Thermal Printer User's Manual

2844

Zebra Technologies Corporation

FOREWORD

This manual provides installation and operation information for the LP 2844 and the TLP 2844 series printers, manufactured by Zebra Technologies Corporation, Camarillo, California.

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TRADEMARKS

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LP 2844 and TLP 2844 Thermal Printers

European Council Directive		Compliance to Standards	
89/336/EEC	EMC Directive	EN 55022-B 1998	RF Emissions control
	EMC Directive	EN 55024 1998	Immunity to Electro-magnetic Disturbances
92/31/EE	EMC Directive	EN 61000-3-2	Harmonic Emissions
92/31/EE	EMC Directive	EN 61000-3-3	Voltage Variation
	CB Scheme	EN 60950 1991 A1, A2, A3, A4	Safety

FCC - DECLARATION OF CONFORMITY:

Models: LP 2844 and TLP 2844 conform to the following specification:

FCC Part 15, Subpart B, Section 15.107(a) and Section 15.109(a) Class B digital device

Supplemental Information:
This device complies with Part 15 of the FCC Rules. Operation is subject to the following Two Conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

INDUSTRY CANADA NOTICE:

This device complies with Industry Canada ICS-003 class B requirements.

Cet equipement est conforme a l'ICS-003 classe B de la norm Industrielle Canadian

SHOCK HAZARD WARNING:

The printer and power supply should never be operated in a location where either one can get wet. Personal injury could result.

MEDIA AND RIBBON WARNING:

Always use high quality, approved labels, tags and ribbons. If adhesive backed labels are used that DO NOT lay flat on the backing liner, the exposed edges may stick to the label guides and rollers inside the printer, causing the label to peel off from the liner and jam the printer. Permanent damage to the print head may result if a non-approved ribbon is used as it may be wound incorrectly for the printer or contain chemicals corrosive to the print head. Approved supplies can be ordered from your dealer.

RELOADING HINT:

If labels or ribbon run out while printing, DO NOT turn the power switch OFF (0) while reloading or data loss may result. The printer automatically restarts after you load a new label or ribbon roll.

STATIC DISCHARGE:

The discharge of electrostatic energy that accumulates on the surface of the human body or other surfaces can damage or destroy the print head or electronic components used in this device. DO NOT TOUCH the print head or the electronic components under the top cover.

THERMAL PRINTING:

The print head becomes hot while printing. To protect from damaging the print head and risk of personal injury, avoid touching the print head. Use only the cleaning pen to perform maintenance.

TABLE OF CONTENTS

1
Installation and Operation

This section provides information on the installation and operation of the printer.

The printer is a low cost, desktop thermal printer. The printer is specifically designed for printing labels, tags or continuous receipts (with or without bar codes) from any DOS™, Windows™ or ASCII-based compatible host. There are two models of the printer.
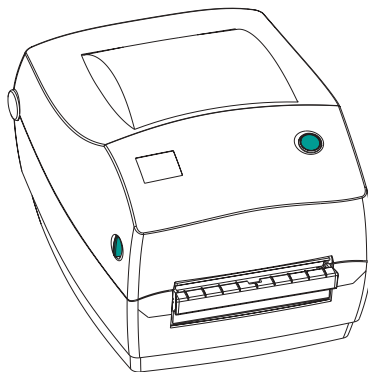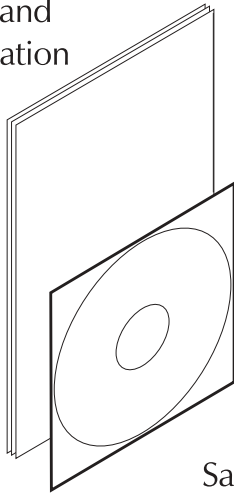
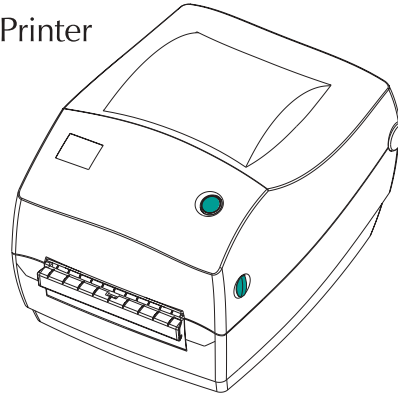TLP
Direct thermal and thermal transfer printing
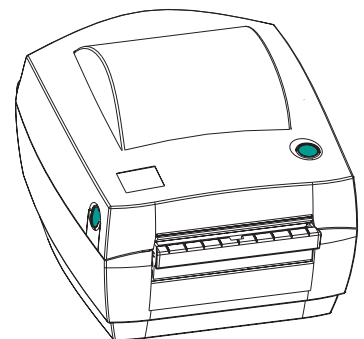
LP
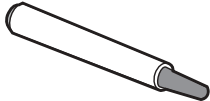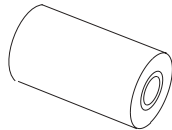*Direct thermal printing*

Unpack Your Printer
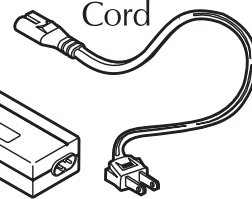
Software and
Documentation

Printer

Cleaning
Pen

Sample
Labels

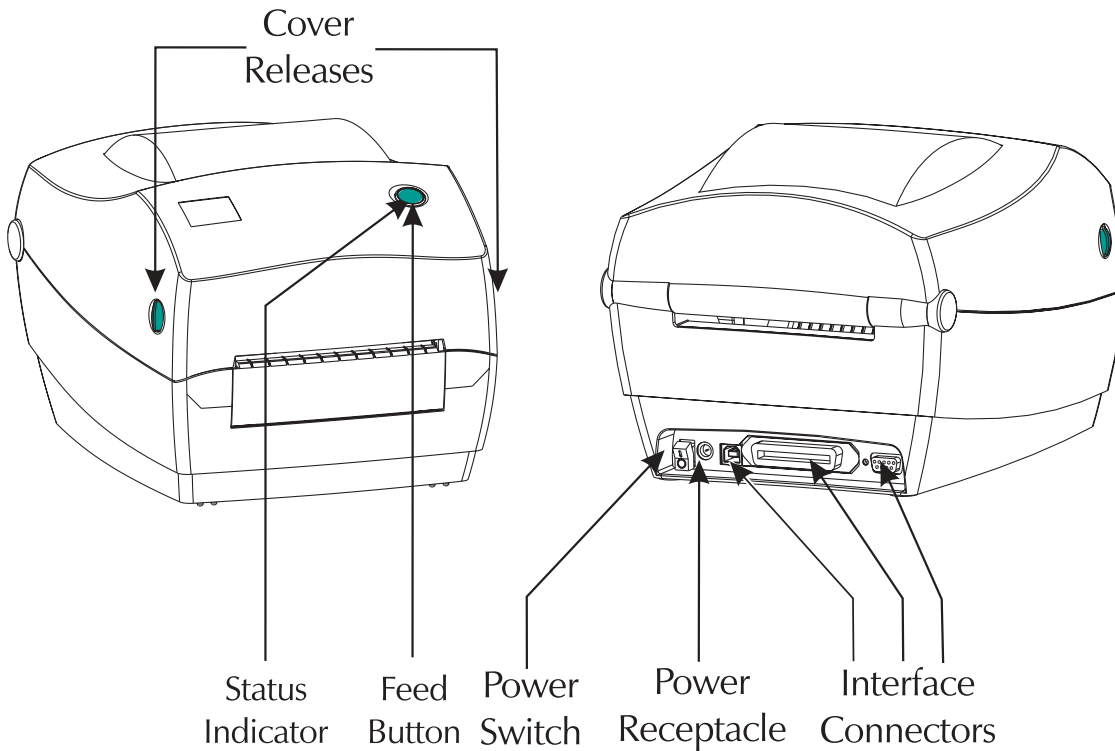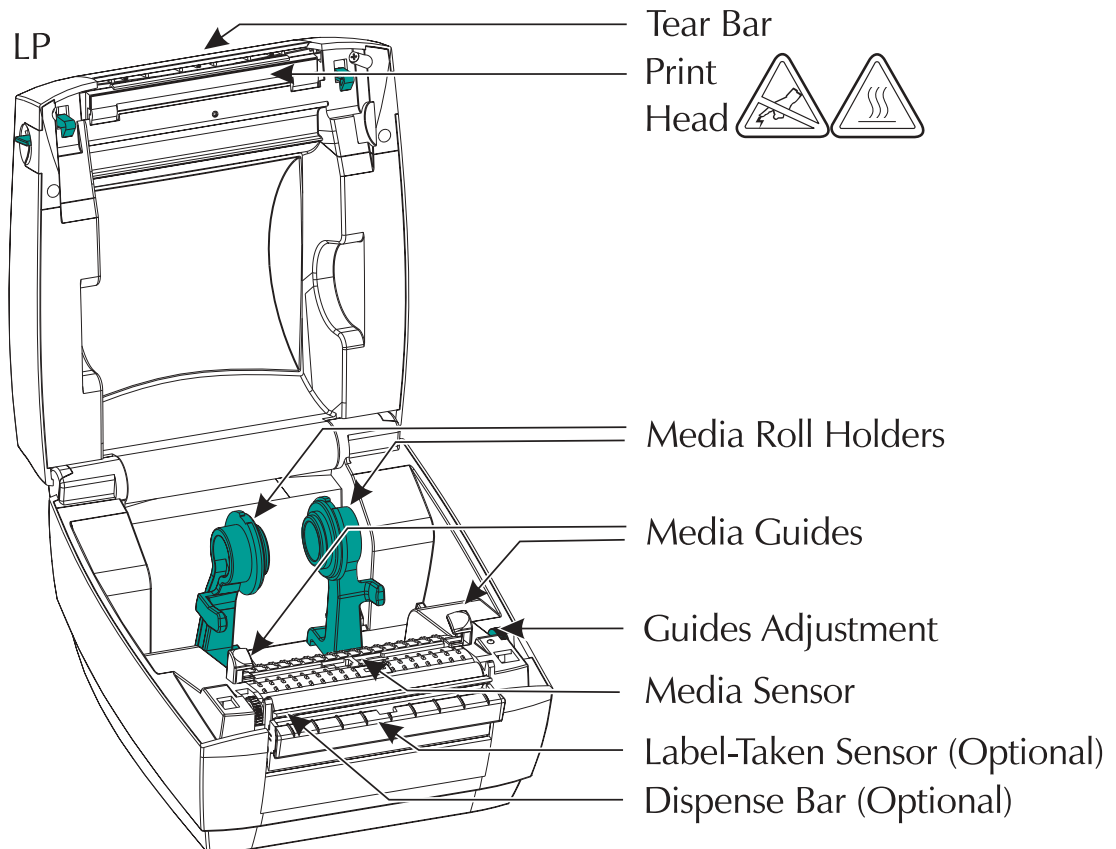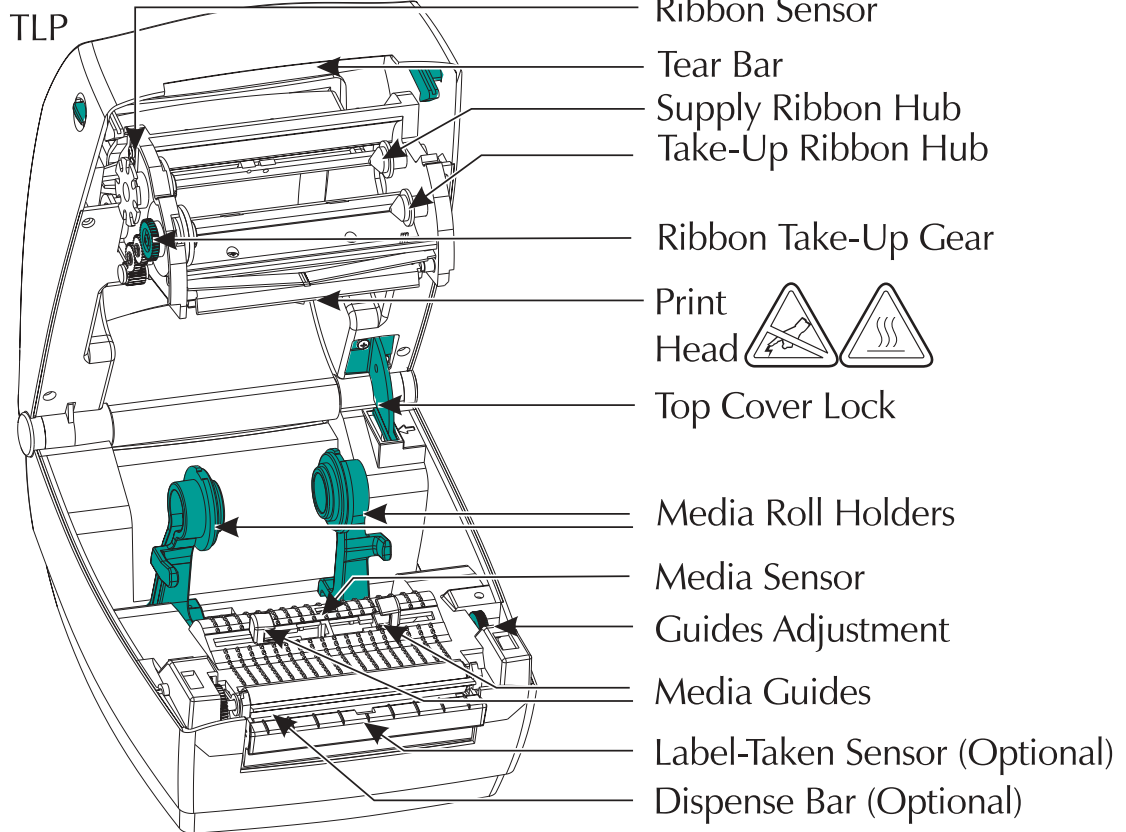Power
Supply

