

QLS-3000Xe QLS-2000Xe **SERIES**



Operations Manual

22834527

QUICK LABEL[®] SYSTEMS

The Labels You Want When You Need Them[®]

QLS-3000Xe QLS-2000Xe **SERIES**

Digital Color Label Printer

Operation & Setup Guide

Part Number 22834527

Version 1.5

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Firmware V 2.0

Specifications are subject to change without notice

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Ownership Information

Congratulations and thank you for your business. Your purchase of a quality QuickLabel Systems product is an investment in the finest of state-of-the-art printing and labeling technology. Please use the spaces below to list the model name/number and serial number of your product.

Model Name/Number: _____

Serial Number: _____

FCC Compliance Statement

This equipment has been tested and found to comply with the limits of a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential environment. This equipment generates, uses, and radiates radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference. However, there is no guarantee that interference will not occur. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from which the receiver is connected.
- Consult QuickLabel Technical Support.

Warning: Modifications not expressly approved by Quick Label Systems could void user authority to operate the equipment.

Canadian Compliance Statement

This Digital apparatus meets all the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique respecte les exigences du Règlement sur le matériel brouilleur du Canada.

ETL Certification

This product has met the United States of America and Canada electrical product safety requirements and has earned the ETL Listed Mark.

RoHS Compliance

We declare that the QLS-3000/2000 Xe Series complies with The European RoHS Directive 2002/95/EC (Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment), as of 7/24/2006.

This declaration is based on information provided by suppliers based on reasonable inquiry. This declaration is rendered invalid if the product is altered by someone other than Astro-Med, Inc.

Declaration of Conformity
Declaration de Conformité
Übereinstimmungserklärung
Dichiarazione di Conformità

ID	DoC-22834527
Manufacturer's name and address Nom et adresse du fabricant Hersteller Nome del costruttore	Astro-Med, Inc. 600 East Greenwich Avenue West Warwick, RI 02893 USA
Model No. Modele No. Model Nr. Modello No.	QLS-2000 Xe QLS-2001 Xe QLS-3000 Xe QLS-3001 Xe CTS-45
Standards to which conformity is declared Standards auquel la conformité appartient Normen für welche Übereinstimmung erklärt wird Norme per le quali si dichiara la conformità	Safety: ANSI/UL 60950-1 CAN/CSA C22.2 No. 60950-1 EMC: CISPR 24 ed. 2.0 (2010-08) CISPR 22 ed. 6.0 (2008-09) IEC 61000-3-2 ed3.0 (With A1:2008 +A2:2009) IEC 61000-3-3 ed2.0 (2008) IEC 61000-4-2 ed 2.0 (2008)* IEC 61000-4-3 ed 2.0 (2006 +A1: 2007 + A2:2010) IEC 61000-4-4 ed 2.0 (2004-07) IEC 61000-4-5 ed 2.0 (2005) IEC 61000-4-6 ed2.0 (2008) IEC 61000-4-8 ed2.0 (2009-09) IEC 61000-4-11 ed2.0 (2004-03)
Application of Council Directives Application des Decisions du Conseil Anwendbar für die Richtlinien Applicazione delle Direttive del Comitato	2004/108/EC 2006/95/EC
I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive and Standard. Je, Soussigné, déclare que l'équipement spécifié ci-dessus est en conformité avec la directive et le standard ci-dessus. Ich, der unterzeichnende erkläre hiermit, daß das oben beschriebene Gerät den vorgenannten Richtlinien und Normen entspricht. Il sottoscritto dichiara che l'apparecchio sopra specificato è conforme alle Direttive e Norme sopra specificate.	
Steven Holbrook Quality Assurance Manager Astro-Med, Inc.	 Date of issue: <u>4/15/2014</u> Place of issue: <u>West Warwick, RI</u>
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*The equipment complies with IEC 61000-4-2, but with degraded performance as defined by "Performance criterion B" of the standard. The display on the printer may blank out when subjected to an electrostatic discharge. If the printer is operating, operation will continue in this state and all output of and settings stored within the printer will remain intact. The printer display will return to normal operation after the power is cycled.

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Chapter 1: Before You Get Started

The QLS-3000/2000 Xe Series thermal transfer printers print in vibrant spot color. In addition, the QLS-3000 Xe model prints full process color.

- QLS-2000 Xe.....Prints two spot colors on top of the media.
- QLS-2001 Xe.....Prints one spot color on each side of the media simultaneously.
- QLS-3000 Xe.....Prints three spot colors or full process color on top of the media.
- QLS-3001 Xe.....Prints two spot colors on top of the media and one spot color on the bottom simultaneously.

QuickLabel Systems Media

Your QLS-3000/2000 Xe Series printer will provide correct print quality only when used with Genuine QuickLabel Systems Labels, Tags and Thermal Transfer Ribbon. QuickLabel Systems Thermal Transfer Ribbon is designed to function as an integral part of the QLS-3000/2000 Xe Series printing system and is formulated to provide the most vibrant and durable image while helping to maintain long printhead life.

QuickLabel Systems offers a unique media purchase program called a **Media Requirements Contract (MRC)**. With an MRC, your media costs will be tailored to annual usage, not individually-purchased quantity. The benefit to you is fixed low pricing for the products you plan to purchase anyway. The benefit to us is the ability to plan our production more efficiently. You will also receive free printhead replacement for the duration of the contract.

Some benefits of an MRC include:

Flexible Ordering - Order what you need, when you need it. An MRC never locks you into purchasing media you don't want. There is no minimum spending requirement, no frequency requirement, no advance payment, and you may add new items at any time.

Freeze Your Costs - Your one-year commitment to purchase your ribbons and labels commits us to sell you media only at the contracted price. And, with an MRC your costs will remain fixed, so you can safely budget expenses as far as a year in advance.

Free Printhead Replacement - As an added incentive, QuickLabel Systems guarantees you free and unlimited replacement of all printheads worn by normal use during the life of your contract. You can be confident that your printhead wear will be "normal" because you will be using only the ribbons and labels for which your printer was designed.

Fast Delivery - Your MRC is designed to let you place your label and ribbon orders as you need them, anywhere from a week to a year in advance of shipping. You decide the products you need and leave the rest to us. Your ribbon and labels will arrive on schedule so you never experience production downtime.

Contact your QuickLabel Systems Media Sales Specialist for more information or to enroll in the MRC program.

Quick Start Guide

If you are an experienced user of a QuickLabel Systems Digital Color Label Printer or you have attended QuickLabel Systems College training, use this Quick Start Guide as a reference to begin producing beautiful color labels immediately.

In general, these operations should be performed in the sequence listed below, skipping over any items that may have been previously completed.

- Page 2-2 Unpack the printer**
- Page 2-3 Assemble the required components**
- Page 2-6 Connect the AC power cord**
- Page 2-7 Connect the host computer interface**
- Page 2-14 Load thermal transfer ribbon**
- Page 2-16 Load label or tag media**
- Page 2-19 Specify a media type**
- Page 2-20 Calibrate the printer to the appropriate media type**
- Setup software parameters**
- Appendix D Printing from Custom QuickLabel**
- Appendix E Printing from a Windows application with the QuickLabel Systems Windows Printer Driver**

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Chapter 2: Printer Setup

This chapter will help you to familiarize yourself with the orientation and components of the printer. This chapter also covers the various connections that need to be made to the printer before it can be operated.

This chapter provides the following information:

- Instructions on unpacking and orienting the printer
- An overview of the features and components of the printer
- Instructions for connecting power and communication cables to the printer
- Instructions for loading thermal transfer ribbon
- Instructions for loading label or tag stock
- Instructions for calibrating the printer for the installed media

Unpacking the Printer

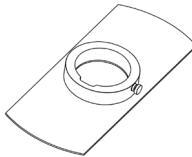
- 1 Remove the printer from the packing carton.
- 2 Ensure that the printer has suffered no visible signs of damage during shipment.
- 3 Verify that the following items have been included in the packing carton:



AC Power Cord



**Centronics Parallel Cable
(IEEE-1284)**



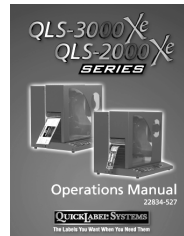
Media Retainer



Windows Printer Driver CD



Warranty Registration Card



Operation & Setup Guide



Memory Card

Note: Retain all packaging should the printer need to be transported at a later time.

Assembly

Printers

Printers are shipped partially disassembled to prevent damage during shipment. Locate the printer cover and five #6 screws shipped with the equipment.

Attach the cover to the printer.

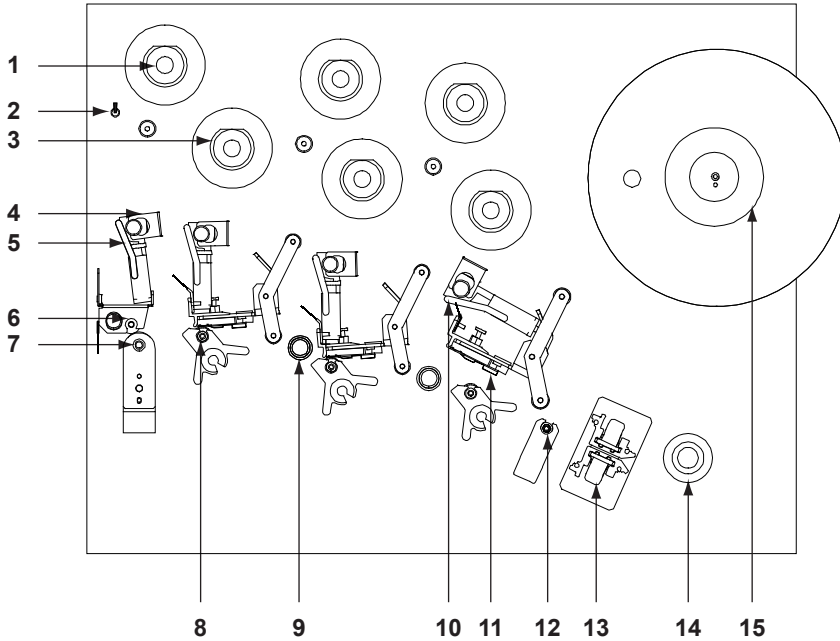
Cutter, Cutter-Stacker, or External Rewinder

Peripherals are documented separately. Refer to the documentation for the appropriate option. The connection from the cutter or cutter-stacker to the printer will be through the printer's utility I/O port.

QLS-3000/2000 Xe Series Features

Front View

All models contain mechanisms similar to those shown on the QLS-3000 Xe model illustrated.



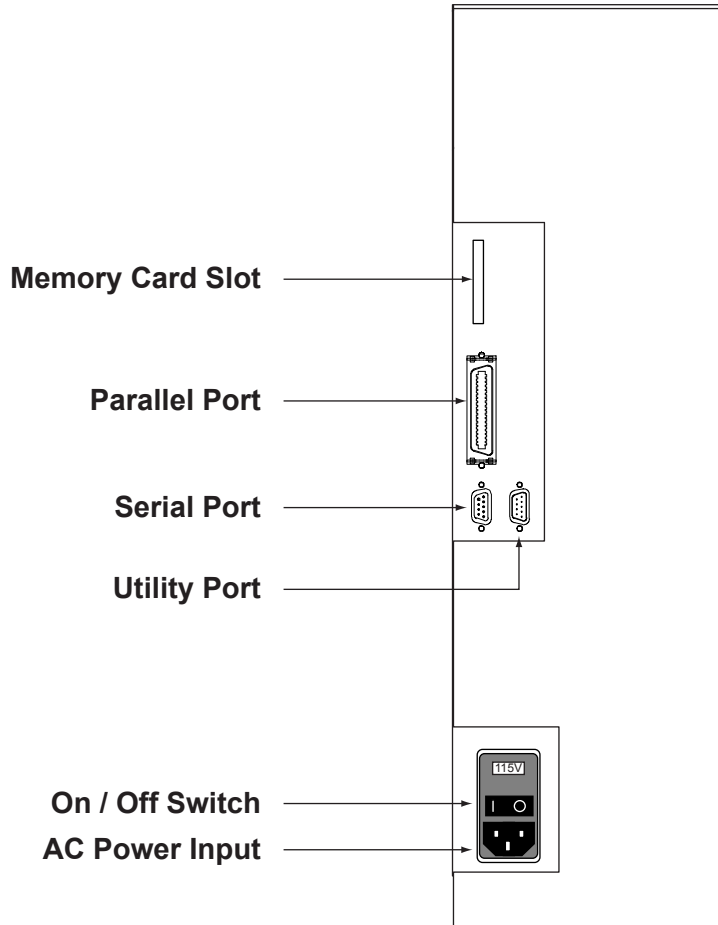
- | | |
|---|---|
| 1. Thermal transfer ribbon rewind mandrel (front station) | 9. Guide roller |
| 2. Thermal transfer ribbon tension switch | 10. Print station cam lever (open position) |
| 3. Thermal transfer ribbon unwind mandrel (front print station) | 11. Printhead |
| 4. Silver clip holding the cam | 12. Media index roller |
| 5. Drive roller pressure cam lever (closed position) | 13. Media sensor (reflective/gap-notch sensor inside) |
| 6. Drive roller pressure support assembly | 14. Media guide roller |

- 7. Drive roller
- 8. Platen roller

- 15. Media unwind mandrel

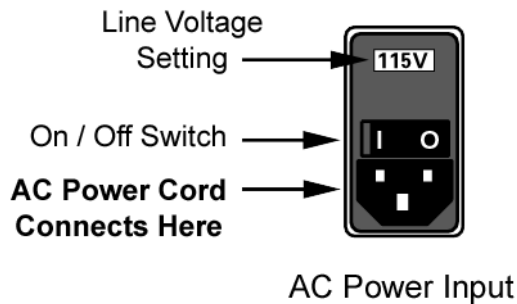
Side Panel View

Interface and power connections are located on the right side panel.



Power Connection

- 1 Locate the AC Power Input at the bottom of the right-side panel.
- 2 Plug the power cord into the printer. Be sure to use only the AC Power Cord supplied with the printer. Ensure that the power switch is in the OFF position before proceeding to the next step.
- 3 Connect the opposite end of the AC Power Cord into an earth grounded AC receptacle. Do not power the printer on until you have finished making the remaining connections described in this chapter.



Warning: Do not use any type of receptacle adapter or AC Power Cord that has not been supplied with the unit. Doing so can result in damage to the printer.

Note: The printer has been set at the factory for the correct line voltage for your country. The voltage setting can be viewed in a window at the top of the AC Power Input. If this setting needs to be changed, refer to the procedure in Chapter 6 of this manual.

Note: It is recommended that an AC line conditioner / surge suppressor is used. Select a unit that is capable of handling the power requirements of the printer and protecting from surges and spikes. A VA rating of at least 1350 VA is required.

Computer Connections

QLS 3000/2000 Xe Series printers can receive data through either a serial or parallel connection. Bidirectional communication (send and receive) is supported serially.

Parallel Port

- 1 Using the parallel cable supplied with the printer, connect the larger connector to the parallel port on the printer.
- 2 Lock the two metal rings on the parallel port into the connector to secure it to the printer.
- 3 Connect the opposite end of the parallel cable to the host computer. Be sure to note which port (LPT1, LPT2, etc.) you have connected the printer to as this will later be needed for driver or software setup.

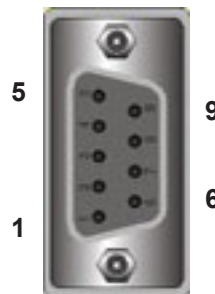
Note: The maximum recommended parallel cable length is 10 feet (3 m).

RS-232 Serial Port

- 1 Using a standard (straight through connection) RS-232 serial cable, connect the appropriate mating end of the cable into the printer.
- 2 Tighten the cable securing screws into the serial port to secure the cable to the printer.
- 3 Connect the opposite end of the serial cable to the host computer. Be sure to note which port (COM1, COM2, etc.) you have connected the printer to as this will later be needed for software setup.

