as obvious as the too-dark labels. • The normal barcode will be “in-spec.” • Small alphanumeric characters will be bold, and may appear slightly filled in. • The rotated barcode spaces are small when compared to the “in-spec” code, possibly making the code unreadable.

Appearance	Description
"In-spec" labels	Whether or not a label is "in-spec" can only be confirmed by a verifier, but they typically exhibit some visible characteristics. • The normal barcode will have complete, even bars along with clear, distinct spaces. • The rotated barcode will have complete, even bars along with clear, distinct spaces. Although it may not look as good as a slightly dark barcode, the barcode will be "in-spec." • In both normal and rotated styles, small alphanumeric characters will look complete.
Slightly light labels	In some cases, these are preferred to slightly dark ones for "in-spec" barcodes. • Both normal and rotated barcodes will be "in-spec," but small alphanumeric characters may not be complete.
Too light labels	These are obvious. • Both normal and rotated barcodes have incomplete bars and spaces. • Small alphanumeric characters are unreadable.

Configuration Labels

Two of the most commonly used printer diagnostic items are the printer and network configuration labels. Analyzing the information on these labels can help you to troubleshoot potential issues.

To print a printer configuration label, touch
Menu > Settings > Print System Settings.

Figure 5 Sample Printer Configuration Label

PRINTER CONFIGURATION	
Zebra Technologies ZTC ZT620R-203dpi ZPL 76J162700886	
+30.0.....	DARKNESS
6.0 IPS.....	PRINT SPEED
-007.....	TEAR OFF
TEAR OFF.....	PRINT MODE
CONTINUOUS.....	MEDIA TYPE
TRANSMISSIVE.....	SENSOR SELECT
DIRECT-THERMAL.....	PRINT METHOD
1344.....	PRINT WIDTH
2000.....	LABEL LENGTH
P1085892700005 2.....	PRINT HEAD ID
15.0IN 380MM.....	MAXIMUM LENGTH
MAINT. OFF.....	EARLY WARNING
CONNECTED.....	USB COMM.
BIDIRECTIONAL.....	PARALLEL COMM.
RS232.....	SERIAL COMM.
9600.....	BAUD
8 BITS.....	DATA BITS
NONE.....	PARITY
XON/XOFF.....	HOST HANDSHAKE
NONE.....	PROTOCOL
NORMAL MODE.....	COMMUNICATIONS
<~> ZEH.....	CONTROL PREFIX
<~> SEH.....	FORMAT PREFIX
<~> 2CH.....	DELIMITER CHAR
ZPL II.....	ZPL MODE
INACTIVE.....	COMMAND OVERRIDE
FEED.....	MEDIA POWER UP
LENGTH.....	HEAD CLOSE
DEFAULT.....	BACKFEED
+000.....	LABEL TOP
+0000.....	LEFT POSITION
OFF.....	APPLICATOR PORT
ENABLED.....	ERROR ON PAUSE
PULSE MODE.....	START PRINT SIG
DISABLED.....	REPRINT MODE
080.....	WEB SENSOR
090.....	MEDIA SENSOR
255.....	TAKE LABEL
027.....	MARK SENSOR
027.....	MARK MED SENSOR
000.....	TRANS GAIN
005.....	TRANS BASE
060.....	TRANS LED
002.....	MARK GAIN
100.....	MARK LED
DPCSWFXM.....	MODES ENABLED
1344 87MM FULL.....	RESOLUTION
4.0.....	LINK-OS VERSION
V80.20.03 <-.....	FIRMWARE
1.3.....	XML SCHEMA
6.6.0 22.89.....	HARDWARE ID
32768k.....	RAM
524289k.....	ONBOARD FLASH
NONE.....	FORMAT CONVERT
MM/DD/YYYY 24HR.....	IDLE DISPLAY
05/11/17.....	RTC DATE
06:40.....	RTC TIME
ENABLED.....	ZBI
2.1.....	ZBI VERSION
READY.....	ZBI STATUS
TM:MBE MICRO.....	RFID READER
20.00.00.01.....	RFID HW VERSION
01.09.00.18.....	RFID FW VERSION
USA/CANADA.....	RFID REGION CODE
USA/CANADA.....	RFID COUNTRY CODE
RFID OK.....	RFID ERR STATUS
16.....	RFID READ PWR
16.....	RFID WRITE PWR
F0.....	PROG. POSITION
0.....	RFID VALID CTR
0.....	RFID VOID CTR
NONE.....	ADAPTIVE ANTENNA
A4.....	RFID ANTENNA
570 LABELS.....	NONRESET CNTR
570 LABELS.....	RESET CNTR1
570 LABELS.....	RESET CNTR2
2,798 IN.....	NONRESET CNTR
2,798 IN.....	RESET CNTR1
2,798 IN.....	RESET CNTR2
2,107 CM.....	NONRESET CNTR
2,107 CM.....	RESET CNTR1
2,107 CM.....	RESET CNTR2
001 WIRELESS.....	SLOT 1
*** EMPTY.....	SLOT 2
0.....	MASS STORAGE COUNT
0.....	HID COUNT
OFF.....	USB HOST LOCK OUT
FIRMWARE IN THIS PRINTER IS COPYRIGHTED	

To print a network configuration label, touch
Menu > Networks > Print: Network Info.

Figure 6 Sample Network Configuration Label

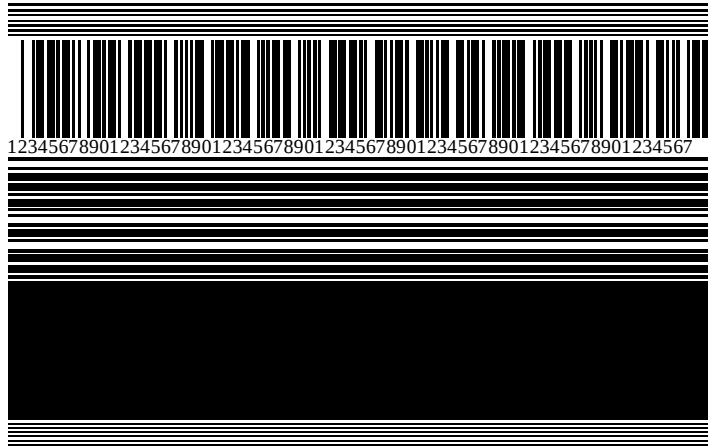
Network Configuration	
Zebra Technologies ZTC ZT620R-203dpi ZPL 76J162700886	
Wired.....	PRIMARY NETWORK
PrintServer.....	LOAD LAN FRONT?
INTERNAL WIRED.....	ACTIVE PRINTSRVR
Wired*	
ALL.....	IP PROTOCOL
192.168.000.017.....	IP ADDRESS
255.255.255.000.....	SUBNET
192.168.000.254.....	GATEWAY
000.000.000.000.....	WINS SERVER IP
YES.....	TIMOUT CHECKING
300.....	TIMOUT VALUE
000.....	ARP INTERVAL
9100.....	BASE RAW PORT
9200.....	JSON CONFIG PORT
Wireless	
ALL.....	IP PROTOCOL
000.000.000.000.....	IP ADDRESS
255.255.255.000.....	SUBNET
000.000.000.000.....	GATEWAY
000.000.000.000.....	WINS SERVER IP
YES.....	TIMOUT CHECKING
300.....	TIMOUT VALUE
000.....	ARP INTERVAL
9100.....	BASE RAW PORT
9200.....	JSON CONFIG PORT
INSERTED.....	CARD INSERTED
024FH.....	CARD MFG ID
9134H.....	CARD PRODUCT ID
ac:3f:a4:82:05:9c.....	MAC ADDRESS
YES.....	DRIVER INSTALLED
INFRASTRUCTURE.....	OPERATING MODE
125.....	ESSID
1.0.....	CURRENT TX RATE
OPEN.....	WEP TYPE
WPA PSK.....	WLAN SECURITY
1.....	WEP INDEX
000.....	POOR SIGNAL
LONG.....	PREABLE
NO.....	ASSOCIATED
ON.....	PULSE ENABLED
15.....	PULSE RATE
OFF.....	INTL MODE
USA/CANADA.....	REGION CODE
USA/CANADA.....	COUNTRY CODE
0x7FF.....	CHANNEL MASK
Bluetooth	
4.3.1p1.....	FIRMWARE
02/13/2015.....	DATE
on.....	DISCOVERABLE
3.0/4.0.....	RADIO VERSION
on.....	ENABLED
ac:3f:a4:82:05:9d.....	MAC ADDRESS
76J162700886.....	FRIENDLY NAME
no.....	CONNECTED
1.....	MIN SECURITY MODE
no.....	CONN SECURITY MODE
supported.....	IOS
FIRMWARE IN THIS PRINTER IS COPYRIGHTED	

PAUSE Self-Test

This self test can be used to provide the test labels required when making adjustments to the printer's mechanical assemblies or to determine if any printhead elements are not working.

The following shows a sample printout.

Figure 7 PAUSE Test Label



1. Turn off (O) the printer.
2. Press and hold **PAUSE** while turning on (I) the printer. Hold **PAUSE** until the first control panel light turns off.

The initial self test prints 15 labels at the printer's slowest speed, and then automatically pauses the printer. Each time **PAUSE** is pressed, an additional 15 labels print.

While the printer is paused:

- Pressing **CANCEL** alters the self test. Each time **PAUSE** is pressed, 15 labels print at 152 mm (6 in.) per second.
- Pressing **CANCEL** again alters the self test a second time. Each time **PAUSE** is pressed, 50 labels print at the printer's slowest speed.
- Pressing **CANCEL** again alters the self test a third time. Each time **PAUSE** is pressed, 50 labels print at 152 mm (6 in.) per second.
- Pressing **CANCEL** again alters the self test a fourth time. Each time **PAUSE** is pressed, 15 labels print at the printer's maximum speed.

- 3.** To exit this self test at any time, press and hold **CANCEL**.

Sensor Profile

Tap **Menu > Print > Sensors > Print: Sensor Profile** to print a sensor profile image. The image will extend across several actual labels or tags.

Use the sensor profile image to troubleshoot the following situations:

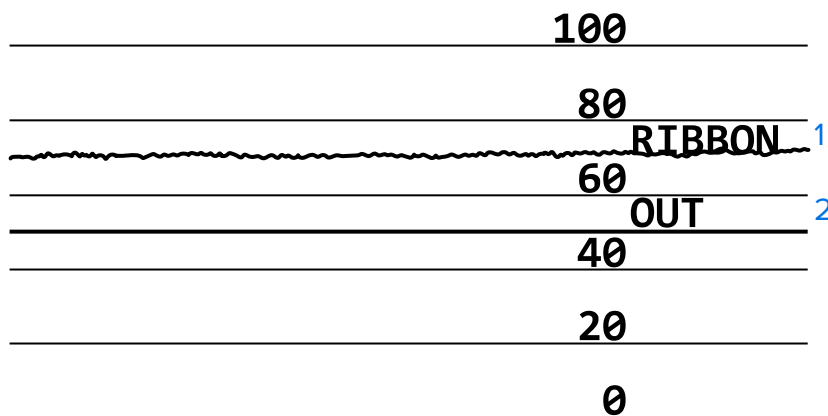
- The printer experiences difficulty in determining gaps (web) between labels.
- The printer incorrectly identifies preprinted areas on a label as gaps (web).
- The printer cannot detect ribbon.

Compare your results to the examples shown in this section. If the sensitivity of the sensors must be adjusted, calibrate the printer. (See [Calibrating the Ribbon and Media Sensors](#) on page 116.)

Ribbon Sensor Profile

The line labeled RIBBON (1) on the sensor profile indicates the ribbon sensor readings. The ribbon sensor threshold setting is indicated by OUT (2). If the ribbon readings are below the threshold value, the printer does not acknowledge that ribbon is loaded.

Figure 8 Sensor Profile (Ribbon Section)



Media Sensor Profile

The line labeled MEDIA (1) on the sensor profile indicates the media sensor readings. The media sensor threshold settings are indicated by WEB (2). The media out threshold is indicated by OUT (3). The upward or downward spikes (4) indicate divisions between labels (the web, notch, or black mark), and the lines between the spikes (5) indicate where labels are located.

If you compare the sensor profile printout to a length of your media, the spikes should be the same distance apart as the gaps on the media. If the distances are not the same, the printer may be having difficulty determining where the gaps are located.

Figure 9 Media Sensor Profile (Gap/Notch Media)

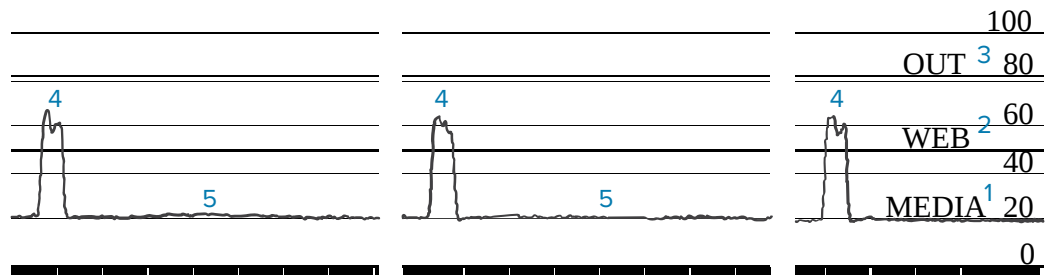
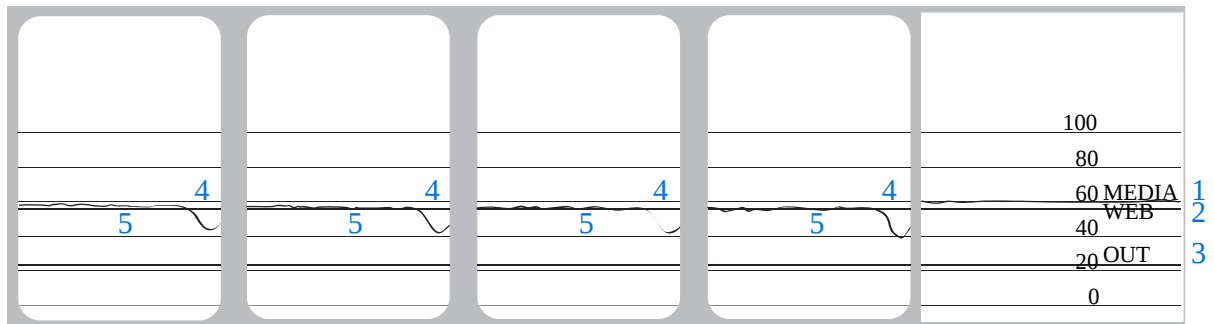


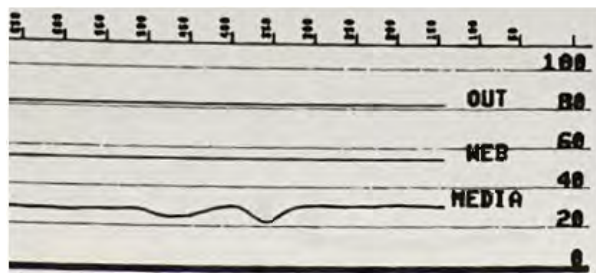
Figure 10 Media Sensor Profile (Black Mark Media)



NOTE: ZT610 600 dpi Micro Label Printer

- In the gap/notch sensor profile output, you will notice two dips in the media line from where the front sensor detects the print on the sensor profile label as it prints. These are normal and not a cause for concern.

Figure 11 Media Sensor Profile (Front Sensor Option for the ZT610 600 dpi Micro Label Printer)



- The default is the rear sensor. To toggle between the front or rear sensor for the sensor profile, send one of the following SGD commands to the printer:
 - Front: ! U1 setvar "device.sensor_profile_select" "front"
 - Rear: ! U1 setvar "device.sensor_profile_select" "rear"

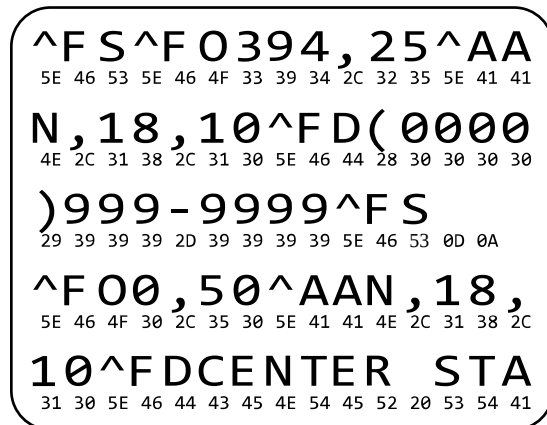
Using Communication Diagnostics Mode

The communication diagnostics test is a troubleshooting tool for checking the interconnection between the printer and the host computer. When the printer is in diagnostics mode, it prints all data received from the host computer as straight ASCII characters with the hex values below the ASCII text. The printer prints all characters received, including control codes such as CR (carriage return). [Figure 12 Sample Communications Diagnostics Mode Label](#) on page 160 shows a typical test label from this test.



NOTE: The test label prints upside-down.

Figure 12 Sample Communications Diagnostics Mode Label



1. Set the label width equal to or less than the actual media width being used for the test. Tap **Menu** > **Print** > **Print Quality** > **Label Width** to access the label width setting.

2. Tap **Menu** > **System** > **Program Language**, and set the **Diagnostic Mode** option to **ENABLED**.

The printer enters diagnostics mode and prints any data received from the host computer on a test label.

3. Check the test label for error codes. For any errors, check that your communication parameters are correct.

Errors show on the test label as follows:

- FE indicates a framing error.
- OE indicates an overrun error.
- PE indicates a parity error.
- NE indicates noise.

4. To exit this self test and return to normal operation, power cycle the printer or set the Diagnostic Mode option to **DISABLED**.

Load Defaults or Last-Saved Values

Restoring the printer to default values or to the last saved values can help if things are not working as expected.

Touch **Menu** > **System** > **Settings** > **Restore Defaults** to see the available options.



RESTORE PRINTER

Restores all printer settings other than the network settings back to the factory defaults. Use care when loading defaults because you will need to reload all settings that you changed manually.

RESTORE NETWORK

Reinitializes the printer's wired or wireless print server. With a wireless print server, the printer also re-associates with your wireless network.

RESTORE LAST SAVED

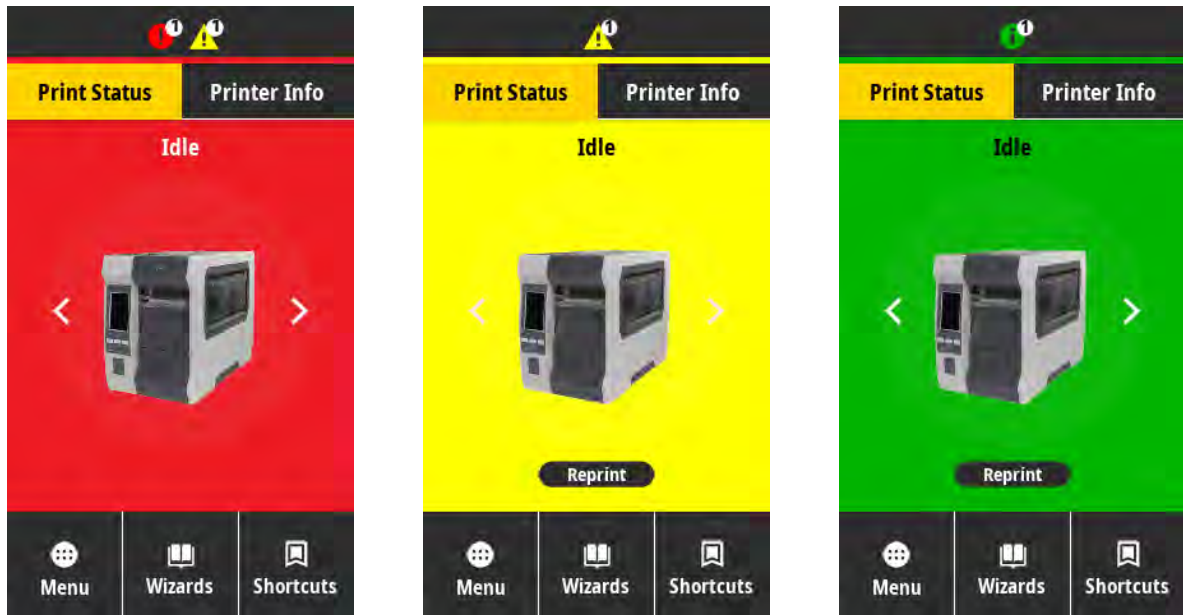
Loads settings from the last permanent save.

For additional ways to restore these values, see Restore Defaults in [System Menu](#).

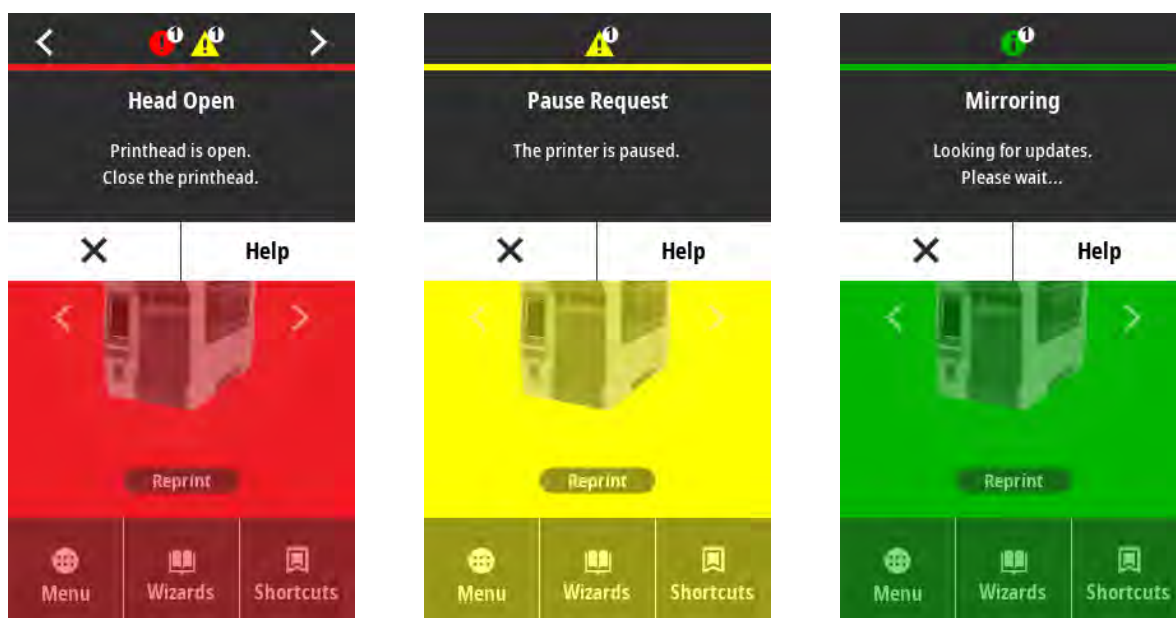
Alert and Error States

If the background color of the Home screen changes, you may need to take an action to restore the printer to a Ready status.

- Red and yellow backgrounds typically halt printing until the issue is resolved.
- Informational messages with a green background usually disappear without user intervention, and printing continues as normal.
- Touch **Reprint** to print the last label printed. If the button is not visible, no label format is available to reprint



Touch the icons in the bar at the top of the Home screen to view the error, alert, or informational message. See [Alerts and Error Messages](#) on page 163 for recommended actions.



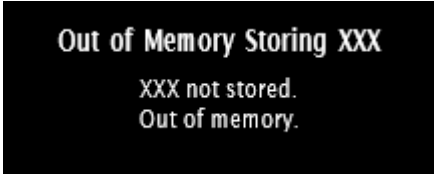
Alerts and Error Messages

Display	Possible Causes	Recommended Solutions
Head Open Printhead is open. Close the printhead.	The printhead is not fully closed.	Close the printhead completely.
	The printhead open sensor is not working properly.	Call a service technician to replace the sensor.
Media Out Media is out. Load additional media.	The media is not loaded or is loaded incorrectly.	Load media correctly. See Loading the Media .
	Misaligned media sensor.	Check the position of the media sensor.
	The printer is set for non-continuous media, but continuous media is loaded.	1. Install the proper media type, or reset printer for the current media type. 2. Calibrate the printer. See Calibrating the Ribbon and Media Sensors on page 116.

Display	Possible Causes	Recommended Solutions
Paper Jam Media jammed. Check the media.	There is an issue with the media in the media path.	1. Check for media that is loaded incorrectly or stuck to components in the media path. 2. Check if media is wrapped around the platen roller. Carefully remove any labels. If necessary, clean the platen roller to remove adhesive (see Cleaning the Printhead and Platen Roller).
Paper Error Media error. Check or load the media.	The linerless cutter experienced a media jam, or the linerless media wrapped around the platen roller.	Refer to the PAPER ERROR recommendations in Linerless Printing or Cutter Issues .
Ribbon Out Ribbon is out. Replace the ribbon.	In thermal transfer mode: • ribbon is not loaded • ribbon is loaded incorrectly • the ribbon sensor is not detecting ribbon • media is blocking the ribbon sensor	1. Load the ribbon correctly. See . Loading the Ribbon 2. Calibrate the printer. See Calibrating the Ribbon and Media Sensors on page 116.
	In thermal transfer mode, the printer did not detect the ribbon even though it is loaded correctly.	Calibrate the printer. See Calibrating the Ribbon and Media Sensors on page 116 or load printer defaults by touching Menu > System > Settings > Restore Defaults > Restore Printer .
	If you are using direct thermal media, the printer is waiting for ribbon to be loaded because it is incorrectly set for thermal transfer mode.	Set the printer for Direct Thermal mode. See Print > Print Quality > Print Type .