Power
Cord

Know Your Printer

Cover
Releases

Status
Indicator

Feed
Button

Power
Switch

Power
Receptacle

Interface
Connectors

TLP

Ribbon Sensor

Tear Bar

Supply Ribbon Hub

Take-Up Ribbon Hub

Ribbon Take-Up Gear

Print Head

Top Cover Lock

Media Roll Holders

Media Sensor

Guides Adjustment

Media Guides

Label-Taken Sensor (Optional)

Dispense Bar (Optional)

LP

Tear Bar

Print Head

Media Roll Holders

Media Guides

Guides Adjustment

Media Sensor

Label-Taken Sensor (Optional)
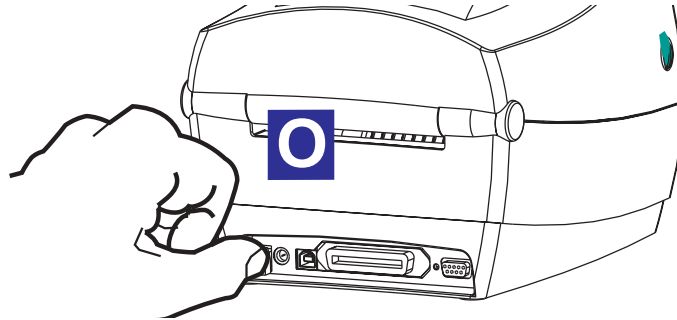
Dispense Bar (Optional)

Installation The following steps will guide you through the installation of the printer and software.

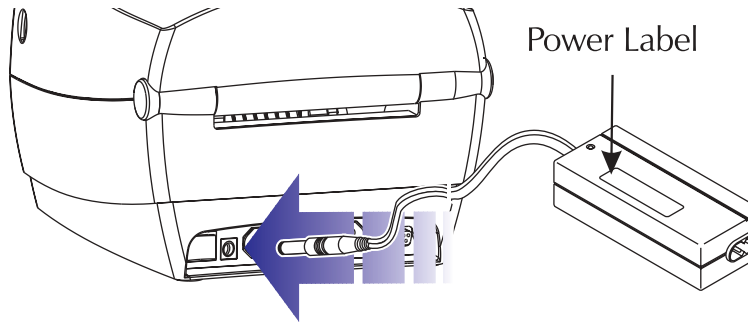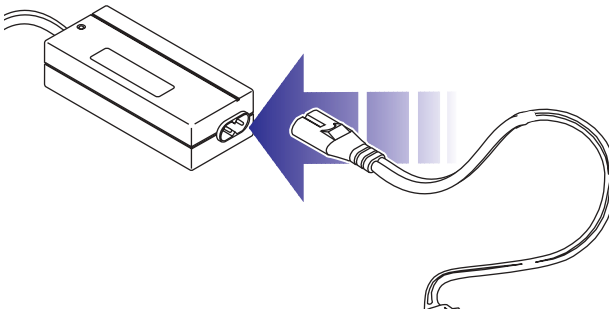## *Step* ❶ *Attach Power Supply To The Printer*

Power OFF

Check Voltage

Plug in Power Module
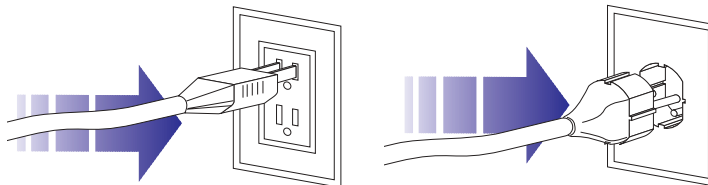
Power Label
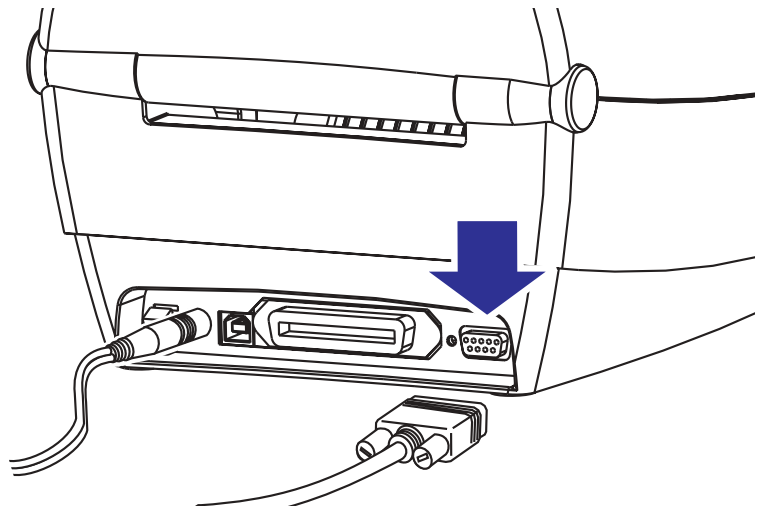
Plug in Power Cord

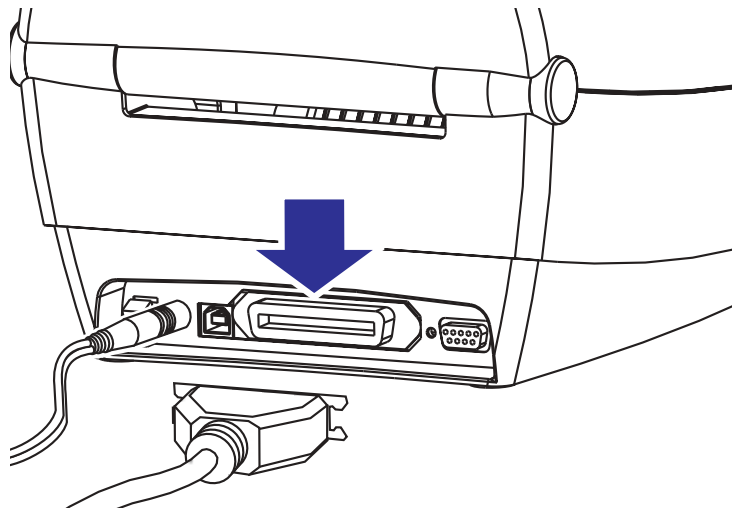**Plug Power Cord into a Suitable AC Outlet**

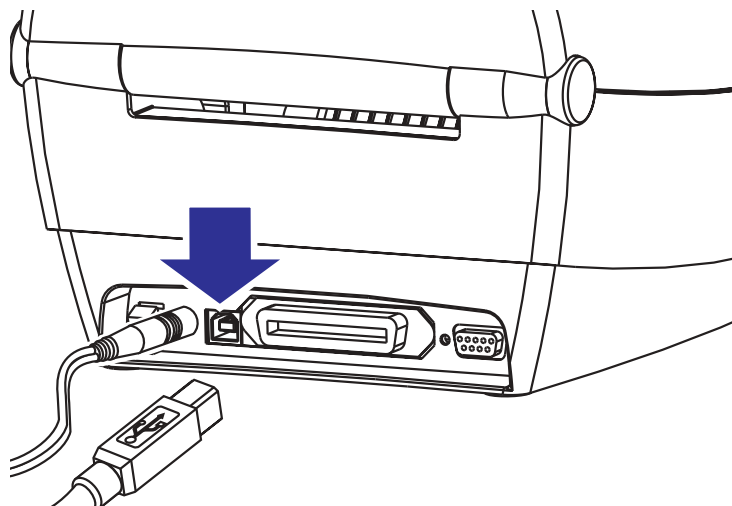See the SHOCK HAZARD WARNING on page iv.