Pin Assignments

Pin	Signal
1	not used
2	TXD (transmit data)
3	RXD (receive data)
4	DTR (data terminal ready)
5	ground
6	DSR (data set ready)
7	internally connected
8	internally connected
9	not used



Note: The maximum RS-232 serial cable length is dependent on the communication parameters being used. For best performance and reliability, only serial cables supplied by QuickLabel Systems should be used.

Communications

Printer Drivers

Refer to the printer driver documentation for software installation instructions. QLS 3000/2000 Xe Series printers can be addressed by a Windows driver, QuickLabel Systems Custom QuickLabel™ software, and by third-party software.

Comm Protocol

To set the communications protocol and select a host command prefix:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		> Comm		System	

- 2 In the COMM menu, use the arrow keys to select Ptcl. Then press the SELECT key.

(COMM)	Port		Hshk		> Ptcl		Pref		Delim
Printer Protocol:		QLS-3001 Xe							

- 3 Use the up/down arrow keys to select a protocol option.

Printer Name - Select the printer name if you are printing via host commands. The printer name will reflect the printer model you are using.

Graphics - Select Graphics if you are printing via the Windows driver.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?

> NO YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.
- 5 Pres the SELECT key again to return to the COMM menu.
- 6 In the COMM menu, use the arrow keys to select Pref. Then press the SELECT key.

**(COMM) Port | Hshk | Pctl | >Pref | Delim
Cmd Prefix: = <SOH> | Fmt Prefix:= <STX>**

- 7 Use the up/down arrow keys to select a command prefix. The default command prefix is <SOH>.
- 8 Use the left/right arrow keys to select the Fmt Prefix option. Then use the up/down arrow keys to select a format prefix. The default format prefix is <STX>.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?

> NO YES

- 9 Use the left/right arrow keys to select YES, then press the SELECT key.
- 10 Pres the SELECT key again to return to the COMM menu.
- 11 In the COMM menu, use the arrow keys to select Delim. Then press the SELECT key.

**(COMM) Port | Hshk | Pctl | Pref | >Delim
Command Delimiter: = <CR><LF>**

- 12 Use the up/down arrow keys to select a command delimiter. The default command delimiter is <CR><LF>.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?

> NO YES

- 13 Use the left/right arrow keys to select YES, then press the SELECT key.

Comm Port

The comm port in use (parallel or RS-232) must be selected to enable communications. If RS-232 is used, baud rate can also be selected. The default comm port is parallel.

Note: Serial communications are required to enable status messages to be received from the printer (bi-directional communications).

If using both parallel and RS-232 serial communications, select and set up RS-232 first, then select and set up parallel communications.

If using RS-232 serial communications, the printer uses 2 stop bits.

To select comm ports:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		> Comm		System	

- 2 In the COMM menu, use the arrow keys to select Port. Then press the SELECT key.

(COMM) > Port		Hshk		Ptcl		Pref		Delim
Port:	Parallel							

- 3 Use the up/down arrow keys to specify the type of port being used. Parallel or RS-232 ports are available. Press the SELECT key.

A confirmation message will appear on the display.

Change Comm parameters permanently?

> NO YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT Key.

Baud Rate / Handshaking

If the Comm Port setting is RS-232, set Baud Rate and Handshaking to match host workstation settings. The default baud rate is 19,200.

To set baud rate and handshaking method:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

```
| Intensity | Print | Memory | Mode |  
| Align    | Media | >Comm  | System|
```

- 2 In the COMM menu, use the arrow keys to select Port. Then press the SELECT key.

```
(COMM) >Port | Hshk | Ptcl | Pref | Delim  
Port:  RS-232 | BAUD Rate: 19.2k
```

Note: The Baud Rate option is available only when RS-232 is used. The Parallel port does not use this option.

- 3 Use the left/right arrow keys to select the Baud Rate option.

```
(COMM) >Port | Hshk | Ptcl | Pref | Delim  
Port:  RS-232 | >BAUD Rate: 19.2k
```

Use the up/down arrow keys to select a baud rate. Then press the SELECT key. A confirmation message will appear on the display.

```
Change Comm parameters permanently?  
> NO      YES
```

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

- 5 Press the SELECT key again to return to the COMM menu.
- 6 In the COMM menu, use the arrow keys to select Hshk. Then press the SELECT key.

```
(COMM) Port | >Hshk | Pctl | Pref | Delim
Handshaking: N/A
```

- 7 Use the up/down arrow keys to select a handshaking method. Hardware and XON/XOFF are the available options.

```
(COMM) Port | >Hshk | Pctl | Pref | Delim
Handshaking: >XON/XOFF
```

Press the SELECT key. A confirmation message will appear on the display.

```
Change Comm parameters permanently?
>NO YES
```

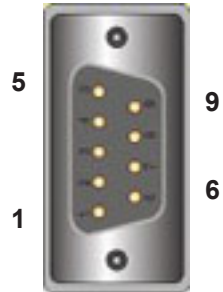
- 8 Use the left/right arrow keys to select YES, then press the SELECT key.

Utility Port Connection

On the right panel of the printer, the Utility Port permits connection to external devices such as the optional QuickLabel Systems Cutter and Cutter/Stacker.

Standard Mode

Pin	Signal	Notes
1	Reserved	
2	Ground	
3	Cutter On/Off	Output (1=on 0=off)
4	5 VDC	1A max
5	Cutter	Error Input (1=error 0=no error)
6	Cutter Pulse	~ 250 nsec pulse output
7	Reserved	
8	Reserved	
9	Error	



Note: If you are using a cutter or cutter/stacker, refer to the unit's setup and operation manual for information on setting up the unit with your printer.

Warning: Exceeding the limits of the utility port signals can result in damage to the printer.

Media

Loading Thermal Transfer Ribbon

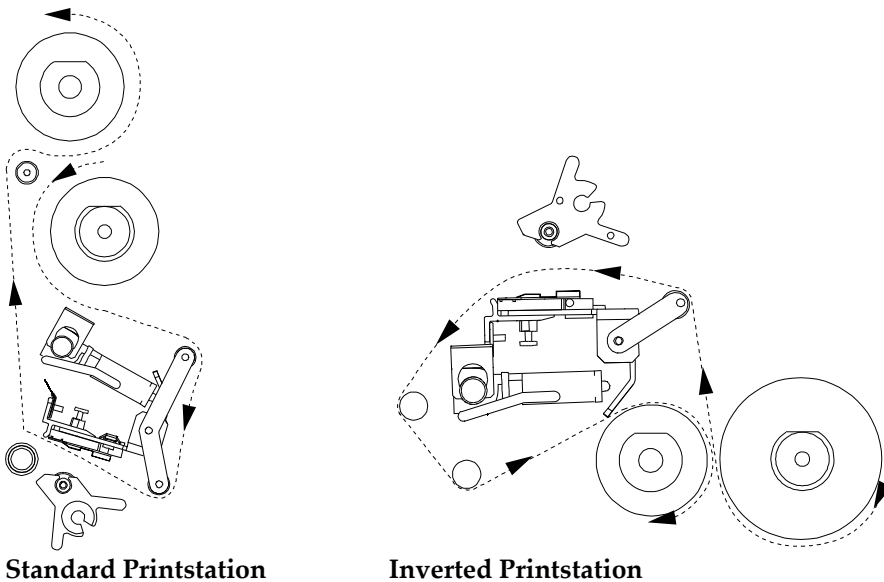
The QLS-3000/2000 Xe Series thermal transfer printers print in vibrant spot color. In addition, the QLS-3000 Xe model prints full process color.

When using *Spot Color* ribbons, each station prints a fully saturated color. Any color can be installed on any print station and the location of each color is defined in Custom QuickLabel software or the QuickLabel Systems Windows Printer Driver.

When using the QLS-3000 Xe with *Process Color* ribbons, each of the print stations prints a dot pattern of a primary color (Cyan, Magenta or Yellow). These primary colors overlap each other on the label to produce a wide range of colors. *Process Color* ribbon must be installed on specific print stations as defined below.

Print Station 1 (front)	Cyan
Print Station 2 (center)	Magenta
Print Station 3 (rear)	Yellow

The ribbon path will vary based on whether the printstation is in the standard or inverted position. Ribbon path illustrations for each printstation type are provided below.



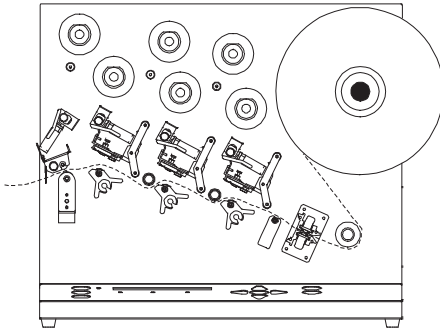
To load ribbon:

- 1 Be sure power is Off. Raise the printer cover.
- 2 Fully seat thermal transfer ribbon roll on the thermal transfer ribbon unwind mandrel. Ensure that the ribbon unwinds to the left of and beneath the roll.
- 3 Fully seat a cardboard take-up core on the associated thermal transfer ribbon rewind mandrel.
- 4 Open the printhead (flip printhead cam lever counterclockwise on standard printstations, clockwise on inverted printstations).
- 5 Advance the thermal transfer ribbon around the outside of each station's thermal transfer ribbon guide roller(s). An illustration of the ribbon path is screened on the back plate of the printer as a guide.
- 6 Advance the thermal transfer ribbon between the printhead and the platen roller.
- 7 On standard printstations, advance the thermal transfer ribbon over the thermal transfer ribbon guide spindle. On inverted printstations, advance the thermal transfer ribbon around the outside of the station's two guide spindles.
- 8 On standard printstations, advance the thermal transfer ribbon beneath and around the cardboard take-up core on the rewind mandrel. On inverted printstations, advance the thermal transfer ribbon above and around the take-up core.
- 9 Tape the thermal transfer ribbon to the core.
- 10 Close the printhead.
- 11 Repeat procedure for remaining printstations.

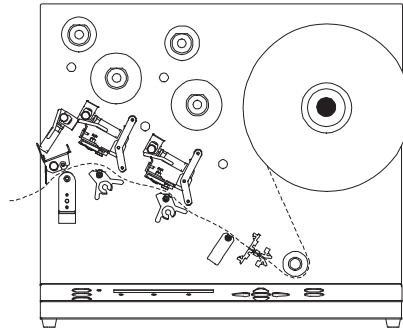
Adjustment of the ribbon tension may be required after loading thermal transfer ribbon. If the thermal transfer ribbon is wrinkling or smudging, adjust the tension to alleviate these conditions.

Loading Label Media

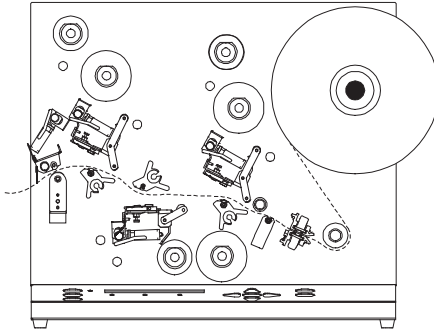
The Media menu allows you to tell the printer what type of media is loaded on the printer: sensors, image dimensions, label dimensions, and any offsets.



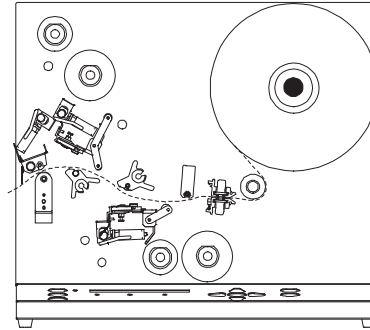
QLS-3000 Xe



QLS-2000 Xe



QLS-3001 Xe

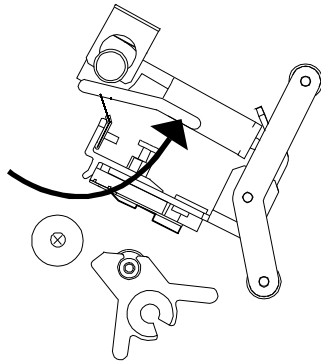


QLS-2001 Xe

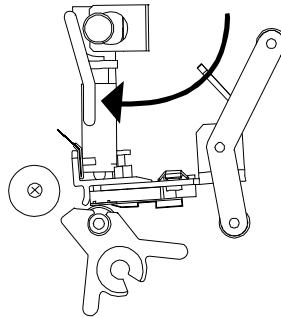
To load label media:

- 1 Be sure power is Off. Raise the printer cover.

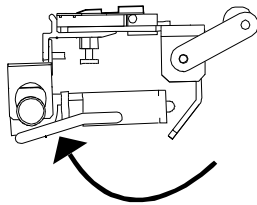
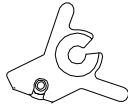
- 2 To open each printhead, flip the cam lever on each (counterclockwise on standard printheads, clockwise on inverted printheads).



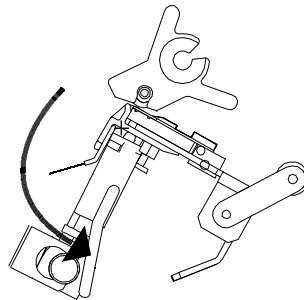
Standard Printhead Open



Standard Printhead Closed

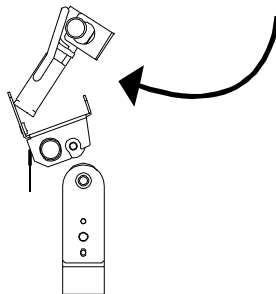


Inverted Printhead Open

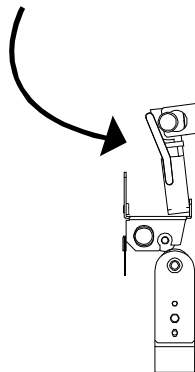


Inverted Printhead Closed

- 3 Open the drive roller by flipping the drive roller pressure cam lever open.



Drive Roll Cam Open



Drive Roll Cam Closed

- 4 Remove the media retainer from the media unwind mandrel.
- 5 Install a roll of media on the mandrel. Ensure that the roll is fully seated on the mandrel and reinstall the retainer to secure it.
- 6 Thread the media around the media guide roller and through the media sensor housing.
- 7 On QLS-2001 Xe models, thread media under the media index roller. On all other models thread media over the media index roller.
- 8 On models with standard print stations, thread the media over the platen rollers and under the guide rollers (if present). On models with inverted print stations, thread the media beneath the platen roller.
- 9 After threading the media over the platen roller on the last print station, thread the media over the drive roller and out of the printer.
- 10 Slide the media against the plastic guide block on the vertical plate. Be sure not to buckle the media against this block.
- 11 Close the printheads and the drive roller.

Specify Media Type

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.



- 2 In the MEDIA menu, use the arrow keys to select Type. Then press the SELECT key.



- 3 Press the up/down arrows to select a media type. The media type specifies whether the media stock has any top-of-form indicators, and if so, which type.

Continuous

Media sensor detects no indicators.

Gap

Media sensor interprets a gap, slot, or hole as a top-of-form indicator.

Inverted Gap

Media sensor interprets a solid area as a top-of-form indicator.

Mark

Media sensor interprets a dark reflective mark as a top-of-form indicator.

- 4 Press the SELECT key. When changing the media type, a confirmation message will appear indicating the printer needs recalibration. Use the arrow keys to select Yes, and then press the SELECT key.

Calibration

New Media

Calibrating the printer for the media being used is essential. Calibrate after every change of label type.

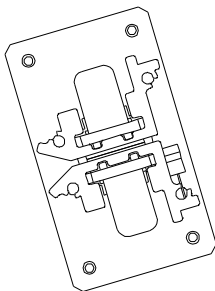
During calibration, the printer senses any top-of-form indicator between labels and allows the printer to position widely varying types of media automatically and correctly. The printer stores the last calibrated values and menu setups even after shut down and restart.

When calibrating continuous media, media length cannot be calibrated. Instead, the printer is calibrated to detect the Media Out condition.