Display	Possible Causes	Recommended Solutions
Ribbon In Ribbon was detected in Direct Thermal mode. Remove the ribbon.	Ribbon is loaded, but the printer is set for direct thermal mode.	Ribbon is not required with direct thermal media. If you are using direct thermal media, remove the ribbon. This error message will not affect printing.
		If the message persists with no ribbon in the printer, Calibrate the printer. See Calibrating the Ribbon and Media Sensors on page 116.
		If you are using thermal transfer media, which requires ribbon, set the printer for Thermal Transfer mode. See Determining the Media Handling Method on page 28.
Head Identification Failed Printhead is not a Zebra Certified Product Replace the Printhead	The printhead was replaced with one that is not a genuine Zebra printhead.	Install a genuine Zebra printhead.
	There is an issue with the printhead.	Turn the printer off and then back on to see if the error repeats. If it does, replace the printhead.
Head Element Out A printhead element failed. The printhead may need to be replaced.	A printhead element is no longer working.	If the location of the failed element affects printing, replace the printhead.
Replace Printhead Replace the printhead.	The printhead is nearing the end of its life and should be replaced.	Replace the printhead.
Head Maintenance Needed Clean the printhead.	The printhead needs to be cleaned.	Follow the cleaning instructions in Cleaning the Printhead and Platen Roller for standard printers or Cleaning the Printhead and Rollers for the ZT610 600 dpi Micro Label printer.

Display	Possible Causes	Recommended Solutions
Head Over Temp Printhead is too hot. All printing is halted.	 CAUTION: HOT SURFACE: The printhead may be hot enough to cause severe burns. Allow the printhead to cool.	
	The printhead is over temperature.	Allow the printer to cool. Printing automatically resumes when the printhead elements cool to an acceptable operating temperature. If this error persists, consider changing where the printer is located or using a slower print speed.
The printer shows one of these messages, or it cycles back and forth between them: Head Under Temp Printhead is too cold. All printing is halted.	 CAUTION: HOT SURFACE: An improperly connected printhead data or power cable can cause these error messages. The printhead may be hot enough to cause severe burns. Allow the printhead to cool.	
	The printhead data cable is not properly connected.	Hook up the printhead properly.
Head Thermistor Fault Faulty thermistor detected. Replace the printhead.	The printhead has a faulty thermistor.	Replace the printhead.
Head Under Temp Printhead is too cold. All printing is halted.	 CAUTION: HOT SURFACE: An improperly connected printhead data or power cable can cause this error message. The printhead may be hot enough to cause severe burns. Allow the printhead to cool.	
	The printhead temperature is approaching its lower operating limit.	Continue printing while the printhead reaches the correct operating temperature. If the error remains, the environment may be too cold for proper printing. Relocate the printer to a warmer area.
	The printhead data cable is not properly connected.	Hook up the printhead properly.
	The printhead has a faulty thermistor.	Replace the printhead.

Display	Possible Causes	Recommended Solutions
	 CAUTION: The cutter blade is sharp. Do not touch or rub the blade with your fingers.  NOTE: If you have the linerless cutter option installed, go to Linerless Printing Issues for troubleshooting information.	
	The cutter blade is in the media path.	Turn off the printer power and unplug the printer. Inspect the cutter module for debris and clean as needed following the cleaning instructions in Cleaning and Lubricating the Cutter Module .
	There is not enough memory to perform the function specified.	Free up some of the printer's memory by adjusting the label format or printer parameters. One way to free up memory is to adjust the print width to the actual width of the label instead of leaving the print width set to the default.
		Ensure that the data is not directed to a device that is not installed or is unavailable.
		If the problem persists, call a service technician.

Indicator Lights

The indicator lights located above the printer's display also communicate the printer's status.

Table 5 Status of Printer As Shown by Indicator Lights

Indicator Lights	What they indicate
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady green (other lights steady yellow for 2 seconds during printer power-up).	The printer is ready.
     STATUS PAUSE DATA SUPPLIES NETWORK PAUSE light steady yellow.	The printer is paused.

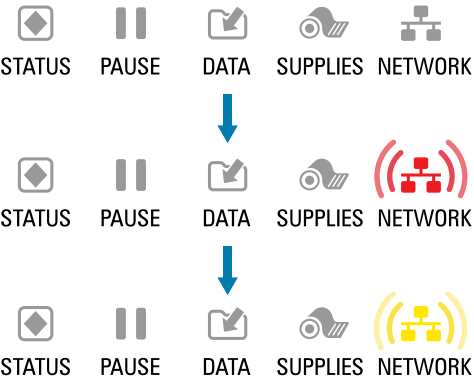
Table 5 Status of Printer As Shown by Indicator Lights (Continued)

Indicator Lights	What they indicate
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady red. SUPPLIES light steady red.	The media supply is out. The printer needs attention and cannot continue without user intervention.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady red. SUPPLIES light flashing red.	The ribbon supply is out. The printer needs attention and cannot continue without user intervention.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady yellow. SUPPLIES light flashing yellow.	The printer is in Direct Thermal mode, which does not require ribbon; however, ribbon is installed in the printer.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady red. PAUSE light steady yellow.	The printhead is open. The printer needs attention and cannot continue without user intervention.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady yellow.	The printhead is over temperature.  CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light flashing yellow.	Indicates one of the following: - The printhead is under temperature.  CAUTION: This display message can be incorrect. The printhead may be hot and could cause severe burns. Allow the printhead to cool. - The main logic board (MLB) or power supply is over temperature.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady red. PAUSE light steady red. DATA light steady red.	The printhead was replaced with one that is not a genuine Zebra printhead. Install a genuine Zebra printhead to continue.

Table 5 Status of Printer As Shown by Indicator Lights (Continued)

Indicator Lights	What they indicate
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light flashing red.	The printer is unable to read the dpi setting of the printhead.
     STATUS PAUSE DATA SUPPLIES NETWORK STATUS light steady red.	This indicates an error with the cutter. The cutter blade is in the media path.  CAUTION: The cutter blade is sharp. Do not touch or rub the blade with your fingers.
Printers with a ZebraNet wired Ethernet option	
     STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light off.	No Ethernet link is available.
     STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light steady green.	A 100 Base-T link was found.
     STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light steady yellow.	A 10 Base-T link was found.
     STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light steady red.	An Ethernet error condition exists. The printer is not connected to your network.
Printers with a ZebraNet wireless option	

Table 5 Status of Printer As Shown by Indicator Lights (Continued)

Indicator Lights	What they indicate
 STATUS PAUSE DATA SUPPLIES NETWORK STATUS PAUSE DATA SUPPLIES NETWORK STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light off. The light flashes red while the printer associates with the network. The light then flashes yellow while the printer is authenticating with the network.	A radio was found during power-up. The printer is attempting to associate with the network.
 STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light steady green.	The radio is associated with your network and authenticated, and the WLAN signal is strong.
 STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light flashing green.	The radio is associated with your network and authenticated, but the WLAN signal is weak.
 STATUS PAUSE DATA SUPPLIES NETWORK NETWORK light steady red.	A WLAN error condition exists. The printer is not connected to your network.

Troubleshooting

Use this information to troubleshoot issues with the printer.

Printing or Print Quality Issues

Issue	Possible Cause	Recommended Solution
Barcode Does Not Scan		
The barcode printed on a label does not scan.	The barcode is not within specifications because the printer is set at an incorrect darkness level or the printhead pressure is off.	1. Perform the steps in Running the Print Wizard and Printing a Test Label on page 58. 2. If necessary, manually adjust the darkness or print speed settings. • Set the print darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, barcodes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely. • Slower print speeds typically yield better print quality. Access the darkness and print speed settings from the Home screen by touching Menu > Print > Print Quality. 3. If the issue is not resolved, check the printhead pressure and toggle position. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.
	There is not enough blank space around the barcode.	Leave at least 3.2 mm (1/8 in.) between the barcode and other printed areas on the label and between the barcode and the edge of the label.
Wrong Image Size		
My label prints too small (or too large)	The wrong printer driver is being used, or other settings are not correct for your printing application.	Check the printer driver or software communications settings (if applicable) for your connection. You may wish to reinstall the printer driver following the instructions in Connecting the Printer to a Device on page 11.
Poor Print Quality		
Smudge marks on labels	The media or ribbon is not designed for high-speed operation.	Replace supplies with those recommended for high-speed operation. For more information, go to zebra.com/supplies .

Issue	Possible Cause	Recommended Solution
Poor results when using thick labels	Incorrect printhead pressure.	Set the printhead pressure to the minimum needed for good print quality. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.
Print Consistently Too Light or Too Dark		
Printing is too light or too dark over the entire label	The media or ribbon is not designed for high-speed operation.	Replace supplies with those recommended for high-speed operation. For more information, go to zebra.com/supplies .
	The printer is set at an incorrect darkness level.	For optimal print quality, set the darkness to the lowest possible setting for your application. 1. Perform the steps in Running the Print Wizard and Printing a Test Label on page 58. 2. If necessary, manually adjust the darkness or print speed settings. • Set the print darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, barcodes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely. • Slower print speeds typically yield better print quality. Access the darkness and print speed settings from the Home screen by touching Menu > Print > Print Quality.
	You are using an incorrect combination of media and ribbon for your application.	Switch to a different type of media or ribbon to try to find a compatible combination. If necessary, consult your authorized Zebra reseller or distributor for information and advice.
	Incorrect printhead pressure.	If the issue is not resolved, check the printhead pressure and toggle position. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.
Printing is too light or too dark on one side of the label	Uneven printhead pressure.	Adjust the printhead pressure as needed for good print quality. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.

Issue	Possible Cause	Recommended Solution
General print quality issues	The printer is set at an incorrect print speed or darkness level. Keep in mind that printer settings may be affected by the driver or software being used.	For optimal print quality, set the darkness to the lowest possible setting for your application. 1. Perform the steps in Running the Print Wizard and Printing a Test Label on page 58. 2. If necessary, manually adjust the darkness or print speed settings. • Set the print darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, barcodes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely. • Slower print speeds typically yield better print quality. Access the darkness and print speed settings from the Home screen by touching Menu > Print > Print Quality.
	You are using an incorrect combination of labels and ribbon for your application.	Switch to a different type of media or ribbon to try to find a compatible combination. If necessary, consult your authorized Zebra reseller or distributor for information and advice.
	The printhead is dirty.	Clean the printhead and platen roller. • For standard printers, go to Cleaning the Printhead and Platen Roller on page 137. • For ZT610 600 dpi Micro Label printers, go to Cleaning the Printhead and Rollers.
	Incorrect or uneven printhead pressure.	If the issue is not resolved, check the printhead pressure and toggle position. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.
	The label format is scaling a font that is not scalable.	Check the label format for font issues.
Angled Gray Lines on Blank Labels		
Fine, angular gray lines on blank labels	Wrinkled ribbon.	Go to the wrinkled ribbon causes and solutions in Ribbon Issues on page 177.
Missing Print		

Issue	Possible Cause	Recommended Solution
Long tracks of missing print on several labels	Print element damaged.	Call a service technician for assistance.
	Wrinkled ribbon.	Go to the wrinkled ribbon causes and solutions in Ribbon Issues on page 177.
Loss of Registration		
Loss of printing registration on labels Excessive vertical drift in top-of-form registration	The platen roller is dirty.	Clean the printhead and platen roller. - For standard printers, go to Cleaning the Printhead and Platen Roller on page 137. - For ZT610 600 dpi Micro Label printers, go to Cleaning the Printhead and Rollers.
	Media guides are positioned improperly.	Ensure that the media guides are properly positioned. - For standard printers, go to Loading the Media on page 31. - For ZT610 600 dpi Micro Label printers, go to Loading Media for Precision Printing.
	The media type is set incorrectly.	Set the printer for the correct media type (gap/notch, continuous, or mark).
	The media is loaded incorrectly.	Load media correctly. - For standard printers, go to Loading the Media on page 31. - For ZT610 600 dpi Micro Label printers, go to Loading Media for Precision Printing.
Misregistration/skips labels	The printer is not calibrated.	Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.
	Improper label format.	Check your label format, and correct it as necessary.
	Print speed and slew speed need to be the same for your situation.	Set the slew speed to match the print speed. Example: use ZPL command ^PR2, 2, 2 instead of ^PR2, 6, 2.
Misregistration and misprint of one to three labels	The platen roller is dirty.	Clean the printhead and platen roller. - For standard printers, go to Cleaning the Printhead and Platen Roller on page 137. - For ZT610 600 dpi Micro Label printers, go to Cleaning the Printhead and Rollers.
	Media does not meet specifications.	Use media that meets specifications. Go to Media Specifications on page 211.
Vertical drift in top-of-form position	The printer is out of calibration.	Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.

Issue	Possible Cause	Recommended Solution
	The platen roller is dirty.	Clean the printhead and platen roller. - For standard printers, go to Cleaning the Printhead and Platen Roller on page 137. - For ZT610 600 dpi Micro Label printers, go to Cleaning the Printhead and Rollers.
Horizontal movement in placement of the label image	The previous labels were torn off incorrectly.	Pull down and to the left when tearing off labels so that the tear-off bar assists in tearing through the label backing. Pulling up or down and to the right can shift the media sideways.
Vertical image or label drift	The printer is using non-continuous labels but is configured in continuous mode.	Set the printer for the correct media type (gap/notch, continuous, or mark) and calibrate the printer, if necessary. Go to Calibrating the Ribbon and Media Sensors on page 116.
	The media sensor is calibrated improperly.	Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.
	The platen roller is dirty.	Clean the printhead and platen roller. - For standard printers, go to Cleaning the Printhead and Platen Roller on page 137. - For ZT610 600 dpi Micro Label printers, go to Cleaning the Printhead and Rollers.
	Improper printhead pressure settings (toggles).	Adjust the printhead pressure to ensure proper functionality. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.
	The media or ribbon is loaded incorrectly.	Ensure that the media and ribbon are loaded correctly. - For loading ribbon, go to Loading the Ribbon on page 55 - For standard printers, go to Loading the Media on page 31. - For ZT610 600 dpi Micro Label printers, go to Loading Media for Precision Printing.
	Incompatible media.	You must use media that meets the printer specifications. Ensure that the inter-label gaps or notches are 2 to 4 mm and consistently placed. Go to Media Specifications on page 211.
Calibration Fails or False Media Out		

Issue	Possible Cause	Recommended Solution
With the ZT610 600 dpi Micro Label solution, calibration fails or a false media out is reported.	Incompatible media.	Because this printer uses the front sensor to detect media, you must use media that meets the printer specifications. Go to ZT610 600 dpi Micro Label Specifications. If your media does not meet the specifications, touch Menu > Print > Sensors > Front Sensor and disable the front sensor.  You may need to calibrate the media after disabling the sensor. Go to Calibrating the Ribbon and Media Sensors on page 116.

Ribbon Issues

See zebra.com/zt600-info for videos on resolving commonly encountered issues.



Wrinkled Ribbon

If the ribbon tends to wrinkle, try the following:

If the ribbon...	Then...
Wrinkles from the lower left to the upper right 	Increase the pressure on the outside toggle OR decrease the pressure on the inside toggle. Go to Adjusting the Printhead Pressure .
Wrinkles from the upper left to the lower right 	Increase the pressure on the inside toggle OR decrease the pressure on the outside toggle. Go to Adjusting the Printhead Pressure .
Wrinkles in the middle 	Move both toggles toward the center of the label to increase the pressure in that area. Go to Adjusting the Toggle Position .

If those do not solve the problem with wrinkled ribbon, check the following:

Possible Cause	Recommended Solution
Ribbon was loaded incorrectly.	Load the ribbon correctly. Go to Loading the Ribbon on page 55.

Possible Cause	Recommended Solution
Incorrect burn temperature.	1. Perform the steps in Running the Print Wizard and Printing a Test Label on page 58. 2. If necessary, manually adjust the darkness or print speed settings. • Set the print darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, barcodes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely. • Slower print speeds typically yield better print quality. Access the darkness and print speed settings from the Home screen by touching Menu > Print > Print Quality.
Incorrect or uneven printhead pressure.	Set the printhead pressure to the minimum needed for good print quality. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121.
Media not feeding properly; “walking” from side to side.	Adjust the media guide until it just touches the edge of the media. If this does not solve the issue, check the printhead pressure. Go to Adjusting the Printhead Pressure, Toggle Position, and Balance on page 121. If necessary, call a service technician.
The printhead or platen roller may be installed incorrectly.	Verify, if you can, that they are installed correctly. If necessary, call a service technician.

Broken or Melted Ribbon

Possible Cause	Recommended Solution
Darkness is set too high.	1. Perform the steps in Running the Print Wizard and Printing a Test Label on page 58. 2. If necessary, manually adjust the darkness or print speed settings. • Set the print darkness to the lowest setting that provides good print quality. If you set the darkness too high, the label image may print unclearly, barcodes may not scan correctly, the ribbon may burn through, or the printhead may wear prematurely. • Slower print speeds typically yield better print quality. Access the darkness and print speed settings from the Home screen by touching Menu > Print > Print Quality. 3. Clean the printhead thoroughly. Go to Cleaning the Printhead and Platen Roller on page 137.
The ribbon is coated on the wrong side and cannot be used in this printer.	Replace the ribbon with one coated on the correct side. For more information, go to Determining the Type of Ribbon to Use on page 54.

Ribbon Detection Issues

Issue	Possible Cause	Recommended Solution
The printer does not detect when the ribbon runs out.	The printer may have been calibrated without ribbon or without the ribbon loaded properly.	1. Make sure that ribbon is loaded correctly so that it can be detected by the ribbon sensor. Under the printhead, the ribbon should track all the way back, near the printer's firewall. Go to Loading the Ribbon on page 55. 2. Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.
In thermal transfer mode, the printer did not detect the ribbon even though it is loaded correctly.		
The printer indicates that ribbon is out, even though ribbon is loaded correctly.	The printer was not calibrated for the label and ribbon being used.	Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.

Printer Connectivity Issues

Issue	Possible Cause	Recommended Solution
My printer reassigns a new IP address to the print server after the printer has been off for a while.	The settings for your network are causing the network to reassign a new IP address.	If the changing IP addresses cause issues for you, follow these steps to assign a static IP address to the printer: 1. Find out what values need to be assigned to the IP address, subnet mask, and gateway for your print server (wired, wireless, or both). 2. Change the appropriate IP protocol value to PERMANENT. 3. Change the values for the IP address, subnet mask, and gateway for the appropriate print server to what you want them to remain. 4. Reset the network by touching Menu > Connection > Networks > Reset Network and then touching the check mark to save the changes.
My printer does not obtain an IP address while trying to connect via LAN/Ethernet.	The cable is not plugged in correctly.	Check that both ends of the cable are connected properly.
	The printer is not configured correctly (usually for DHCP).	Check the Wired IP Protocol setting. It should match your network environment.
I cannot change the wired, wireless, or Bluetooth settings on my printer.	The printer is in Protected Mode, which prevents these settings from being updated without the Protected Mode password. You cannot change these settings through the front panel.	You will need the Protected Mode password to change the settings via JSON commands. For more information, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .
	For printers purchased in the EMEA region after August 1, 2025, many connectivity options are disabled by default.	For additional information and a configuration wizard, go to zebra.com/asr .

Issue	Possible Cause	Recommended Solution
I manually entered a wireless IP address, subnet, and gateway on my printer, but it won't connect to my wireless network. Protected Mode is not enabled.	The printer's network must be reset after values are changed.	Reset the network by touching Menu > Connection > Networks > Reset Network and then touching the check mark to save the changes.
	An ESSID value was not specified.	- For a wireless connection, specify the ESSID value that matches the value used by your wireless router using the following Set/Get/Do command: <pre>! U1 setvar "wlan.essid" "value"</pre> where "value" is the ESSID (sometimes called a network SSID) for your router. You can look on the back of your router for a sticker with the router's default information.  NOTE: If the information has been changed from the default, check with your network administrator for the ESSID value to use. - Reset the network by touching Menu > Connection > Networks > Reset Network and then touching the checkmark to save the changes.
	The ESSID or another value was incorrect.	- Print a network configuration label and verify that your values are correct. - Make corrections as necessary. - Reset the network by touching Menu > Connection > Networks > Reset Network and then touching the check mark to save the changes.

RFID Issues

Issue	Possible Cause	Recommended Solution
The printer stops at the RFID inlay.	The printer calibrated the label length only to the RFID inlay instead of to the interlabel gap.	1. Tap Menu > System > Settings, and then select FEED for the Power Up and Head Close actions. 2. Manually calibrate the printer. See Performing Manual Sensor Calibration on page 117.
The printer voids every label.	The printer is not calibrated for the media being used.	Manually calibrate the printer. See Performing Manual Sensor Calibration on page 117.)
	You are using an RFID label with a tag type that is not supported by your printer.	These printers support only Gen 2 RFID labels. For more information, refer to RFID Programming Guide 3, or contact an authorized Zebra RFID reseller.
	The printer is unable to communicate with the RFID reader.	1. Turn off (O) the printer. 2. Wait 10 seconds. 3. Turn on (I) the printer. 4. If the problem persists, you may have a bad RFID reader or a loose connection between the RFID reader and the printer. Contact Technical Support or an authorized Zebra RFID service technician for assistance.
	Radio frequency (RF) interference from another RF source.	Do one or more of the following as necessary: • Move the printer away from fixed RFID readers or other RF sources. • Make sure that the media door is closed at all times during RFID programming.
	The settings are incorrect in your label designer software.	The software settings override the printer settings. Make sure that the software and printer settings match.
	You are using an incorrect programming position, particularly if the tags being used are within printer specifications.	Do one or more of the following as necessary: • Check the RFID programming position or the program position setting in your label designer software. If the position is incorrect, change the setting. • Restore the RFID programming position back to the default value. For more information, refer to RFID Programming Guide 3. For transponder placement details, go to zebra.com/transponders .

Issue	Possible Cause	Recommended Solution
	You are sending RFID ZPL or SGD commands that are incorrect.	Check your label formats. For more information, refer to RFID Programming Guide 3.
Low yields. Too many RFID tags per roll are voided.	The RFID labels are not within specifications for the printer, which means that the transponder is not in an area that can be programmed consistently.	Make sure that the labels meet transponder placement specifications for your printer. See zebra.com/transponders for transponder placement information. For more information, refer to RFID Programming Guide 3, or contact an authorized Zebra RFID reseller.
	Incorrect read and write power levels.	Change the RFID read and write power levels. For instructions, refer to RFID Programming Guide 3.
	Radio frequency (RF) interference from another RF source.	Do one or more of the following as necessary: • Move the printer away from fixed RFID readers. • Make sure that the media door is closed at all times during RFID programming.
	The printer is using outdated printer firmware and reader firmware versions.	Go to zebra.com/firmware for updated firmware.
RFID parameters do not appear in Setup mode, and RFID information does not appear on the printer configuration label. The printer does not void RFID labels that are not programmed correctly.	The printer was powered off (O) and then back on (I) too quickly for the RFID reader to initialize properly.	Wait at least 10 seconds after turning the printer power off before turning it back on. 1. Turn off (O) the printer. 2. Wait 10 seconds. 3. Turn on (I) the printer. 4. Check for the RFID parameters in Setup mode or for RFID information on a new configuration label.
	An incorrect version of printer firmware was loaded on the printer.	1. Verify that the correct firmware version is loaded on your printer. For more information, refer to RFID Programming Guide 3. 2. Download the correct printer firmware if necessary. 3. If the problem persists, contact Technical Support.

Issue	Possible Cause	Recommended Solution
	The printer is unable to communicate with the RFID subsystem.	1. Turn off (O) the printer. 2. Wait 10 seconds. 3. Turn on (I) the printer. 4. If the problem persists, you may have a bad RFID reader or a loose connection between the RFID reader and the printer. Contact Technical Support or an authorized service technician for assistance.
The DATA light flashes indefinitely after you attempt to download printer or reader firmware.	The download was not successful. For optimal results, cycle power on the printer before downloading any firmware.	1. Turn off (O) the printer. 2. Wait 10 seconds. 3. Turn on (I) the printer. 4. Attempt to download the firmware again. 5. If the problem persists, contact Technical Support.

Communication Issues

Issue	Possible Cause	Recommended Solution
Label Formats Not Recognized		
A label format was sent to the printer but was not recognized. The DATA light does not flash.	The communication parameters are incorrect.	Check the printer driver or software communications settings (if applicable) for your connection. You may wish to reinstall the printer driver following the instructions in Connecting the Printer to a Device on page 11.
A label format was sent to the printer but was not recognized. The DATA light flashes but no printing occurs.	The prefix and delimiter characters set in the printer do not match the ones in the label format.	Verify the prefix and delimiter characters using the following SGD commands. Modify the values if necessary. ! U1 getvar "zpl.format_prefix" ! U1 getvar "zpl.delimiter"
	Incorrect data is being sent to the printer.	Check the communication settings on the computer. Ensure that they match the printer settings.
	The printer has an emulation active.	If the problem persists, check the label format. Verify that the label format matches the printer settings.
Labels Stop Printing Correctly		
A label format was sent to the printer. Several labels print, then the printer skips, misplaces, misses, or distorts the image on the label.	The serial communication settings are incorrect.	Ensure that the flow control settings match.
		Check the communication cable length. See Communication Interface Specifications on page 204 for requirements.
		Check the printer driver or software communications settings (if applicable).

Miscellaneous Issues

Issue	Possible Cause	Recommended Solution
Issues with the Display		
The printer is prompting for a front panel password/PIN, but one was not set.	The front panel display can be locked, limiting access to the control panel parameters until the front panel password is entered. This value is initially undefined and must be set before it can be used.	For more information about the front panel password, refer to the Zebra Link-OS PrintSecure Printer Administration Guide .
The control panel display shows a language that I cannot read	The language parameter was changed through the control panel or a firmware command.	- On the Home screen, touch Menu (the icon on the bottom-left).  - Touch the top selection on the screen. - Scroll through the language selections under this menu option. The selections for this parameter are displayed in the actual languages to make it easier for you to find one that you are able to read. - Touch the language that you want to display to select it. - Touch Home to return to the Home screen.
The display is missing characters or parts of characters	The display may need replacing.	Call a service technician.
The USB Host Port Is Not Acknowledging a USB Device		
The printer is not acknowledging a USB device or is not reading the files on a USB device that is plugged into the USB host port.	The printer currently supports USB drives only up to 1 TB in size.	Use a USB drive that is 1 TB or smaller.
	The USB device may require its own external power.	If your USB device requires external power, make sure that it is plugged into a working power supply.
Printer Parameters Are Not Set As Expected		
Changes in parameter settings did not take effect. OR Some parameters changed unexpectedly.	A firmware setting or command prevented the ability to change the parameter. A command in a label format changed the parameter back to the previous setting.	Check your label formats or the settings of the software that you use to send formats to the printer. If necessary, refer to the Zebra Programming Guide or call a service technician. A copy of this guide is available from zebra.com/manuals.