Step ❷ Attach Interface Cable

Serial

Parallel

Universal Serial Bus (USB)

See Appendix A for cable wiring information.

Step ❸ Load Media

MOVIE

Power ON
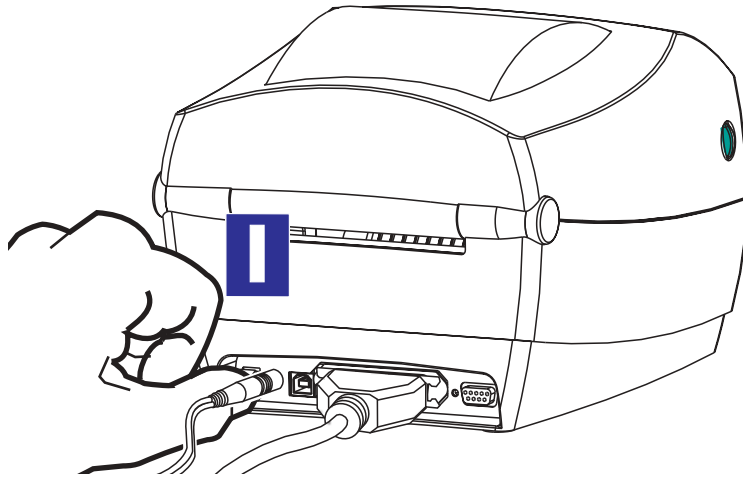
Open Cover
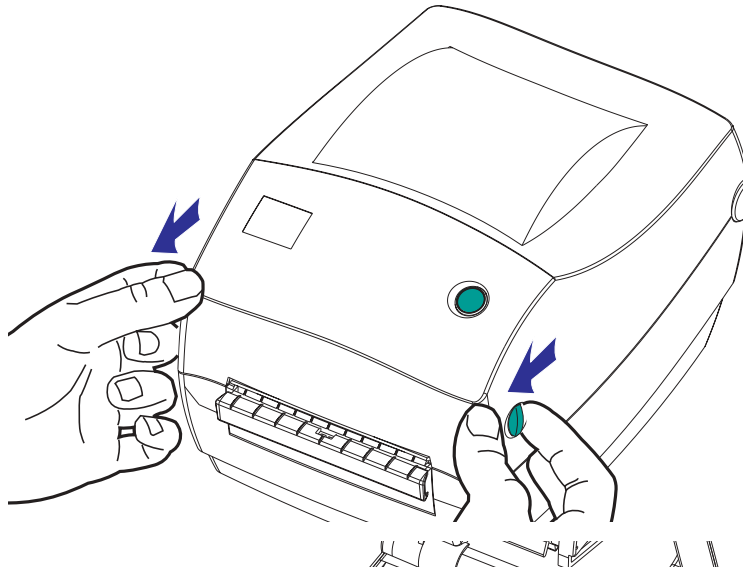
Open Guides
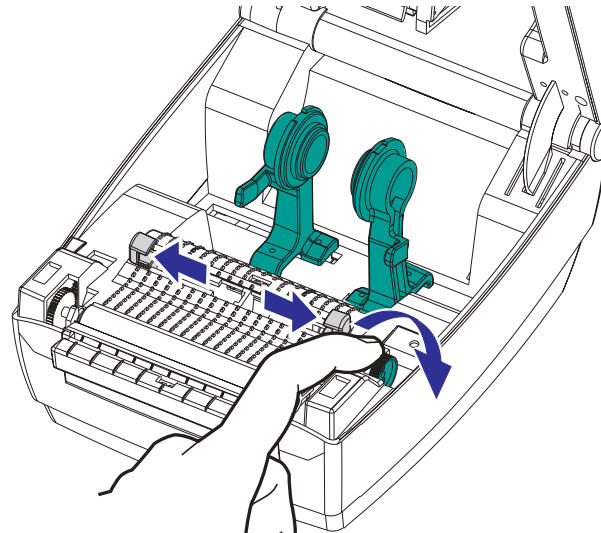
Load Media - continued

Remove the outside length of media

For more information on media preparation, refer to Appendix A.
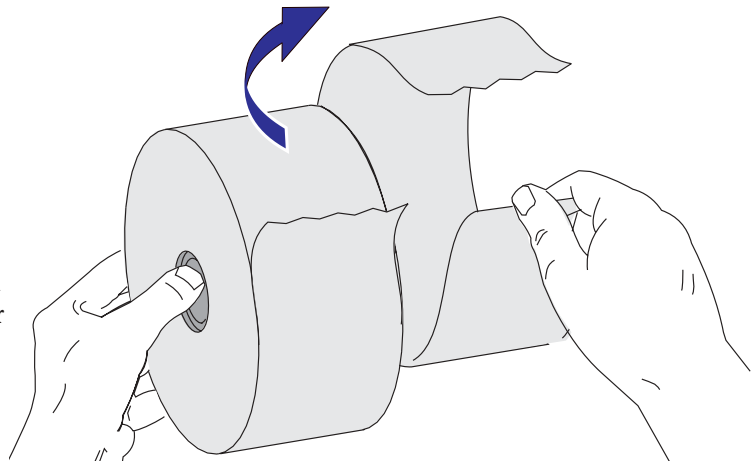
Install Roll

Note: Find the instructions for preparing media in Appendix A.
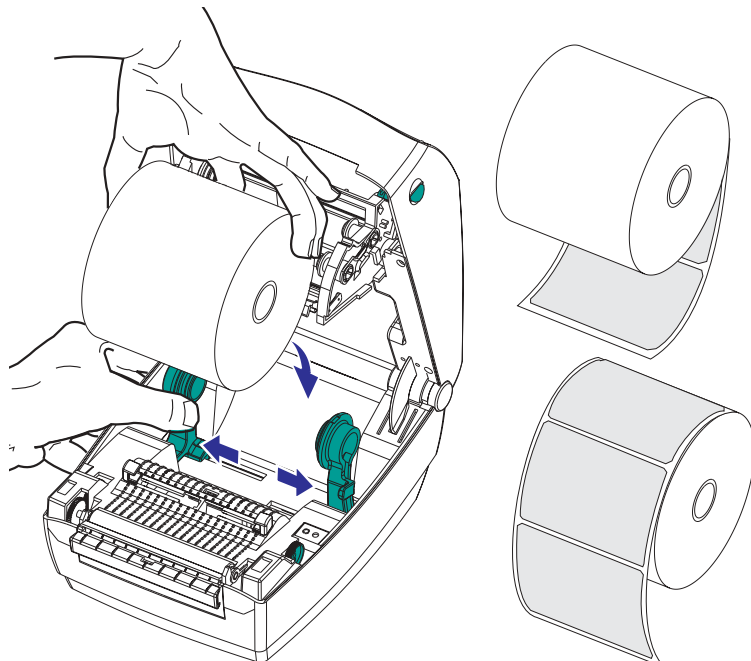
Close Guides to the Width of the Media

Note: When using linerfree labels, adjust the guides to the widest position
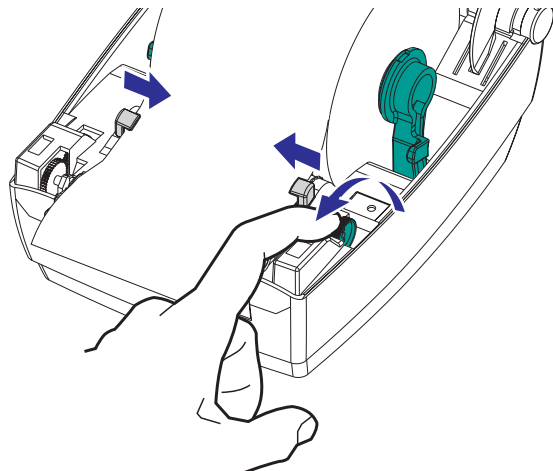
Load Media - continued

Release Cover

Note: This step applies to thermal transfer printers
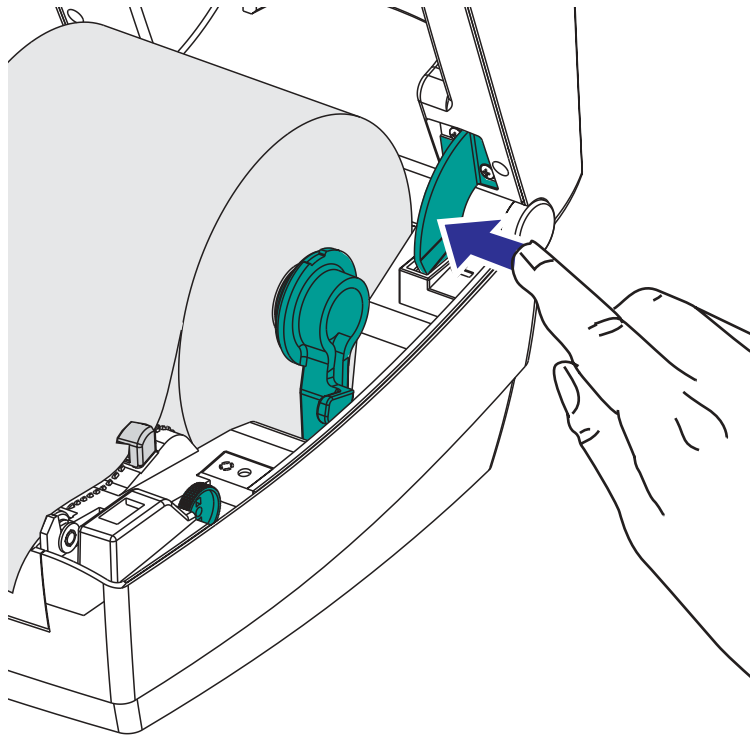
Close Cover
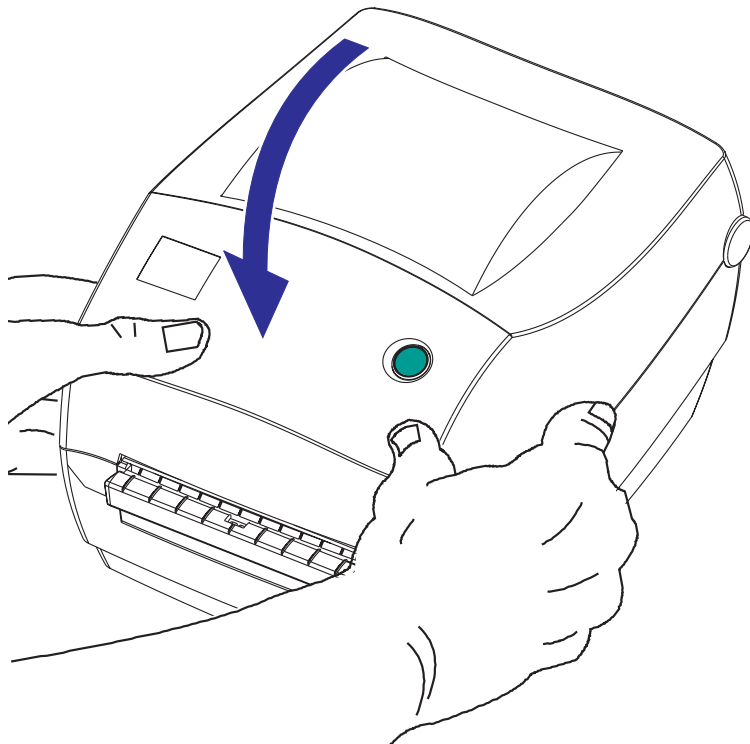
Step ❹ *AutoSense Media Gap Sensing*