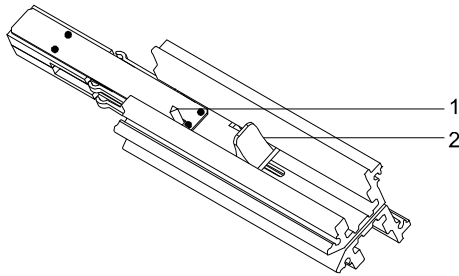
The printer's internal label queue is reset during calibration. Any labels pending in the queue are terminated.

To calibrate the printer:

- 1 Press the Pause/Print button to pause the printer.
- 2 Press and hold the Form Feed/Advance pushbutton until the gap, notch, or index mark separating labels on the media roll is positioned within two inches of the media sensor housing.



- 3 Confirm that the gap, notch, string hole, or punchout is aligned with the pointer on top of the media gap sensor: If the media has a gap between labels, the pointer must be positioned within the width of the label. To adjust the pointer, slide it into alignment.



1. Pointer

2. Red slider

- 4 Confirm that the correct type of media (gap, continuous, inverted gap, or mark) is specified.
- 5 Press Calibrate. Confirm that the correct type of media appears on the display. If the media type displayed is not the actual type loaded, select No and return to step 4.
- 6 Press the arrow keys to move the on-display indicator to Yes, then press Select. The printer will perform an automatic calibration. When calibration is complete, a message will be displayed that shows the relative reflectivity or transmissiveness between the label and top-of-form mark or gap.

Note: The difference between the two transmissiveness values should be at least 60.

Label Length

Set label length for the longest label you will be printing to ensure memory is not wasted on label area that is not used.

Maximum gap length in millimeters can also be specified. Default is 3 mm.

To specify maximum label media length:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		> Media		Comm		System	

- 2 In the MEDIA menu, use the arrow keys to select Image. Then press the SELECT key.

(MEDIA)	Type		Image		> Label		Offset
Label:	Max Len = 0300mm		Max Gap = 03mm				

- 3 Use the up/down arrow keys to adjust the maximum label length.

Max Length - Set this value to slightly more than the longest label you will be printing. This setting allows the printer to use memory more efficiently.

- 4 Use the left/right arrow keys to select the Max Gap option. Then use the up/down arrow keys to adjust the maximum label gap.

Max Gap - Set this value to at least the size of the gap between labels. This settings allows the printer to determine a media out condition.

Note: The media will feed at least two times the Max Gap setting before a media out error is reported.

- 5 Press the SELECT key.

QLS-3000Xe QLS-2000Xe **SERIES**

Chapter 3: Keypad Controls and Menus

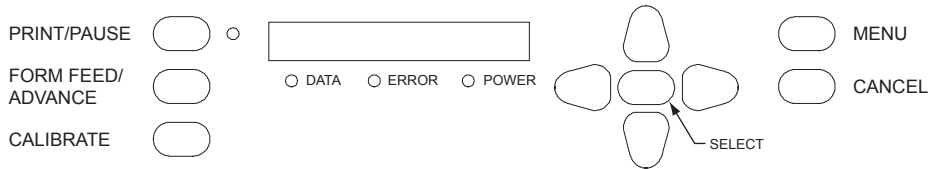
The printer features an intuitive control panel consisting of a backlit LCD display, status LED indicators, and a multi-function keypad. The control panel permits the user to change settings and make adjustments on-the-fly without the need for a host computer.

This chapter provides the following information:

- Information on the layout and function of the keypad
- An overview of menu functions and range of settings
- Detailed descriptions for each menu function

Keypad Layout and Functions

The keypad buttons perform the following general functions.



- | | |
|--------------------------|--|
| PRINT/PAUSE | Pauses or resumes printing |
| FORM FEED/ADVANCE | Advances the media by one full label length (to the next registration mark) when pressed and released, or continually advances the media when pressed and held |
| CALIBRATE | Calibrates the appropriate media sensor to the currently loaded media |
| UP/DOWN ARROW | Cycles through settings within a menu and cycles through submenus |
| LEFT/RIGHT ARROW | Cycles the display through menu choices and displays current settings for active menus |
| SELECT | Accepts the displayed setting |
| MENU | Displays current status, protocol, media type, printing progress, and speed

Press to toggle from current status to a selection of submenus |
| CANCEL | Cancels the current label(s) or test pattern |

Menu Overview

The following list outlines all of the menus that are accessible via the user interface. Some menus are only accessible when the printer has been paused using the PRINT/PAUSE key. Some menus, like the Cutter menu, are only available when a specific option is enabled or in use.

The menus are organized in two levels. Top-level menus include Intensity, Print, Memory, Mode, Align, Media, Comm (communications), and System. By choosing a top-level menu and pressing the SELECT key, you can scroll through functions related to the sub menu.

Pressing the SELECT key twice returns you to the current sub menu. Pressing the MENU key returns you to the main menu.

Intensity Menu	
Front	Adjusts the printhead intensity for the front printhead. Possible values range from 1 – 32.
Bottom	Adjusts the printhead intensity for the bottom printhead. Possible values range from 1 – 32.
Center	Adjusts the printhead intensity for the center printhead. Possible values range from 1 – 32.
Rear	Adjusts the printhead intensity for the rear printhead. Possible values range from 1 – 32.

Print Menu	
Previous	Reprints up to 99,999 copies of the last label printed, if using the Windows print driver.
Recall	Prints a report of the current printer settings, or of the last 500 bytes of data received by the printer.
Test	Prints test patterns. Possible values are V Lines, H Lines, Text, Flood, and Blocks.
Speed	Adjusts the print speed. Possible values range from 2 – 5 inches per second.

Memory Menu	
Total	Displays the total amount of bitmap, font, and flash (CompactFlash card) memory.
Avail	Displays the available amount of bitmap, font, and flash (CompactFlash card) memory.
CF Card	Formats and/or write protects the CompactFlash memory card.

Mode Menu	
Cutter	<p>Activates the cutter accessory. Possible values are Fabric, Paper/Tag, or Disabled.</p> <p>The Cutter menu is also used to enable the Cut Flag. Possible values are On or Off.</p>
Mirror	Activates mirror mode. Possible values are Enabled or Disabled.
TTR Sensor	Used by QuickLabel Systems' technicians when performing factory diagnostics. Possible values are On or Off for each printhead, but in general use, the sensor should always be On.

Align Menu	
Down-Web	Adjusts the down web alignment for individual printheads. Possible values range from <-120 to -> 120 dots.
Cross-Web	Adjusts the cross web alignment for individual printheads. Possible values range from <-16 to -> 16 dots.

Media Menu	
Type	Adjusts the type of media used by the printer. Possible values are Continuous, Gap, Inverted Gap, and Mark.
Image	Adjusts the image width and length. If label formatting software is used, the width and length will be reported in this menu.
Label	Adjusts the maximum label length and maximum gap length.
Offset	Adjusts the print registration vertically for all printheads. Possible values range from <-300 to -> 300 dots. This menu is also used to adjust the Cut Offset.

Comm Menu	
Port	Selects the data input interface used by the printer. Possible values are Parallel or Serial.
Hshk	Specifies a handshaking method for the RS 232 serial port. Possible values are Hardware or XON/XOFF.
Ptcl	Selects whether the Windows driver or host protocol is used. Possible values are the printer name or Graphics.
Pref	Selects the command and label format prefix for host commands received by the printer.
Delim	Selects the delimiter for host commands received by the printer.

System Menu	
SysBase	Synchronizes the vertical registration across multiple printers. Possible values range from -120 to +120 dots.
Upgrade	Determines if the printer is ready for a firmware upgrade.
Language	Selects the language used for the LCD menu. Possible options are English, Italian, German, Spanish, and French.

Intensity Menu

Printhead Intensity

The printhead intensity determines the temperature of the printhead heating elements. The amount of heat applied to the thermal transfer ribbon determines the darkness of the print. The amount of heat that is actually applied to the film by the printhead is determined by two factors:

- Length of time that power is applied to the printhead
- Rate at which the media is traveling under the printhead

The print intensity setting determines the first factor and the second is controlled by the print speed. The printer has 32 discrete heat settings. A setting of 1 is the coolest setting, resulting in the lightest print. A setting of 32 is the hottest setting, resulting in the darkest print.

The appropriate heat setting will vary depending on the media and ribbons being used as well as the print speed setting. As a general guideline, the ribbon types listed below will function best in the following print intensity ranges:

Wax	1 to 12
Wax/Resin	6 to 20
Resin	16 to 32

In general, lower-quality media that requires more heat to produce a satisfactory image is less advantageous in terms of speed and performance than higher-quality media that images easily and quickly at lower temperatures. If you use media that requires more heat, it is recommended that you set the print speed to a slower rate.

Note: Some thermal transfer ribbon (typically, Resin type) reacts differently, actually printing lighter if too much heat is applied. This is a result of overburning the ink. If this occurs, decreasing the heat will darken the printed image.

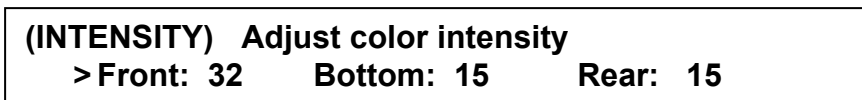
To set heat intensity:

- 1 Press the MENU key. Use the arrow keys to select Intensity from the menu and then press the SELECT key.



- 2 In the INTENSITY menu, use the arrow buttons to select a setting from 1 (coldest) to 32 (hottest) for each printhead.

Press the up/down arrows to increase/decrease the heat intensity for the selected printhead. Press the left/right arrows to select a different printhead.



Notes: The printhead names will vary based on the printer model.

The Front head is the station closest to the media exit. The Rear head is closest to the media supply.

Heat intensity values can also be set in the formatting software. In this case, format settings will override the menu settings.

- 3 Press the MENU key to return to the menu.

Print Menu

Previous

When printing via the Windows driver, the last job sent to the printer can be reprinted. Up to 99,999 copies can be printed.

To reprint the previous job:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity		> Print		Memory		Mode	
	Align		Media		Comm		System	

- 2 In the PRINT menu, use the arrow keys to select Previous. Then press the Select key.

(PRINT)	> Previous		Recall		Test		Speed
Reprint Label:	Label Name						> qty: 15

The name of the last printed label will be displayed. If no label is stored in memory, the text “(none)” will be displayed and the reprint feature will be unavailable.

- 3 Press the up/down arrow keys to increase/decrease the print quantity. Then press the SELECT key. The selected quantity of the previously printed label will print.

Recall

Use the Recall option to print a report of the current printer settings, or of the last 500 bytes of data received by the printer.

To print a recall report:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity		> Print		Memory		Mode	
	Align		Media		Comm		System	

- 2 In the PRINT menu, use the arrow keys to select Recall. Then press the Select key.

(PRINT)	Previous		> Recall		Test		Speed
Recall Label:	> (Data RXD)						qty: 15

- 3 Press the up/down arrow keys to select the type of report to print.

Settings - Prints a report of the current printer settings.

Data RXD - Prints a report of the last 500 bytes of data received by the printer.
- 4 Press the left/right arrows to move to the Quantity option. Then use the up/down arrow keys to select the number copies to print.
- 5 Press the SELECT key. The selected quantity of the report will print.

Test

Use the Test option to print test patterns.

To select and print a line, text, or flood test pattern:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity		> Print		Memory		Mode	
	Align		Media		Comm		System	

- 2 In the PRINT menu, use the arrow keys to select Test. Then press the Select key.

(PRINT)	Previous		Recall		> Test		Speed	
Print Test Pattern:	> Flood						qty: 15	

- 3 Use the arrow keys to select a test pattern.
- 4 Press the left/right arrows to move to the Quantity option. Then use the up/down arrow keys to select the number copies to print. To continuously run the pattern, select the infinity symbol. Press the SELECT key.
- 5 Select Yes when prompted to overwrite memory with the test pattern and perform the test. This will cause anything else in memory to be erased.
- 6 Press the PRINT/PAUSE key to print the test pattern. The printer will immediately print the number of patterns specified. If infinity was selected as a quantity, pause the printer and press the CANCEL key to cancel the batch and clear memory.

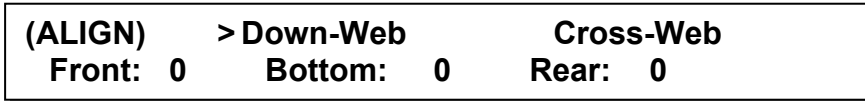
To evaluate whether web alignment should be adjusted, print a Block Test.

To print a block test pattern:

- 1 Press the MENU key. Use the arrow keys to select Align from the menu and then press the SELECT key.



- 2 Set the Down-Web and Cross-Web setting for each printhead to 0.



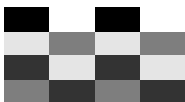
Note: The printhead names will vary based on the printer model.

- Select Down-Web and press the SELECT key. Press the up/down arrows to increase/decrease the value for the selected printhead to 0. Press the left/right arrows to select a different printhead. Set the down-web value for each printhead to 0.
- Select Cross-Web and press the SELECT key. Press the up/down arrows to increase/decrease the value for the selected printhead to 0. Press the left/right arrows to select a different printhead. Set the cross-web value for each printhead to 0.

Press the MENU key to return to the menu.

- 3 Print the Blocks test pattern, as described in the previous section.
- 4 After printing the pattern, examine alignment of the blocks within the pattern. If registration is off on block edges or the pattern is not square, realign the print stations.

On the QLS-3000 Xe, the process black block should appear solid without any other color along an edge. If a color appears along an edge, realign that print station.



Speed

The printer can print at speeds from 2 to 5 inches-per-second. When setting the motor speed, consider the requirements of the media you are using and the heat setting you are selecting. These factors determine printer performance on each job.

To set printer speed:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity		> Print		Memory		Mode	
	Align		Media		Comm		System	

- 2 In the PRINT menu, use the arrow keys to select Speed. Then press the Select key.

(PRINT)	Previous		Recall		Test		> Speed
Speed (inch/s):	2		3		4		5

- 3 Press the left/right arrow keys to select a print speed. Print speeds are specified in inches/second. Then press the SELECT key.

Note: Print speed can also be set in the formatting software. In this case, format settings will override the menu settings.

Memory Menu

Use the Memory option to view memory settings for the printer. The printer uses the following types of memory.

Bitmap - Bitmap memory is used to store images that have been sent to the printer. This memory type is volatile memory; it is erased when the printer is powered off.

Font - Font memory is used to store fonts that have been sent to the printer. This memory type is volatile memory; it is erased when the printer is powered off.

Flash - An external CompactFlash memory card can be used to store images or fonts. This memory type is non-volatile; it remains saved when the printer is powered off.

The type of memory used is determined by the host.

Total

To view the printer's total amount of memory:

- 1 Press the MENU key. Use the arrow keys to select Memory from the menu and then press the SELECT key.

	Intensity		Print		>Memory		Mode	
	Align		Media		Comm		System	

- 2 In the MEM menu, use the arrow keys to select Total. The total amount of memory will be displayed.

(MEM)	> Total		Avail		CF Card
Bitmap = 7000k			Font = 3500k		Flash = 30956k

Available

To view the printer's available amount of memory:

- 1 Press the MENU key. Use the arrow keys to select Memory from the menu and then press the SELECT key.

	Intensity		Print		>Memory		Mode	
	Align		Media		Comm		System	

- 2 In the MEM menu, use the arrow keys to select Avail. The available amount of memory will be displayed.

(MEM)	Total		>Avail		CF Card
Bitmap = 3468k			Font = 1734k		Flash = 131072k

CF Card

If you have a CompactFlash memory card inserted in the memory card slot, which is located on the side panel, use the following instructions to format and/or write protect the card.

- **Format Card** - Memory cards must be formatted before they can be used. The memory card write protection setting must be off to allow memory card formatting.

Note: Use caution when formatting memory cards. Formatting a memory card permanently erases all data on the card.