Issue	Possible Cause	Recommended Solution
Calibration Issues		
Auto Calibrate failed.	The media or ribbon is loaded incorrectly.	Ensure that the media and ribbon are loaded correctly. - For loading ribbon, go to Loading the Ribbon on page 55 - For standard printers, go to Loading the Media on page 31. - For ZT610 600 dpi Micro Label printers, go to Loading Media for Precision Printing.
	The sensors could not detect the media or ribbon.	Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.
	The sensors are dirty or positioned improperly.	Ensure that the sensors are clean and properly positioned.
	The media type is set incorrectly.	Set the printer for the correct media type (gap/notch, continuous, or mark).
Non-continuous labels are being treated as continuous labels.	The printer was not calibrated for the media being used.	Calibrate the printer. Go to Calibrating the Ribbon and Media Sensors on page 116.
	The printer is configured for continuous media.	Set the printer for the correct media type (gap/notch, continuous, or mark).
Printer Locks Up		
All indicator lights are on, nothing is on the display, and the printer locks up.	Internal electronic or firmware failure.	Power-cycle the printer. If the problem persists, call a service technician.
The printer locks up while booting up.	Main logic board failure.	

Servicing the Printer

If you have a problem using the printer, contact your facility's technical or systems support. If there is a problem with the printer, they will contact the Zebra Global Customer Support Center at zebra.com/support.

Gather the following information before contacting Zebra Global Customer Support:

- Serial number of the unit
- Model number or product name
- Firmware version number

Zebra responds to calls by e-mail, telephone, or fax within the time limits set forth in service agreements. If your problem cannot be solved by Zebra Global Customer Support, you may need to return your equipment for servicing and will be given specific directions.

If you purchased your product from a Zebra business partner, please contact that business partner for support.

Shipping the Printer

If you must ship the printer:

1. Turn off (O) the printer, and disconnect all cables.
2. Remove any media, ribbon, or loose objects from the printer interior.
3. Close the printhead.
4. 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.



IMPORTANT: Zebra is not responsible for any damages incurred during shipment if an approved shipping container is not used. Shipping the units improperly can possibly void the warranty.

Using a USB Host Port and the Print Touch Feature

The exercises presented here will help you learn how to use the optional USB host port and the printer's Print Touch feature with an Android™-based NFC-enabled device (such as a smartphone or a tablet).

Some SGD commands are listed as part of these exercises for advanced users.

Items Required for the Exercises

To perform the exercises in this document, you will need:

- a USB Flash drive that is up to 1 Terabyte (1 TB)



NOTE: The printer will not recognize drives larger than 1 TB.

- a USB keyboard.
- the various files listed in [Files for Completing the Exercises](#).
- the free Zebra Utilities app for your smartphone (search for Zebra Technologies in the Google Play store).

Files for Completing the Exercises

Most of the files you need to complete the exercises in these section are available on zebra.com in the form of a .ZIP file located [here](#). Copy these files to your computer before you begin the exercises. Where possible, the contents of the files are shown. Contents of files that include coded content—which cannot be viewed either as text or as an image—are not included.

File 1: ZEBRA .BMP



File 2: SAMPLELABEL .TXT

This simple label format prints the Zebra logo and a line of text at the end of the mirroring exercise.

```
^XA
^F0100,75^XGE:zebra.bmp^FS
^F0100,475^A0N,50,50^FDMirror from USB Completed^FS
```

^XZ

File 3: LOGO . ZPL

File 4: USBSTOREDFILE . ZPL

This label format prints an image and text. This file will be stored on the USB memory device at the root level so that it can be printed.

```
CT~~CD,~CC^~CT~
^XA~TA012~JSN^LT0^LH0,0^JMA^PR4,4~SD15^LRN^CI0^XZ
~DG000.GRF,07680,024,,[image data]
^XA
^LS0
^SL0
^BY3,3,91^FT35,250^BCN,,Y,N^FC%,{,#{^FD%d/%m/%Y^FS
^FT608,325^XG000.GRF,1,1^FS
^FT26,75^A0N,28,28^FH\^FDThis label was printed from a format stored^FS
^FT26,125^A0N,28,28^FH\^FDOn a USB Flash Memory drive. ^FS
^BY3,3,90^FT33,425^BCN,,Y,N
^FD>:Zebra Technologies^FS
^PQ1,0,1,Y^XZ
^XA^ID000.GRF^FS^XZ
```

File 5: VLS_BONKGRF . ZPL

This file is included in the .ZIP file located [here](#).

File 6: VLS_EIFFEL . ZPL

This file is included in the .ZIP file located [here](#).

File 7: KEYBOARDINPUT . ZPL

This label format, used for the USB keyboard input exercise, does the following:

- creates a barcode with the current date, based on your Real-Time Clock (RTC) setting
- prints the Zebra logo graphic
- prints fixed text
- ^FN prompts you to enter your name, and the printer prints what you entered

```
^XA
^CI28
^BY2,3,91^FT38,184^BCN,,Y,N^FC%,{,#{^FD%d/%m/%Y^FS
^F0385,75^XGE:zebra.bmp^FS
^FT40,70^A0N,28,28^FH\^FDThis label was printed using a keyboard input. ^FS
^FT35,260^A0N,28,28^FH\^FDThis label was printed by:^FS
^FT33,319^A0N,28,28^FN1"Enter Name"^FS
^XZ
```

File 8: SMARTDEVINPUT.ZPL

This is the same label format as the previous label, only with different text printing. This format is used for the smart device input exercise.

```
^XA
^CI28
^BY2,3,91^FT38,184^BCN,,Y,N^FC%,{,#{^FD%d/%m/%Y^FS
^F0385,75^XGE:zebra.bmp^FS
^FT40,70^A0N,28,28^FH\^FDThis label was printed using a smart device input.
^FS
^FT35,260^A0N,28,28^FH\^FDThis label was printed by:^FS
^FT33,319^A0N,28,28^FN1"Enter Name"^FS
^XZ
```

File 9: Firmware File

You may want to download a firmware file for your printer and copy it to your computer for use during the exercises. You may omit doing this if you wish.

You can download the latest firmware file from zebra.com/firmware.

USB Host

Your printer may be equipped with one or two USB host ports on the front panel. A USB host port allows you to connect USB devices—such as a keyboard, scanner, or USB Flash drive—to the printer. The exercises in this section will teach you how to perform USB mirror, how to transfer files to and from the printer, and how to provide information for which you are prompted and then print a label using that information.



IMPORTANT: When using a USB host port, files should be named only with 1 to 16 alphanumeric characters (A, a, B, b, C, c, ..., 0, 1, 2, 3, ...). Do not use Asian characters, Cyrillic characters, or accented characters in file names.



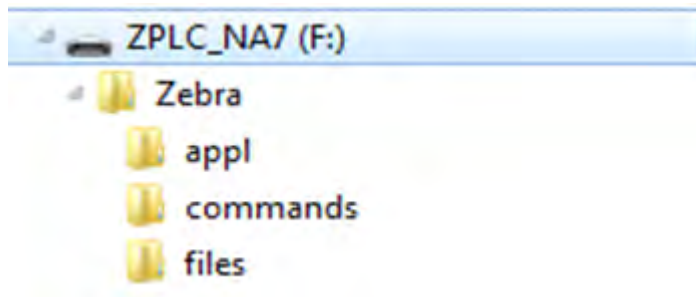
NOTE: Some functions may not work properly if there are underscores in a file name. Use periods instead.

Exercise 1: Copy Files to a USB Flash Drive and Perform USB Mirror



NOTE: For printers purchased in the EMEA region after August 1, 2025, mirroring (usb.mirror.enable) is disabled by default. You must enable it before you can complete this exercise. For more information, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

1. On your USB Flash Drive, create the following:



- a folder called Zebra
 - in that folder, three subfolders:
 - appl
 - commands
 - files
2. In the /appl folder, place a copy of the latest firmware for your printer.
 3. In the /files folder, place the following file:

[File 1: ZEBRA.BMP](#) on page 189
 4. In the /commands folder, place the following files:
 - [File 2: SAMPLELABEL.TXT](#) on page 189
 - [File 3: LOGO.ZPL](#) on page 190
 5. Insert the USB Flash drive into a USB host port on the front of your printer.

6. Observe the control panel and wait.

The following should happen:

- If the firmware on the USB Flash drive is different than what is on the printer, the firmware downloads to the printer. The printer then restarts and prints a printer configuration label. (If there is no firmware on the USB Flash drive or if the firmware version is the same, the printer skips this action.)
- The printer downloads the files in the /files folder and briefly shows the names of the files that are downloading on the display.
- The printer executes any files in the /commands folder.
- The printer restarts and then displays this message: **MIRROR PROCESSING FINISHED**

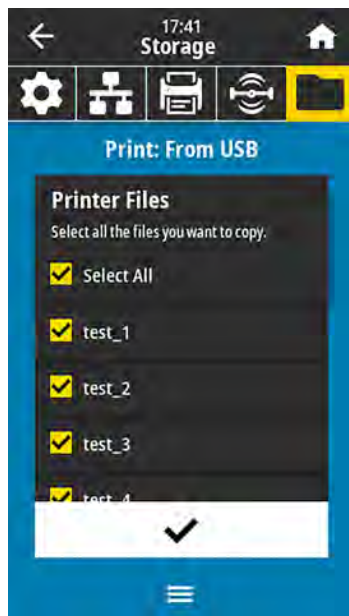
7. Remove the USB Flash drive from the printer.

Advance User Information	
See the Zebra Programming Guide for more information about these commands.	
To enable/disable mirroring:	! U1 setvar "usb.mirror.enable" "value" Values: "on" or "off"
To enable/disable automatic mirroring that occurs when a USB Flash drive is inserted into the USB host port:	! U1 setvar "usb.mirror.auto" "value" Values: "on" or "off"
To specify the number of times that the mirror operation will be repeated if it fails:	! U1 setvar "usb.mirror.error_retry" "value" Values: 0 to 65535
To change the path to the location on the USB device from which mirror files are retrieved:	! U1 setvar "usb.mirror.appl_path" "new_path" Default: "zebra/appl"
To change the path to the location on the printer from which mirror files are retrieved:	! U1 setvar "usb.host.lock_out" "value" Default: "zebra"
To enable/disable the ability to use the USB port:	! U1 setvar "usb.host.lock_out" "value" Values: "on" or "off"

Exercise 2: Print a Label Format from a USB Flash Drive

The Print USB File option allows you to print files from a USB mass storage device, such as a USB Flash drive. Only printable files (.ZPL and .XML) may be printed from the USB mass storage device, and the files must be located at the root level, not in a directory.

1. Copy the following files to your USB Flash drive:
 - [File 4: USBSTOREDFILE.ZPL](#) on page 190
 - [File 5: VLS_BONKGRF.ZPL](#) on page 190
 - [File 6: VLS_EIFFEL.ZPL](#) on page 190
2. Insert the USB Flash drive into a USB host port on the front of your printer.
3. Tap **Menu > Storage > USB > Print: From USB**.



The printer loads any executable files and processes them. The available files are listed. **SELECT ALL** is available to print all files on the USB Flash drive.

4. Select USBSTOREDFILE .zpl.
5. Touch the checkmark to copy the files.

The label prints.

Exercise 3: Copy Files to/from a USB Flash Drive

The Copy USB File option allows you to copy files from a USB mass storage device to the printer's Flash memory E: drive.

1. Copy the following files to the root directory of your USB Flash drive.

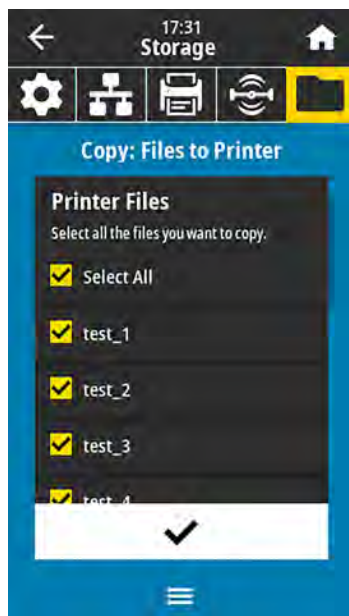
- **File 7: KEYBOARDINPUT.ZPL** on page 190
- **File 8: SMARTDEVINPUT.ZPL** on page 191



NOTE: Do not put these files into a subfolder.

2. Insert the USB Flash drive into a USB host port on the front of your printer.

3. Tap **Menu > Storage > USB > Copy: Files to Printer**.



The printer loads any executable files and processes them. The available files are listed. (If desired, you can use **Select All** to copy all the available files from the USB Flash drive.)

4. Select the files STOREFMT.ZPL and STOREFMTM1.ZPL.

5. Touch the checkmark to copy the files.

The printer stores the files in E: memory.

6. Remove the USB Flash drive from the USB host port.

You can now copy these files from the printer to a USB Flash drive by tapping **Menu > Storage > USB > Copy: Files to USB**.



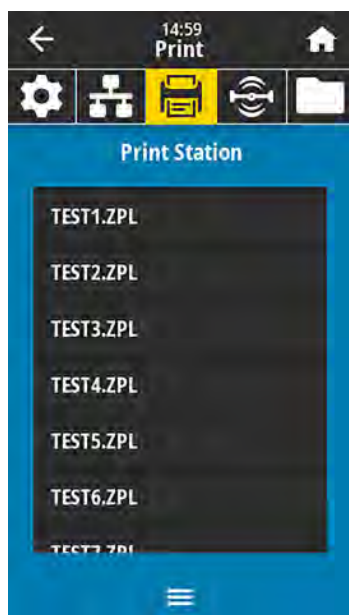
The option **SELECT ALL** is available to store all the available files from the printer to the USB Flash drive. Any .ZPL file that is copied will be post-processed so that the contents of the file will be suitable to be sent to a printer for normal execution.

Exercise 4: Enter Data for a Stored File with a USB Keyboard and Print a Label

The Print Station feature allows you to use a USB Human Interface Device (HID), such as a keyboard or a barcode scanner, to enter ^FN field data into a *.ZPL template file.

1. After performing [Exercise 3: Copy Files to/from a USB Flash Drive](#), plug a USB keyboard into a USB host port.
2. Tap **Menu > Print > Print Station**.

The printer loads any executable files and processes them. The available files are listed.



3. Select the file `KEYBOARDINPUT.ZPL`.

The printer accesses the file and prompts you for the information in the ^FN fields in the file. In this case, it prompts you for your name.

4. Type your name on the keyboard, and then press **<ENTER>**.

The printer prompts for the number of labels to print.

5. Specify the desired quantity of labels, then press **<ENTER>** again.

The specified number of labels is printed, with your name in the appropriate fields.

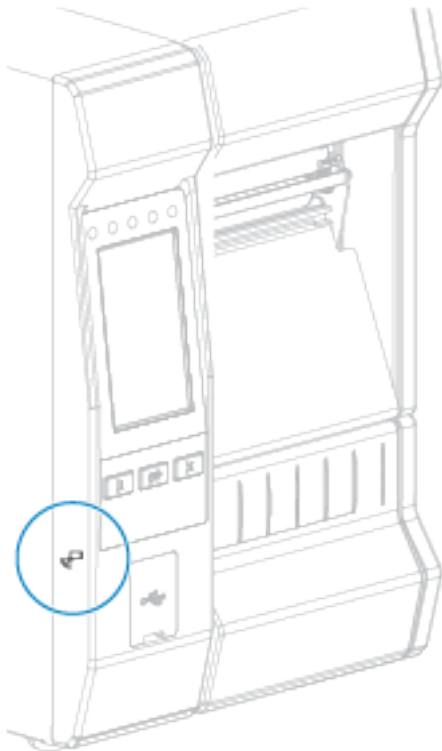
Print Touch/Near Field Communication (NFC)

The Zebra Print Touch feature allows you to touch an Android™-based, NFC-enabled device (such as a smart phone or tablet) to the printer's NFC logo to pair the device to the printer. This capability allows you to use your device to provide information for which you are prompted and then print a label using that information.



IMPORTANT: Some devices may not support NFC communication with the printer until you alter their settings. If you encounter difficulties, consult your service provider or your smart device manufacturer for more information.

Figure 13 NFC Logo Location



Exercise 5: Enter Data for a Stored File with a Smart Device and Print a Label

The steps in this exercise may vary somewhat based on:

- your device (phone or tablet)
- your service provider
- whether you already have the free Zebra Utilities app installed on your device

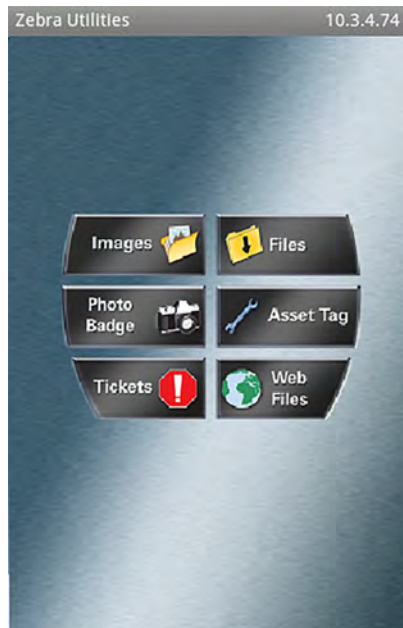
Refer to the Zebra Bluetooth User Guide for specific instructions for configuring your printer to use a Bluetooth interface. A copy of this manual is available at zebra.com/manuals.

1. Copy the SMARTDEVINPUT.ZPL file to your device.
2. If you do not have the Zebra Utilities app installed on your device, go to the app store for your device, search for the Zebra Utilities app, and install it.
3. If your phone supports Near-Field Communication (NFC), pair your device with the printer by holding the device next to the  NFC icon on the printer. Otherwise, pair using the Bluetooth settings on your device.
 - a) If necessary, access the Bluetooth information about your printer using your device. For instructions, refer to the manufacturer's documentation for your device.
 - b) If necessary, select the Zebra printer's serial number to pair it with the device.
 - c) After your device has been detected by the printer, the printer may prompt you to accept or reject the pairing. If necessary, tap **ACCEPT**. Some devices will pair with the printer without this prompt.

The printer and your device are paired.

4. Start the Zebra Utilities app on your device.

The Zebra Utilities main menu displays.



5. Tap **Available Files.**

The smart device gets data from the printer and displays it.



NOTE: This retrieval process may take a minute or more to complete.

6. Scroll through the formats shown and select SMARTDEVINPUT .ZPL.

Based on the ^FN field in the label format, the device prompts you for your name.

7. Enter your name at the prompt.

8. Change the quantity of labels to print, if desired.

9. Tap **Send to Printer to print the label.**

Specifications

This section lists general printer specifications, printing specifications, ribbon specifications, and media specifications.



NOTE: For specifications specific to the ZT610 600 dpi Micro Label printer, go to [ZT610 600 dpi Micro Label Specifications](#).

General Specifications

		ZT610	ZT620
Height (base printer models) Dimensions may vary depending on configuration, such as adding optional rewind.		395.68 mm (15.58 in.)	395.68 mm (15.58 in.)
Width		268.2 mm (10.56 in.)	341.45 mm (13.44 in.)
Depth		505.0 mm (19.88 in.)	505.0 mm (19.88 in.)
Weight		22.7 kgs (50 lbs.)	26 kgs (57.4 lbs.)
Temperature	Operating	Thermal Transfer: 5°C to 40°C (40°F to 105°F) Direct Thermal: 0°C to 40°C (32°F to 105°F)	
	Storage	-30°C to 60°C (-22°F to 140°F)	
Relative humidity	Operating	20% to 85%, non-condensing	
	Storage	20% to 85%, non-condensing	
Memory		1 Gigabyte DRAM (32 MB user available) 2 Gigabyte Flash (512 MB user available on-board Flash)	

Power Specifications

The following are typical values. Actual values vary from unit to unit and are affected by such things as the options installed and printer settings

	ZT610	ZT620
Electrical	100–240 VAC, 50-60 Hz	
Power consumption	120 VAC, 60 Hz	
Inrush Current	< 35A peak8A RMS (half cycle)	< 40A peak8A RMS (half cycle)
Energy Star Off Power (W)	0.05	0.05
Energy Star Sleep Power (W)	< 5	< 5
Print Power* (W)	98	215
Print Power* (VA)	108	261
Power consumption	230 VAC, 50 Hz	
Inrush Current	< 80A peak 12A RMS (half cycle)	< 90A peak 15A RMS (half cycle)
Energy Star Off Power (W)	0.15	0.15
Energy Star Sleep Power (W)	< 5	< 5
Print Power* (W)	97	209
Print Power* (VA)	127	261
 NOTE: * As measured when printing PAUSE self-test labels at 6 ips with either 4 inch x 6 inch labels or 6.5 inch x 4 inch labels at a darkness level of 10 on direct thermal media.		

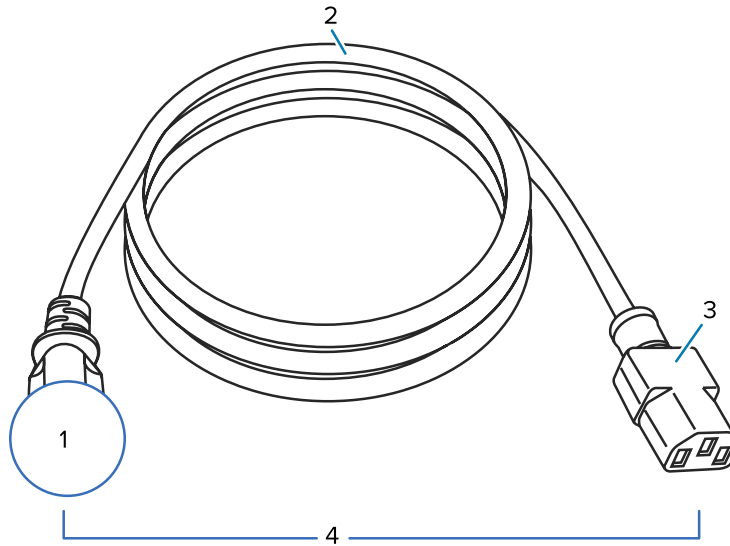
Power Cord Specifications

Depending on how your printer was ordered, a power cord may or may not be included. If one is not included, or if the one that is included is not suitable for your requirements, consider the following information.



CAUTION—PRODUCT DAMAGE: For personnel and equipment safety, always use an approved three-conductor power cord specific to the region or country intended for installation. This cord must use an IEC 320 female connector and the appropriate region-specific, three-conductor grounded plug configuration.

Figure 14 Power Cord Specifications



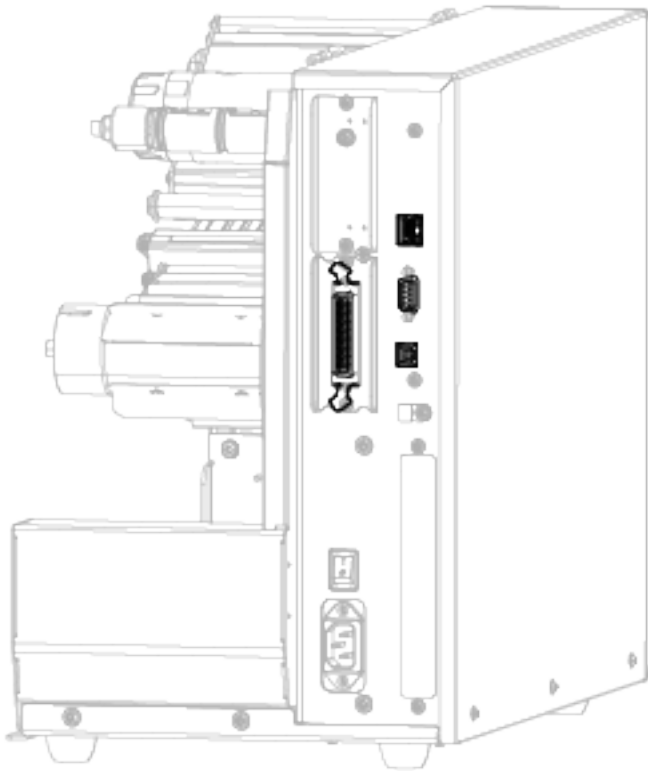
1	AC power plug for your country—This should bear the certification mark of at least one of the known international safety organizations (see Figure 15 International Safety Organization Certification Symbols on page 203). The chassis ground (earth) must be connected to ensure safety and reduce electromagnetic interference.
2	3-conductor HAR cable or other cable approved for your country.
3	IEC 320 connector—This should bear the certification mark of at least one of the known international safety organizations (see Figure 15 International Safety Organization Certification Symbols on page 203).
4	Length ≤ 3 m (9.8 ft). Rating 10 Amp, 250 VAC.

Figure 15 International Safety Organization Certification Symbols



Communication Interface Specifications

Figure 16 Location of Communication Interfaces



	Parallel port		Internal wired Ethernet print server
	Serial port		USB port



NOTE: 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.

Standard Connections

Your printer supports a variety of standard connections.

Bluetooth Version 4.0

BT v4.0 is a standard feature included with your printer.

Limitations and requirements	Many mobile devices can communicate with the printer within a 30-foot radius of the printer.
Connections and configuration	Refer to the Zebra Bluetooth User Guide for specific instructions for configuring your printer to use a Bluetooth interface. This manual is available at zebra.com/manuals .

USB Host Ports

Two USB host ports are built into your printer.

Limitations and requirements	You can plug only one device into each of the printer's two USB host ports. You cannot use a third device by plugging it into a USB port on one of the devices, nor can you use an adapter to split a USB host port on the printer to accept more than one device at a time.
Connections and configuration	No additional configuration is necessary.

Zebra PrintTouch/Near Field Communication (NFC)

Limitations and requirements	NFC communication must be initiated by touching your device to the appropriate location on the printer.
Connections and configuration	Some devices may not support NFC communication with the printer until you alter their settings.

USB 2.0 Data Interface

Limitations and requirements	A maximum cable length of 5m (16.4 ft).
Connections and configuration	No additional configuration is necessary.