Perform this procedure when loading a new roll. If your printer has the label dispenser option, turn OFF the label taken sensor.

Power OFF
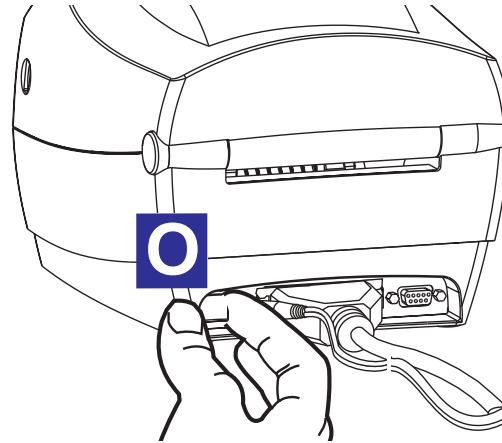
Hold Feed Button
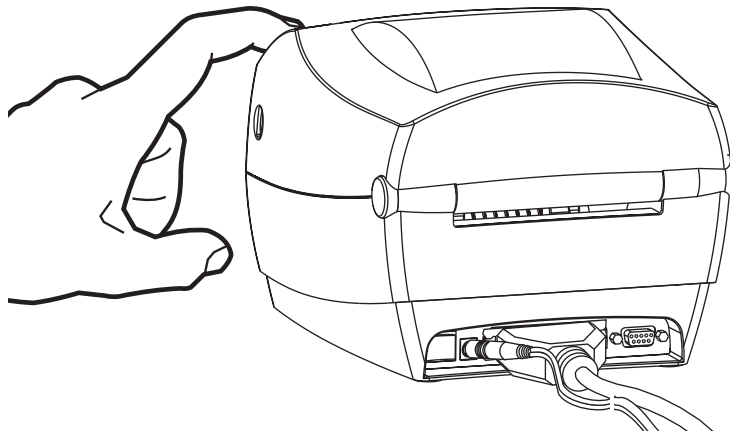
Power ON
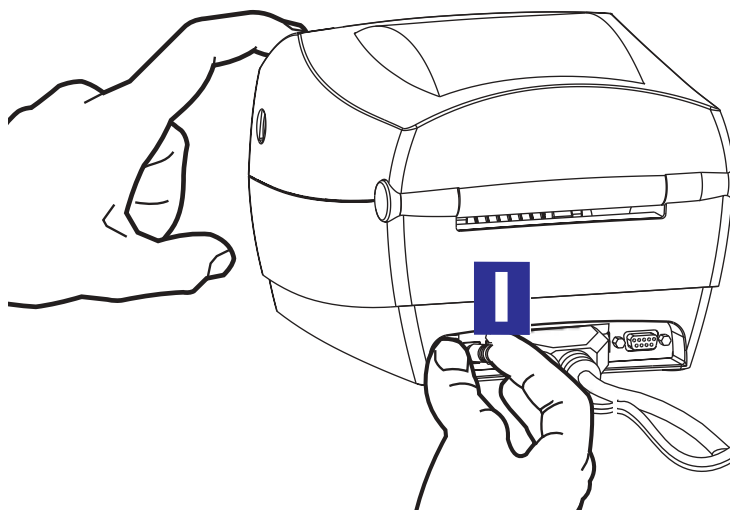
AutoSense Gap Sensor Adjustment - continued

**When Indicator
Flashes, Release
Feed Button**
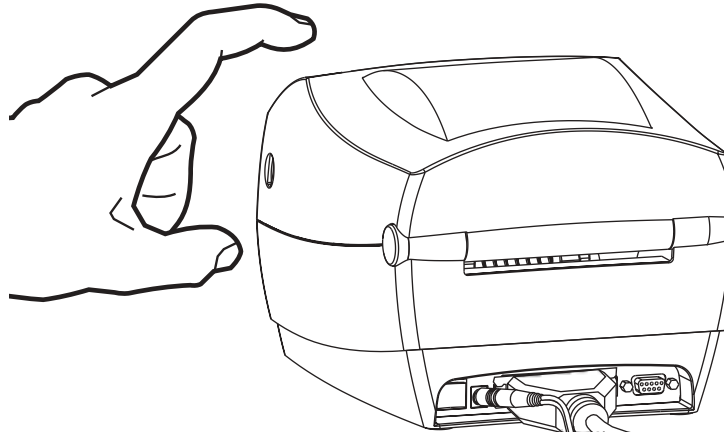
**Printer Advances
Media and Prints
Status Summary**

**Note: Printer is in
diagnostic dump mode**

```
UKQ1935     16 V3.21
Serial port : 96,N,8,1

Image buffer size:1032K
Fmem:000.0K,016.4K avl
Gmem:000K,0593K avl
Emem:000K,0593K avl
I8,0,001  rY
S2 D10 R016,000 ZT UN
q800 Q01225,026
Option:
04 08 13
now in DUMP
```

**Tap Feed Button
To Begin Normal
Operation**

**Note: Printer prints
"out of DUMP"**
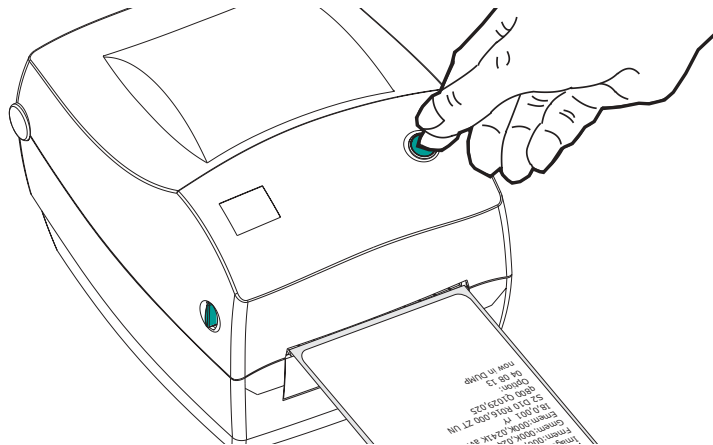
If the indicator remains orange or red, see the troubleshooting steps.

Step ❺ Install Software
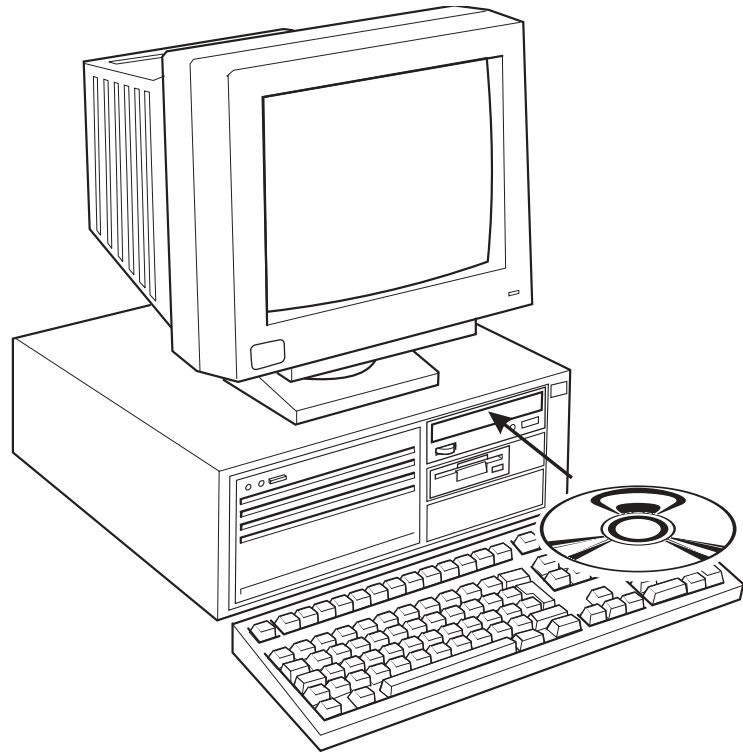
Start your computer and follow the installation instructions on the compact disc (CD).

Operation   The following information helps you get the most from your printer.

Programming Commands   You must use programming to control many of the printer's functions. See the EPL2 programmer's manual for details. For example, the **Q** command controls form length and gap.

Printer Driver   The printer driver provides a convenient control to improve print quality. For example, Print density (darkness) is affected by the heat energy (density setting) applied and by the print speed. Changing both Print Speed and Density may be required to achieve the desired results.

Thermal Printing: Direct or Transfer?   You must use the correct media for the type of printing you require. When printing without a ribbon, you must use direct thermal media. When using ribbon, you must use thermal transfer media. The printer's ribbon sensor detects motion of the supply spindle.

Replacing Supplies   When replacing media or ribbon, do not turn off the printer or data loss occurs. The printer automatically resumes printing after you load new supplies.

2
Using Options

This section provides information on the printer's optional features:

- thermal transfer printing
- label dispenser
- fan-fold media
- media cutter

Using Transfer Ribbon The TLP printer supports both direct thermal media (chemically treated to darken when heated) and thermal transfer media (accepts wax and/or resin transferred off a ribbon).