- **Write Protect** - You can write protect memory cards to prevent contents from being accidentally erased while using the printer. However, write protection will not protect the memory card data if the card is used with a PC reader.

To format the CF memory card:

- 1 Press the MENU key. Use the arrow keys to select Memory from the menu and then press the SELECT key.

	Intensity		Print		> Memory		Mode	
	Align		Media		Comm		System	

- 2 In the MEM menu, use the arrow keys to select CF Card. Then press the SELECT key.

(MEM)	Total		Avail		> CF Card
	Format Card: No		Write Protect: Off		

- 3 Press the left/right arrow keys to select the Format Card option. Use the up/down arrow keys to select Yes. Then press the SELECT key. A confirmation message will appear on the display.

Format CF with volume:	QLSXE_00
> No	Yes

Note: The printer name will reflect the model you are using.

- 4 Press the left/right arrow keys to select Yes. Then press the SELECT key. The memory card will be formatted.

To write protect the CF memory card:

- 1 Press the MENU key. Use the arrow keys to select Memory from the menu and then press the SELECT key.

	Intensity		Print		>Memory		Mode	
	Align		Media		Comm		System	

- 2 In the MEM menu, use the arrow keys to select CF Card. Then press the SELECT key.

(MEM)	Total		Avail		> CF Card
Format Card: No			Write Protect: Off		

- 3 Press the left/right arrow keys to select the Write Protect option. Use the up/down arrow keys to select Yes. Then press the SELECT key. The memory card will be write protected.

Mode Menu

Cutter

If using an optional cutter or cutter/stacker accessory, you can enable it using the Cutter menu option.

To enable/disable the cutter:

- 1 Press the MENU key. Use the arrow keys to select Mode from the menu and then press the SELECT key.

	Intensity		Print		Memory		> Mode	
	Align		Media		Comm		System	

- 2 In the MODE menu, use the arrow keys to select Cutter. Then press the SELECT key.

(MODE)	> Cutter		Mirror		TTR Sensor
Cutter Unit:	Disabled		Cut Flag:		Off

- 3 Press the up/down arrow keys to enable/disable the cutter. If you are enabling a cutter, choose Fabric or Paper/Tag to indicate the type of cutter that will be used.
- 4 If necessary, press the left/right arrow keys to select the Cut Flag option. Use the up/down arrow keys to enable/disable the cut flag.

The Cut Flag option inserts extra blank tags to demarcate or flag the end of a batch.

When enabled, the printer will automatically insert one long and one short blank tag between batches. The longer tag is approximately 10 mm longer than the printed tag length. This extra length will allow you to quickly identify separate batches. With the flag enabled, the minimum tag length is 38 mm.

- 5 Press the MENU key to return to the menu.

Mirror

When Mirror mode is used, each printed label will be printed as a mirror image, oriented in a 180° rotation from standard print orientation.

This mode is typically used for creating a clear window sticker that will be viewed from the other side of the glass (i.e., parking permit for an automobile windshield).

To print in mirror mode:

- 1 Press the MENU key. Use the arrow keys to select Mode from the menu and then press the SELECT key.

	Intensity		Print		Memory		> Mode	
	Align		Media		Comm		System	

- 2 In the MODE menu, use the arrow keys to select Mirror. Then press the SELECT key.

(MODE)	Cutter		> Mirror		TTR Sensor
Mirror Mode:	Disabled				

- 3 Press the up/down arrows to enable/disable Mirror mode.

Note: Mirror mode must be enabled/disabled before labels are sent to the printer. There must be no labels present in the queue to enable/disable Mirror Mode.

- 4 Press the MENU key to return to the menu.

TTR Sensor

This function is for use by authorized technicians when performing diagnostics at the factory. In general use, the TTR Sensor should always be On.

To enable/disable the TTR sensor:

- 1 Press the MENU key. Use the arrow keys to select Mode from the menu and then press the SELECT key.

	Intensity		Print		Memory		> Mode	
	Align		Media		Comm		System	

- 2 In the MODE menu, use the arrow keys to select TTR Sensor. Then press the SELECT key.

(MODE)	Cutter		Mirror		> TTR Sensor
Front: On	Bottom: On		On		Rear: On

Note: The printhead names will vary based on the printer model.

- 3 Press the up/down arrows to turn the TTR Sensor on or off. Use the left/right arrows to move to the next printstation.

Caution: This capability is intended for factory diagnostics only. Do not turn off the sensor. Use of the printer with the ribbon sensor disabled could result in damage to the printhead (due to overheating) and/or poor print quality.

Align Menu

Down-Web

Down-Web performs horizontal alignment. Alignment is particularly important for overlapping color printing on the QLS-3000 Xe.

Adjust Web Alignment to modify registration at each print station individually. Adjust Print Offset to modify the alignment of all print stations simultaneously.

To evaluate whether web alignment should be adjusted, print a Block Test.

To adjust down-web alignment:

- 1 Press the MENU key. Use the arrow keys to select Align from the menu and then press the SELECT key.

Intensity	Print	Memory	Mode
> Align	Media	Comm	System

- 2 In the ALIGN menu, use the arrow keys to select Down-Web. Then press the SELECT key.

(ALIGN)	> Down-Web	Cross-Web
Front: 0	Bottom: 0	Rear: 0

Note: The printhead names will vary based on the printer model.

- 3 Press the up/down arrows to increase/decrease the value for the selected printhead. Press the left/right arrows to select a different printhead. The arrow on the display will indicate the direction of movement.
- 4 Print a Test Pattern to check adjustments and continue making adjustments until the blocks in the test pattern are horizontally and vertically aligned.

Cross-Web

Cross-Web performs vertical alignment. Alignment is particularly important for overlapping color printing on the QLS-3000 Xe.

Adjust Web Alignment to modify registration at each print station individually. Adjust Print Offset to modify the alignment of all print stations simultaneously.

To evaluate whether web alignment should be adjusted, print a Block Test.

To adjust cross-web alignment:

- 1 Press the MENU key. Use the arrow keys to select Align from the menu and then press the SELECT key.

Intensity	Print	Memory	Mode
> Align	Media	Comm	System

- 2 In the ALIGN menu, use the arrow keys to select Cross-Web. Then press the SELECT key.

(ALIGN)	Down-Web	> Cross-Web
Front: 0	Bottom: 0	Rear: 0

Note: The printhead names will vary based on the printer model.

- 3 Press the up/down arrows to increase/decrease the value for the selected printhead. Press the left/right arrows to select a different printhead. The arrow on the display will indicate the direction of movement.
- 4 Print a Test Pattern to check adjustments and continue making adjustments until the blocks in the test pattern are horizontally and vertically aligned.

Media Menu

Type

The Type menu is used to select the type of media that will be used with the printer.

To select a media type:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.



- 2 In the MEDIA menu, use the arrow keys to select Type. Then press the SELECT key.



- 3 Press the up/down arrows to select a media type. The media type specifies whether the media stock has any top-of-form indicators, and if so, which type.

Continuous

Media sensor detects no indicators.

Gap

Media sensor interprets a gap, slot, or hole as a top-of-form indicator.

Inverted Gap

Media sensor interprets a solid area as a top-of-form indicator.

Mark

Media sensor interprets a dark reflective mark as a top-of-form indicator.

- 4 Press the SELECT key. When changing the media type, a confirmation message will appear indicating the printer needs recalibration. Use the arrow keys to select Yes, and then press the SELECT key.

Image

If using label formatting software to create labels, the width and length of the image area are set within the application. The Image menu in this case will report these parameters as set, and will not require input.

To specify width and length of the image area:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		> Media		Comm		System	

- 2 In the MEDIA menu, use the arrow keys to select Image. Then press the SELECT key.

(MEDIA)	Type		> Image		Label		Offset
Image:	Width = 038mm		Length = 0050mm				

- 3 If necessary, use the up/down arrow keys to adjust the label width.
- 4 If necessary, use the left/right arrow keys to select the Length option. Then use the up/down arrow keys to adjust the label length.

Label

Use the Label option to select maximum label and gap sizes.

To select a label and gap size:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		> Media		Comm		System	

- 2 In the MEDIA menu, use the arrow keys to select Image. Then press the SELECT key.

(MEDIA)	Type		Image		> Label		Offset	
Label:	Max Len = 0300mm		Max Gap = 03mm					

- 3 Use the up/down arrow keys to adjust the maximum label length.

Max Length - Set this value to slightly more than the longest label you will be printing. This setting allows the printer to use memory more efficiently.
- 4 Use the left/right arrow keys to select the Max Gap option. Then use the up/down arrow keys to adjust the maximum label gap.

Max Gap - Set this value to at least the size of the gap between labels. This settings allows the printer to determine a media out condition.

Note: The media will feed at least two times the Max Gap setting before a media out error is reported.

- 5 Press the SELECT key.

Offset

Use print offset to modify print registration in fine increments or to move the entire printed image up to 300 pixels forward or back with respect to sensor marks.

By default, when printing on media with sensor marks (gaps, reflective marks, etc.) the printer will place the label image area between the marks.

Adjusting print offset affects all print stations simultaneously. Adjust Web Alignment to modify registration at each print station individually.

To specify offset:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		> Media		Comm		System	

- 2 In the MEDIA menu, use the arrow keys to select Offset. Then press the SELECT key.

(MEDIA)	Type		Image		Label		> Offset
Offset:	Print: + 0000	px1		Cut: + 0000	px1		

- 3 Use the up/down arrow keys to set the print offset. The print offset will affect the cut offset. As a rule, the print offset should be set first.

Print Offset: Adjust the location of the printed image relative to the sensor mark. Press the up arrow to move the image up the label (to the right) one pixel at a time; press the down arrow to move the image down the label (to the left).

- 4 Use the left/right arrow keys to select the Cut option. Then use the up/down arrow keys to adjust the cut offset.

Cut Offset: Adjust the location of the cut line in relation to the image position. Press the up arrow to move the cut line up the label, one pixel at a time; press the down arrow to move the line down the label. The cut offset is only valid when the external cutter unit is enabled.

- 5 Press the SELECT key.

Comm Menu

Port

The comm port in use (parallel or RS-232) must be selected to enable communications. If RS-232 is used, baud rate can also be selected. The default comm port is parallel.

Note: Serial communications are required to enable status messages to be received from the printer (bi-directional communications).

If using both parallel and RS-232 serial communications, select and set up RS-232 first, then select and set up parallel communications.

If using RS-232 serial communications, the printer uses 2 stop bits.

To select comm ports:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		> Comm		System	

- 2 In the COMM menu, use the arrow keys to select Port. Then press the SELECT key.

(COMM)	> Port		Hshk		Ptcl		Pref		Delim
Port:	Parallel								

- 3 Use the up/down arrow keys to specify the type of port being used. Parallel or RS-232 ports are available. Press the SELECT key.

A confirmation message will appear on the display.

Change Comm parameters permanently?
> NO YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT Key.

Handshaking

If the Comm Port setting is RS-232, set Baud Rate and Handshaking to match host workstation settings. The default baud rate is 19,200.

To set baud rate and handshaking method:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

```
| Intensity | Print | Memory | Mode |  
| Align    | Media | >Comm  | System|
```

- 2 In the COMM menu, use the arrow keys to select Port. Then press the SELECT key.

```
(COMM) >Port | Hshk | PtcI | Pref | Delim  
Port:  RS-232 | BAUD Rate: 19.2k
```

Note: The Baud Rate option is available only when RS-232 is used. The Parallel port does not use this option.

- 3 Use the left/right arrow keys to select the Baud Rate option.

```
(COMM) >Port | Hshk | PtcI | Pref | Delim  
Port:  RS-232 | >BAUD Rate: 19.2k
```

Use the up/down arrow keys to select a baud rate. Then press the SELECT key. A confirmation message will appear on the display.

```
Change Comm parameters permanently?  
> NO      YES
```

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

- 5 Press the SELECT key again to return to the COMM menu.
- 6 In the COMM menu, use the arrow keys to select Hshk. Then press the SELECT key.

```
(COMM) Port | >Hshk | Pctl | Pref | Delim
Handshaking: N/A
```

- 7 Use the up/down arrow keys to select a handshaking method. Hardware and XON/XOFF are the available options.

```
(COMM) Port | >Hshk | Pctl | Pref | Delim
Handshaking: >XON/XOFF
```

Press the SELECT key. A confirmation message will appear on the display.

```
Change Comm parameters permanently?
>NO YES
```

- 8 Use the left/right arrow keys to select YES, then press the SELECT key.

Protocol

The Protocol option is used to select whether the Windows driver or host protocol is used. The host software application will automatically select the appropriate protocol mode. To set the protocol mode manually, use the following instructions.

To select a protocol option:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		> Comm		System	

- 2 In the COMM menu, use the arrow keys to select Ptcl. Then press the SELECT key.

(COMM)	Port		Hshk		> Ptcl		Pref		Delim
Printer Protocol:			QLS-3001						

- 3 Use the up/down arrow keys to select a protocol option.

Printer Name - Select the printer name if you are printing via host commands. The printer name will reflect the printer model you are using.

Graphics - Select Graphics if you are printing via the Windows driver.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?	
> NO	YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

Prefix

Use the following instructions to modify the command prefix for host commands received by the printer.

To select a command prefix:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		> Comm		System	

- 2 In the COMM menu, use the arrow keys to select Pref. Then press the SELECT key.

(COMM)	Port		Hshk		Ptcl		> Pref		Delim
Cmd Prefix: =	<SOH>		Fmt Prefix:=	<STX>					

- 3 Use the up/down arrow keys to select a command prefix. The default command prefix is <SOH>.
- 4 Use the left/right arrow keys to select the Fmt Prefix option. Then use the up/down arrow keys to select a format prefix. The default format prefix is <STX>.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?
> NO YES

- 5 Use the left/right arrow keys to select YES, then press the SELECT key.

Delimiter

Use the following instructions to set up a delimiter that will be placed between host commands.

To select a command delimiter:

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

```
| Intensity | Print | Memory | Mode |  
| Align | Media | > Comm | System |
```

- 2 In the COMM menu, use the arrow keys to select Delim. Then press the SELECT key.

```
(COMM) Port | Hshk | Ptcl | Pref | > Delim  
Command Delimiter: = <CR><LF>
```

- 3 Use the up/down arrow keys to select a command delimiter. The default command delimiter is <CR><LF>.

Press the SELECT key. A confirmation message will appear on the display.

```
Change Comm parameters permanently?  
> NO YES
```

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

System Menu

System Baseline

As with any equipment, the printer has certain machine tolerances, which are acceptable production variances. When multiple printers are used in an environment in which the same digital label format will be printed to any of them, the machine variance from printer to printer may result in an image printing in a slightly different vertical position on the label on each printer.

Accordingly, a "System Baseline" compensates for these slight printer-to-printer variations.

The System Baseline is accessed through the printer's front panel.

- 1 Press the MENU key. Use the arrow keys to select System from the menu and then press the SELECT key.

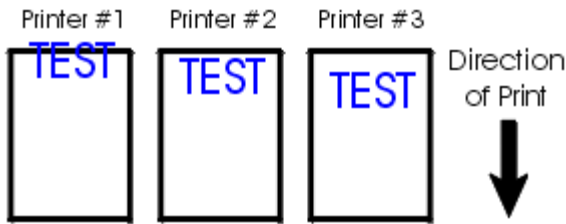
	Intensity		Print		Memory		Mode	
	Align		Media		Comm		> System	

- 2 In the SYS menu, use the arrow keys to select SysBase. Then press the SELECT key.

(SYS)	> SysBase		Upgrade		Language
Adjust System Baseline: +0000					

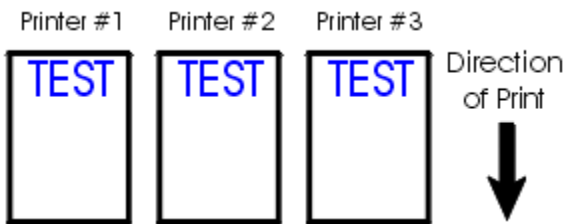
- 3 Press the up/down arrow keys to increase/decrease the system baseline. Then press the SELECT button. The baseline may be adjusted by +/- 120 dots using the up/down arrow keys.