Wired Gigabit Internal Ethernet Print Server

This ZebraNet Ethernet option stores network configuration information in the printer.

Limitations and requirements	- The printer must be configured to use your LAN. - A second wired print server can be installed in the bottom option slot.
Connections and configuration	Refer to the ZebraNet Wired and Wireless Print Servers User Guide for configuration instructions. This manual is available at zebra.com/manuals .

RS-232/C Serial Data Interface

Specifications	2400 to 115000 baud - parity, bits/character 7 or 8 data bit - XON-XOFF, RTS/CTS, or DTR/DSR handshake protocol required 750mA at 5 V from pins 1 and 9
Limitations and requirements	- You must use a null-modem cable to connect to the printer or a null-modem adapter if using a standard modem cable. - Maximum cable length of 15.24 m (50 ft). - You may need to change printer parameters to match the host computer.
Connections and configuration	The baud rate, number of data and stop bits, the parity, and the XON/XOFF or DTR control must match those of the host computer.

Optional Connections

Your printer support these connectivity options.

Wireless Print Server

Specifications	See Wireless Specifications on page 207 for details.
Limitations and requirements	- Can print to the printer from any computer on your Wireless Local Area Network (WLAN). - Can communicate with the printer through the printer's web pages. - The printer must be configured to use your WLAN. - Can be installed only in the top option slot.
Connections and configuration	Refer to the ZebraNet Wired and Wireless Print Servers User Guide for configuration instructions. A copy of this manual is available at zebra.com/manuals .

IEEE 1284 Bidirectional Parallel data interface

Limitations and requirements	• Maximum cable length of 3 m (10 ft) • Recommended cable length of 1.83 m (6 ft) • No printer parameter changes required to match the host computer. • Can be installed in either the top or bottom option slot. • An IEEE 1284 cable is required.
Connections and configuration	No additional configuration is necessary.

Applicator Interface

Requirements	Must have a DB15F connector.
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Wired 10/100 Ethernet Print Server (External)

This ZebraNet Ethernet option allows you to program network configuration information to the print server, which can be shared between printers. The standard Ethernet connection stores configuration information on the printer itself.

Requirements	Must have the parallel data interface option.
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Wireless Specifications**Antenna Information**

Type	• Patch; Gain = 3.66dBi @ 2.4GHz; Gain = 3.19dBi @ 5GHz; Impedance = 50 ohms • Omni directional antenna gain 3dBi @ 2.4GHz; 5dBi @ 5GHz • PCBA antenna gain = -30dBi @ 900MHz
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WLAN Specifications



NOTE: For printers purchased in the EMEA region after August 1, 2025, WLAN is disabled by default. To enable the WLAN option, refer to the [Zebra Link-OS PrintSecure Printer Administration Guide](#).

802.11 b	• 2.4 GHz • DSSS (DBPSK, DQPSK, and CCK) • RF power 17.77 dBm (EIRP)
802.11 g	• 2.4 GHz • OFDM (16-QAM and 64-QAM with BPSK, and QPSK) • RF power 18.61 dBm (EIRP)
802.11 n	• 2.4 GHz • OFDM (16-QAM and 64-QAM with BPSK, and QPSK) • RF power 18.62 dBm (EIRP)
802.11 a/n	• 5.15-5.25 GHz, 5.25-5.35 GHz, 5.47-5.725 GHz • OFDM (16-QAM and 64-QAM with BPSK and QPSK) • RF power 17.89 dBm (EIRP)
802.11 ac	• 2.4 GHz, 5.18 - 5.24 GHz, 5.26-5.32 GHz, 5.5-5.7 GHz • OFDM (up to 256-QAM with BPSK and QPSK) • RF power 13.39 dBm (EIRP)
802.11 ax	• 2.4 GHz, 5.18 - 5.24 GHz, 5.26-5.32 GHz, 5.5-5.72 GHz, 5.745-5.825 GHz • OFDM (up to 256-QAM with BPSK and QPSK) • RF power (EIRP) • 9 dBm (BDR/EDR/LE) • 17 dBm (2.4G WLAN) • 19 dBm (UNII-1) • 18 dBm (UNII-2) • 18 dBm (UNII-3)

Specifications

Bluetooth Specifications

Bluetooth 5.3 + Low Energy (LE)	• 2.4 GHz • FHSS (BDR/EDR), GFSK (Bluetooth Low Energy) • RF power 9.9 dBm (EIRP)
Bluetooth 4.1 + Low Energy (LE)	• 2.4 GHz • FHSS (BDR/EDR), GFSK (Bluetooth Low Energy) • RF power 9.22 dBm (EIRP)
Bluetooth Classic + Low Energy (LE)	• 2.4 GHz • FHSS (BDR/EDR), DSSS (Bluetooth LE) • RF power 9.22 dBm (EIRP) • FHSS (BDR/EDR), DSSS (Bluetooth LE) • RF power 9.22 dBm (EIRP)

RFID Specifications

RFID M6e Radio Module	• 865-928 MHz • FHSS • RF power 27.893 dBm
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Printing Specifications

		ZT610	ZT620
Print resolution		203 dpi (dots/in.)/8 dots/mm	203 dpi (dots/in.) 8 dots/mm
		300 dpi/12 dots/mm	300 dpi 12 dots/mm
		600 dpi/24 dots/mm	N/A
Maximum print width	203 dpi	104 mm (4.09 in.)	168 mm (6.6 in.)
	300 dpi	104 mm (4.09 in.)	168 mm (6.6 in.)
	600 dpi	104 mm (4.09 in.)	N/A

Specifications

		ZT610	ZT620
Programmable constant print speeds (inches per second/ips or millimeters per second)	203 dpi	50.8 mm to 355.6 mm per second in 25.4-mm increments (2 in. to 14 in. in 1-inch increments)	50.8 mm to 304.8 mm per second in 25.4-mm increments (2 in. to 12 in. in 1-inch increments)
	300 dpi	50.8 mm to 304.8 mm per second in 25.4-mm increments (2 in. to 12 in. in 1-inch increments)	50.8 mm to 203.2 mm per second in 25.4-mm increments (2 in. to 8 in. in 1-inch increments)
	600 dpi	25.4 mm to 152.4 mm per second in 25.4-mm increments (1 in. to 6 in. per second in 1-inch increments)	N/A
Dot size (nominal) (width x length)	203 dpi	0.125 mm x 0.125 mm (0.0049 in. x 0.0049 in.)	0.125 mm x 0.125 mm (0.0049 in. x 0.0049 in.)
	300 dpi	0.084 mm x 0.099 mm (0.0033 in. x 0.0039 in.)	0.084 mm x 0.099 mm (0.0033 in. x 0.0039 in.)
	600 dpi	0.042 mm x 0.042 mm (0.0016 in. x 0.0016 in.)	N/A
First dot location (measured from the inside edge of the media)	203 dpi	3.5 mm $\pm$ 1.25 mm (0.14 in. $\pm$ 0.05 in.)	2.5 mm $\pm$ 0.9mm (0.10 in. $\pm$ 0.035 in.)
	300 dpi	2.1 mm $\pm$ 1.25 mm (0.08 in. $\pm$ 0.05 in.)	2.5 mm $\pm$ 0.9mm (0.10 in. $\pm$ 0.035 in.)
	600 dpi	2.1 mm $\pm$ 1.25 mm (0.08 in. $\pm$ 0.05 in.)	N/A
Barcode modulus (X) dimension			
Picket fence (non-rotated) orientation	203 dpi	4.9 mil to 49 mil	3.3 mil to 39 mil
	300 dpi	3.3 mil to 49 mil	
	600 dpi	1.6 mil to 16 mil	N/A
Ladder (rotated) orientation	203 dpi	4.9 mil to 49 mil	3.9 mil to 39 mil
	300 dpi	3.9 mil to 39 mil	
	600 dpi	1.6 mil to 16 mil	N/A
Vertical registration (203 and 300 dpi)	< 4 ips	$\pm$ 0.30 mm	$\pm$ 1.5 mm
	4 to 6 ips	$\pm$ 0.50 mm	
	> 6 ips	$\pm$ 1.5 mm	
Vertical registration (600 dpi) (1 and 2 ips)	Tear	$\pm$ 0.20 mm	N/A
	Rewind	$\pm$ 0.20 mm	
	Peel	$\pm$ 0.20 mm	

Specifications

		ZT610	ZT620
	Cutter	±0.40 mm	
Vertical registration (600 dpi) (3 to 6 ips)	Tear	±0.43 mm	N/A
	Rewind	±0.37 mm	
	Peel	±0.37 mm	
	Cutter	±0.43 mm	
Horizontal registration		±1.5 mm	±1.5 mm

Media Specifications

		ZT610	ZT620
Label length MINIMUM (200 and 300 dpi)	Non-RFID		
	Tear-off	18 mm (0.7 in.)	18 mm (0.7 in.)
	Peel-off	13 mm (0.5 in.)	13 mm (0.5 in.)
	Rewind	6 mm (0.25 in.)	6 mm (0.25 in.)
	Cutter	38 mm (1.5 in.)	38 mm (1.5 in.)
	RFID	Varies for each transponder type	
Label length MINIMUM (600 dpi)	Non-RFID		
	Tear-off	3 mm (0.125 in.)	N/A
	Peel-off	13 mm (0.5 in.)	
	Rewind	3 mm (0.125 in.)	
	Cutter	38 mm (1.5 in.)	
	RFID	Varies for each transponder type	
Label length MAXIMUM	Non-continuous media	991 mm (39 in.)	991 mm (39 in.)
	Using cutter catch tray	216 mm (8.5 in.)	216 mm (8.5 in.)
MAXIMUM print length (continuous media)	200 dpi	3810 mm (150 in.)	3810 mm (150 in.)
	300 dpi	2540 mm (100 in.)	2032 mm (80 in.)
	600 dpi	762 mm (30 in.)	N/A
MINIMUM label width	Non-RFID	20 mm (0.79 in.)	51 mm (2 in.)
	RFID	Varies for each transponder type	
MAXIMUM label width (label and liner)		114 mm (4.5 in.)	180 mm (7.1 in.)

Specifications

			ZT610	ZT620
Total thickness (includes liner, if any)	MINIMUM		0.076 mm (0.003 in.)	
	MAXIMUM	Cutter	0.23 mm (0.009 in.)	0.18 mm (0.007 in.)
		Other	0.30 mm (0.012 in.)	0.30 mm (0.012 in.)
Maximum roll outside diameter			203 mm (8 in.) — on a 76-mm (3-in.) inside diameter core	
Inter-label gap	MINIMUM		2 mm (0.079 in.)	
	PREFERRED		3 mm (0.118 in.)	
	MAXIMUM		4 mm (0.157 in.)	
Ticket/tag notch size (width x length)			6 mm x 3 mm (0.25 in. x 0.12 in.)	
Sensing hole diameter			3 mm (0.125 in.)	
Black mark density, in Optical Density Units (ODU) (black mark)			> 1.0 ODU	
MAXIMUM black mark media density			0.5 ODU	
Black mark length (parallel to inside media edge)			3 mm to 11 mm (0.12 in. to 0.43 in.)	
Black mark width (perpendicular to inside media edge)			> 11 mm (> 0.43 in.)	
Black mark location			Within 1 mm (0.040 in.) of inside media edge	

Ribbon Specifications

Standard printers use ribbon that is coated on the outside. An optional ribbon spindle is available to use ribbon that is coated on the inside. Contact your authorized Zebra reseller for ordering information.

	ZT610	ZT620
Ribbon width MINIMUM*	20 mm** (0.79 in.**)	51 mm** (2 in.)
Ribbon width MAXIMUM	110 mm (4.33 in.)	170 mm (6.7 in.)
Ribbon length MAXIMUM	450 m (1476 ft.)	
Ribbon core inside diameter	25 mm (1 in.)	
Ribbon roll outside diameter MAXIMUM	81.3 mm (3.2 in.)	

**NOTE:**

* Zebra recommends using ribbon that is at least as wide as the media to protect the printhead from wear.

** Depending on your application, you may be able to use ribbon narrower than 51 mm (2 in.), as long as the ribbon is wider than the media being used. To use a narrower ribbon, test the ribbon's performance with your media to assure that you get the desired results.

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
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.

ZT610 600 dpi Micro Label Printer

This section provides information specific to the ZT610 600 dpi Micro Label Printer. You can purchase the ZT610 600 dpi Micro Label Printer option preinstalled on a new printer from Zebra, or you can have it installed on an existing ZT610 600 dpi printer by a qualified service technician.

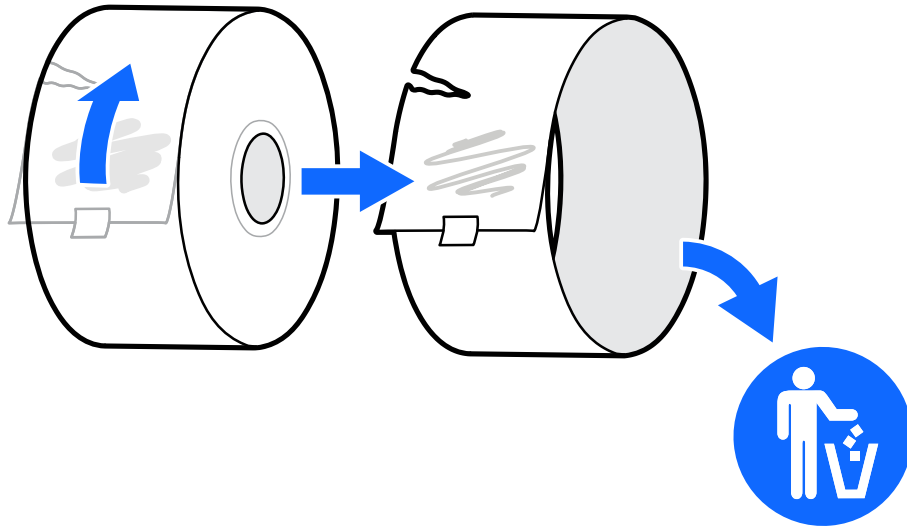
Preparing the Printer for Precision Printing

Preparing the printer involves installing the printer drivers, updating the printer firmware, loading ribbon (if used), and then installing the media on the media spindle.

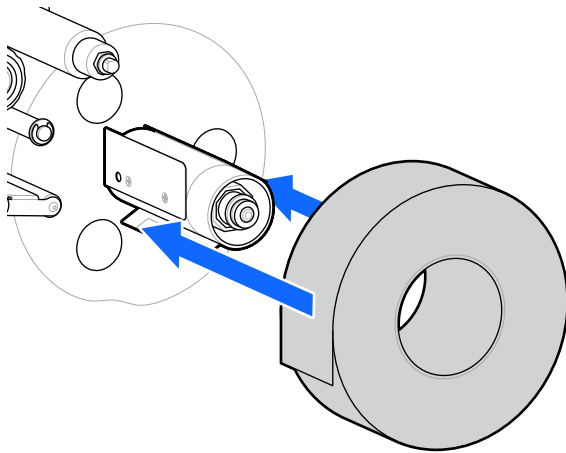
1. If you have not already done so, install the printer drivers on your computer. See [Installing the Drivers](#).
2. If necessary, update the printer firmware to the latest version. Go to zebra.com/zt610-info and click **Downloads > Firmware**.
3. Does the media that you are using require ribbon for printing? If you are not sure, go to [Ribbon](#) on page 8.

If using...	Then...
Direct Thermal media (no ribbon needed)	Continue to the next step in this procedure.
Thermal Transfer media (ribbon needed)	If you have not already done so, load ribbon in the printer. See Loading the Ribbon on page 55. Then continue to the next step in this procedure.

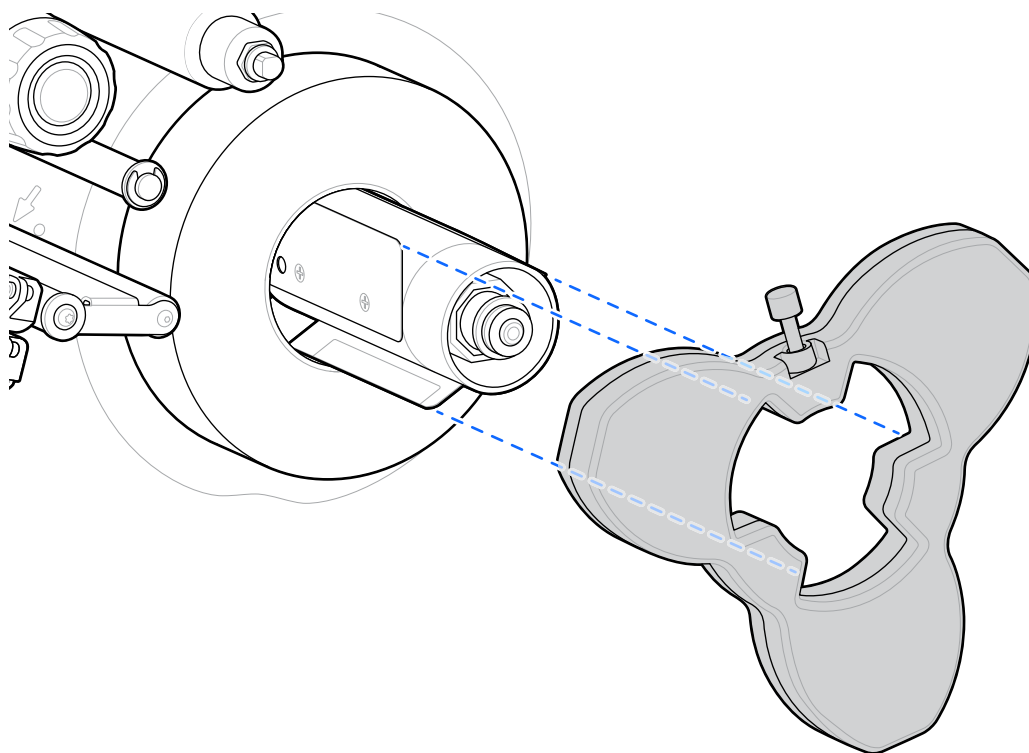
4. Remove and discard any tags or labels that are torn or dirty or that are held by adhesives or tape.



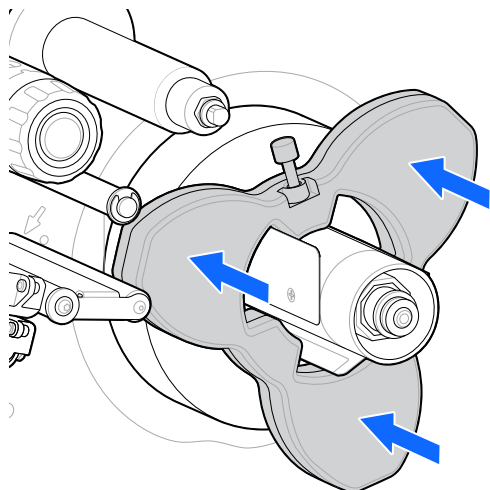
5. Loosen the screw on the media holder attached to the media spindle.
6. Remove the media holder from the media spindle.
7. Place the roll on the media supply spindle and push the roll as far back as it will go.



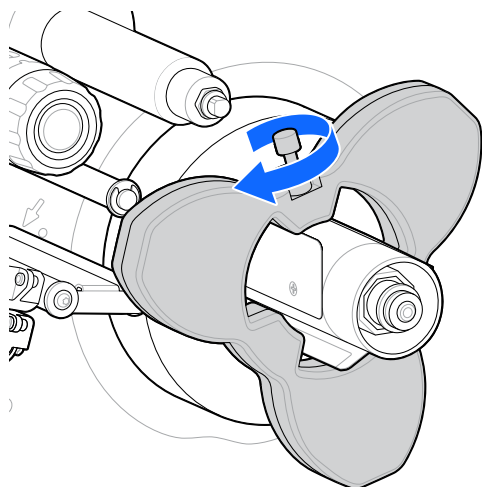
8. Align the groove on the media holder with the ribs on the media spindle.



9. Push the media holder inward until it is snug against the media.



10. Tighten the screw on the media holder.

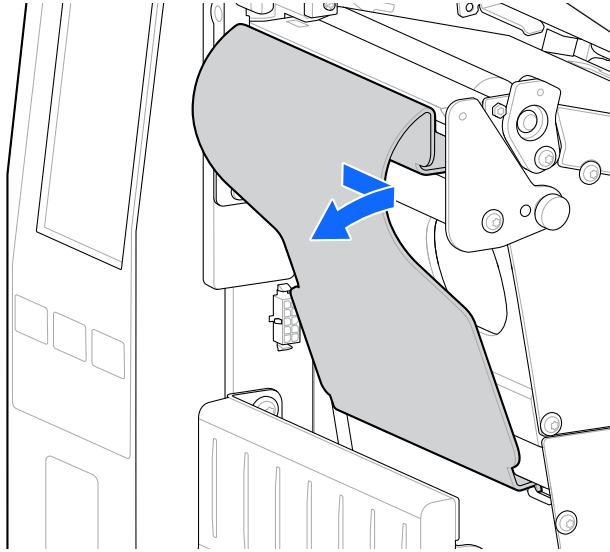


11. Install the peel plate or rewind plate, if needed. For Tear mode, either plate can be installed.
 - [Installing the Peel Plate](#)
 - [Installing the Rewind Plate](#)
12. Configure the printer with the correct settings. See [Configuring the Printer Parameters for Precision Printing](#).

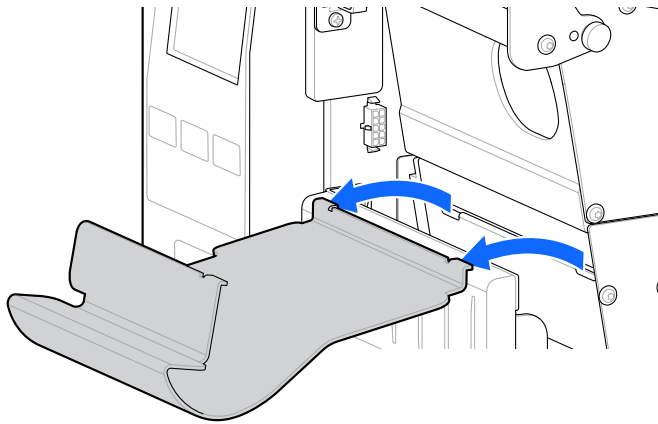
Installing the Peel Plate

Use this procedure to install the peel plate for Peel mode.

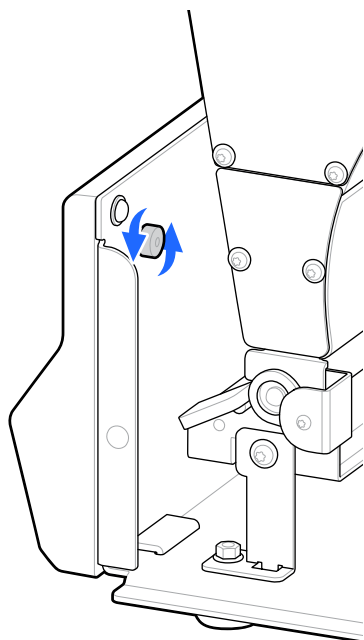
1. If the rewind plate is installed, remove it from the printer.
 - a) Slide the rewind plate to the right to disengage the top.



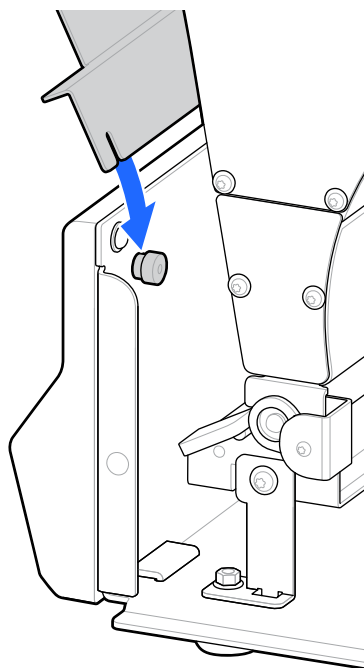
- b) Rotate the rewind plate to disengage the tabs on the bottom, and remove the plate from the printer.



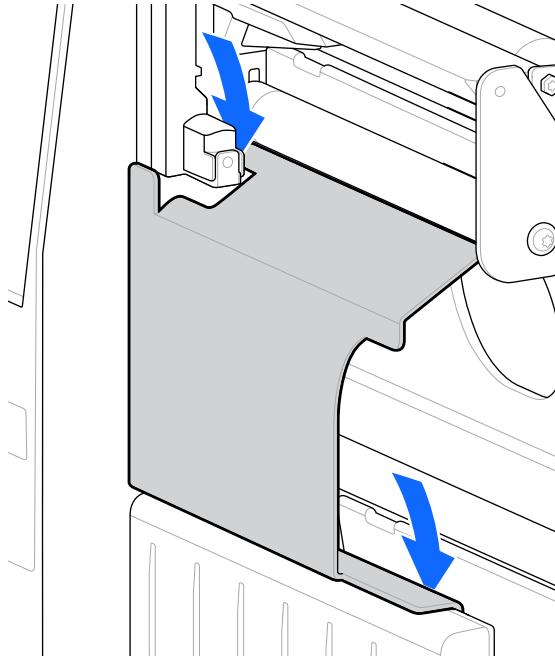
2. Loosen the peel plate mounting screw.



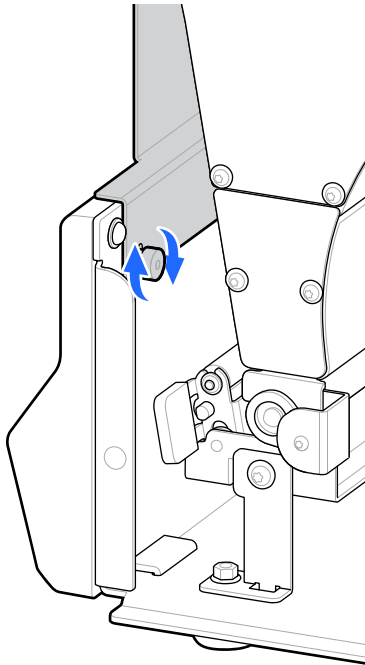
3. Slide the slot of the peel plate onto the screw.