Step ❶ Prepare Ribbon

Pull Adhesive Strip Free
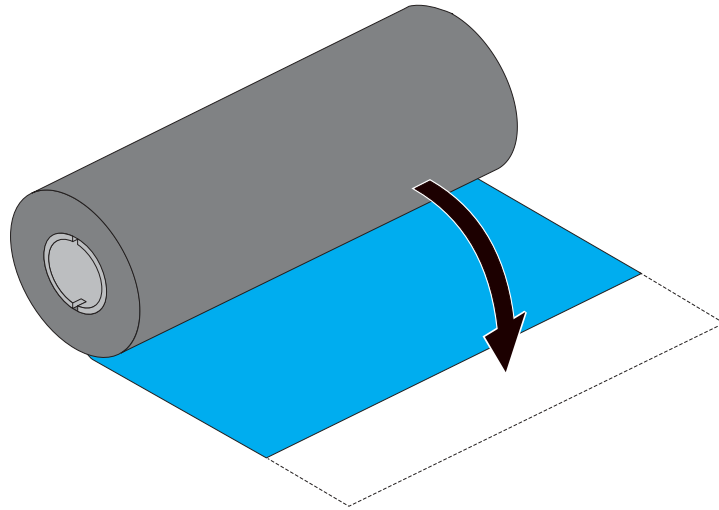
Step ❷ Install Supply Roll

*Thread
Ribbon
Through
Carriage*
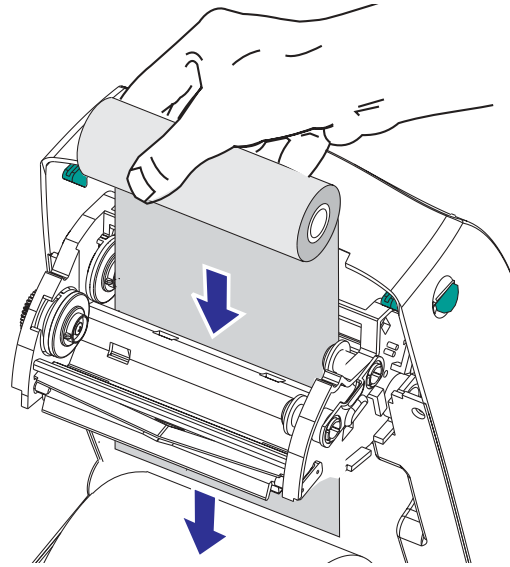
*Press
onto Hub*
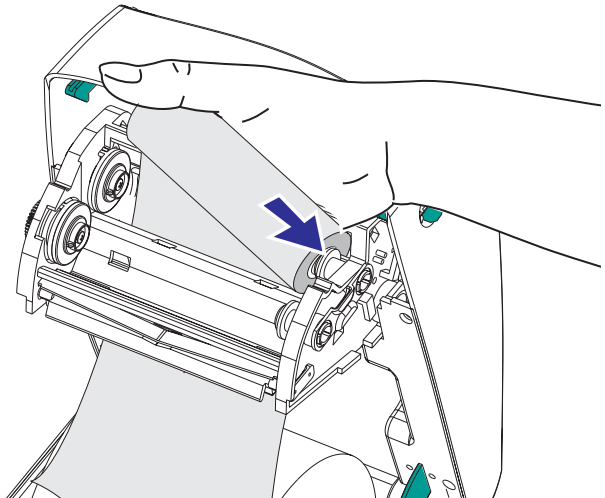
*Align Notches
onto Hub Spokes*
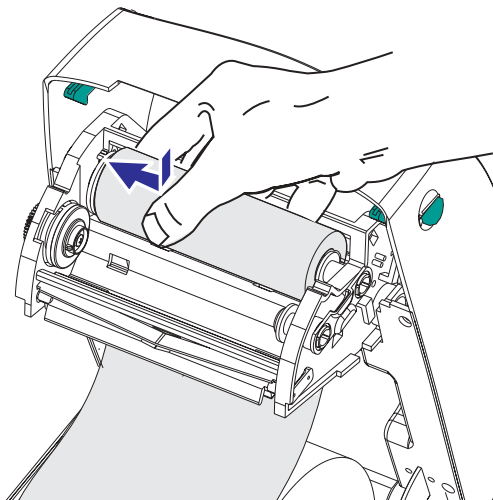
Step ❸ *Install Take-Up Core*

***Press
onto Hub***
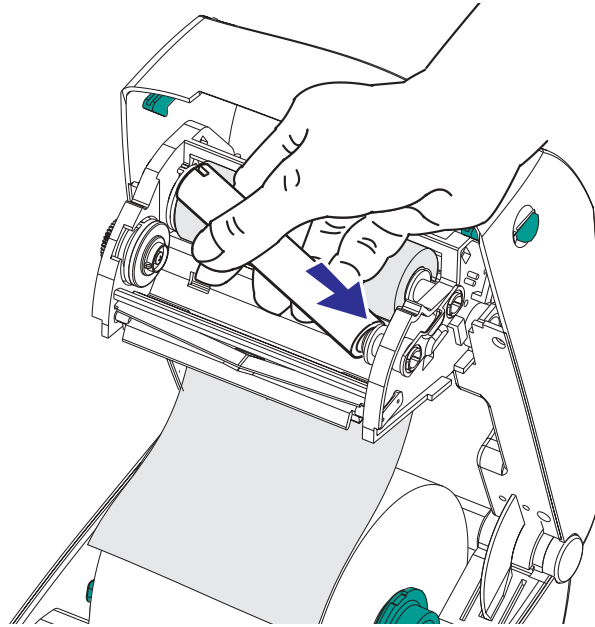
***Align Notches
onto Hub Spokes***
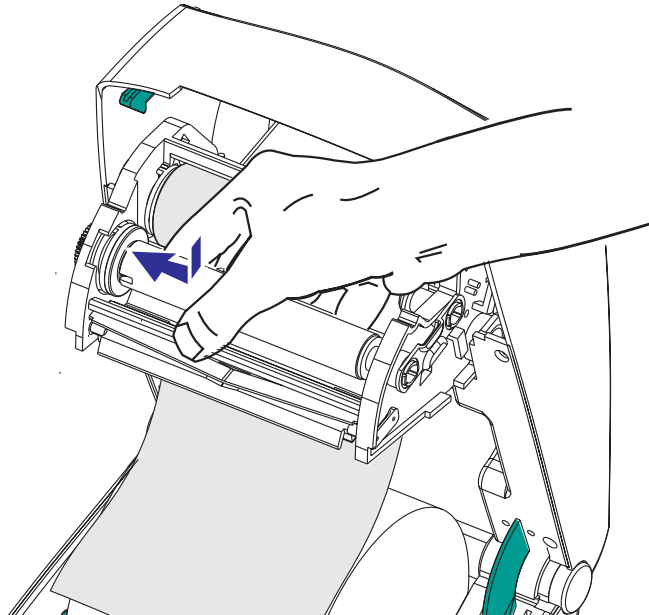
Step ❹ Tighten Ribbon

Attach Ribbon to Take-Up Core

Note: Use the adhesive strip on new rolls; otherwise, use tape
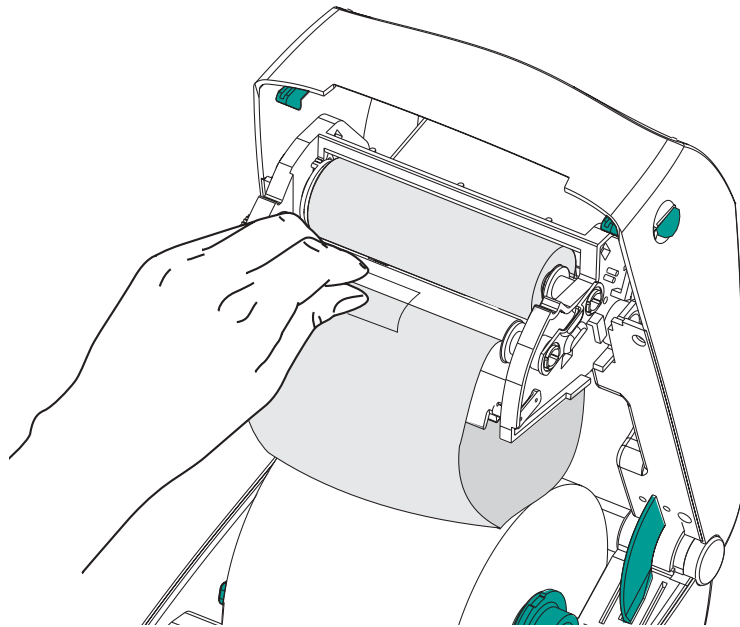
Remove Slack From Ribbon
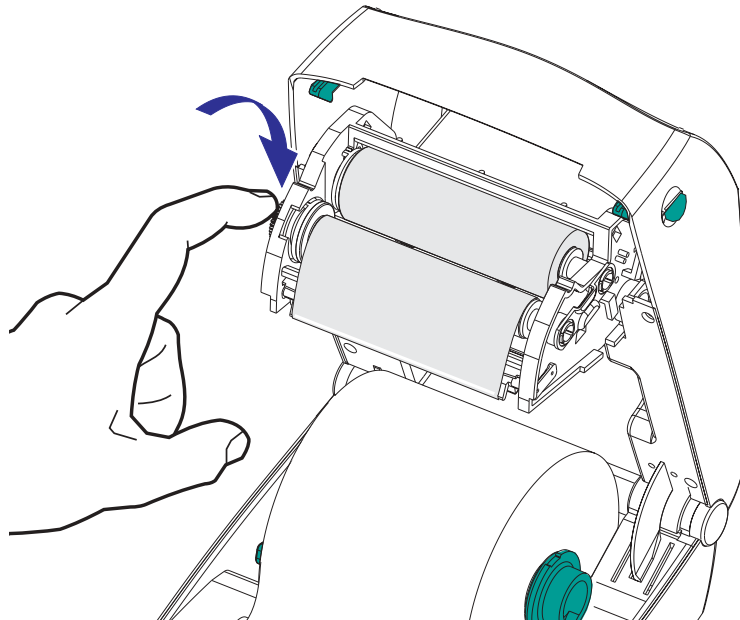
When using ribbon, make sure you also use thermal transfer media.