Typically, only users of multiple printers will use the System Baseline feature. With the print offset and system baseline set to zero, print identical labels on each printer. Choose a label with a field located near the top or bottom of the label. Compare the labels from each printer. Now adjust the system baseline on each printer so that the vertical position of the fields is consistent from printer to printer.



In the above example, the user has three printers and has printed a label with the word "TEST" on each printer. Assuming that #2 has the field in the correct location, #1 would need a negative system baseline, and #3 would need a positive system baseline.

After making the changes, the labels print as seen below.



Note: Always verify the System Baseline after upgrading printer firmware.

Upgrade

The Upgrade menu option is not currently used.

Note: For detailed information about upgrading firmware, refer to the *Firmware Upgrades* section of *Chapter 5: Printer Maintenance*.

Language

The langue option changes the language used for LCD menu items. The following languages are available:

English
Italian
German
Spanish
French

To select a language:

- 1 Press the MENU key. Use the arrow keys to select System from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		Comm		> System	

- 2 In the SYS menu, use the arrow keys to select Language. Then press the SELECT key.

(SYS)	SysBase		Upgrade		> Language
Select display language: English					

- 3 Use the up/down arrow keys to select a language. Then press the SELECT key. The printer will reset and the menu options will be displayed in the selected language.

System2 Menu

Front Panel Lock/Unlock

The Front Panel Lock/Unlock feature allows you to lock the menu, preventing unauthorized users from modifying printer settings. The front panel is locked and unlocked with a user-defined four-digit password.

When the front panel is locked, users can scroll through the menus, but cannot make any changes. The only available features are PRINT/PAUSE, FORM FEED/ADVANCE, and Front Panel Unlock.


To lock the front panel:

- 1 Press the MENU key twice. Use the arrow keys to select System2 from the menu and then press the SELECT key.



| > System2 |

- 2 In the SYS2 menu, use the arrow keys to select Display. Then press the SELECT key.



(SYS2) > Display | Config
Lock front panel: 0000

- 3 Press the up/down arrow keys to increase/decrease the number in the password. Press the right/left arrow keys to move to the next/previous number in the sequence.

Press the SELECT key. A confirmation message will appear on the display.



Lock the front panel?
> NO YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

A lock character will appear on the display to indicate the front panel is locked.

To unlock the front panel:

- 1 Press the MENU key twice. Use the arrow keys to select System2 from the menu and then press the SELECT key.

```
| > System2 |
```

- 2 In the SYS2 menu, use the arrow keys to select Display. Then press the SELECT key.

```
(SYS2) > Display | Config  
Unlock front panel: 0000
```

- 3 Press the up/down arrow keys to increase/decrease the number in the password. Press the right/left arrow keys to move to the next/previous number in the sequence.

Press the SELECT key. A confirmation message will appear on the display.

```
Unlock the front panel?  
> NO YES
```

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

The lock character will be removed from the display to indicate the front panel is unlocked.

Text Rendering Configuration

QLS-3000/2000 Xe Series printers render text with improved accuracy compared to the previous generation of QLS-3000/2000 Series printers.

Most users will want to take advantage of this improved text rendering configuration. However, if you use a previous generation printer and want to ensure text consistency with the newer “Xe” printer, you can select an alternate text rendering configuration.

This custom configuration allows QLS-3000/2000 Xe Series printers to print text that matches output from QLS-3000/2000 Series printers for consistency.

To select a text rendering configuration:

- 1 Press the MENU key twice. Use the arrow keys to select System2 from the menu and then press the SELECT key.



| > **System2** |

- 2 In the SYS2 menu, use the arrow keys to select Config. Then press the SELECT key.



(SYS2) **Display** | > **Config**
 Standard **Custom1**

- 3 Use the left/right arrow keys to select a text rendering configuration.
 - **Standard** - Choose this option to render text using the standard method. This option is appropriate for most users.
 - **Custom1** - Choose this option to render text using a method that emulates the previous generation of QLS-3000/2000 Series printers.

This option is appropriate if you want to match labels printed on QLS-3000/2000 Series printers using QLS-3000/2000 Xe Series printers.

Then press the SELECT key. A confirmation message will appear on the display. If you selected Custom1, the following message will appear.

Text placement will change. Continue?
> NO YES

If you selected Standard, the following message will appear.

Return to standard configuration?
> NO YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.

QLS-3000Xe QLS-2000Xe **SERIES**

Chapter 4: Printing

To prepare the printer for printing, make sure that:

- Power connection has been made
- Communication connections have been made between host and printer
- Media and Thermal Transfer Ribbon has been loaded into the printer
- You have installed a software application from which you will print
- You have installed the QLS Windows Printer Driver (as needed)

Once you have completed and verified the above, you are ready to begin printing.

This chapter provides the following information:

- Information on printing
- Descriptions of print indicators
- Information on color alignment and adjustments
- Information on evaluating print quality
- Instructions for printing labels

Printer Status

Initialization

When the printer is turned on, it will power up with a test pattern loaded. Press Pause/Print to start printing the test pattern.

Before printing a new label or test pattern, press Cancel to clear the current batch (in this case, the test pattern). An error message will inform you if you fail to do so.

Caution: Whenever the printer is not in use, leave printhead cams and the drive roller cam in the open position. This will prevent flat areas from developing on the platen and drive rollers.

Current Settings

To view status information during printing:

- 1 Press the Menu button to toggle between the Setup menu and the Operation menu. The Operation menu provides:

current printer statusReady, Printing, Paused, Feeding, or Advancing

current protocol.....QLS-2000, QLS-2001, QLS-3000, or QLS-3001, or Graphics

current media type.....gap, inverted gap, continuous, or mark

number of labels printed “current” of “batch total”

To print a report of current printer settings or of the last 500 bytes of data received by the printer (DATA RXD):

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity	> Print		Memory		Mode	
	Align		Media		Comm		System

- 2 In the PRINT menu, use the arrow keys to select Recall. Then press the Select key.

(PRINT)	Previous	> Recall		Test		Speed
Recall Label: > (Data RXD)						qty: 15

- 3 Press the up/down arrow keys to select the type of report to print.

Settings - Prints a report of the current printer settings.

Data RXD - Prints a report of the last 500 bytes of data received by the printer.

- 4 Press the left/right arrows to move to the Quantity option. Then use the up/down arrow keys to select the number copies to print.
- 5 Press the SELECT key. The selected quantity of the report will print.

Operation

Start Printing

The printer powers up in Ready mode. Ready mode indicates the printer is ready to accept data and start printing.

Memory Card Detection

The status of the memory card is checked during the power-up sequence. If the card is working properly, or if no card is inserted, the power-up sequence will proceed normally. If a problem with the memory card is detected, you will be given the option to perform a corrective action, which requires the memory card write protection setting to be off, or remove the card.

If an unformatted memory card is detected, you can format or remove the card. Refer to the Memory Menu section of Chapter 3 for more information.

**Remove Compact Flash Card or
Press SELECT to Format it**

If the card is missing any required folders, you can press SELECT to add them, or remove the card. The message “Folders Complete” will appear when folders are successfully added.

**Remove Compact Flash Card or
Press SELECT to Add Folders**

If the card is defective, you will be prompted to remove the card.

Printing Multiple Batches

When printing a batch of labels or tags, the printer will pause just before the last label(s) or tag(s) in the batch are printed. When the next batch is sent to the printer, the printer will automatically un-pause and print the remaining label(s) or tag(s) of the first batch and all but the final label(s) or tag(s) from the second batch. This feature minimizes the number of blank labels or tags that would otherwise be ejected if the printer were to finish printing and ejecting the entire batch.

When the printer has paused itself near the end of a batch, you can immediately finish printing and ejecting the labels or tags by pressing the Pause key.

When a cutter or cutter/stacker accessory is used in conjunction with the printer, it is normal to have one tag cut shorter than normal and one cut longer than normal as a result of the printer pausing between batches.

Note: This feature can be disabled, if desired. For detailed information about this process, please contact QuickLabel Systems Technical Support.

Print/Pause

At any point, printing can be paused. Toggle the printer On/Off by pressing the Pause/Print button.

If the printer is paused while printing a batch, the batch must be cancelled before another label or test pattern is printed.

Advance Media

Press the Form Feed/Advance button once and release to advance the media by one label length. Press and hold the pushbutton to continually advance the media.

If the printer has not been calibrated, the media will not advance and a menu will be displayed prompting you to perform a printer calibration.

Print Quality

Test Print Quality

The printer can print four types of test patterns:

Line

Line test patterns can be used for evaluating the alignment of the printheads; evaluating printhead intensity settings; or checking the printheads for worn areas.

Text

The text test pattern allows you to examine the exact alignment of each printstation. In particular, while printing on the QLS-3000 Xe, if the text appears fuzzy or with color shadows, you will want to fine tune web alignment.

Flood

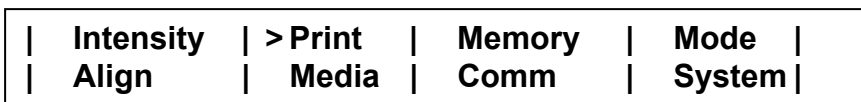
The flood test pattern prints a thick bar of each color, so that you can assess color saturation. If areas of white appear in a bar, adjust heat intensity for that printhead. You may also need to adjust printhead pressure.

Block

The block test pattern is most useful to assess registration by ensuring the colors are aligned with each other.

To select and print a line, text, or flood test pattern:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.



- 2 In the PRINT menu, use the arrow keys to select Test. Then press the Select key.



- 3 Use the arrow keys to select a test pattern.
- 4 Press the left/right arrows to move to the Quantity option. Then use the up/down arrow keys to select the number copies to print. To

continuously run the pattern, select the infinity symbol. Press the SELECT key.

- 5 Select Yes when prompted to overwrite memory with the test pattern and perform the test. This will cause anything else in memory to be erased.
- 6 Press the PRINT/PAUSE key to print the test pattern. The printer will immediately print the number of patterns specified. If infinity was selected as a quantity, pause the printer and press the CANCEL key to cancel the batch and clear memory.

To evaluate whether web alignment should be adjusted, print a Block Test.

To print a block test pattern:

- 1 Press the MENU key. Use the arrow keys to select Align from the menu and then press the SELECT key.

Intensity	Print	Memory	Mode
> Align	Media	Comm	System

- 2 Set the Down-Web and Cross-Web setting for each printhead to 0.

(ALIGN)	> Down-Web	Cross-Web
Front: 0	Bottom: 0	Rear: 0

Note: The printhead names will vary based on the printer model.

- Select Down-Web and press the SELECT key. Press the up/down arrows to increase/decrease the value for the selected printhead to 0. Press the left/right arrows to select a different printhead. Set the down-web value for each printhead to 0.
- Select Cross-Web and press the SELECT key. Press the up/down arrows to increase/decrease the value for the selected printhead to 0. Press the left/right arrows to select a different printhead. Set the cross-web value for each printhead to 0.

Press the MENU key to return to the menu.

- 3 Print the Blocks test pattern, as described in the previous section.
- 4 After printing the pattern, examine alignment of the blocks within the pattern. If registration is off on block edges or the pattern is not square, realign the print stations.

On the QLS-3000 Xe, the process black block should appear solid without any other color along an edge. If a color appears along an edge, realign that print station.



Heat Intensity

The degree of heat applied to the stock by the printhead determines the darkness or intensity of the print. Heat intensity is determined by the length of time power is applied to the printhead.

The appropriate heat setting will vary according to the type of stock and ribbon being used. In general, lower-quality stock that requires more heat to produce a satisfactory image is less advantageous than higher-quality stock to which images are quickly and easily applied at lower temperatures.

In general, to prolong the life of the printhead, set the intensity to the lowest setting that produces a quality image. Applying more heat than necessary can also reduce image quality.

Note: Extended heat settings are available for use in specific applications. Contact QuickLabel Systems Technical Support for more information.

To set heat intensity:

- 1 Press the MENU key. Use the arrow keys to select Intensity from the menu and then press the SELECT key.

> Intensity	Print	Memory	Mode	
Align	Media	Comm	System	

- 2 In the INTENSITY menu, use the arrow buttons to select a setting from 1 (coldest) to 32 (hottest) for each printhead.

Press the up/down arrows to increase/decrease the heat intensity for the selected printhead. Press the left/right arrows to select a different printhead.

(INTENSITY) Adjust color intensity
> Front: 32 Bottom: 15 Rear: 15

Notes: The printhead names will vary based on the printer model. The Front head is the station closest to the media exit. The Rear head is closest to the media supply.

Heat intensity values can also be set in the formatting software. In this case, format settings will override the menu settings.

- 3 Press the MENU key to return to the menu.

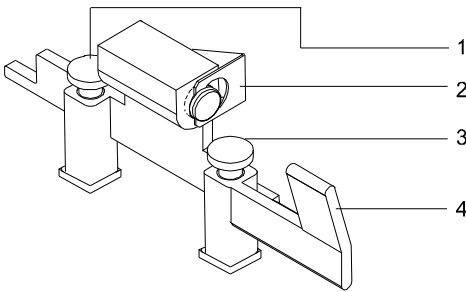
Printhead Pressure

If switching between very wide label media and very narrow label media, it may be necessary to adjust the downward pressure on either side of the printheads.

Similarly, if switching between relatively thick media and thin media, printhead pressure adjustments may be necessary.

Downward pressure on each printhead is controlled by two printhead pressure thumbwheels.

Note: The outer thumbwheel is not installed on narrow media configurations.



- | | |
|--------------------------|---------------------|
| 1. Inner thumbwheel | 3. Outer thumbwheel |
| 2. Silver retaining clip | 4. Cam lever |

The inner thumbwheel increases or decreases pressure on the inner half of the printhead. The outer thumbwheel increases or decreases pressure on the outer half of the printhead.

Examine printed labels to determine necessary adjustments.

To adjust pressure on individual printheads:

- 1 For standard printheads, flip each printhead cam lever counterclockwise to relieve pressure on and open the printheads, (flip levers clockwise on inverted printheads). Do not lock printheads into the up position.
- 2 This adjustment can be made without removing the printhead cam. However, it may be easier to make adjustments if the cam is removed. To remove the cam, press down the silver clip holding the printhead cam and pull the cam completely out.

- 3 With the cam in hand, adjust printhead pressure by turning the thumbwheels as required to maximize the clarity and detail of the label. Turn thumbwheels counterclockwise to raise them, decrease pressure on the printhead, and lighten the image. Turn thumbwheels clockwise to lower them, increase pressure on the selected printhead, and darken the image.
- 4 Slide the cam back in place. Make sure the silver clip is securely seated.
- 5 Flip the printhead cam closed to restore pressure to the printhead.

Note: To prevent printhead damage or stalling when using narrow media, reduce or eliminate the pressure exerted by the printer's outer thumbscrew.

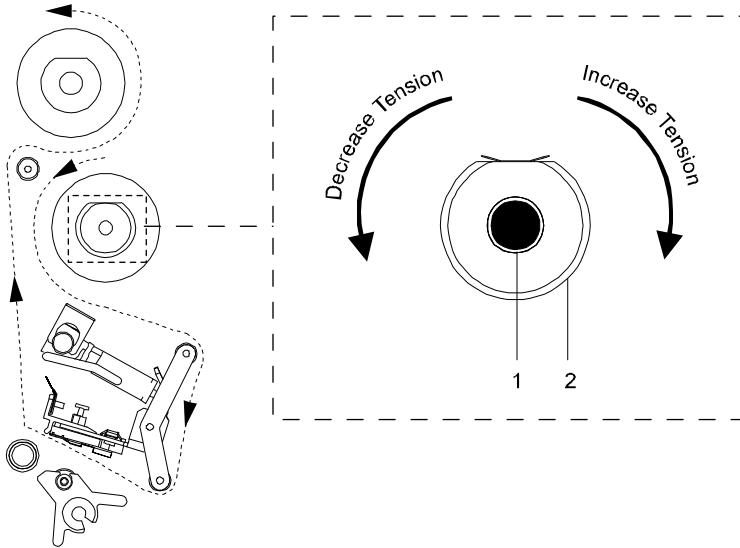
If after adjusting printhead pressure, if print quality is not improved, check other settings that affect print quality, such as heat intensity.