- 4.** Slip the hole on the right side of the peel plate over the projection on the tear bar plate.



- 5.** Tighten the peel plate mounting screw.

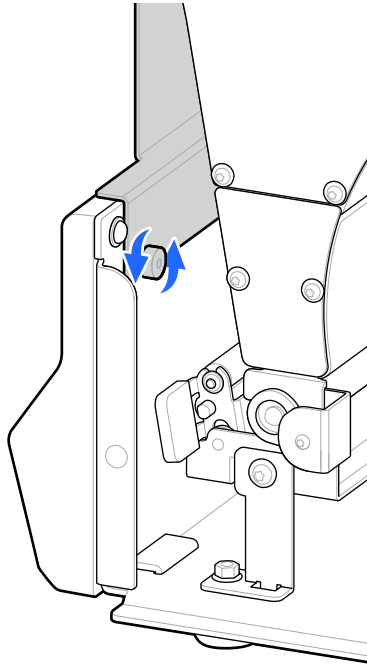


Installing the Rewind Plate

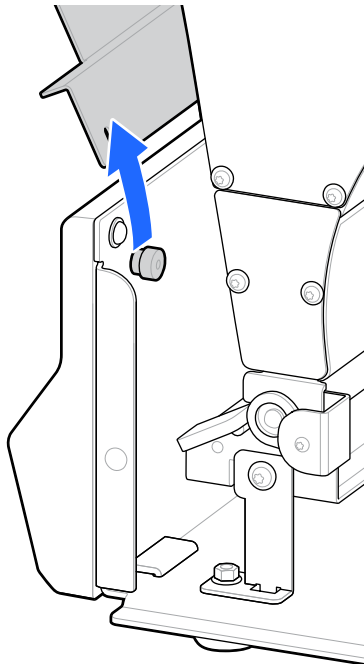
Use this procedure to install the rewind plate for Rewind mode.

1. If the peel plate is installed, remove it from the printer.

- a) Loosen the mounting screw.

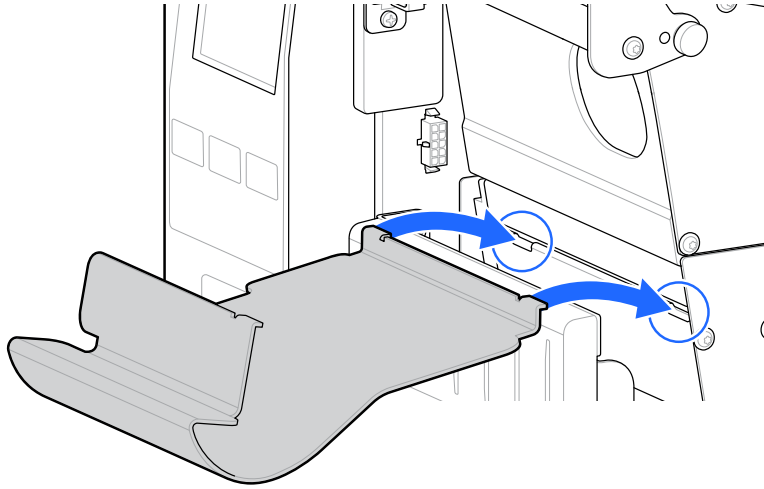


- b) Remove the peel plate.

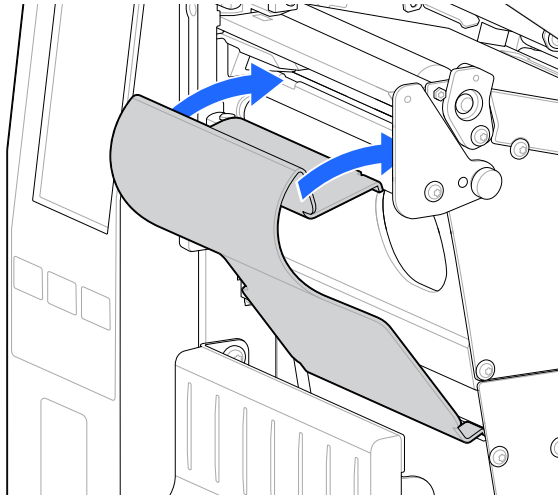


- c) Tighten the mounting screw.

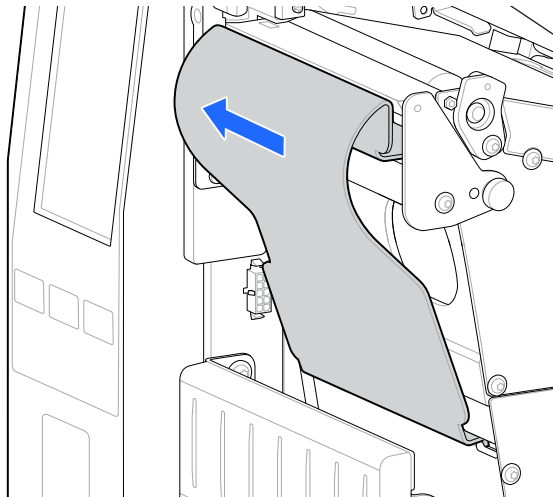
- 2.** Insert the hooks on the bottom end of the rewind plate into the slots on the lower print mechanism.



- 3.** Rotate the rewind plate up until it engages with the print mechanism.



- 4.** Slide the rewind plate to the left to lock it into place.



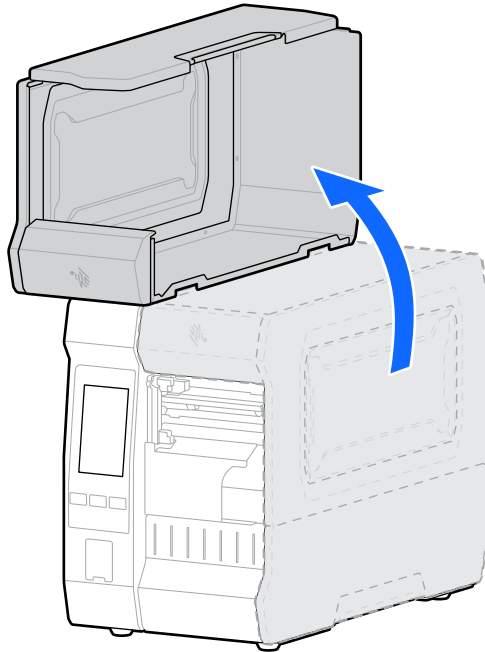
Loading Media for Precision Printing

Use the instructions in this section to load roll media for the media handling method you plan to use. The options for use on the ZT610 600 dpi Micro Label Printer are Tear Off, Peel Off, and Rewind.

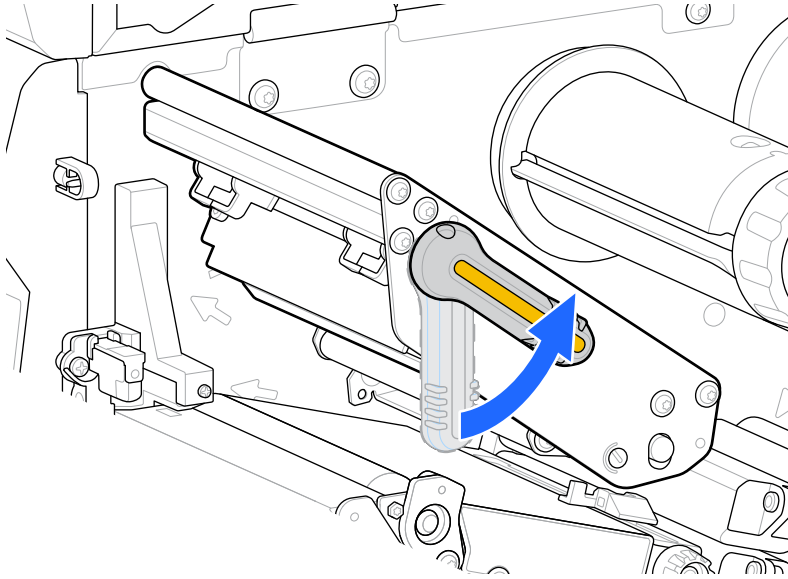
Tear Off Mode

Follow the instructions in this section to load media in Tear Off mode on a ZT610 printer with the 600 dpi micro-label option. In this mode, each label or batch of labels is torn off from the media roll after printing.

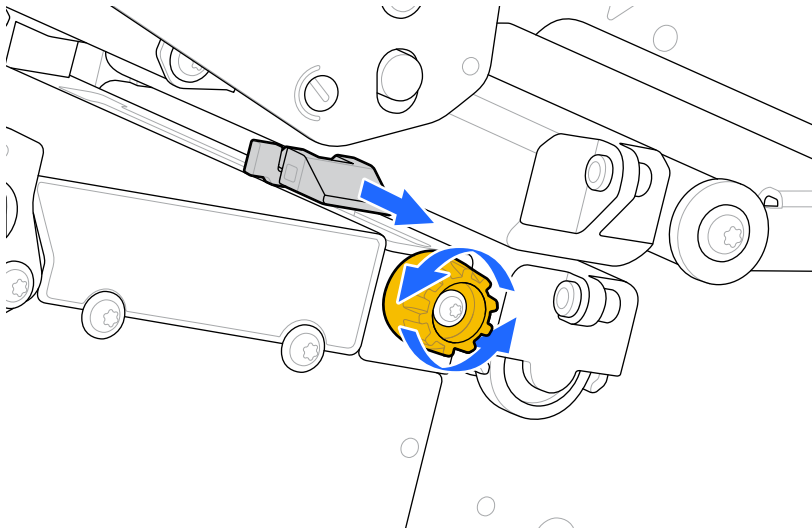
1. If you have not already done so, follow the instructions in [Preparing the Printer for Precision Printing](#).
2. Raise the media door.



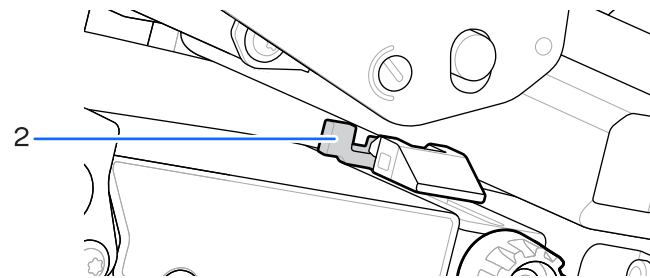
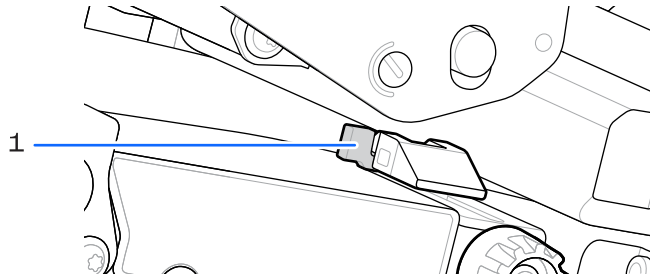
3. Open the printhead assembly.



4. Rotate the media guide adjustment knob to fully extend the guide.

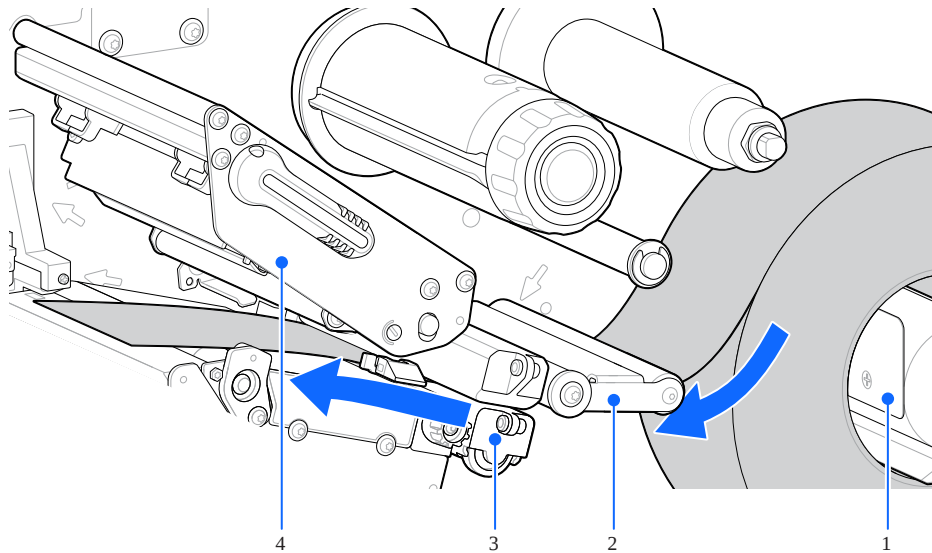


5. For most media, retract the extender on the media guide (1). For very narrow widths, expand it (2).

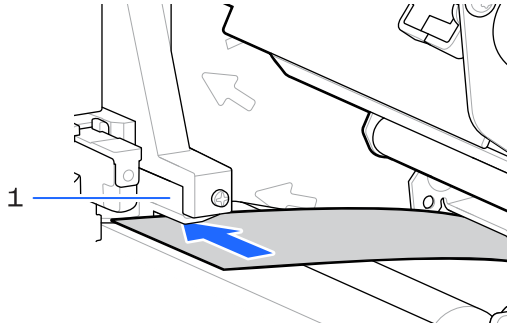


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

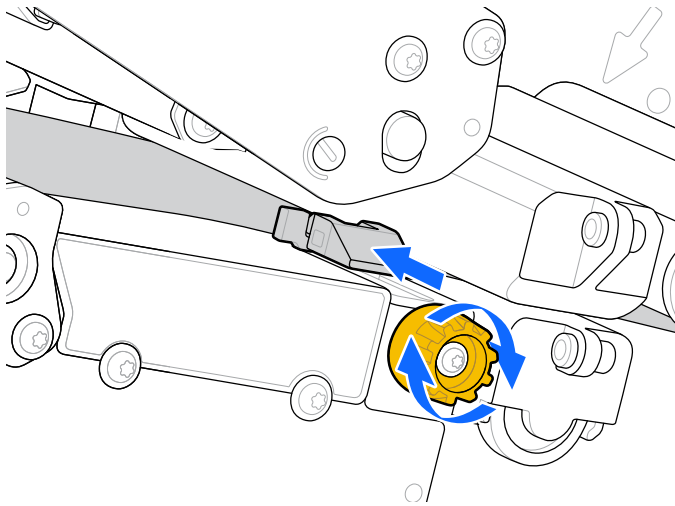
From the media spindle (1), feed the media under the dancer assembly (2), through the media sensor (3), and under the printhead assembly (4). Slide the media back until it touches the inside back wall of the media sensor.



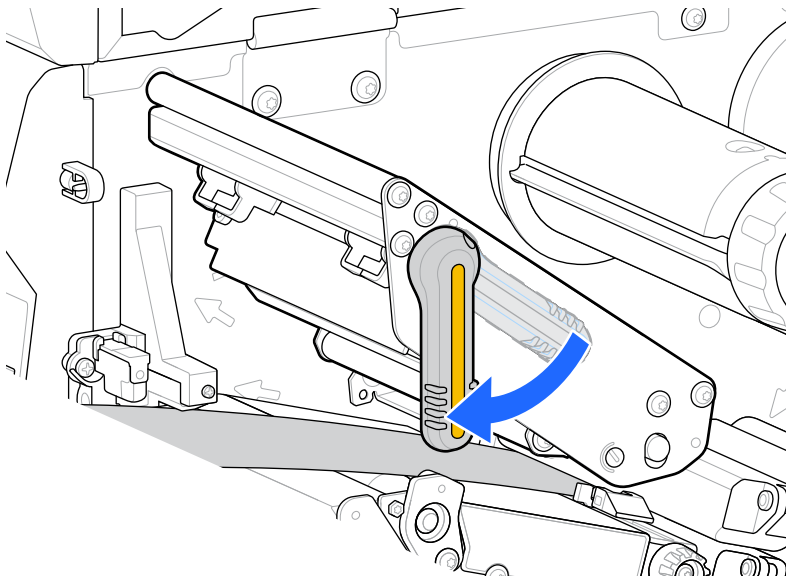
7. Guide the media under the front media sensor (1).



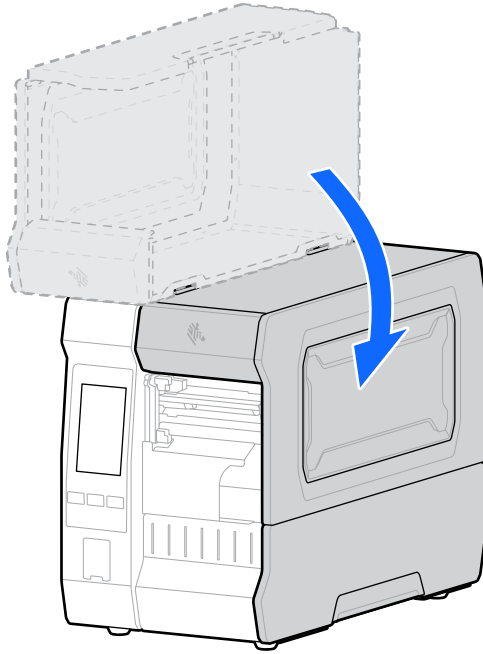
8. Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



9. Close the printhead assembly.



10. Close the media door.

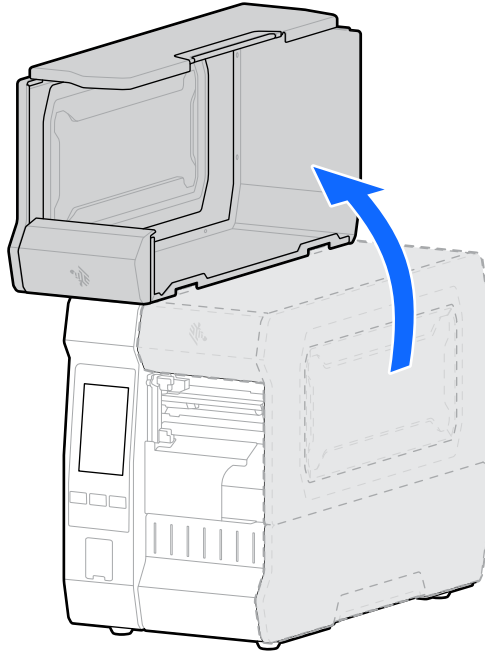


11. Configure the printer with the correct settings. See [Configuring the Printer Parameters for Precision Printing](#).
12. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
13. If desired, print a configuration or other label to verify that your printer is able to print. See **System > Settings > Print: System Settings** in [System Menu](#).

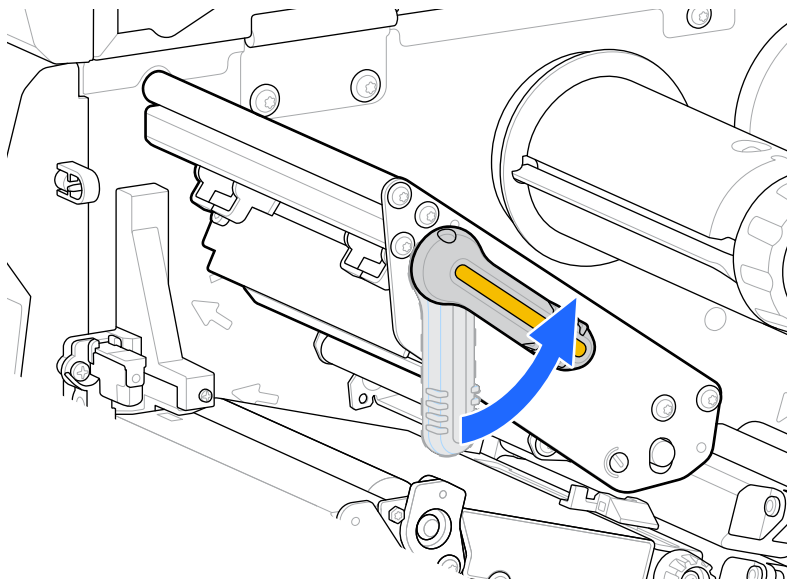
Peel Off Mode

Follow the instructions in this section to load media in Peel Off mode on a ZT610 printer with the 600 dpi micro-label option. In this mode, the labels peel from the media liner as they pass over the peel roller, and the printer stops after each label. Remove the label presented to move to the next one.

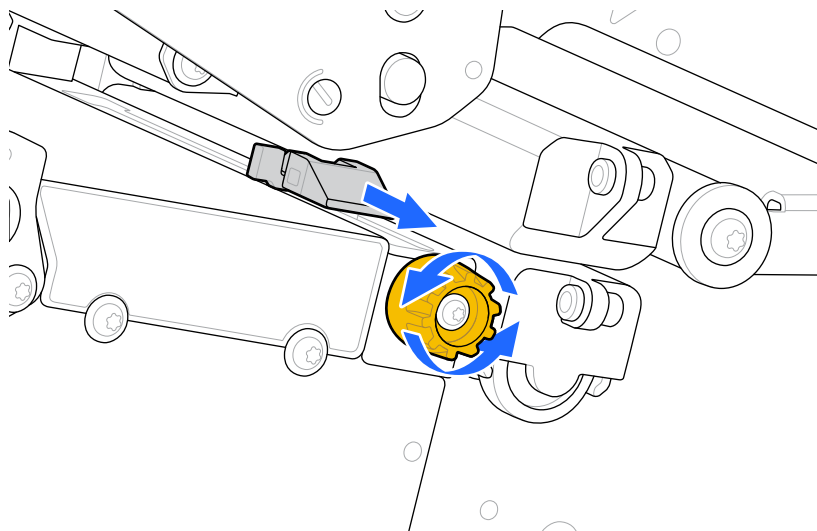
1. If you have not already done so, follow the instructions in [Preparing the Printer for Precision Printing](#).
2. Raise the media door.



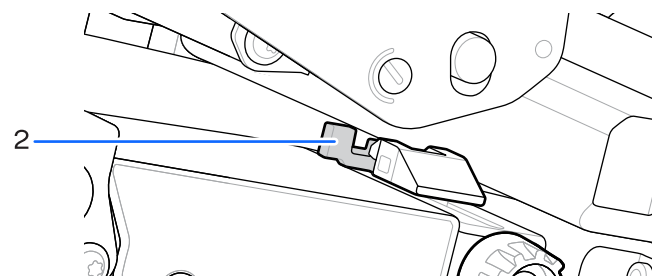
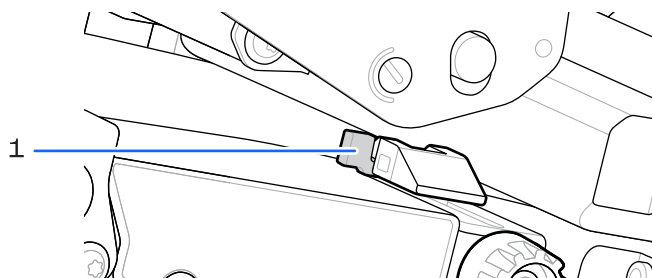
3. Open the printhead assembly.



- 4.** Rotate the media guide adjustment knob to fully extend the guide.



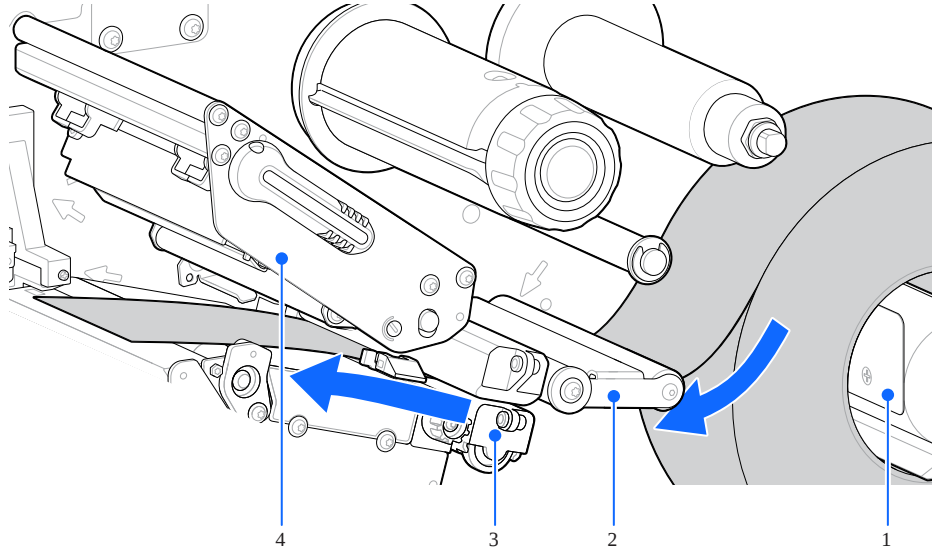
- 5.** For most media, retract the extender on the media guide (1). For very narrow widths, expand it (2).



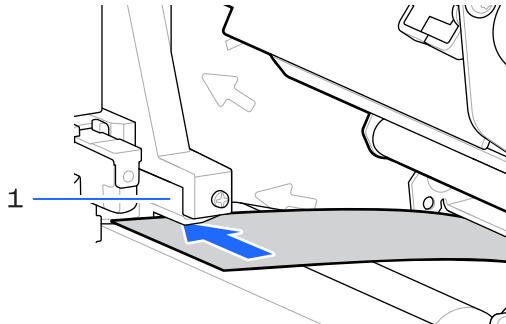


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

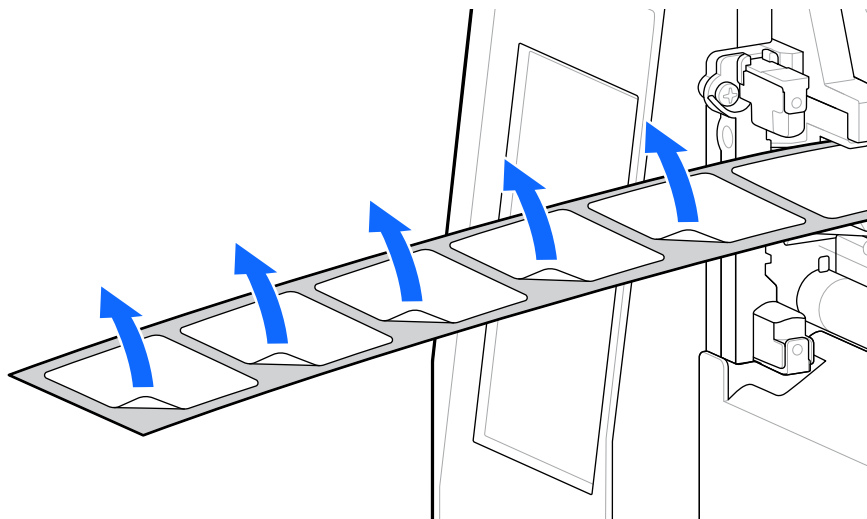
From the media spindle (1), feed the media under the dancer assembly (2), through the media sensor (3), and under the printhead assembly (4). Slide the media back until it touches the inside back wall of the media sensor.