Adding a New Transfer Ribbon

If ribbon runs out in the middle of a print job, the indicator lights orange and the printer waits for you to add a fresh roll. Keep the power on as you change ribbon. Open the top cover, then cut the used ribbon so you can remove the cores. Load a new ribbon roll (refer to the previous procedure if necessary). Close the top cover. Press the Feed button to restart printing.

Replacing a Partially Used Transfer Ribbon

To remove used transfer ribbon, cut the ribbon from the take-up roll. Remove the take-up roll and discard used ribbon. Remove the supply roll and tape the end of any fresh ribbon to prevent it from unwrapping. When reinstalling a partially used supply roll, tape the cut end onto the empty take-up roll.

Cut Used Ribbon from Supply
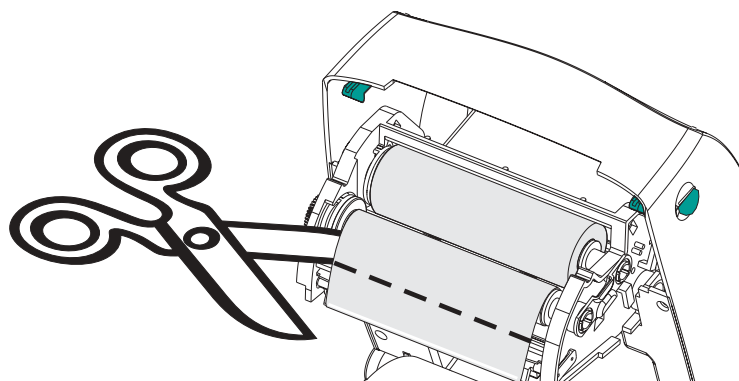
Push Supply Roll Out
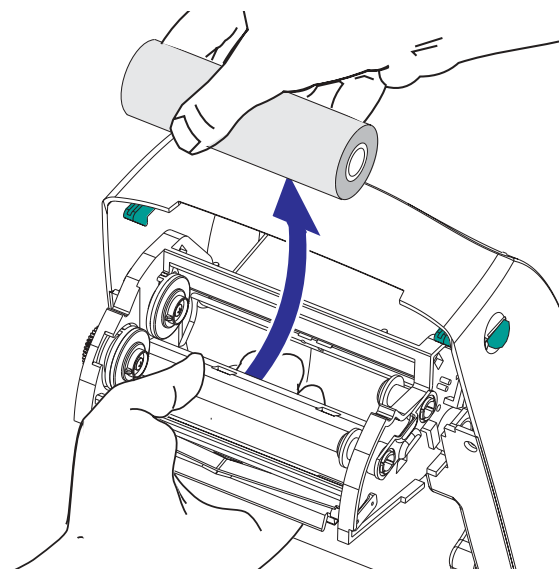
Using the Label Dispenser

MOVIE

**Open
Door**

**Switch On
the Label
Taken Sensor**

Switch
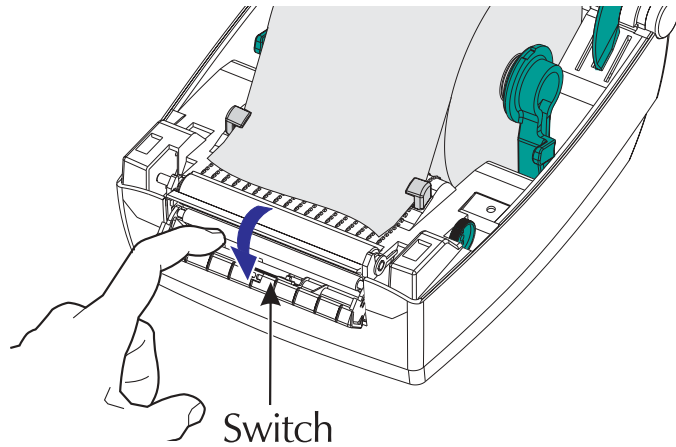
**Remove
Several
Labels**

**Push
Liner
Through
Slot**

Slot
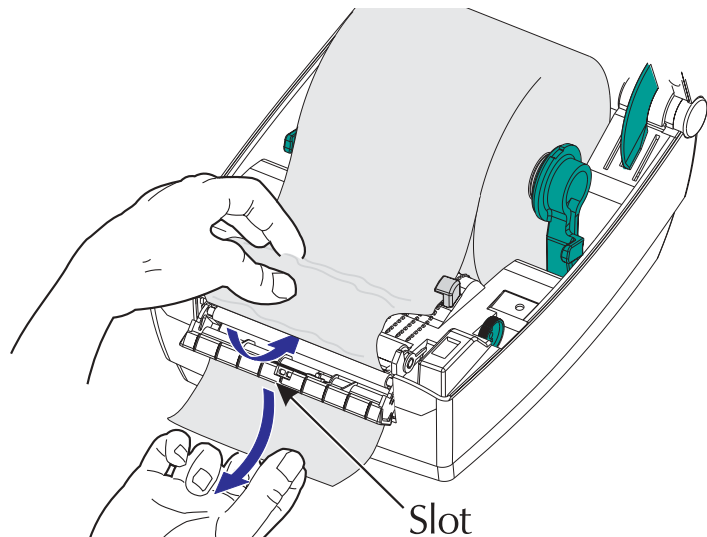
**Close
Door**

**Close
Top Cover
and Press
Feed Button**
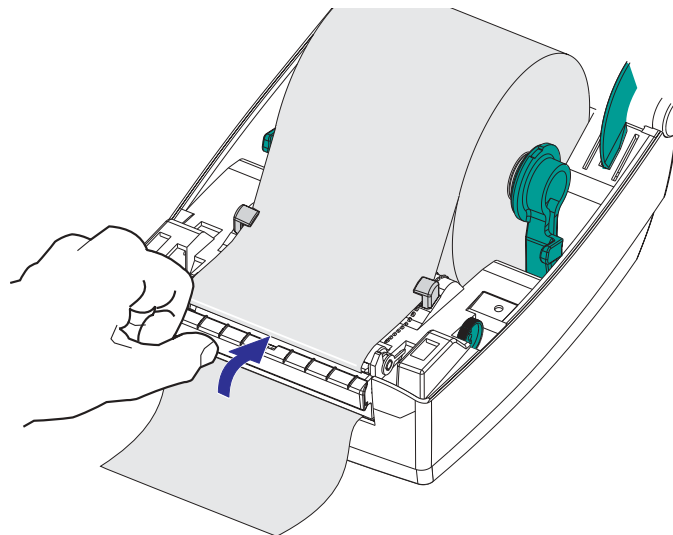
Using Fan-Fold Media

*Insert
Media*
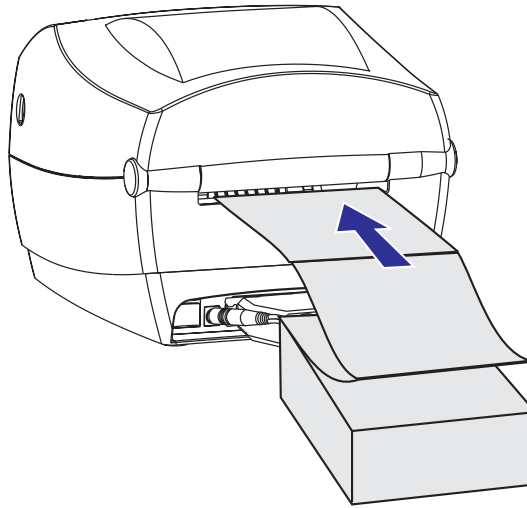
*Adjust Holders
to Width of Media*

*Tighten Screw
(use a small
Phillips driver #1)*
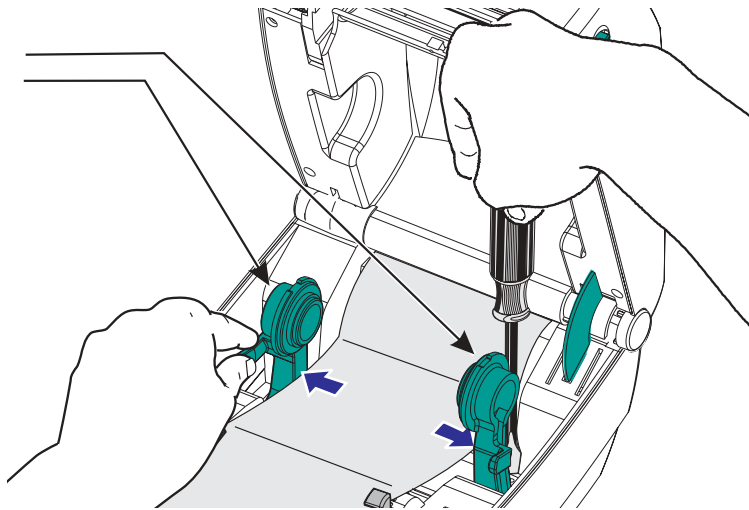
*Adjust Guides
to Width of Media*
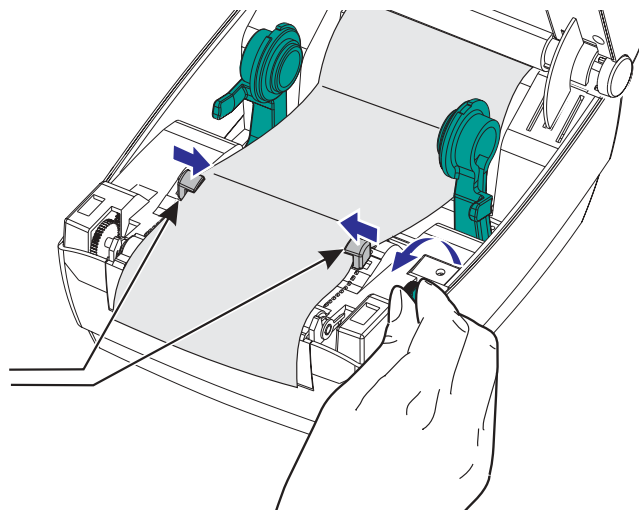
Using the Media Cutter

Printers that have a bezel with a motorized blade can dispense one or more forms that are then automatically cut from the media supply.
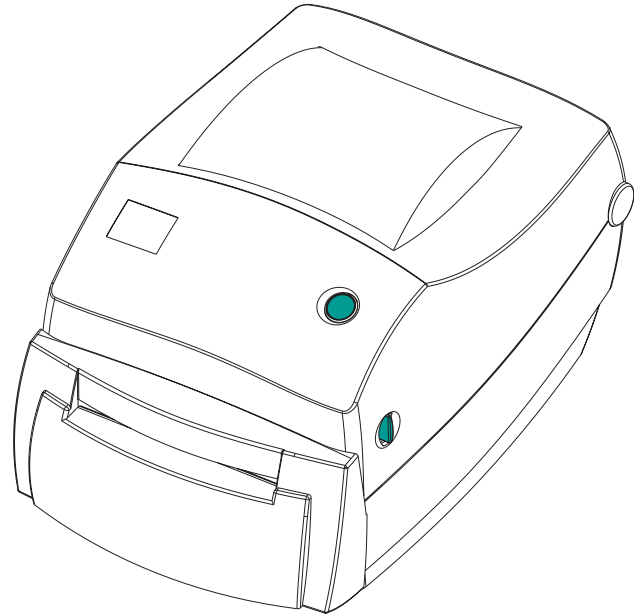
This option cuts through continuous paper from rolls and liner between labels. The media can be up to 0.0055 inch (0.095mm) thick, 1.12 inch (28mm) to 4.25 inches (108mm) wide, and at least 0.75 inch (19.1mm) long. The density of media can be up to 120 grams/meter^2. Blade life is 1,000,000 cuts.