Thermal Transfer Ribbon Tension

Normally, this adjustment should not be required during the life of a film roll. However, if you notice film wrinkling or one of the colors smudging, you can adjust the tension to alleviate these conditions.

If using ribbon less than two inches wide, tension may be excessive when the tension switch is in the High position. If ribbons break, flip the ribbon tension switch to Low.

Ribbon tension can also be adjusted on each individual printstation by turning the knob on the ribbon unwind mandrel.



1. Ribbon tension adjust knob
2. Ribbon unwind mandrel

Clockwise - Increases ribbon tension

Counterclockwise - Decreases ribbon tension

Increase the tension to alleviate ribbon wrinkle.

Decrease the tension to alleviate smudging.

Print Position

Print and Cut Offset

Use print offset to modify print registration in fine increments or to move the entire printed image up to 300 pixels forward or back with respect to sensor marks.

By default, when printing on media with sensor marks (gaps, reflective marks, etc.) the printer will place the label image area between the marks.

Adjusting print offset affects all print stations simultaneously. Adjust Web Alignment to modify registration at each print station individually.

To specify offset:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		> Media		Comm		System	

- 2 In the MEDIA menu, use the arrow keys to select Offset. Then press the SELECT key.

(MEDIA)	Type		Image		> Label		Offset
Offset:	Print: + 0000 px1		Cut: + 0000 px1				

- 3 Use the up/down arrow keys to set the print offset. The print offset will affect the cut offset. As a rule, the print offset should be set first.

Print Offset: Adjust the location of the printed image relative to the sensor mark. Press the up arrow to move the image up the label (to the right) one pixel at a time; press the down arrow to move the image down the label (to the left).

- 4 Use the left/right arrow keys to select the Cut option. Then use the up/down arrow keys to adjust the cut offset.

Cut Offset: Adjust the location of the cut line in relation to the image position. Press the up arrow to move the cut line up the label, one pixel at a time; press the down arrow to move the line down the label. The cut offset is only valid when the external cutter unit is enabled.

- 5 Press the SELECT key.

Web Alignment

Alignment is particularly important for overlapping color printing on the QLS-3000 Xe.

Adjust Web Alignment to modify registration at each print station individually. Adjust Print Offset to modify the alignment of all print stations simultaneously.

To evaluate whether web alignment should be adjusted, print a Block Test.

To adjust web alignment:

- 1 Press the MENU key. Use the arrow keys to select Align from the menu and then press the SELECT key.

Intensity	Print	Memory	Mode
> Align	Media	Comm	System

- 2 In the ALIGN menu, use the arrow keys to select Cross-Web. Then press the SELECT key.

(ALIGN)	Down-Web	> Cross-Web
Front: 0	Bottom: 0	Rear: 0

Note: The printhead names will vary based on the printer model.

- 3 Press the up/down arrows to increase/decrease the value for the selected printhead. Press the left/right arrows to select a different printhead. The arrow on the display will indicate the direction of movement.
- 4 Print a Test Pattern to check adjustments and continue making adjustments until the blocks in the test pattern are horizontally and vertically aligned.

Mirror Images

When Mirror mode is used, each printed label will be printed as a mirror image, oriented in a 180° rotation from standard print orientation.

This mode is typically used for creating a clear window sticker that will be viewed from the other side of the glass (i.e., parking permit for an automobile windshield).

To print in mirror mode:

- 1 Press the MENU key. Use the arrow keys to select Mode from the menu and then press the SELECT key.

	Intensity		Print		Memory		> Mode	
	Align		Media		Comm		System	

- 2 In the MODE menu, use the arrow keys to select Mirror. Then press the SELECT key.

(MODE)	Cutter		> Mirror		TTR Sensor
Mirror Mode:	Disabled				

- 3 Press the up/down arrows to enable/disable Mirror mode.

Note: Mirror mode must be enabled/disabled before labels are sent to the printer. There must be no labels present in the queue to enable/disable Mirror Mode.

- 4 Press the MENU key to return to the menu.

Mirror mode must be enabled/disabled before labels are sent to the printer. There must be no labels present in the queue to enable/disable Mirror Mode.

Image Area

If using label formatting software to create labels, the width and length of the image area are set within the application. The Image menu in this case will report these parameters as set, and will not require input.

To specify width and length of the image area:

- 1 Press the MENU key. Use the arrow keys to select Media from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		> Media		Comm		System	

- 2 In the MEDIA menu, use the arrow keys to select Image. Then press the SELECT key.

(MEDIA)	Type		> Image		Label		Offset
Image:	Width = 038mm		Length = 0050mm				

- 3 If necessary, use the up/down arrow keys to adjust the label width.
- 4 If necessary, use the left/right arrow keys to select the Length option. Then use the up/down arrow keys to adjust the label length.

Speed

The printer can print at speeds from 2 to 5 inches-per-second. When setting the motor speed, consider the requirements of the media you are using and the heat setting you are selecting. These three factors determine printer performance on each job.

To set printer speed:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity	> Print		Memory		Mode	
	Align	Media		Comm		System	

- 2 In the PRINT menu, use the arrow keys to select Speed. Then press the Select key.

(PRINT)	Previous		Recall		Test		> Speed
Speed (inch/s):	2		3		4		5

- 3 Press the left/right arrow keys to select a print speed. Print speeds are specified in inches/second. Then press the SELECT key.

Note: Print speed can also be set in the formatting software. In this case, format settings will override the menu settings.

Job Reprints

When printing via the Windows driver, the last job sent to the printer can be reprinted.

To reprint the last job stored in memory:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.



- 2 In the PRINT menu, use the arrow keys to select Previous. Then press the Select key.



The name of the last printed label will be displayed. If no label is stored in memory, the text “(none)” will be displayed and the reprint feature will be unavailable.

- 3 Press the up/down arrow keys to increase/decrease the print quantity. Then press the SELECT key. The selected quantity of the previously printed label will print.

QLS-3000Xe QLS-2000Xe **SERIES**

Chapter 5: Printer Maintenance

Your printer is designed for long-life and trouble-free operation. In order to keep your printer operating at optimal performance, some periodic maintenance is required.

This chapter provides the following information:

- List of recommended tools for performing maintenance and repairs.
- Recommended maintenance tasks.
- Part replacement procedures.

Recommended Maintenance Schedule

Daily

- Disengage drive roller and printstations when printer is not in use (prevents damage to rollers)
- Check registration
- Clean printhead/peel edge, ribbon shafts, platen rollers and drive roll at each change of ribbons

Weekly

- Inspect drive roll and pressure roller for wear and residue buildup
- Clean ribbon and top-of-form sensors
- Check printhead/platen alignment using block test

Monthly

- Inspect platen rollers for wear, grooves, buildup

Bi-monthly

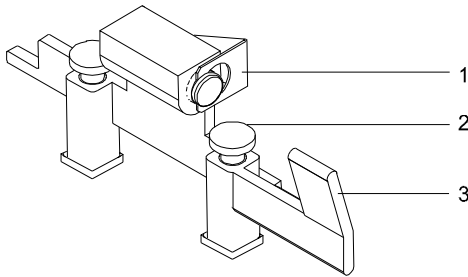
- Remove and inspect printheads. Clean if necessary.

Routine Cleaning

Printer parts accumulate residue, especially those in direct contact with the thermal transfer ribbon. To maintain clear, crisp printing, clean the printer regularly. Cleaning after using a full roll of thermal transfer ribbon is recommended.

To clean the printer:

- 1 Remove the printhead cams and the drive roller cam by flipping each cam open to relieve pressure. Do not lock printheads into the up position.
- 2 Press the silver clip holding each cam, pull the cam completely out, and set aside.



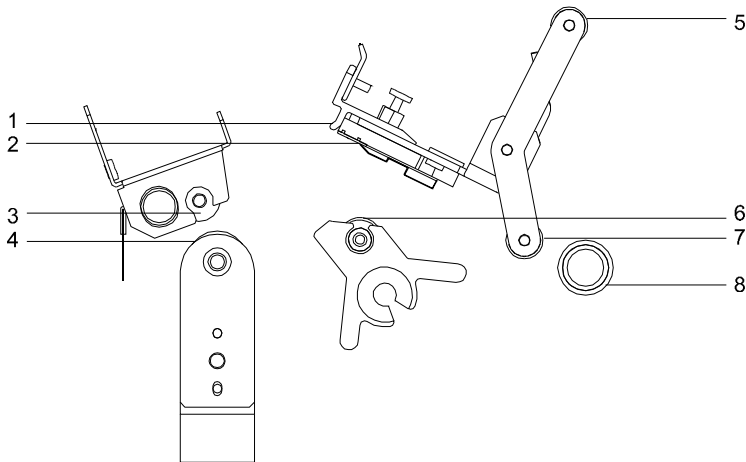
1. Silver retaining clip
2. Outer thumbwheel
3. Cam lever

- 3 Remove any label media and thermal transfer ribbon from the print path.
- 4 Use a cleaning pad, a cotton swab, or a soft lint-free cloth wet with isopropyl alcohol and run it on underside of each printhead, especially on the hairline rows of print elements and along the edge of the struts.
- 5 Also clean the platen rollers, guide rollers, film guide shafts, pressure rollers, and drive rollers.

- 6 Reinstall any label media and thermal transfer ribbon.
- 7 Replace the printhead cams and drive roller cam and lock them closed.

Note: Never use a hard object to clean the printheads. Damage will result if accumulated printing residue is scraped or chipped from the printhead.

Printer parts that accumulate the most residue are noted in the following illustration.



- | | |
|--------------------|--|
| 1. Printhead strut | 5. Thermal transfer ribbon guide shaft |
| 2. Print line | 6. Platen roller |
| 3. Pressure roller | 7. Thermal transfer ribbon guide shaft |
| 4. Drive roller | 8. Guide roller |

Replacing Parts

Printheads

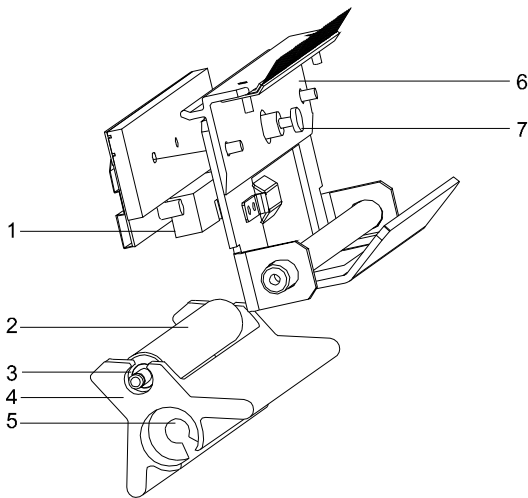
Use the following instructions to replace printheads.

Caution: Printheads can be damaged by static electricity. Always use standard anti-static procedures when replacing printheads.

To remove and replace printheads:

- 1 Turn the printer off and unplug it.
- 2 For standard printheads, flip the printhead cam lever counterclockwise to relieve pressure on and open the printhead. For inverted printheads, flip the cam lever clockwise to open the printhead. Do not lock printheads into the up position.
- 3 Press down the silver clip holding the printhead cam and pull the cam completely out. To provide more maneuverability, the printhead cam on the print station to the right of the printhead you are replacing can also be removed.
- 4 Remove thermal transfer ribbon currently loaded on the print station.
- 5 Loosen the center captive retaining screw on the printhead by turning it counterclockwise. Detach the printhead.
- 6 Be careful not to damage the cable harness that attaches to the printhead. Unplug the printhead cable harness from the printhead. Set the detached printhead aside.
- 7 Plug the printhead cable harness into the replacement printhead.

- 8 Position the replacement printhead against the printhead retaining plate for attachment. Be sure that the two side screws are fitted through the corresponding holes in the new printhead.



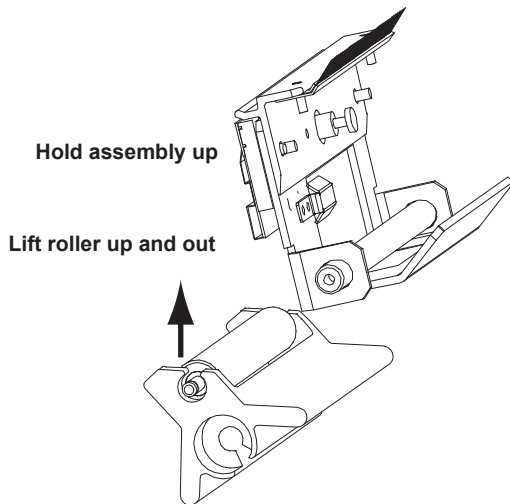
- | | |
|---|---------------------------------------|
| 1. Cable harness connector (on printhead) | 5. Bolt securing platen support strut |
| 2. Platen roller | 6. Printhead retaining plate |
| 3. E-ring/washers securing platen roller | 7. Center retaining screw |
| 4. Platen support strut | |
- 9 Reinsert and tighten the printhead's captive retaining screw. Be sure the cable harness is not crimped or damaged when the printhead is attached to the printhead plate. The wiring harness should fit through the opening formed when the two pieces are joined.
- 10 Reinstall label media and thermal transfer ribbon.
- 11 Reinsert the printhead cam(s) and close the printheads.
- 12 Plug the printer back in.

Platen Rollers

Occasionally, you will need to replace the printhead platen rollers. After prolonged use, rollers may develop flat areas, which will affect print quality.

To remove and replace platen rollers on standard printheads:

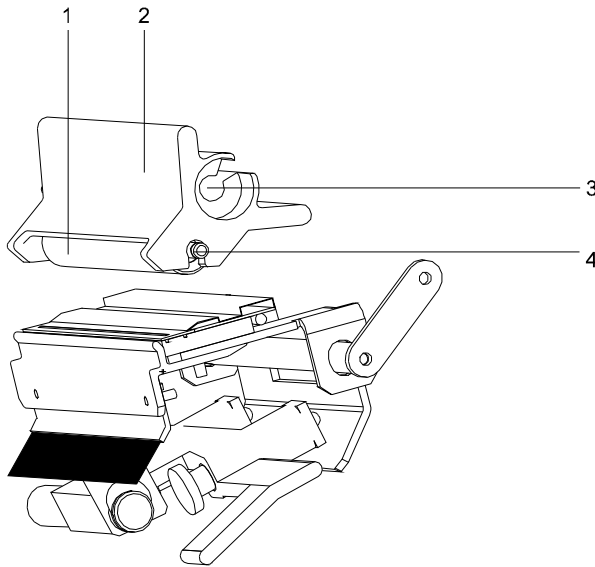
- 1 Turn the printer off and unplug it.
- 2 Flip the printhead cam up to open and lock them open.
- 3 Remove any label stock that may be positioned over the platen roller(s).
- 4 Release (unlock) the printhead cam(s) but do not lock. Press down the silver clip holding the printhead cam(s) and pull the cam(s) completely out.
- 5 Lift and hold the printhead assembly or assemblies completely up to the right. With the platen roller now easily accessible, lift it up and out.



- 6 Gently place the new roller in position. Do not force the roller. Difficult removal or replacement can occur if the roller is held at an angle. To avoid this, lift rollers straight out or drop straight in.
- 7 Lower the printhead assembly or assemblies.
- 8 Reinsert the printhead cam and lock closed.
- 9 Reinstall label media and thermal transfer ribbon as required.
- 10 Close the printhead and turn the printer on again.

To remove and replace platen rollers on inverted printheads:

- 1 Turn the printer Off and lift the cover.
- 2 Flip the printhead cam down and lock open.