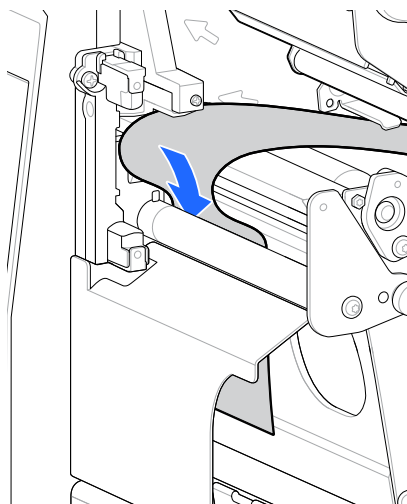
7. Guide the media under the front media sensor (1).



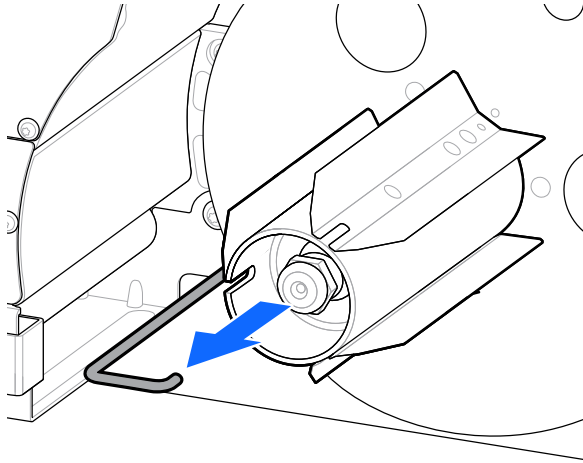
8. Extend approximately 24 in. (610 mm) of media out of the printer. Remove and discard the labels from this exposed media, leaving just the liner.



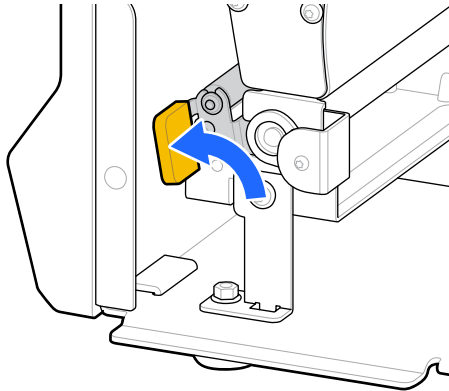
9. Guide the media liner behind the peel rod.



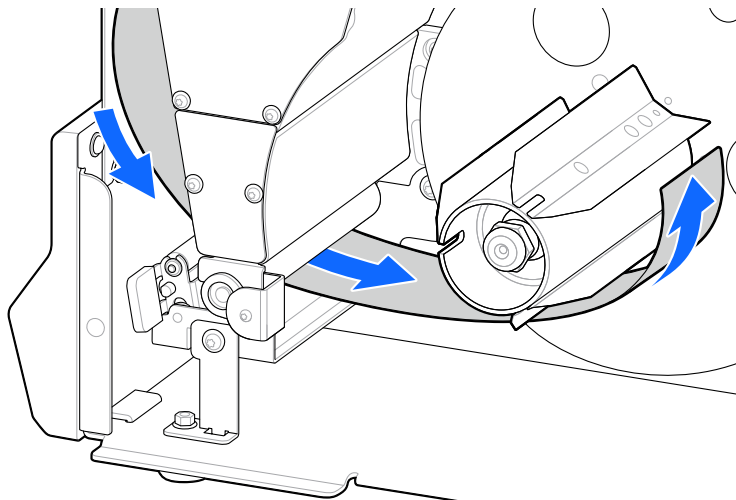
- 10.** Remove the hook from the rewind spindle.



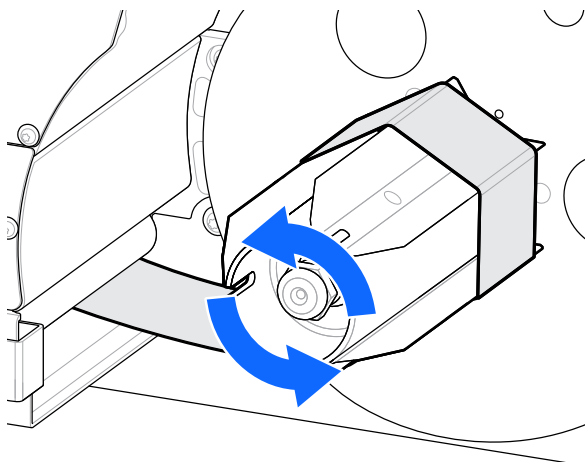
- 11.** Open the rewind pinch roller assembly.



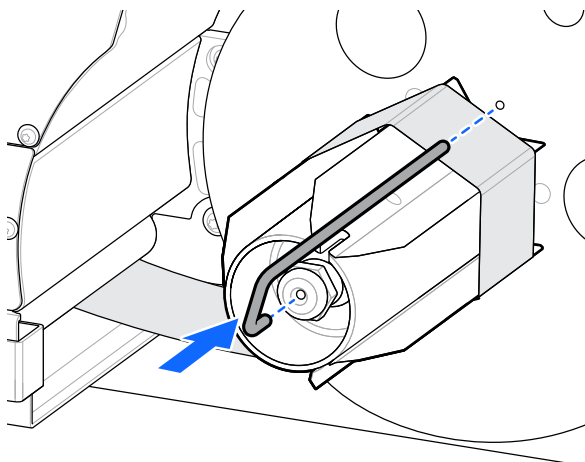
- 12.** Thread the liner between the rollers in the rewind pinch roller assembly, and then wind the liner around the rewind spindle.



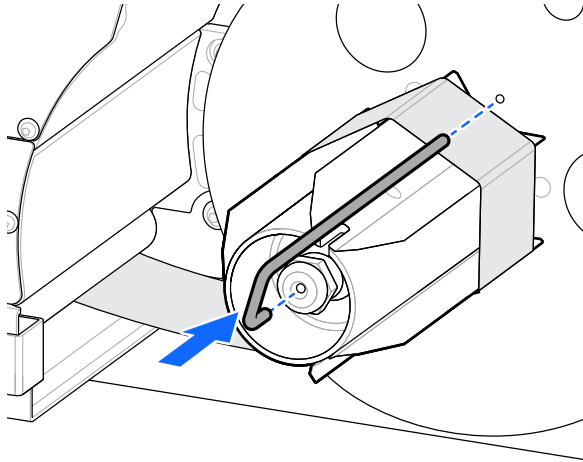
- 13.** Rotate the rewind spindle to create tension on the liner.



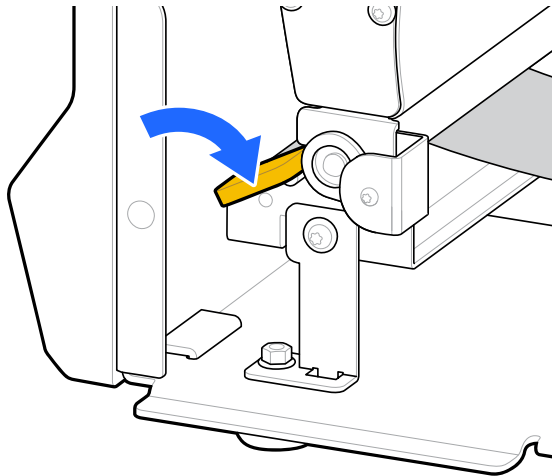
- 14.** Locate the slot on the edge of the rewind spindle.



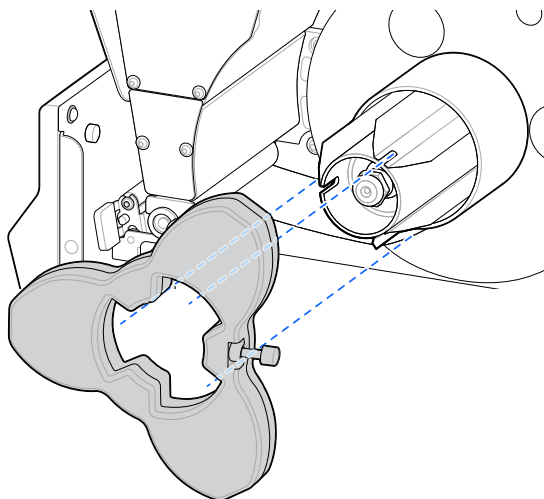
- 15.** To secure the liner in place, insert the long end of the spindle hook into the small hole on the rewind spindle guide plate and the short end into the hole in the center of the adjusting nut.



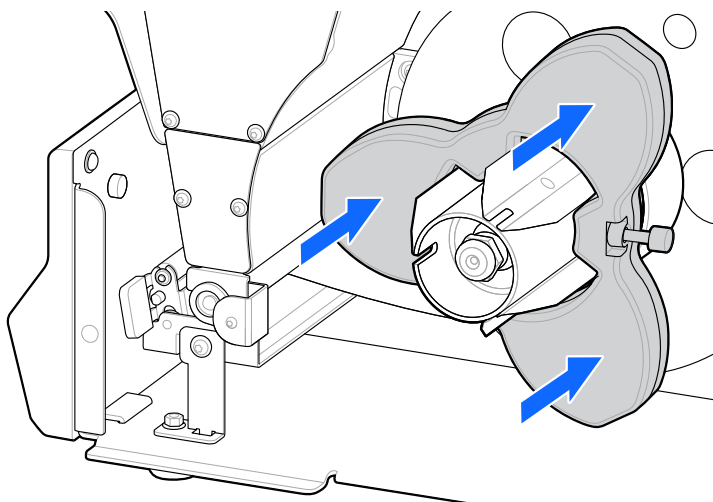
- 16.** Close the rewind pinch roller assembly.



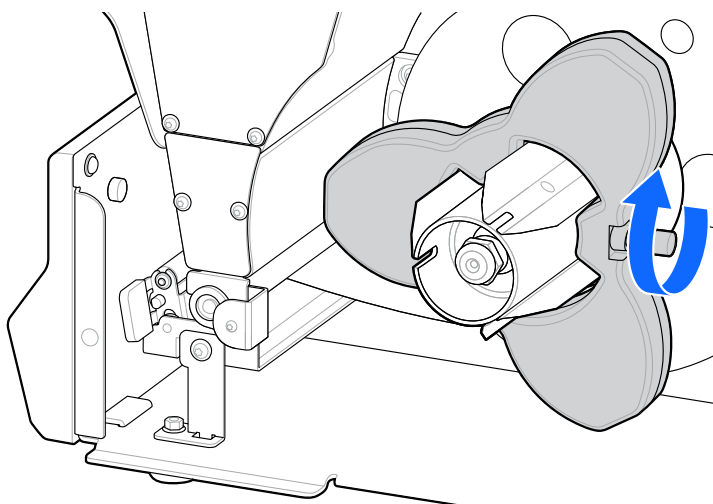
- 17.** Align the groove on the media holder with the ribs on the rewind spindle.



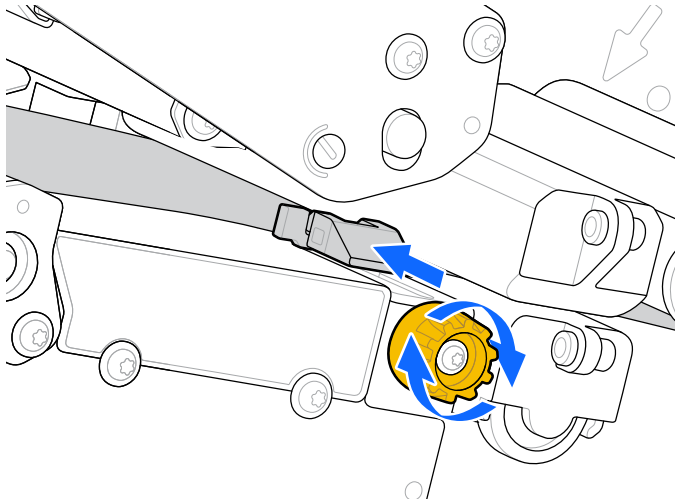
- 18.** Push the media holder inward until it just touches the liner.



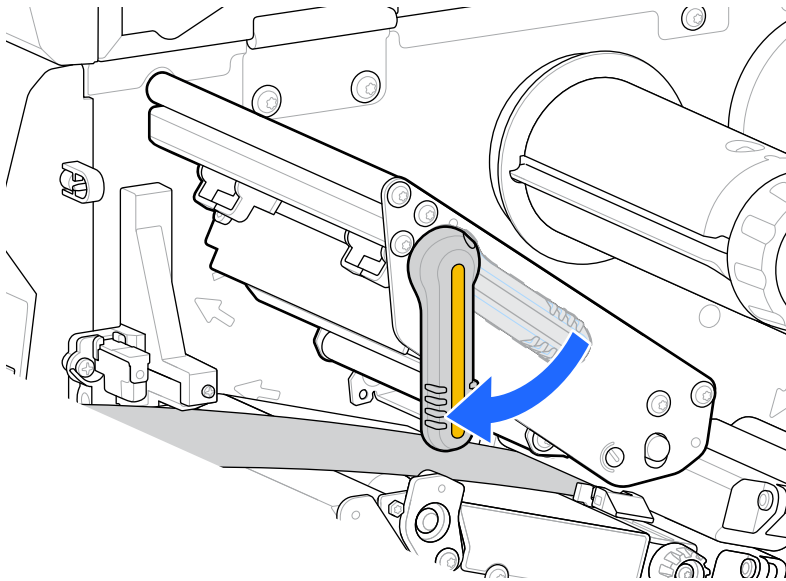
- 19.** Tighten the screw on the media holder.



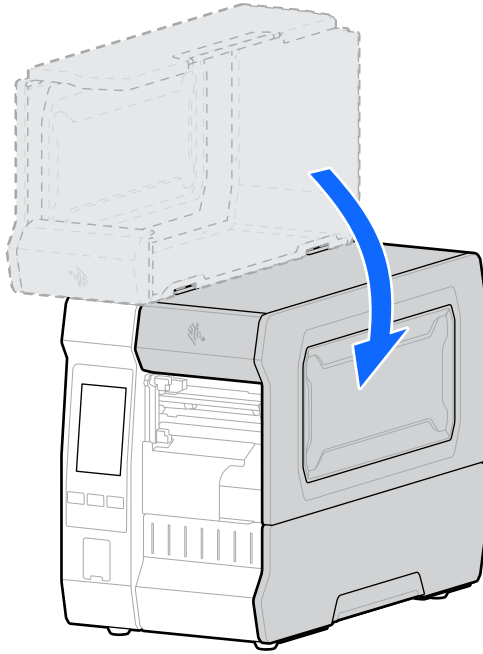
- 20.** Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



- 21.** Close the printhead assembly.



22. Close the media door.

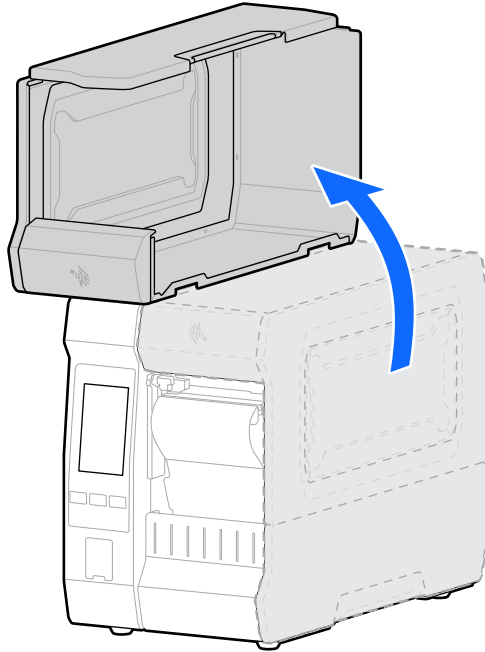


23. Configure the printer with the correct settings. See [Configuring the Printer Parameters for Precision Printing](#).
24. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
25. If desired, print a configuration or other label to verify that your printer is able to print. See **System** > **Settings** > **Print: System Settings** in [System Menu](#).

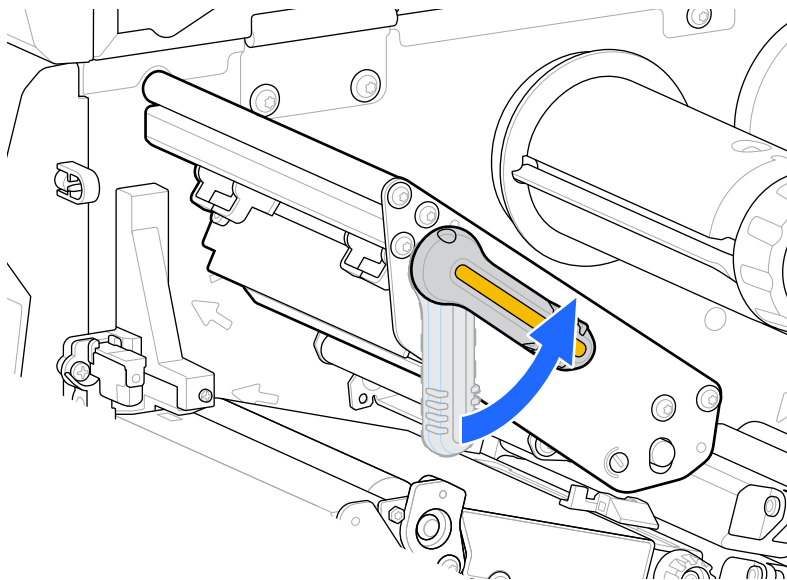
Rewind Mode

Follow the instructions in this section to load media in Rewind mode on a ZT610 printer with the 600 dpi micro-label option. In this mode, the media winds onto a core on the rewind spindle after the labels are printed.

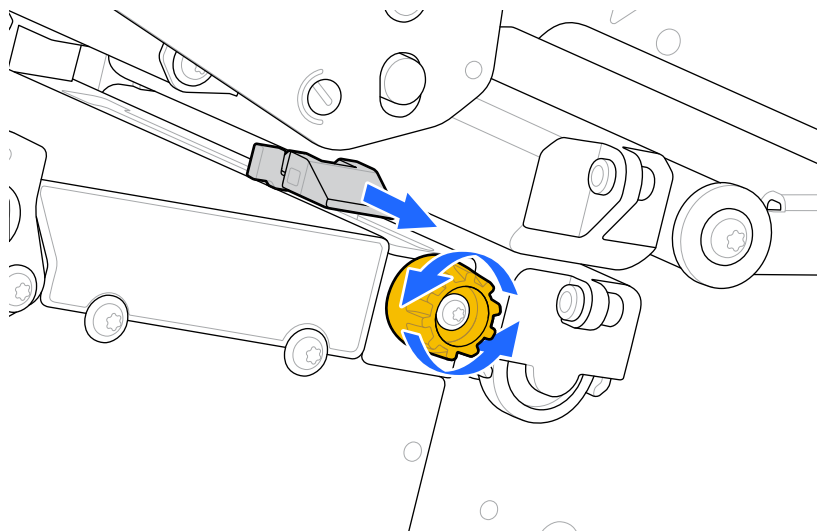
1. If you have not already done so, follow the instructions in [Preparing the Printer for Precision Printing](#).
2. Raise the media door.



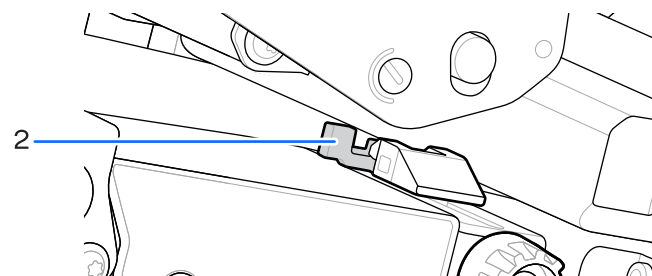
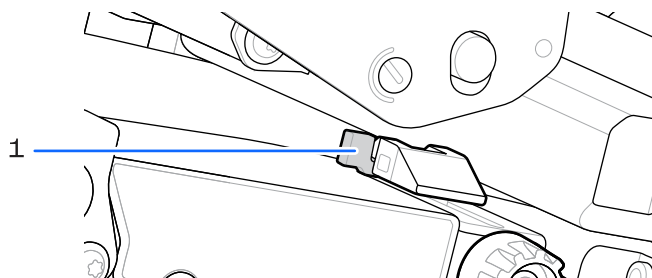
3. Open the printhead assembly.



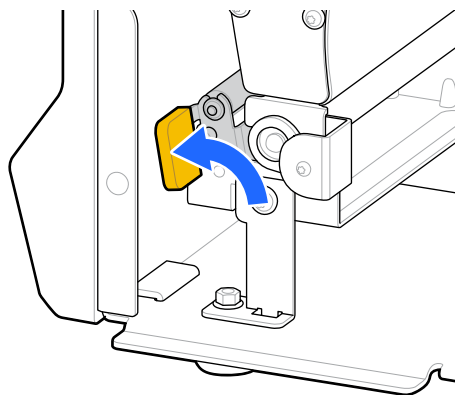
- 4.** Rotate the media guide adjustment knob to fully extend the guide.



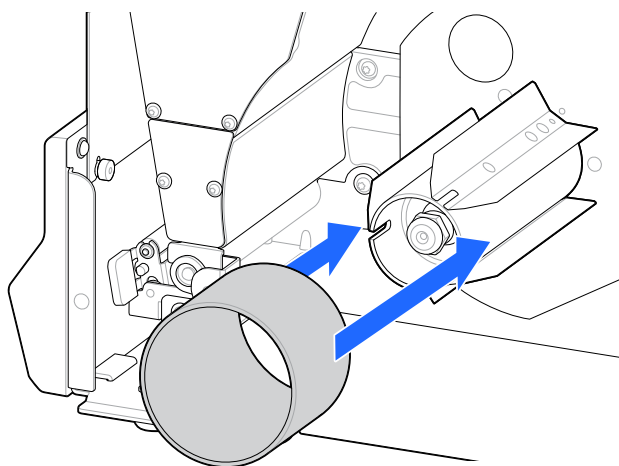
- 5.** For most media, retract the extender on the media guide (1). For very narrow widths, expand it (2).



6. Open the rewind pinch roller assembly.



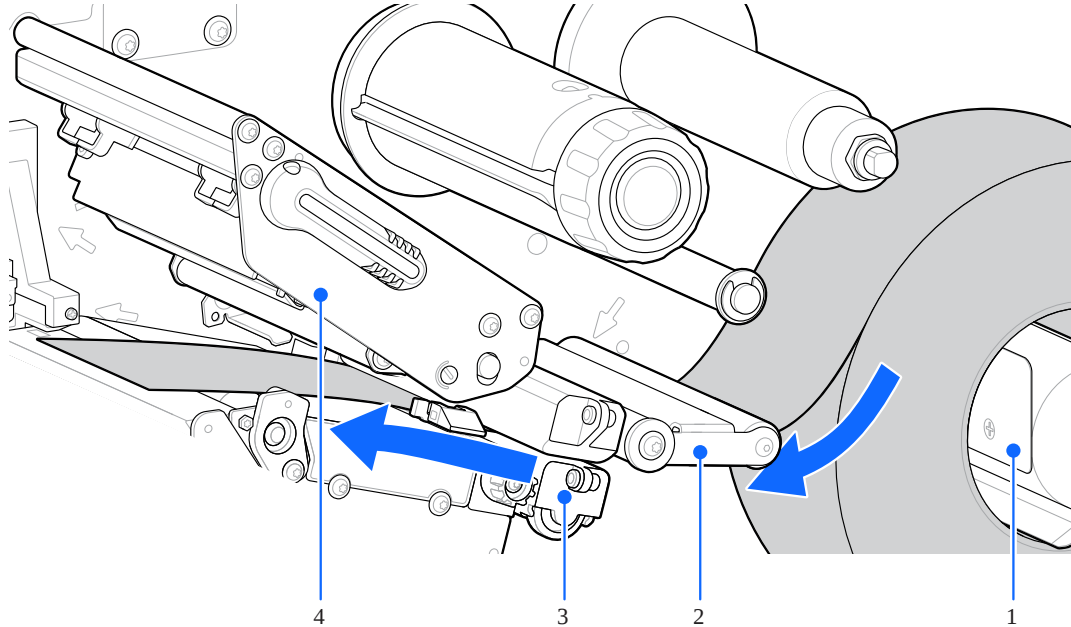
7. Slide a core onto the rewind spindle until it is flush against the guide plate.



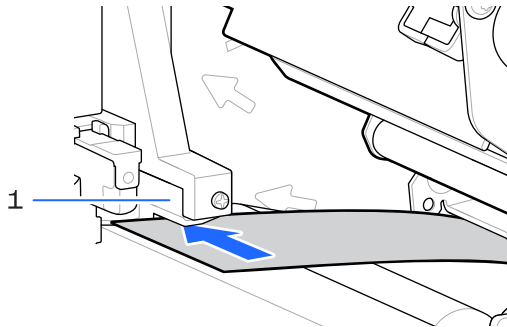


CAUTION—HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

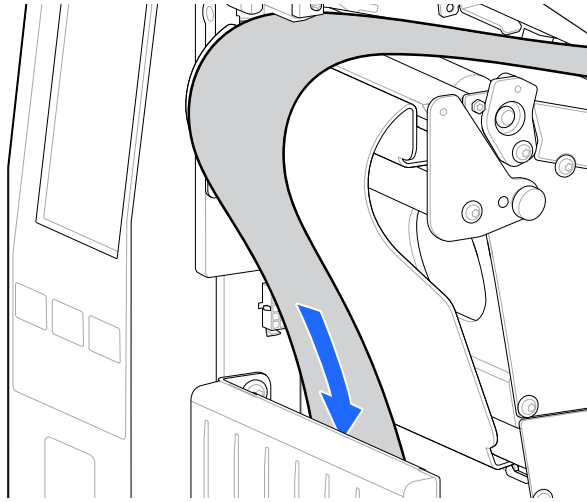
From the media spindle (1), feed the media under the dancer assembly (2), through the media sensor (3), and under the printhead assembly (4). Slide the media back until it touches the inside back wall of the media sensor.