Use the **OC** command to activate the cutter and the **Q** command to set the form length and gap distance. See the EPL2 programmer's manual.

Clearing the Media Cutter   If the blade cuts through labels, adhesive can jam the cutter.

Turn OFF (O) printer power and unplug the power and interface cables before clearing the cutter.

Keep the cutter dry.   Never use any solutions or solvents to clean the blade.
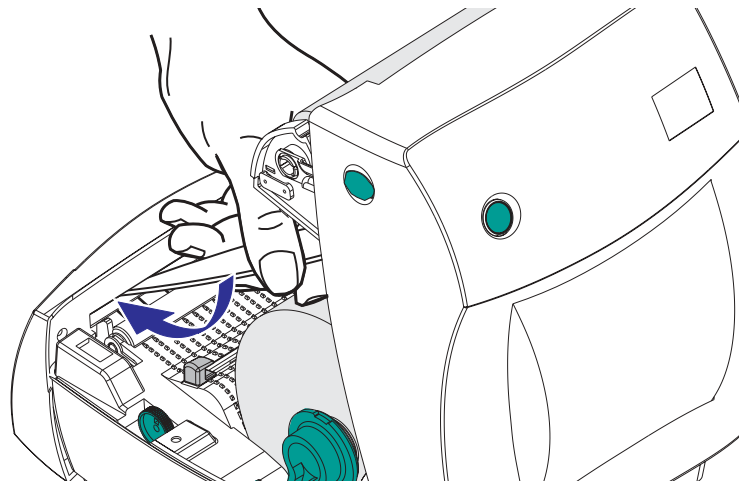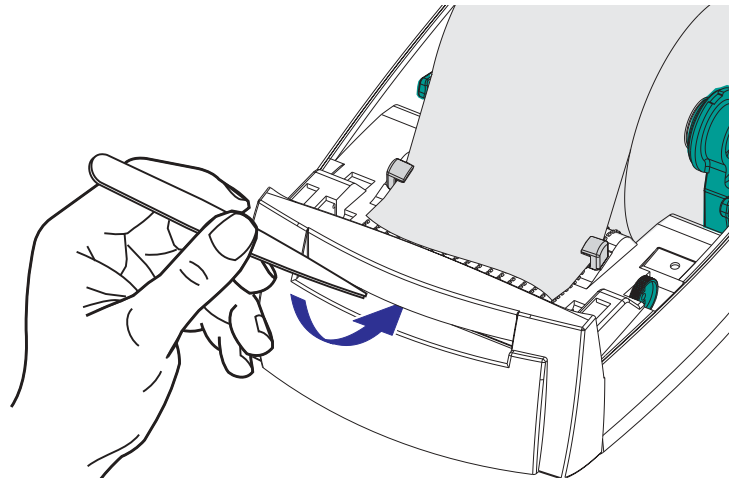
After removing debris, plug in the power and interface cables, turn on the printer, then test for normal operation.

Appendix A - Troubleshooting

Problem	Solution or Reason
STATUS Indicator	
Does not light after turning ON (I) printer.	1. Check power connections from A.C. outlet to power supply to printer. 2. Check that media or ribbon is present.
Blinks GREEN.	1. Printer receiving data through interface. 2. Signal to begin AutoSense after turning ON printer. Release the FEED button.
Blinks GREEN-RED-RED.	1. Operator has paused the printer during a batch job. Tap the FEED button to continue.
Lights ORANGE.	1. Ribbon is out. Reload a new supply. 2. The optional cover open sensor is active. Press top cover to close and lock. 3. Printer has a syntax or command error. Check program and resend print job.
Blinks ORANGE.	1. Firmware download in process. Indicator lights red, then green.
Lights RED.	1. Media is out. Reload a new supply. 2. Power-up failure. 3. Printer ready to receive flash programming during firmware download.
Printer Operation	
Lights GREEN, but printer will not print.	1. Check interface cable connections from computer to printer. 2. Make sure top cover is locked closed. 3. Check that labels are correct. 4. Verify media has print surface up for printing. 5. Check that transfer ribbon is correctly routed and has the ink side out for thermal transfer printing.

Problem	Solution or Reason
Printer Operation--continued	
Printer appears to be working (media is being fed out), but nothing is printed.	1. Verify that the labels are the correct type. 2. Check that the roll is loaded with the direct thermal side facing up. 3. Clean the print head with cleaning pen. 4. Ensure top cover is locked closed.
Printing is faded or poor quality.	1. Clean the print head with cleaning pen. 2. Adjust print speed/darkness in software. 3. Check the media and verify that print surface is facing up. 4. Check the correct combination thermal transfer ribbon and media are in use.
Prints only partial label or skips a label.	1. Perform AutoSense gap sensor adjustment on page 8. 2. Label caught on print head. 3. Top cover is not properly latched. 4. Possible software problem. Check the printer memory configuration. Refer to the EPL2 Programming manual.
Printing stops and STATUS indicator lights ORANGE or RED.	1. Perform AutoSense gap sensor adjustment on page 8. 2. Possible problem with label stock. Use only approved labels and tags. 3. Possible label jam. 4. Insufficient memory for label size. Check the printer memory configuration. 5. Possible software problem. Refer to the EPL2 Programming manual.

Troubleshooting Media Handling

Problem	Solution or Reason
Label Dispenser	
Printing continues between labels.	1. Make sure label-taken sensor is on. 2. The label-taken sensor is blocked or dirty. Remove any scraps or dust. 3. Continuous media may be set. Verify form length setting through programming **Q** command. See the EPL2 programmer's manual.
Prints one label and stops.	1. Verify the quantity has been correctly set.
Cutter Operation	
Blade cuts through labels instead of cutting liner between labels.	1. Verify form length setting through programming.
Media jammed in cutter.	1. Unplug power and interface cables. Use tweezers to remove scraps from cutter opening.
Media fails to cut direct thermal paper or label liner.	1. Use programming **C** command to cycle cutter several times without media to perform a self-cleaning. See the EPL2 programmer's manual. 2. Cutter must be replaced.

Serial Interface Cable Wiring The figure below displays the cable wiring required to use the printer's RS-232 serial interface.

Host — DB-9 to DB-9 — Printer

Host	DB-9 Pin #		DB-9 Pin #	Printer
N/C	→ 1		1 >	← +5 Volts*
RxD ←	→ 2 >	—————→	2 >	← TxD
TxD →	→ 3 >	—————→	3 >	→ RxD
DTR	→ 4 >	—————→	4 >	N/C
GND	→ 5 >	—————→	5 >	GND
DSR ←	→ 6 >	—————→	6 >	← RDY
RTS	→ 7 >	—————→	7 >	N/C
CTS ←	→ 8 >	—————→	8 >	← RDY
RI	→ 9		9 >	N/C
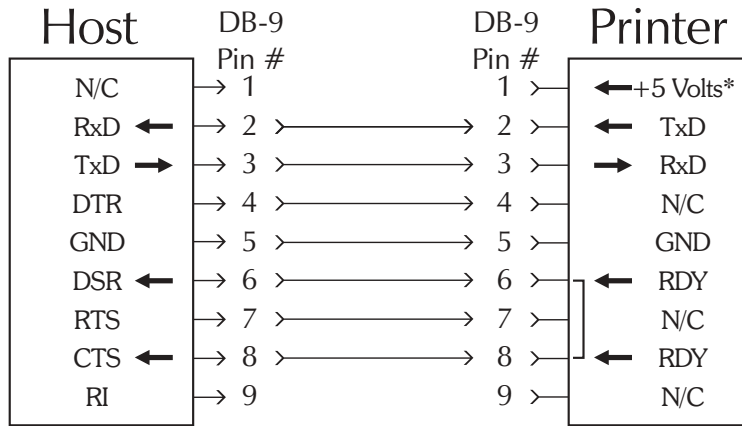
Female DB-9 to Male DB-9
Cable P/N 300017-006 (6') or 300017-010 (10')

Host — DB-25 to DB-9 — Printer

Host	DB-25 Pin #		DB-9 Pin #	Printer
N/C	→ 8		1 >	← +5 Volts*
RxD ←	→ 3 >	—————→	2 >	← TxD
TxD →	→ 2 >	—————→	3 >	→ RxD
DTR	→ 20 >	—————→	4 >	N/C
GND	→ 7 >	—————→	5 >	GND
DSR ←	→ 6 >	—————→	6 >	← RDY
RTS	→ 4 >	—————→	7 >	N/C
CTS ←	→ 5 >	—————→	8 >	← RDY
RI	→ 22		9 >	N/C
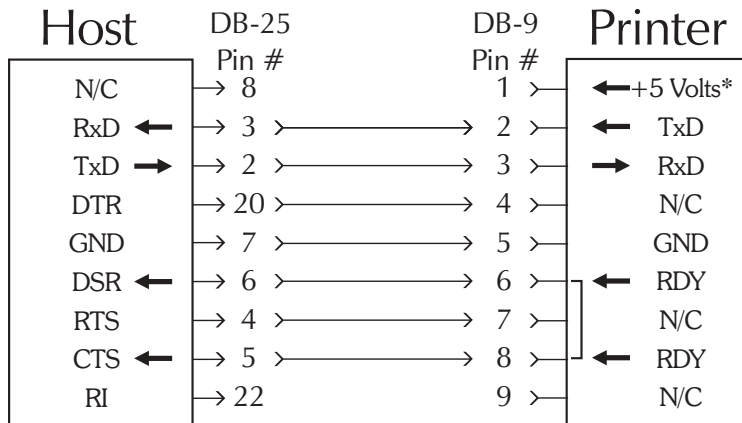
Female DB-25 to Male DB-9
Cable P/N 300018-006 (6')

*+5 volts at 150 mA for external device (e.g. KDU or scanner)

Parallel Interface Cable Wiring The figure below displays the cable wiring required to use the printer's Centronics parallel interface.