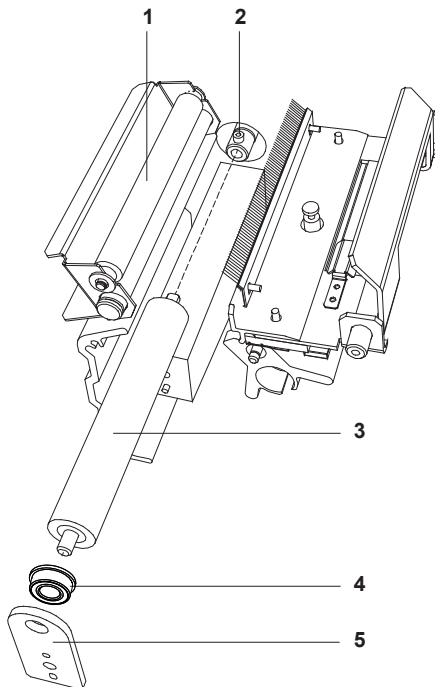
1. Platen roller
 2. Platen support strut
 3. Bolt securing platen support strut
 4. E-ring/washers securing platen roller
- 3 Remove any label stock that may be positioned under the platen roller.
 - 4 Use a Philips head screwdriver to remove the bracket on the platen roller assembly.
 - 5 The platen roller on the inverted printhead is held in place by a bracket that is screwed over the assembly. Use a Philips head screwdriver to remove the two screws and washers that secure the bracket. Pull the assembly toward you.
 - 6 Remove the old platen roller.
 - 7 Gently place the new roller in position. Replace the bracket over the assembly and reinstall the printhead cam.
 - 8 Reinstall label media and thermal transfer ribbon, as required.
 - 9 Flip the printhead cam up and lock closed.

Drive Roller

After prolonged use, the drive roller and the rubber pressure roller above it may wear. This will impede the smooth exit of label stock. When this occurs, the roller requires replacement.

To replace the drive roller:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove any label stock that may be exiting over the drive roller.
- 3 Flip the drive roller cam up to relieve pressure on the roller and open it, but do not lock into the open position.
- 4 Press down the silver clip holding the cam, pull the cam completely out, and set it aside.
- 5 To provide more room to maneuver, the printhead cam on the print station to the right of the drive roller can also be removed.

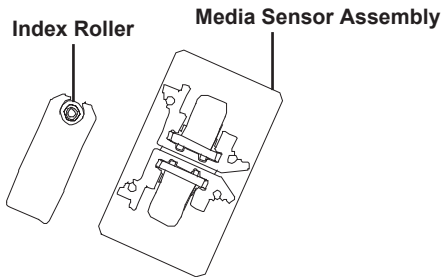


- | | |
|--------------------|---------------------------------|
| 1. Pressure roller | 4. Bearing |
| 2. Allen screw | 5. Drive roller retaining plate |
| 3. Drive roller | |

- 6 To access the drive roller, lift the pressure roller off the drive roller.
- 7 On the outside of the drive roller, remove the bearing and retaining bracket by removing the Phillips screw on the lower portion of the plate. Set the screw, bearing, and plate aside.
- 8 Beside the drive roller, against the inside of the printer, locate the Allen screw. With a 3/32 Allen wrench, loosen the Allen screw until the drive roller easily pulls out.
- 9 Insert the fresh drive roller, making sure that the roller is fully inserted, with the flat edge of the shaft coming in contact with the Allen screw.
- 10 Replace the retaining plate, lining up the flange and two small pins and ensuring they are fully inserted into the plate.
- 11 Reinsert and tighten the Phillips screw.
- 12 Tighten the Allen screw until the new drive roller is held firmly in place.
- 13 Reposition the label stock and thread the stock until it exits over the drive roller.
- 14 Flip the pressure roller back into contact with the drive roller.
- 15 Reinsert the drive roller cam and lock it into the down position to close the cam.

Index Roller

The index roller is located directly to the left of the media sensor assembly.

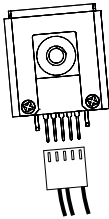


To replace the index roller:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Disconnect the wiring harness from the index assembly. There may be a strip of Mylar tape securing the harness in place. Remove the tape, if necessary.
- 4 Remove the two Phillips head screws on both sides of the index assembly from the media side of the printer.
- 5 Slide the index assembly out through the rear side of the printer.
- 6 Carefully remove the set screws on the encoder and slide it off the roller shaft. A size 0.035 inch allen wrench is required for this step.
- 7 Remove the two E-rings on the ends of the shaft. Slide the cupped washers off the shafts. Then slide the bearings off the shaft.
- 8 Lift the roller away from the index assembly.
- 9 Drop the new roller into place.
- 10 Insert the bearings into position and slide the cupped washers against the bearings. Ensure the cupped sides are away from the bearings.
- 11 Snap the E-rings into place on the shaft.
- 12 Ensure the roller rotates freely.
- 13 Replace the encoder and cover. Ensure the encoder is in the middle of the sensor gap and does not touch either side.

- 14 Carefully slide the index assembly back through the rear side of the printer. Take care not to damage the new roller during re-installation.
- 15 Secure the index assembly with the two Phillips head screws. Then correctly re-connect the wiring harness to the index assembly, ensuring that all five pins are inserted into the connector.

Note: To prevent reversing the connector accidentally, ensure the connector is oriented in the correct direction. The five slots in the connector should be visible. Use the following illustration as a guide.



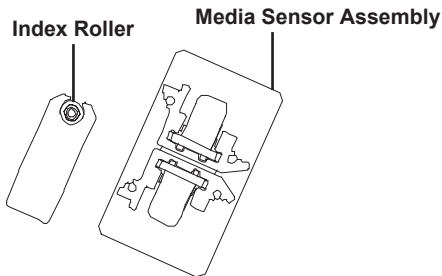
- 16 Position the index assembly so the media has sufficient wrap over the roller. If the media does not make good contact with the roller, registration drift can result.

Note: Ensure the index roller is not too high, as it may result in the label material making contact with the ribbon on the rear printstation.

- 17 Re-install the back cover.
- 18 Plug in the printer and turn the power on. Perform a registration drift check using the block test pattern.

Media Sensor Assembly

The media sensor assembly is located directly to the right of the index roller and contains both the gap top-of-form (TOF) and the reflective top-of-form (RTOF) sensors.



To remove the media sensor assembly:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Disconnect the two sensor harnesses from the media sensor assembly. The harnesses are marked as P1 and RTOF.

Label each harness with a piece of tape, or some other identifying marker. This will aid in connecting the new sensor harnesses during the assembly procedure.

- 4 From the media side of the printer, remove the four Phillips screws and lock washers securing the media sensor assembly. Then remove the assembly from the printer.

To install the media sensor assembly:

- 1 Ensure the printer is still off and unplugged.
- 2 Position the media sensor assembly back into place.

Feed the gap top-of-form (TOF) sensor harness through the square hole behind the media sensor bracket mounting location. Feed the reflective top-of-form (RTOF) sensor harness through the small round hole located near the lower-left corner of the media sensor bracket.
- 3 Mount the media sensor assembly using the four Phillips screws (with locking washers). When mounting the sensor, ensure all of the screws are in place, and then tighten each screw. This process ensures the sensor is mounted evenly.
- 4 Plug in the new harnesses to the marked harnesses inside the printer.
- 5 Re-install the back cover.
- 6 Plug in the printer and turn the power on.
- 7 Calibrate the printer using the calibration procedure found earlier in the manual.

If the printer does not calibrate successfully, adjustments to the TOF or RTOF sensors may be required.

Gap (TOF) Sensor Adjustment:

- 1 Load paper media into the printer.
- 2 Position the stock sensor.
- 3 Monitor voltages at test point T2 and adjust R43.

3.5 VDC + 0 VDC - 0.25 VDC

- 4 Verify the voltage is low (< 1.5 VDC) with just the carrier in front of the sensor. If the low level does not go below 1.5 VDC, then adjust the low to 1.2 VDC and the high level may only reach approximately 2.5 VDC.

- 5 Calibrate the printer by choosing the Calibrate button on the front panel. Set calibration for gap media. Position media by placing the gap within two inches in front of the sensor bracket.

Select Yes on the calibrate menu. The printer will feed approximately three inches of media. Ensure there is at least a 60 point spread between the two numbers displayed when the calibration process has completed.

Reflective (RTOF) Sensor Adjustment:

- 1 Load reflective media (media with black band on the back) into the printer.
- 2 Block the sensor by positioning the black band on the media over the sensor.
- 3 Monitor the voltages at test point T3 and adjust R46.

$$3.5 \text{ VDC} + 0 \text{ VDC} - 0.25 \text{ VDC}$$

- 4 Monitor the voltage when a white label is above the sensor. It must be less than 2.2 VAC.
- 5 Download several labels using the reflective sensor and check for media drift.
- 6 Use the front panel to select form feed.

To replace the reflective top-of-form (RTOF) sensor:

Note: It is not necessary to remove the media sensor assembly if you are simply replacing the reflective top-of-form (RTOF) sensor.

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Disconnect the sensor harness marked RTOF.
- 4 From the media side of the printer, remove the Phillips screw that secures the RTOF sensor to the media sensor assembly.
- 5 Mount the new RTOF sensor with harness in its place.
- 6 Calibrate the printer using the calibration procedure found earlier in the manual.

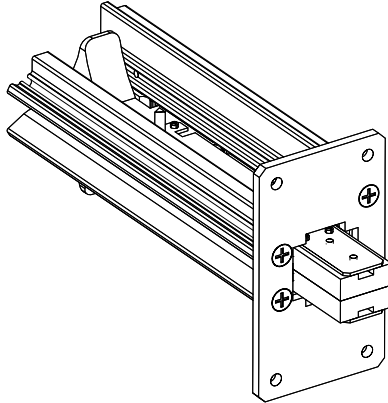
If the printer does not calibrate successfully, adjustment to the RTOF sensor may be required.

Reflective (RTOF) Sensor Adjustment:

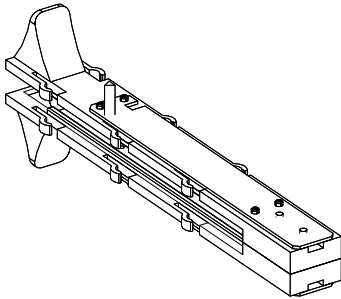
- 1 Load reflective media (media with black band on the back) into the printer.
- 2 Block the sensor by positioning the black band on the media over the sensor.
- 3 Monitor the voltages at test point T3 and adjust R46.
$$3.5 \text{ VDC} + 0 \text{ VDC} - 0.25 \text{ VDC}$$
- 4 Monitor the voltage when a white label is above the sensor. It must be less than 2.2 VAC.
- 5 Download several labels using the reflective sensor and check for media drift.
- 6 Use the front panel to select form feed.

To replace the gap top-of-form (TOF) sensor:

- 1 Follow the procedure for removing the media sensor assembly noted earlier in the manual.
- 2 Remove the four Phillips screws from media sensor bracket. These screws are flat-headed and fit into the recessed holes of the bracket. Then remove the bracket.



- 3 Slide the red plastic sensor molding away from the two sensor guides.



- 4 Remove the top and bottom covers from the red plastic sensor molding. Then remove the wire harness contained inside. These wires are held in place by double-sided tape.
- 5 Replace the wire harness. The emitter and detector ends of the harness each have a small round bump. These two bumps should face inward through two small corresponding holes in the molding.

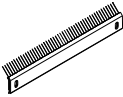
- 6 Note which side of the molding contains the red harness (emitter) and which side contains the clear harness (detector). Then replace the top and bottom covers on the molding.
- 7 Re-assemble the molding into the two sensor guides. Ensure the side with the red harness (emitter) is positioned on top of the clear harness (detector).
- 8 Reconnect the media sensor bracket to the assembly with the four flat head Phillips screws. Ensure the recessed holes point outward, allowing the screw heads to line up with the surface of the bracket.

Ensure the red TOF sensor molding slides between the two guides.

- 9 Follow the procedure for installing the media sensor assembly noted earlier in the manual.

Anti-Static Brushes

Anti-static brushes are used to discharge static electricity from the printer's ribbon and print stations. Static brushes are mounted on a bracket that is connected to either the printhead assembly or the main plate, and the brushes make contact with the moving ribbon. Each anti-static brush is grounded to the printer chassis.



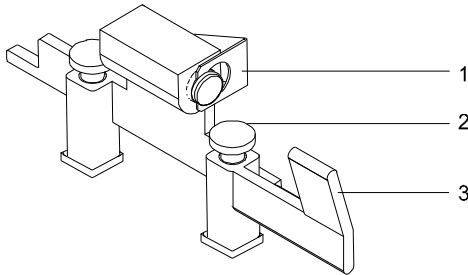
To replace anti-static brushes:

- 1 Turn the printer off and unplug it.
- 2 To replace a ribbon station anti-static brush, remove the two screws that secure the brush assembly to the main plate. Then remove the two screws that secure the brush to the brush bracket.

Use the two screws to attach the new static brush to the brush bracket, ensuring the brush is facing in the correct direction.

Attach the brush assembly to the main plate with two screws. Ensure the brush makes contact with the ribbon.

- 3 To replace a print station anti-static brush, remove the printhead cam by flipping it open. Then press the silver clip holding each cam, pull the cam completely out, and set aside.



1. Silver retaining clip
2. Outer thumbwheel
3. Cam lever

Remove the two $\frac{1}{4}$ inch nuts that secure the brush to the peel edge, then remove the brush.

Install the new brush with the two $\frac{1}{4}$ inch nuts, ensuring the brush is facing the correct direction. Ensure the brush makes contact with the ribbon.

Replace the printhead cam and lock it closed.

- 4 Plug in the printer and turn the power on.

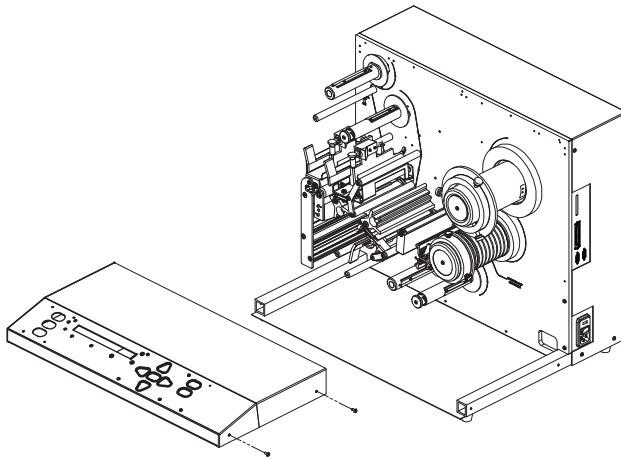
Keypad/Display

Use the following instructions to replace the keypad and/or display.

Caution: Circuit boards can be damaged by static electricity. Always use standard anti-static procedures when working with these boards.

To replace the keypad/display:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Disconnect the P11 ribbon cable from the controller board.
- 4 Remove the four screws from the sides of the bottom plate. Then slide the bottom panel away from the printer. Note the hole in the main plate that is used to feed the ribbon cable into the rear of the printer, and use caution so the cable is not damaged.



- 5 Turn the bottom plate upside down to gain access to the circuit boards. Two circuit boards are present. The smaller board is the display board, and the larger board is the keypad board.

Note the orientation of each board. This information will be helpful when installing replacement boards later in this procedure.

- 6 Unplug the wiring harnesses from the display board. Then disconnect the four screws from the display board and remove it.
- 7 Remove the ten $\frac{1}{4}$ inch nuts from the keypad board, and then remove the board. Ten spacers corresponding with the nuts are located beneath the

board. Use caution when removing the board so these spacers are not lost.

- 8 Turn the display board over to expose the keypad buttons.

If you are replacing the keypad board, move the keypad buttons to the new board. If you are replacing the keypad buttons, install the new buttons in the appropriate place on the keypad board.