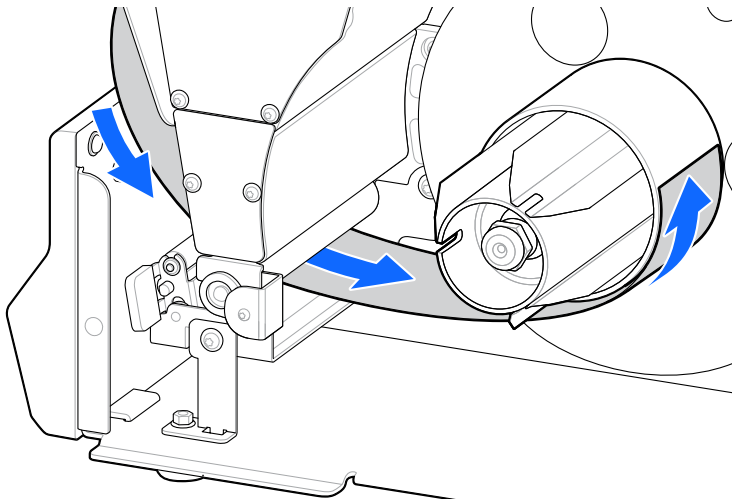
9. Guide the media under the front media sensor (1).



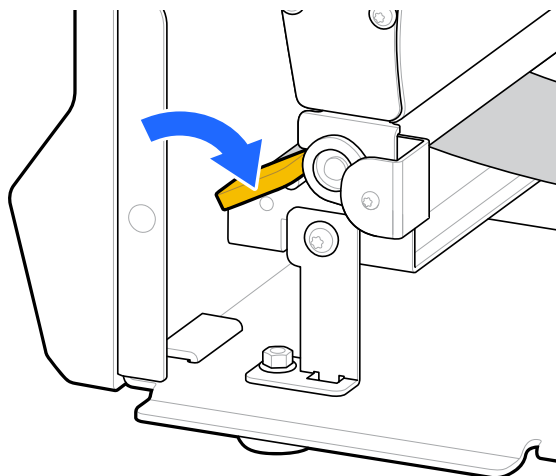
10. Guide the media over the rewind plate and thread it into the printer base.



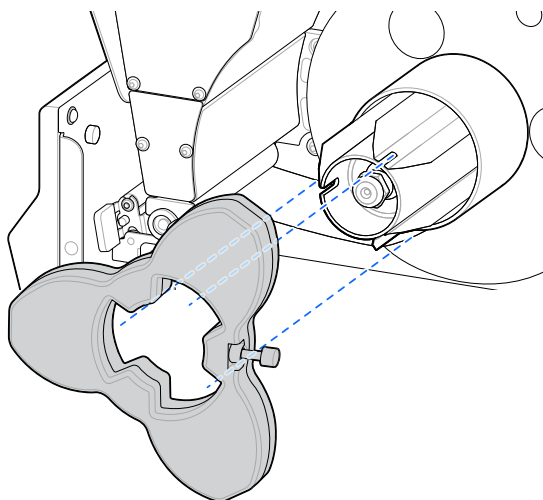
11. Thread the media between the rollers in the rewind pinch roller assembly, and then wind the media around the rewind spindle. Rotate the rewind spindle several turns to tighten the media and remove any slack.



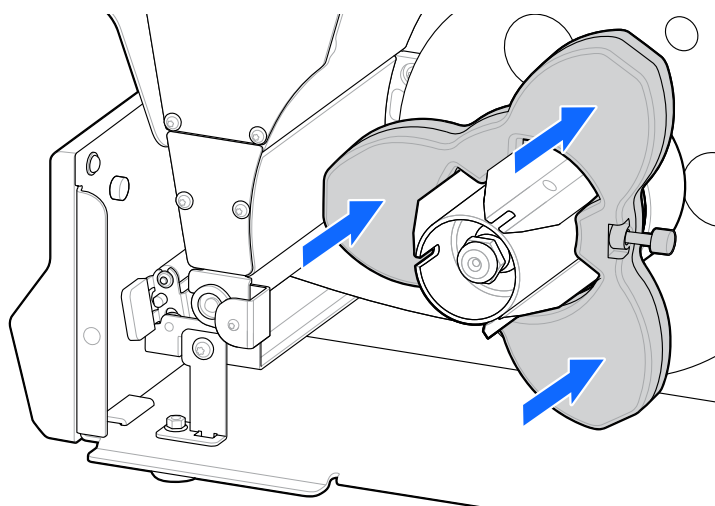
- 12.** Close the rewind pinch roller assembly.



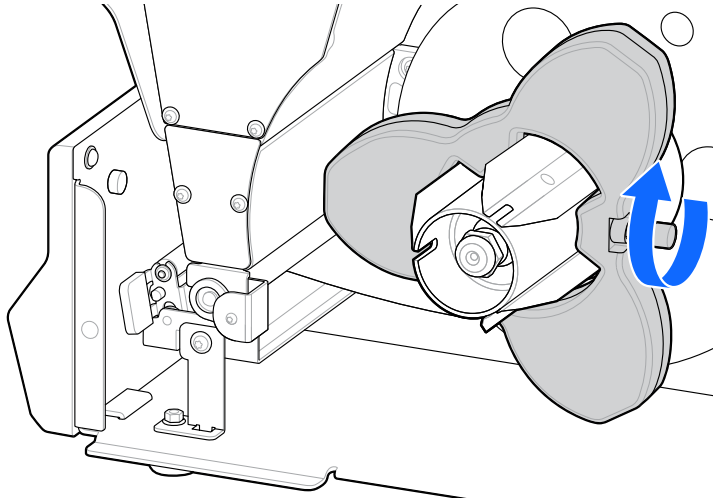
- 13.** Align the groove on the media holder with the ribs on the rewind spindle.



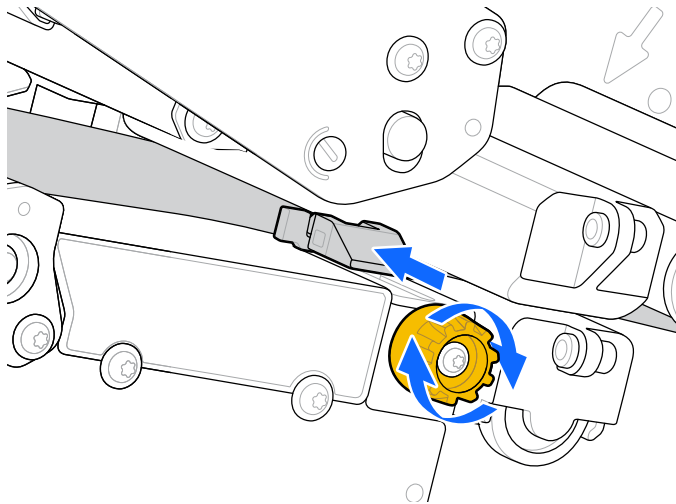
- 14.** Push the media holder inward until it just touches the media.



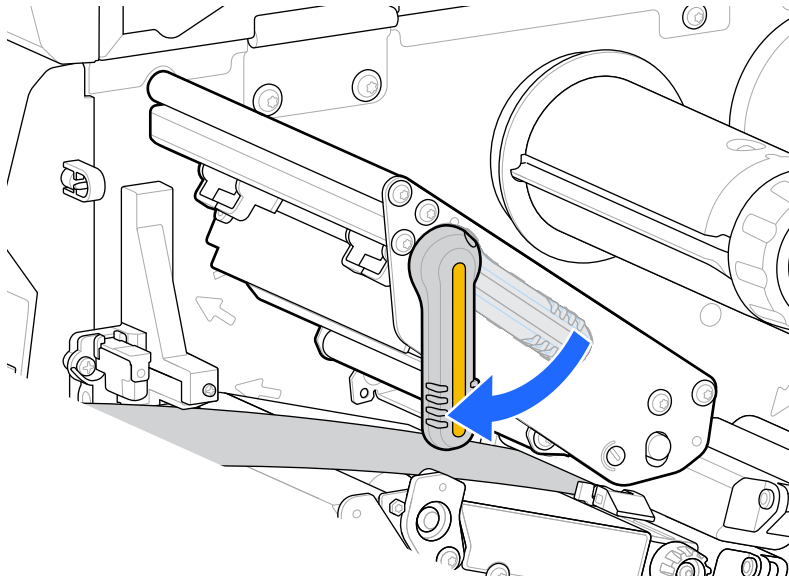
- 15.** Tighten the screw on the media holder.



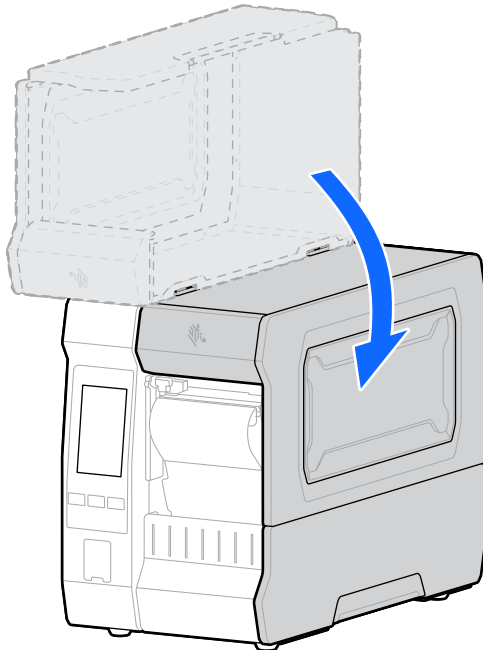
- 16.** Rotate the media guide adjustment knob as shown until the media guide just touches the edge of the media.



17. Close the printhead assembly.



18. Close the media door.



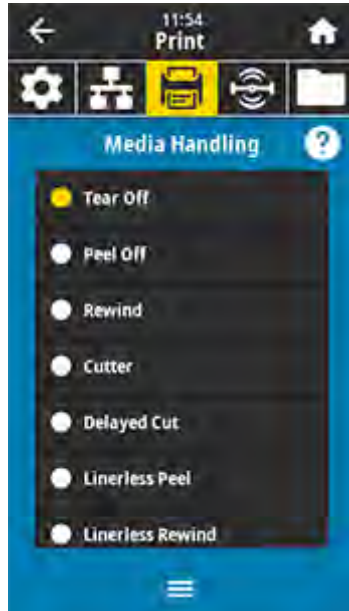
19. Configure the printer with the correct settings. See [Configuring the Printer Parameters for Precision Printing](#).
20. For best results, calibrate the printer. See [Calibrating the Ribbon and Media Sensors](#) on page 116.
21. If desired, print a configuration or other label to verify that your printer is able to print. See **System > Settings > Print: System Settings** in [System Menu](#).

Configuring the Printer Parameters for Precision Printing

To use the precision printing feature, configure your printer appropriately.

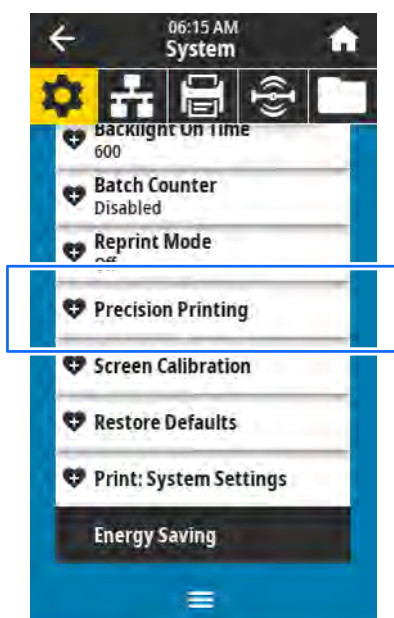
The printer performs an autocalibration when you set it for Precision printing, so install media and ribbon (if used) before you complete these steps.

1. Touch **Menu > Print > Image Adjust > Media Handling**.

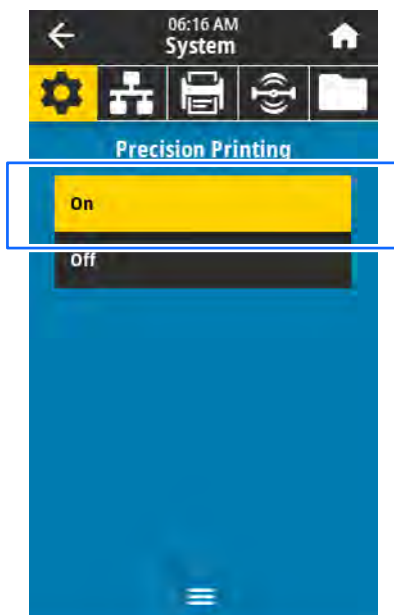


2. Select one of the following printer options based on how you loaded the media:
 - **Tear Off**
 - **Peel Off**
 - **Rewind**

3. Touch **System > Settings > Precision Printing**.

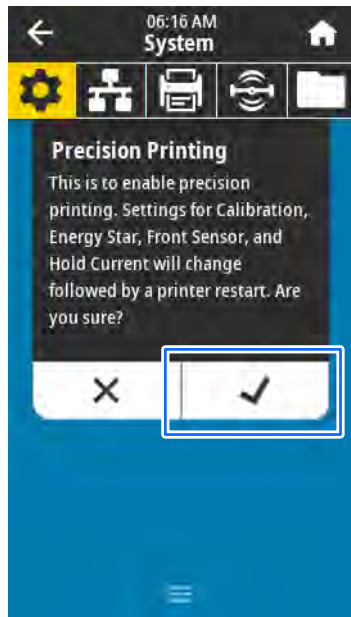


4. Touch **On**.



The printer warns you that all current calibrations will be reset upon restart.

5. Touch the checkmark to confirm.



The printer restarts and performs an autocalibration.

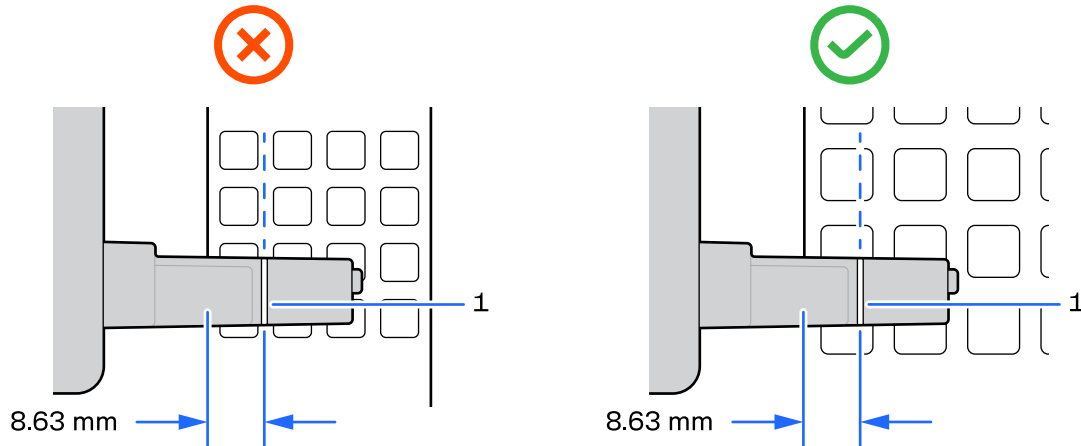
ZT610 600 dpi Micro Label Specifications

This section lists specifications that are unique to the ZT610 600 dpi Micro Label printer.

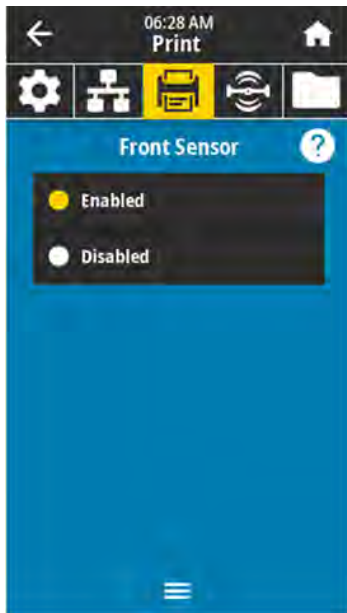
Label Design



NOTE: For proper media detection, labels must be present at a distance of 8.63 mm from the media's edge. This corresponds to the location of the front media gap sensor (1) as the media passes under it. If there are no labels at this distance, the sensor will not be able to detect the labels on this specific media.



If necessary, touch **Menu > Sensors > Front Sensor** and disable the front sensor.



Specifications

Media and Ribbon Specifications for the ZT610 600 dpi Micro Label Printer*	
Media width (label and liner)	12 mm (0.47 in.) to 114 mm (4.5 in.) For smaller widths, contact your Zebra sales representative.
Minimum label length	• Tear and Rewind modes: 3 mm (0.12 in.) • Peel mode: 6 mm (0.24 in.)
Ribbon width	20 mm (0.79 in.) to 110 mm (4.33 in.)

* For all other ZT610 specifications, go to [Specifications](#).

Cleaning Intervals and Procedures

Routine preventive maintenance is a crucial part of normal printer operation. By taking good care of your printer, you can minimize potential problems and achieve/maintain the desired print quality standards.

Over time, the movement of media or ribbon across the printhead wears through the protective ceramic coating, exposing and eventually damaging the print elements (dots). To avoid abrasion:

- Clean the printhead frequently.
- Minimize printhead pressure and burn temperature (darkness) settings by optimizing the balance between the two.
- When using Thermal Transfer mode, ensure that the ribbon is either as wide or wider than the media. This is to avoid exposing printhead elements to the more abrasive label material.



IMPORTANT: Zebra is not responsible for damage caused by the use of cleaning fluids on this printer.

Specific cleaning procedures are included in this section. Follow the recommended cleaning schedule listed in the table below.



NOTE: These recommended cleaning intervals are intended as guidelines only. You may have to clean more often depending on your specific application and the media you use for printing.

Table 6 Recommended Cleaning Schedule

Area	Method	Interval
Printhead	Solvent*	Direct Thermal Mode: After every roll of media. Thermal Transfer Mode: After every roll of ribbon.
Platen roller (standard, white)	Solvent*	
Media sensors	Air blow	
Ribbon sensor	Air blow	
Media path	Solvent*	
Ribbon path	Solvent*	
Peel rod and rewind pinch roller assembly	Solvent*	Every three rolls of media.
Tear-off/peel-off bar	Solvent*	Once a month.
Take-label sensor	Air blow	Once every six months.
 NOTE: * Zebra recommends using the Preventive Maintenance Kit (p/n 47362 or p/n 105950-035 - multipack). In place of the Preventive Maintenance Kit, you may use a swab or a lint-free cloth dipped in 99.7% isopropyl alcohol.		

Cleaning the Printhead and Rollers

Inconsistent print quality, such as voids in the barcode or graphics, may indicate a dirty printhead. For the recommended cleaning schedule, see [Cleaning Intervals and Procedures](#).



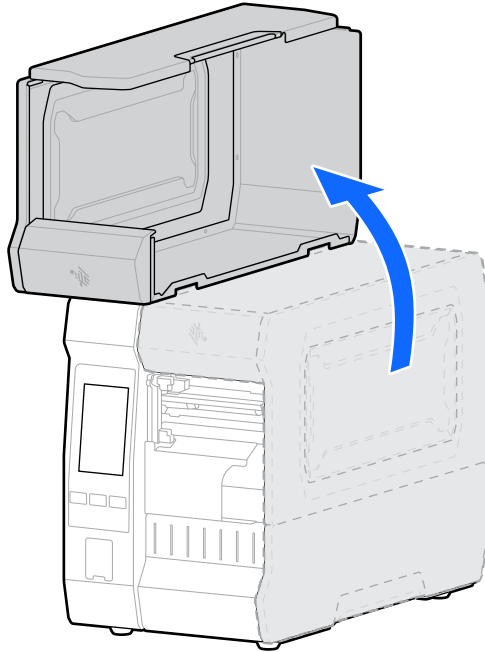
IMPORTANT: While you are not required to turn off printer power when working near an open printhead, Zebra recommends it as a precaution.

If you turn off power, you will lose all temporary settings, such as label formats, and you must reload them before you resume printing.



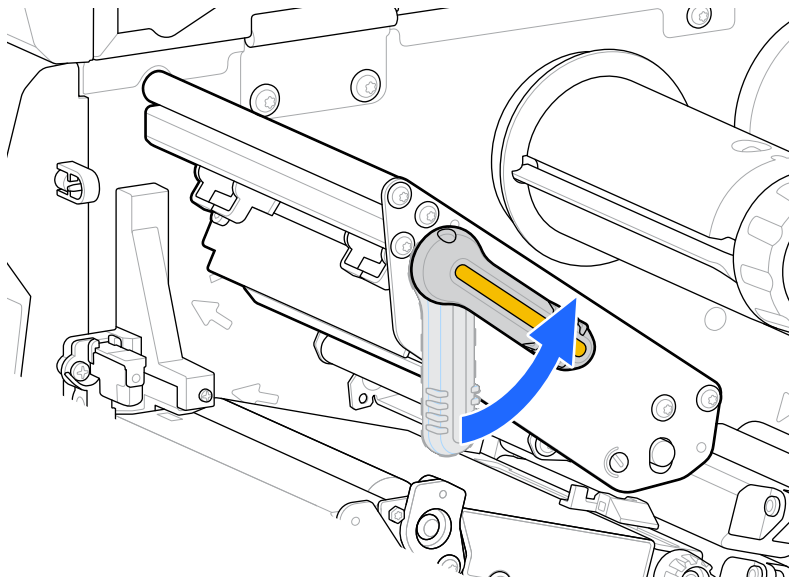
CAUTION—ESD: Before touching the printhead assembly, discharge any built-up static electricity by touching the metal printer frame or by using an anti-static wrist-strap and mat.

1. Raise the media door.

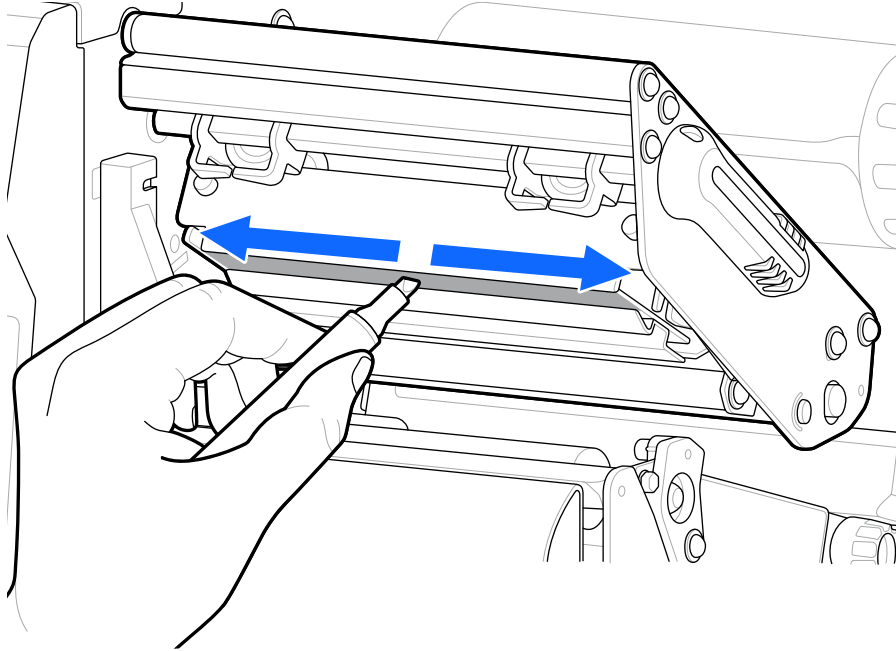


CAUTION: HOT SURFACE: The printhead may be hot and could cause severe burns. Allow the printhead to cool.

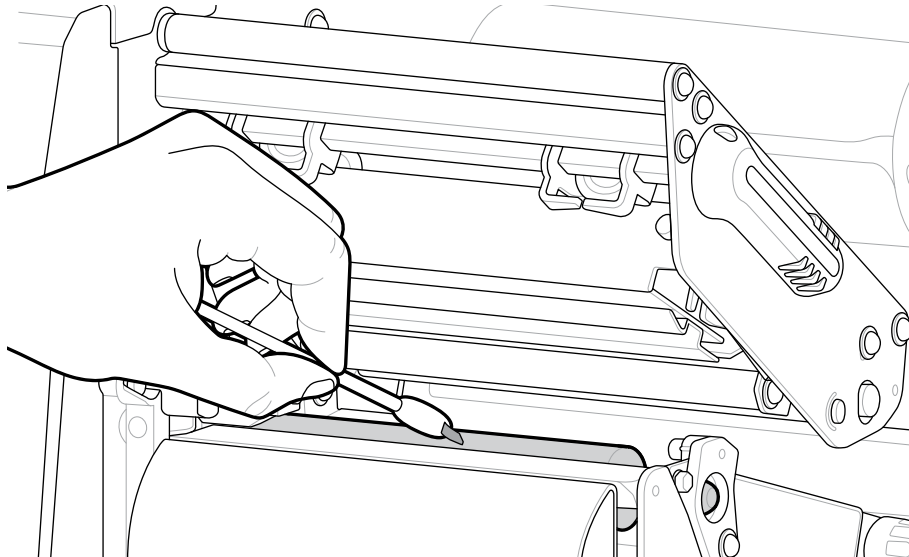
2. Open the printhead assembly.