HOST	DB-25 Pin No.		Centronics Pin No.		PRINTER
STROBE	→	1 ——————→	1	→	STROBE
DATA 0	→	2 ——————→	2	→	DATA 0
DATA 1	→	3 ——————→	3	→	DATA 1
DATA 2	→	4 ——————→	4	→	DATA 2
DATA 3	→	5 ——————→	5	→	DATA 3
DATA 4	→	6 ——————→	6	→	DATA 4
DATA 5	→	7 ——————→	7	→	DATA 5
DATA 6	→	8 ——————→	8	→	DATA 6
DATA 7	→	9 ——————→	9	→	DATA 7
ACK/	←	10 ←——————	10	←	ACK/
BUSY	←	11 ←——————	11	←	BUSY
PAPER ERR.	←	12 ←——————	12	←	PAPER ERR.
READY	←	13 ←——————	13	←	READY
INIT	→	14 ——————→	14	→	INIT
ERROR/	←	15 ←——————	15	←	ERROR/
N/A		16	16		N/A
N/A		17	17		N/A
N/A		18	18	←	+5V
SIG. GND	↔	19 ←————→	19	↔	SIG. GND
SIG. GND	↔	20 ←————→	20	↔	SIG. GND
SIG. GND	↔	21 ←————→	21	↔	SIG. GND
SIG. GND	↔	22 ←————→	22	↔	SIG. GND
SIG. GND	↔	23 ←————→	23	↔	SIG. GND
SIG. GND	↔	24 ←————→	24	↔	SIG. GND
SIG. GND	↔	25 ←————→	25	↔	SIG. GND

Female DB-25 to Male Centronics (Cable)

+5 volts at 300 mA for external device (e.g. KDU or scanner)

Universal Serial Bus (USB) The table below provides the contact terminating assignments by number and electrical value for the cable connectors.

Contact Number	Signal Name	Typical Wiring Assignment
1	VBUS	Red
2	D-	White
3	D+	Green
4	GND	Black
Shell	Shield	Drain Wire

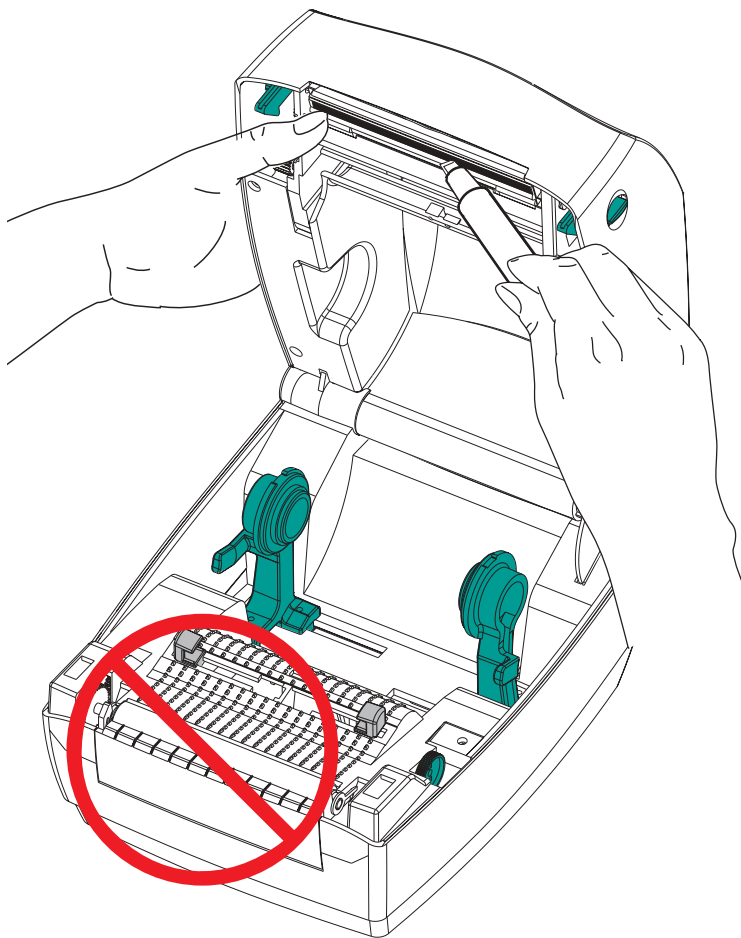You can refer to the Universal Serial Bus Specification for details regarding this interface.

Cleaning the Print Head   When you load new media, you can also clean the print head.

Turn OFF (O) the printer before performing this procedure.

Rub Cleaning Pen Across Dark Area of Print Head

Wait One Minute Before Closing Printer

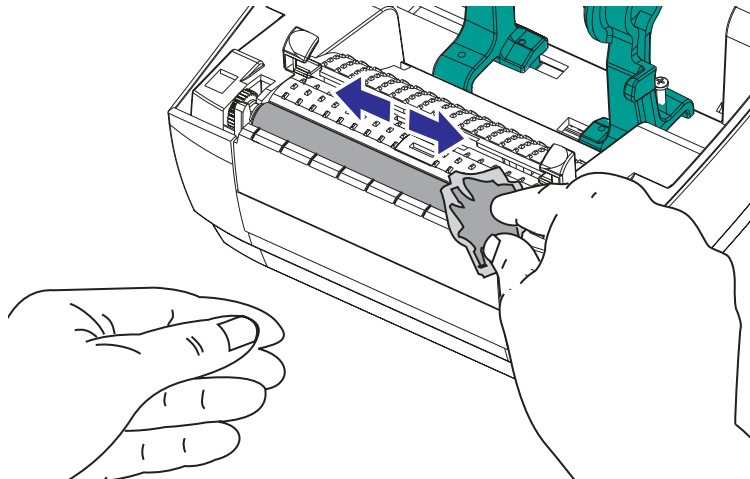**Do Not Clean Roller With Cleaning Pen**

Cleaning the Platen The platen, over time, picks up adhesive and dust which requires occasional cleaning.

To follow these steps, you require a clean, lint-free cloth lightly moistened with isopropyl alcohol.
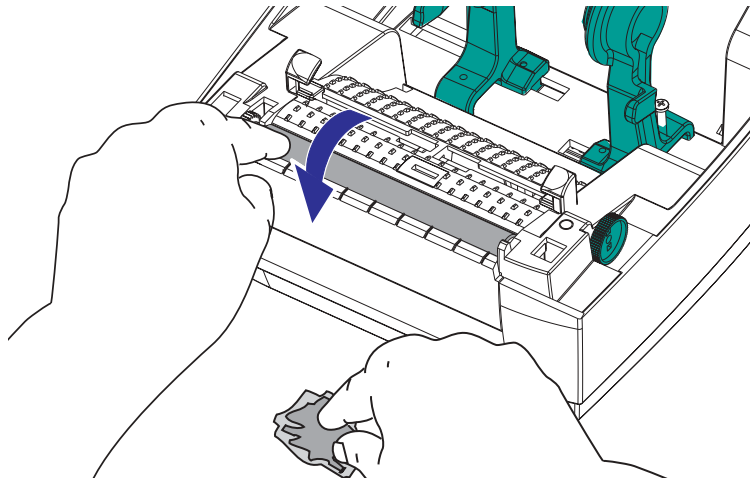
Turn OFF (O) the printer before performing this procedure.

Gently Wipe Top of Platen

Advance Platen One-Sixth (1/6) Turn (about 60°)

Repeat Steps Until Platen is Clean

Let the platen dry for at least one minute before loading media.

Preparing Media, Paper, and Labels Before Loading

During shipment, the outside length of media may become dirty when handled or dusty when stored. A preparation before loading media makes sure both the print head and platen stay cleaner for more time.
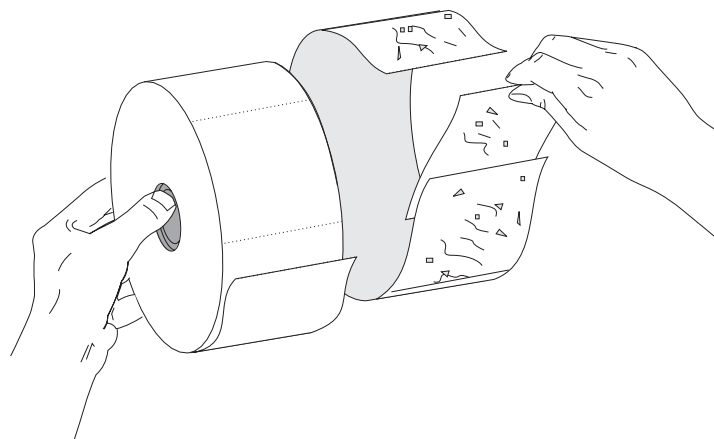
Label Rolls

Find the tape and pull off both labels held by the tape
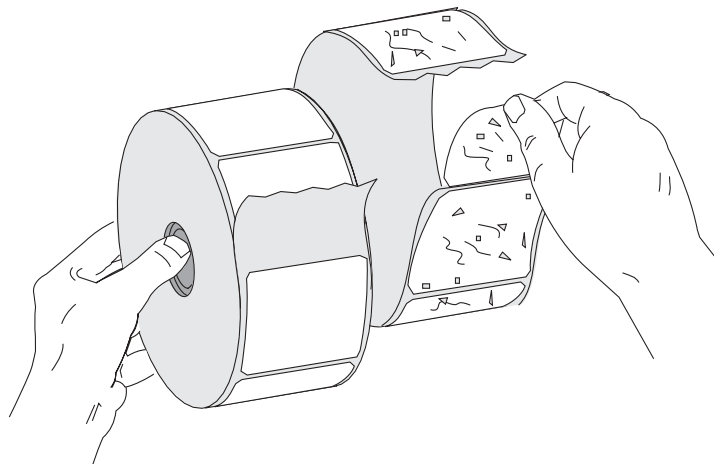
Tag Stock Rolls

Find the tape and detach the bottom tag

You must avoid dragging adhesive or dirty media between the print head and platen. Such an occurance damages the print head and is not covered under your warranty.

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