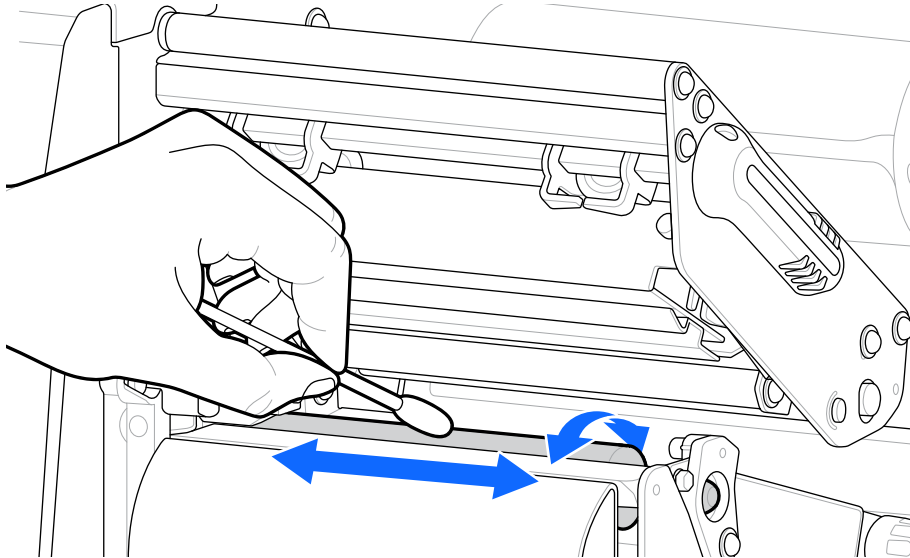
3. Remove the ribbon (if used) and the media.
4. Using a cleaning pen or the swab from a Zebra Preventive Maintenance Kit, wipe along the brown strip on the printhead assembly from end to end. In place of the Preventive Maintenance Kit, you may use a clean swab dipped in 99.7% isopropyl alcohol. Allow the solvent to evaporate.



5. Gently blot away any debris with a swab or lint-free cloth and 99.7% isopropyl alcohol.

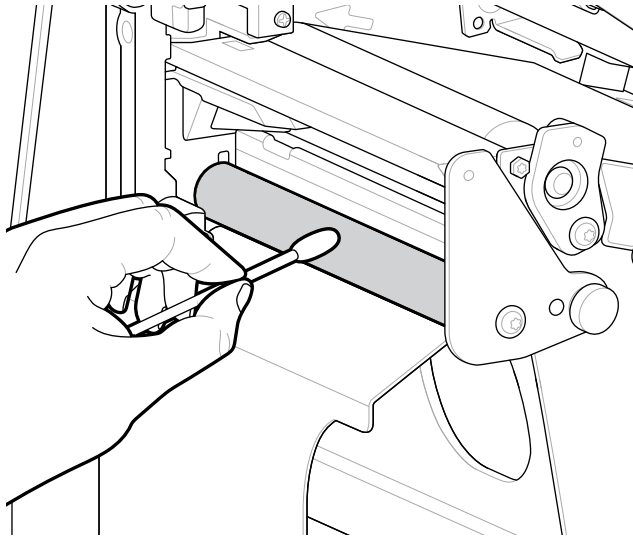


6. While manually rotating the platen roller, clean it thoroughly with the swab or lint-free cloth and 99.7% isopropyl alcohol. Allow at least 30 seconds for the platen roller to completely dry.



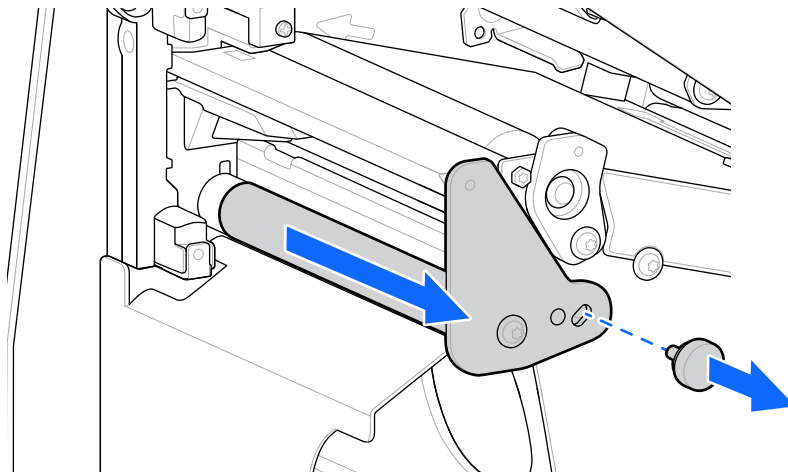
If there is a label jam or adhesive build-up, repeat the cleaning with a new swab or cloth until all leftover adhesive and debris are removed.

- 7.** Wipe the exposed surface of the peel rod. If adhesive or labels are stuck on or behind it, you may need to remove it to clean it.

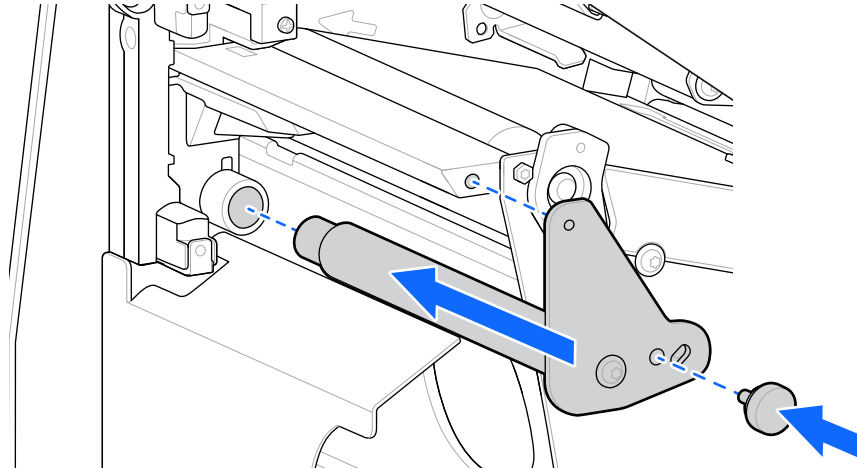


- a)** To remove the peel rod, remove the hand-tightening screw.

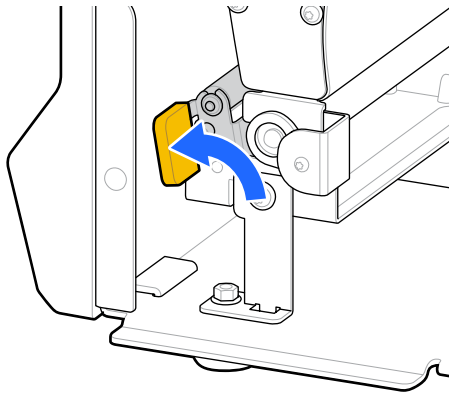
The whole assembly slides out.



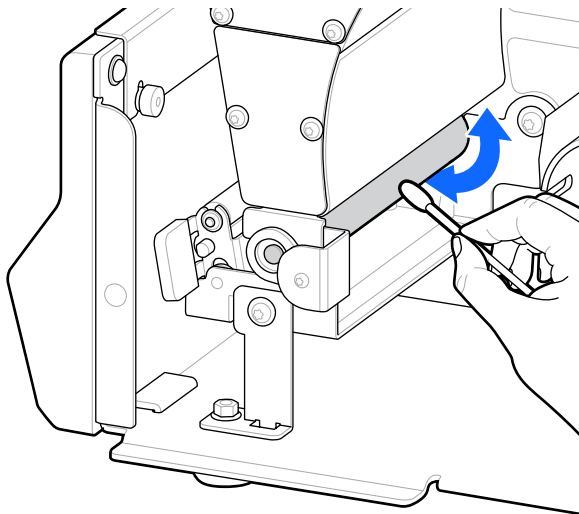
- b)** Clean all surfaces of the peel rod with the swab/cloth.
- c)** When reinstalling the peel rod, line up the guide pin at the top of the tear bar plate and push the rod into place. Then reinstall the hand-tightening screw.



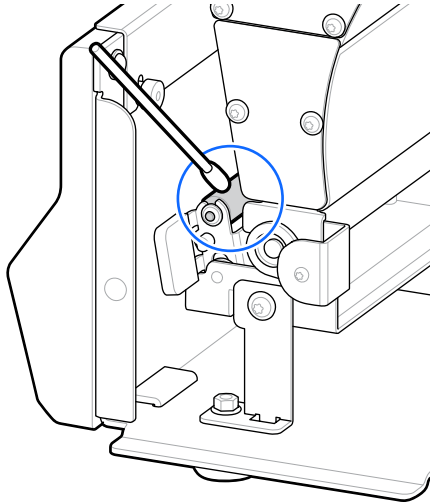
8. Open the rewind pinch roller.



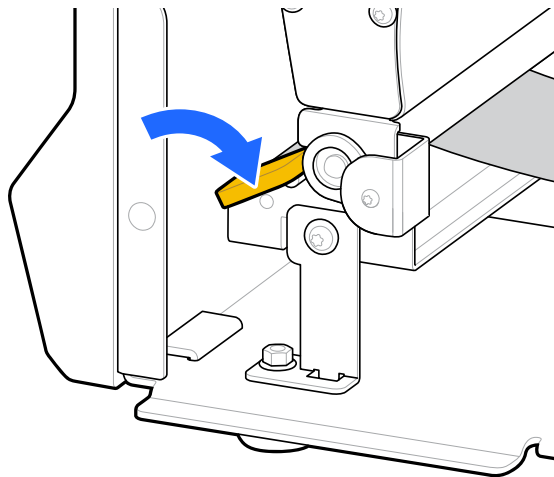
9. Use a Zebra preventative maintenance cleaning swab or a lint-free cloth/swab moistened in 99.7% isopropyl alcohol to clean the rewind pinch roller. Rotate the rewind pinch roller while cleaning it from end to end. Allow the solvent to evaporate.



10. Clean the peel roller by turning it and moving the swab/cloth from end to end. Allow the solvent to evaporate.

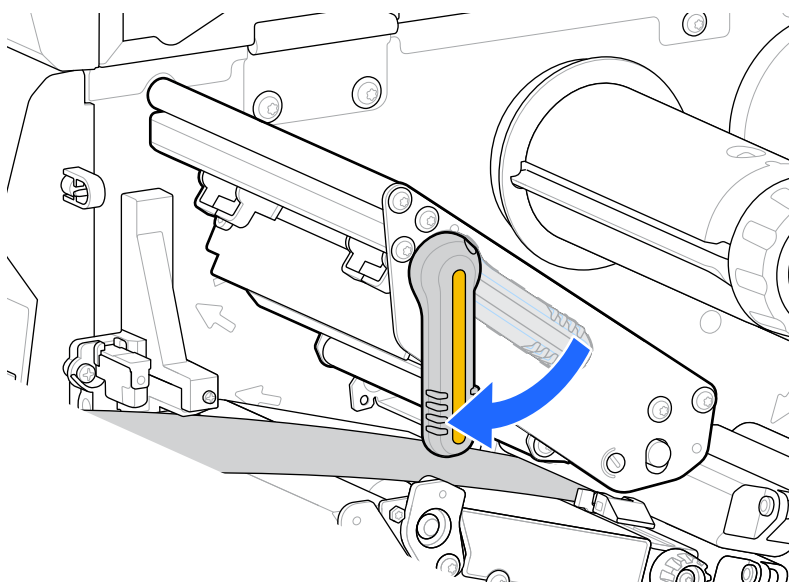


11. Close the rewind pinch roller.

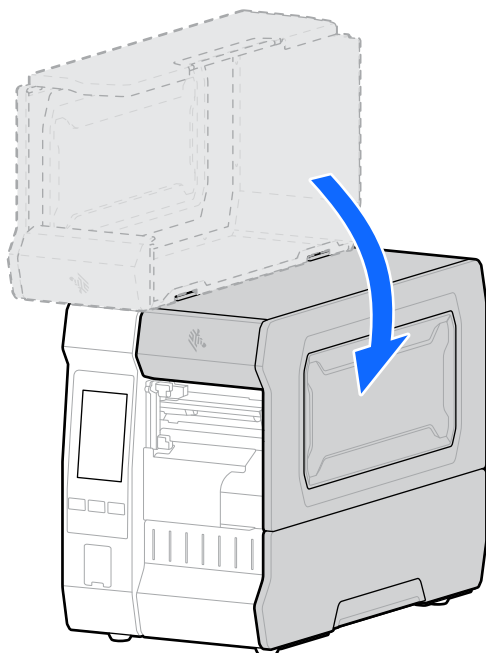


12. Reload the ribbon (if used) and the media.

13. Close the printhead assembly.



14. Close the media door.



15. Press **PAUSE** to exit pause mode and enable printing.

The printer may perform a label calibration or feed a label, depending on your settings.



NOTE: If performing this procedure does not improve print quality, try cleaning the printhead with Save-A-Printhead cleaning film. This specially coated material removes contamination build-up without damaging the printhead.

Call your authorized Zebra reseller for more information.

Glossary

alphanumeric

Indicating letters, numerals, and characters such as punctuation marks.

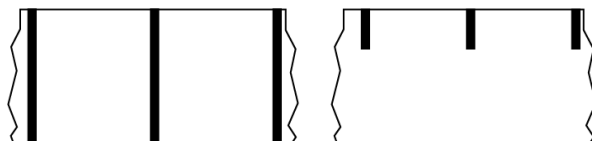
backfeed

When the printer pulls the media and ribbon (if used) backward into the printer so that the beginning of the label to be printed is properly positioned behind the printhead. Backfeed occurs when operating the printer in Tear-Off and Applicator modes.

barcode

A code by which alphanumeric characters can be represented by a series of adjacent stripes of different widths. Many different code schemes exist, such as the universal product code (UPC) or Code 39.

black mark media



Media with registration marks found on the underside of the print media that act as start-of-label indications for the printer. The reflective media sensor is the generally-selected option for use with black mark media.

Contrast this with [continuous media](#) on page 260 or [gap/notch media](#) on page 262.

calibration (of a printer)

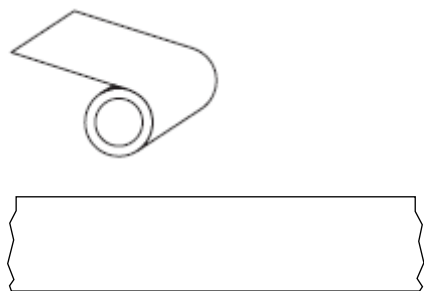
collection method

Select a media collection method that is compatible with your printer options. Selections include tear-off, peel-off, cutter, and rewind. The basic media and ribbon loading instructions are the same for all collection methods with some additional steps necessary for using any media collection options.

configuration

The printer configuration is a group of operating parameters specific to the printer application. Some parameters are user selectable, while others are dependent on the installed options and mode of operation. Parameters may be switch selectable, control panel programmable, or downloaded as ZPL II commands. A configuration label listing all the current printer parameters may be printed for reference.

continuous media



A transmissive (gap) sensor is typically used for the printer to detect when the media runs out.

Contrast this with [black mark media](#) on page 259 or [gap/notch media](#) on page 262.

core diameter

The inside diameter of the cardboard core at the center of a roll of media or ribbon.

diagnostics

Information about which printer functions are not working that is used for troubleshooting printer problems.

die-cut media

A type of label stock that has individual labels stuck to a media liner. The labels may be lined up against each other or separated by a small distance. Typically the material surrounding the labels has been removed. (See [non-continuous media](#) on page 264.)

direct thermal

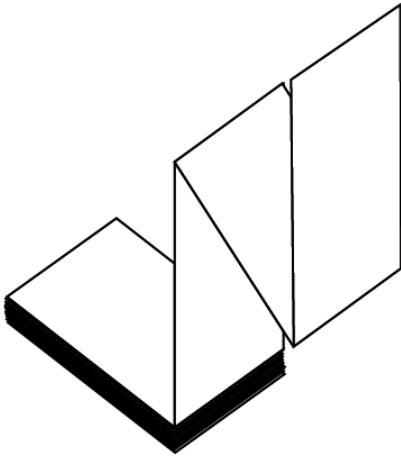
A printing method in which the printhead presses directly against the media. Heating the printhead elements causes a discoloration of the heat-sensitive coating on the media. By selectively heating the printhead elements as the media moves past, an image is printed onto the media. No ribbon is used with this printing method.

Contrast this with [thermal transfer](#) on page 267.

direct thermal media

Media that is coated with a substance that reacts to the application of direct heat from the printhead to produce an image.

fanfold media



Non-continuous media that comes folded in a rectangular stack and folded in a zigzag pattern. Fanfold media is either [gap-notch media](#) or [black mark media](#), meaning it uses black marks or notches to track media format positioning.

Fanfold media can have the same label separations as non-continuous roll media. The separations fall either on or near the folds.

Contrast this with [roll media](#) on page 266.

firmware

This is the term used to specify the printer's operating program. This program is downloaded to the printer from a host computer and stored in [flash memory](#). Each time the printer power is turned on, this operating program starts. This program controls when to feed the media forward or backward and when to print a dot on the label stock.

FLASH memory

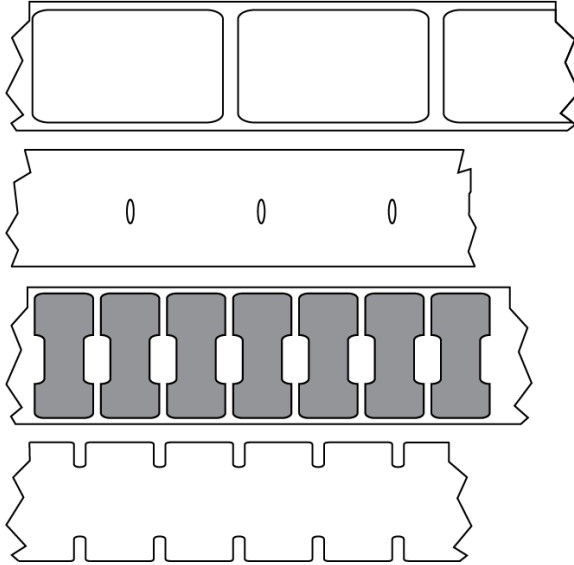
[Non-volatile memory](#) that maintains the stored information intact when power is off. This memory area is used to store the printer's operating program. Can also be used to store optional printer fonts, graphic formats, and complete label formats.

font

A complete set of [alphanumeric](#) characters in one style of type. Examples include CG Times™, CG Triumvirate Bold Condensed™.

gap/notch media

Media that contains a separation, notch, or hole, indicating where one label/printed format ends and the next begins.



Contrast this with [black mark media](#) on page 259 or [continuous media](#) on page 260.

ips (inches-per-second)

The speed at which the label or tag is printed. Many Zebra printers can print from 1 ips to 14 ips.

label

An adhesive-backed piece of paper, plastic, or other material on which information is printed. A non-continuous label has a defined length, as opposed to a continuous label or a receipt which can have a varying length.

label backing (liner)

The material on which labels are affixed during manufacture and which is discarded or recycled.

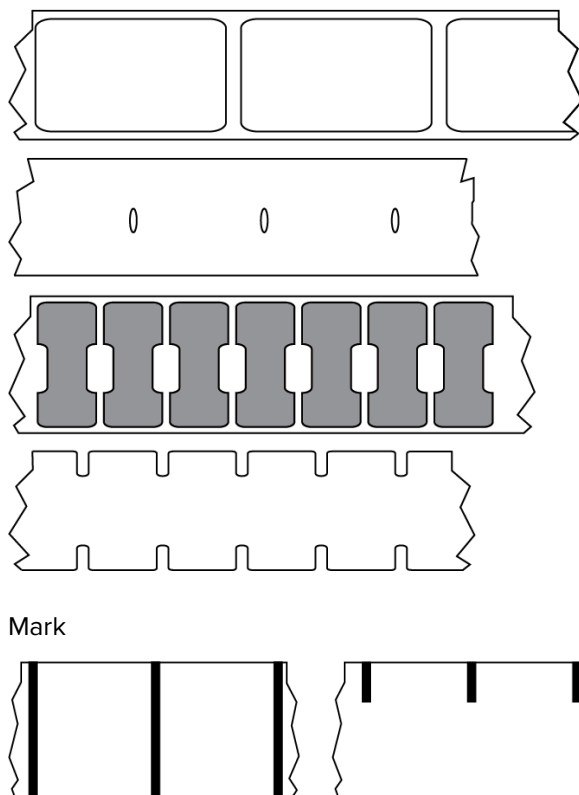
label type

The printer recognizes the following label types.

Continuous



Gap/Notch



LED (light emitting diode)

Indicators of specific printer status conditions. Each LED is either off, on, or blinking depending on the feature being monitored.

linerless media

Linerless media does not use backing to keep the layers of labels on a roll from sticking to one another. It is wound like a roll of tape, with the sticky side of one layer in contact with the non-sticky surface of the one below it.

Depending on the printer, individual labels may be separated by perforations, or they can be cut apart with a linerless cutter. Because there is no liner, more labels can potentially fit on a roll, cutting down the need to change media as often.

Linerless media is considered an environmentally friendly option because no backing is wasted, and the cost per label can be less than that of standard labels.

Zebra recommends using Zebra ZeroLiner direct thermal linerless media.

LCD (liquid crystal display)

A backlit display that provides the user with either operating status during normal operation or option menus when configuring the printer to a specific application.

mark media

See [black mark media](#) on page 259.

media

Material onto which data is printed by the printer. Types of media include: tag stock, die-cut labels, continuous labels (with and without media liner), non-continuous media, fanfold media, and roll media.

media sensor

This sensor is located behind the printhead to detect the presence of media and, for [non-continuous media](#), the position of the web, hole, or notch used to indicate the start of each label.

media supply hangar

The stationary arm that supports the media roll.

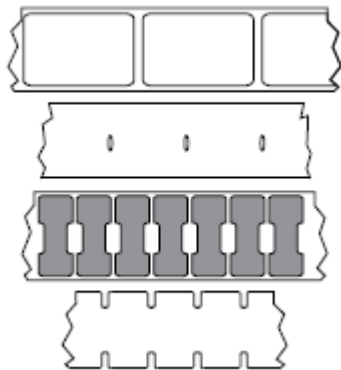
non-continuous media

Media that contains an indication of where one label/printed format ends and the next one begins. Types of non-continuous media include [gap-notch media](#) and [black mark media](#). (Contrast this with [continuous media](#).)

Non-continuous roll media usually comes in the form of labels with an adhesive backing on a liner. Tags (or tickets) are separated by perforations.

Individual labels or tags are tracked and position-controlled using one of these methods:

- Web media separates labels by gaps, holes, or notches.



- Black mark media uses pre-printed black marks on the back side of the media to indicate label separations.



- Perforated media has holes—to allow the labels or tags to be separated from each other easily—along with position-control marks, notches, or label gaps.



non-volatile memory

Electronic memory that retains data even when the power to the printer is turned off.

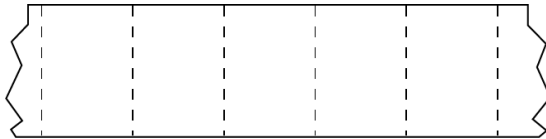
notched media

A type of tag stock containing a cutout area that can be sensed as a start-of-label indicator by the printer. This is typically a heavier, cardboard-like material that is either cut or torn away from the next tag. See [gap/notch media](#) on page 262.

peel-off mode

A mode of operation in which the printer peels a printed label away from the backing and allows the user to remove it before another label is printed. Printing pauses until the label is removed.

perforated media



Media with 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.

print speed

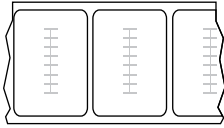
The speed at which printing occurs. For thermal transfer printers, this speed is expressed in terms of [inches per second \(ips\)](#).

print type

The print type specifies whether the type of media being used requires ribbon to print. Thermal transfer media requires ribbon while direct thermal media does not.

printhead wear

Radio frequency identification (RFID) "smart" media



Each RFID 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.

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.

receipt

A receipt is a variable length printout. One example of a receipt is in retail stores, where each purchased item occupies a separate line on the printout. Therefore, the more items purchased, the longer the receipt.

registration

Alignment of printing with respect to the top (vertical) or sides (horizontal) of a label or tag.

ribbon

Ribbon is a thin film that is coated on one side with wax, resin, or wax resin (usually called ink), which is transferred to the media during the [thermal transfer](#) process. Ink is transferred onto the media when heated by the small elements within the printhead.

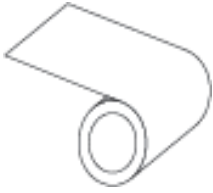
Ribbon is only used with the thermal transfer print method. [Direct thermal media](#) does not use ribbon. When ribbon is used, it must be as wide as or wider than the media being used. If the ribbon is narrower than the media, areas of the printhead are unprotected and subject to premature wear. Zebra ribbons have a coating on the back that protects the printhead from wear.

ribbon wrinkle

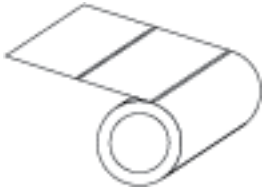
A wrinkling of the ribbon caused by improper alignment or improper printhead pressure. This wrinkle can cause voids in the print and/or the used ribbon to rewind unevenly. This condition should be corrected by performing adjustment procedures.

roll media

Media that comes supplied rolled onto a core (usually cardboard). It can be continuous (no separations between labels)



or non-continuous (some type of separation between labels).



Contrast this with [fanfold media](#) on page 261.

supplies

A general term for media and ribbon.

symbology

The term generally used when referring to a barcode.

tag stock

A type of media having no adhesive backing but featuring a hole or notch by which the tag can be hung on something. Tags are usually made of cardboard or other durable material and are typically perforated between tags. Tag stock can come on rolls or in a fanfold stack. (See [gap/notch media](#) on page 262.)

tear-off mode

A mode of operation in which the user tears the label or tag stock away from the remaining media by hand.

thermal transfer

A printing method in which the printhead presses an ink or resin coated ribbon against the media. Heating the printhead elements causes the ink or resin to transfer onto the media. By selectively heating the printhead elements as the media and ribbon move past, an image is printed onto the media.

Contrast this with [direct thermal](#) on page 260.

void

A space on which printing should have occurred, but did not due to an error condition such as wrinkled ribbon or faulty print elements. A void can cause a printed barcode symbol to be read incorrectly or not at all.