When installing the keypad buttons, align the holes in the board with the corresponding shafts on the back of the buttons. Gently pull the shafts through the other side of the board to lock the buttons in position. Use caution not to pull the shafts too hard, or they may break.

- 9 Ensure the spacers are in position between the keypad board and the plate. Then install the keypad board in the bottom plate with the ten nuts.

- 10 Install the display board with the four screws. The board must be oriented so the J2 harness is facing the associated connector. Otherwise, the harness will not reach the associated connector.

Plug in the two connectors.

- 11 Turn the bottom plate over in its correct orientation. Then feed the ribbon cable through its hole in the main plate. Carefully slide the bottom panel into place while feeding the ribbon cable through the hole. Use caution so the cable is not damaged.

- 12 Align the bottom panel holes with the corresponding holes in the frame. Then replace the four screws. Ensure all of the screws are set in place, and then tighten each screw.

- 13 Connect the ribbon cable to P11 on the controller board. This connector is slotted and will fit only in the correct orientation. Do not force the connection.

- 14 Re-install the back cover.

- 15 Plug in the printer and turn the power on.

Controller Board

Use the following instructions to replace the controller board.

Caution: Circuit boards can be damaged by static electricity. Always use standard anti-static procedures when working with these boards.

To replace the controller board:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer. The controller board is located toward the rear of the printer, mounted on the main plate.
- 3 Disconnect all cables from the printer. Then disconnect all of the wiring harnesses from the controller board.

Note the orientation of the board. This information will be helpful when installing the replacement board later in this procedure.

- 4 Remove the six Phillips screws from the controller board. Then remove the board from the printer.
- 5 Install the new controller board using the six Phillips screws.

Connect the wire harnesses to the new controller board. Connectors are slotted and will fit only in the correct orientation. Do not force the connections. Harnesses and associated connectors on the controller board are labeled to aid in connection.

Note: In printer models with two printheads, the “Rear” printer connector on the controller board is not used.

- 6 Adjust the DIP switches for the new board based on your printer model. The DIP switches are marked as SW7 and SW8 on the controller board.

Printer Model	SW7	SW8
QLS-3000 Xe	Off	Off
QLS-3001 Xe	On	Off
QLS-2000 Xe	Off	On
QLS-2001 Xe	On	On

- 7 Re-install the back cover. Connect all printer cables.
- 8 Plug in the printer and turn the power on.

Note: If you experience calibration problems after replacing the controller board, it may be necessary to adjust calibration sensors based on media.

Refer to the Media Sensor Assembly section earlier in this chapter for information about Gap (TOF) and Reflective (RTOF) Sensor Adjustment.

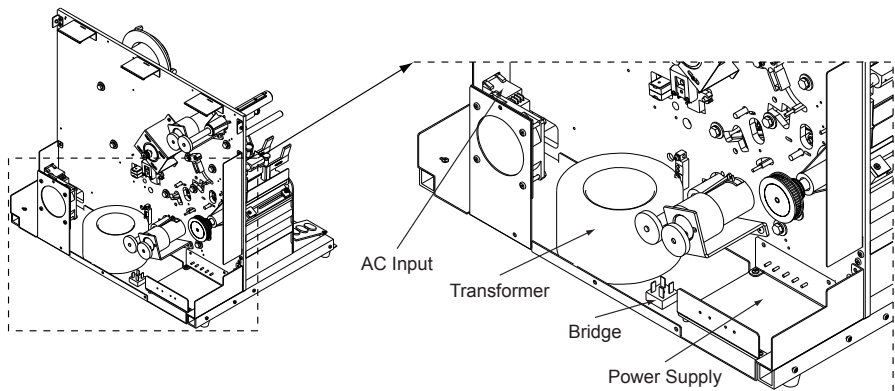
Transformer and Power Supply

Use the following procedure to replace the transformer and power supply.

Caution: Circuit boards can be damaged by static electricity. Always use standard anti-static procedures when working with these boards.

To prepare the printer:

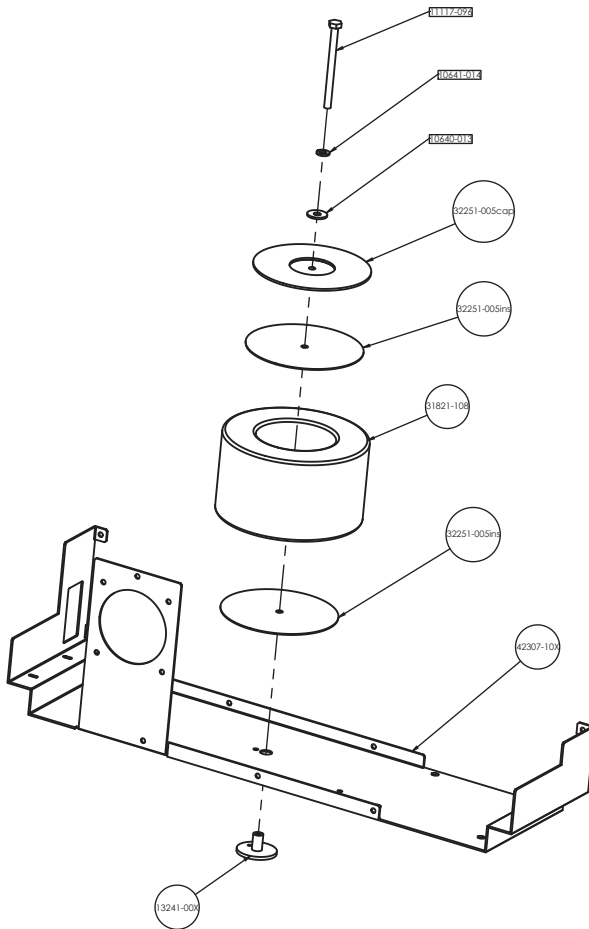
- 1 Turn the printer off and unplug the AC power cord from the printer. Open the printer cover.
- 2 Remove the back cover from the printer. The transformer, power supply board, and related components are illustrated below.



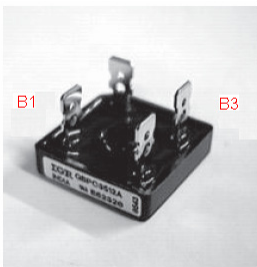
To replace the transformer:

- 1 Disconnect the red and green transformer leads from the bridge. Disconnect the brown, yellow, red, and orange leads from the AC input connector.
- 2 Remove the bolt that is holding the transformer in place and set the hardware aside. Remove the old transformer.

- 3 Bolt in the transformer according to the following diagram.



- 4 Connect the red and green transformer leads to the bridge. The leads are labeled B1 and B3. Find the beveled corner of the bridge. B1 should be connected to the first tab of the bridge that is counterclockwise to the beveled corner of the bridge. B3 should be connected to the third, which is across from B1.



- 5 Connect the brown, yellow, red, and orange leads to the AC input connector. The terminals are labeled A, B, C, and D. The AC input connector is also labeled A, B, C, and D. Ensure the connections match.

To replace the power supply PC board:

- 1 Disconnect harnesses P1, P2, P3, and P4 from the power supply.
- 2 Remove the four Philips screws that mount the power supply to the bottom of the printer. Then remove the two Phillips screws that mount the power supply to the main plate.
- 3 Install the new power supply by using the four Phillips screws and the included nylon washers to mount the power supply to the bottom of the printer. A nylon washer must be placed on top of each of the four studs on the bottom of the printer, isolating the studs from the bottom of the power supply board. Then use the two remaining Phillips screws to mount the power supply to the main plate.
- 4 Connect harnesses P1, P2, P3, and P4 to the power supply.
- 5 To verify the power supply is operating properly, plug in the printer and turn the power on. Then monitor the following voltages on the controller board.

3.3V on T20 and T24 (Ground)	3.3V +.1 / -.1 V
Printhead Voltage T23 and T24 (Ground)	25.75V +/- .25

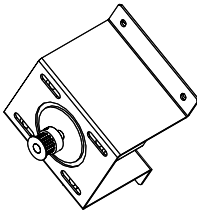
Turn the printer off and unplug the AC power cord from the printer.

To prepare the printer for use:

- 1 Re-install the back cover.
- 2 Plug in the printer AC power cord and turn the power on.

Stepper Motor

Use the following instructions to replace the stepper motor.



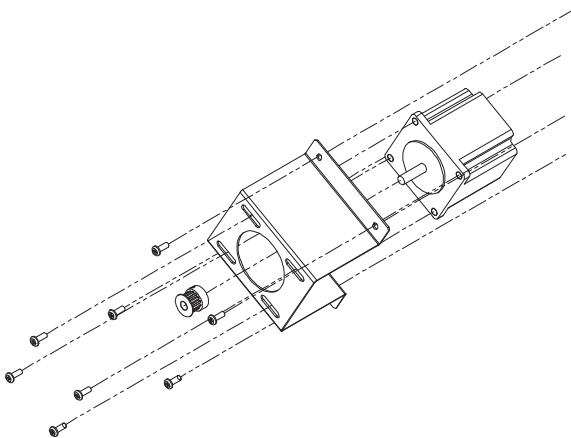
Caution: Circuit boards can be damaged by static electricity. Always use standard anti-static procedures when working with these boards.

To replace the stepper motor:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Disconnect the stepper motor wire harness from the controller board. Note the location of the connector on the controller board.
- 4 Remove the four Philips screws that connect the bracket to the main plate. Remove the bracket and motor from the printer.

Note the position of the drive belt. You will need to install this belt later in this procedure.

- 5 Remove the four adjustment screws to separate the stepper motor from the bracket.



- 6 Remove the pulley from the motor by loosening the two set screws on the pulley.
- 7 Mount the new stepper motor to the bracket with the four adjustment screws. Do not tighten these screws yet, as the motor must move freely along the adjustment slots later in this procedure.

Attach the pulley and tighten the set screws to lock it into place.

- 8 Mount the bracket to the main plate with four Philips screws.
- 9 Position the drive belt over the pulley. Then move the motor along the adjustment slots to create tension in the belt. Tighten the adjustment screws to lock the motor in position.

Note: As a general guideline, there should be approximately 5 mm of deflection in the belt in either direction. The belt should be tight enough not to slip, yet loose enough so it does not put excess strain the motor.

- 10 Connect the stepper motor wire harness to the controller board.
- 11 Re-install the back cover.
- 12 Plug in the printer and turn the power on.

Drive Belt

Use the following instructions to replace the drive belt.

To replace the drive belt:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Loosen the four adjustment screws on the stepper motor and remove the belt.
- 4 Position the new drive belt over the stepper motor pulley. Then move the motor along the adjustment slots to create tension in the belt. Tighten the adjustment screws to lock the motor in position.

Note: As a general guideline, there should be approximately 5 mm of deflection in the belt in either direction. The belt should be tight enough not to slip, yet loose enough so it does not put excess strain the motor.

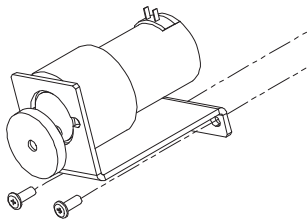
- 5 Re-install the back cover.
- 6 Plug in the printer and turn the power on.

Ribbon Rewind Motors

Use the following instructions to replace ribbon rewind motors.

To replace ribbon rewind motors:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Disconnect the wires from the ribbon rewind motor. Note where these wires connect to the motor.
- 4 Remove the two Phillips screws and locking washers to disconnect the rewind motor assembly from the printer.

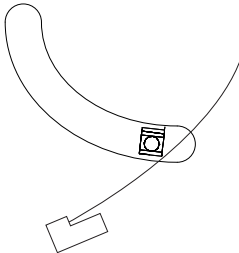


- 5 Use the two Phillips screws with locking washers to install the new rewind motor assembly.
- 6 Connect the two wires to the motor. The red wire connects to the contact marked 1, and the black wire connects to the contact marked 2.
- 7 Ensure the two sets of gears interlock, and that they can be turned freely by hand. The gears should not slip or lock while turning.
- 8 Re-install the back cover.
- 9 Plug in the printer and turn the power on.

Microswitches

Use the following instructions to replace microswitches. Microswitches are mounted on the back of the main plate, located next to printhead and drive roll adjustment slots.

A flexible metal lever extends from the microswitch. When the printhead cam or drive roll is moved, the lever also moves, changing the state of the switch. This feature allows the printer to detect whether the print station or drive roller is open.



Microswitch

To replace microswitches:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Remove the two screws that secure the microswitch to the main plate. Note the orientation of the microswitch.

Unplug the wire harness. Note the orientation of the harness.

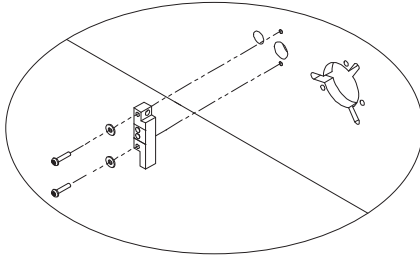
- 4 Plug the wire harness into the replacement microswitch. Then install the microswitch on the main plate with the two screws. Do not over tighten the screws or the plastic portion of the microswitch may break.
- 5 Move the printhead cam or drive roller associated with the slot. The microswitch lever should change states. A small click sound can be heard when it changes state.

If necessary, gently bend the flexible lever to cause the microswitch to change state when the cam is moved.

- 6 Re-install the back cover.
- 7 Plug in the printer and turn the power on.

Ribbon Sensor

Ribbon sensors are mounted on the rear of the main plate next to each ribbon station. These sensors detect when a ribbon unwind mandrel stops spinning, which usually indicates the mandrel is out of ribbon. Use the following instructions to replace a ribbon sensor.



To replace the ribbon sensor:

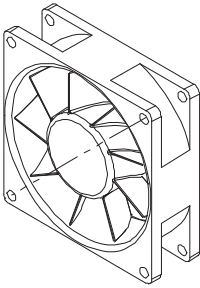
- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Unplug the wire harness from the ribbon sensor. Note the orientation of the wire harness.
- 4 Remove the two Phillips screws and locking washers from the ribbon sensor. Note the orientation of the sensor, and then remove the ribbon sensor from the printer.
- 5 Install the new sensor in the printer with the two Phillips screws and locking washers. Do not over tighten the screws or the plastic portion of the ribbon sensor may break.

Ensure the emitter and detector on the sensor line up with the associated hole in the main panel.

- 6 Connect the wire harness to the ribbon sensor.
- 7 Re-install the back cover.
- 8 Plug in the printer and turn the power on.

Fan

Use the following instructions to replace the fan.



Caution: Circuit boards can be damaged by static electricity. Always use standard anti-static procedures when working with these boards.

To replace the fan:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer.
- 3 Remove the fan wire harness from the controller board. The connector on the board will be marked as FAN.
- 4 Remove the four screws from the fan, and then remove the fan from the printer. Note the orientation of the fan.
- 5 Install the new fan with the four screws. Orient the fan so its air direction arrow is on top and pointing away from the printer.
- 6 Connect the wiring harness for the fan to the FAN connector on the controller board.
- 7 Re-install the back cover.
- 8 Plug in the printer and turn the power on.

Boot PROM

Use the following instructions to replace the boot PROM (programmable read-only memory).

Caution: Circuit boards can be damaged by static electricity. Always use standard anti-static procedures when working with these boards.

To replace the boot PROM:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove the back cover from the printer. The controller board is located toward the rear of the printer, mounted on the main plate.
- 3 Remove the boot PROM, which is located in position U28 on the controller board. Note the orientation of the boot PROM.
- 4 Install the new boot PROM in position U28. To ensure the boot PROM is oriented correctly, match the notch screened on the controller board with the notch in the boot PROM.
- 5 Re-install the back cover.
- 6 Plug in the printer and turn the power on.

Wiring Harnesses

For detailed information about replacing wiring harnesses, please contact Technical Support.

Firmware Upgrades

Firmware is the internal operating system of the printer. Periodically, firmware upgrades are made available to add new features or change operational characteristics of the printer. A firmware upgrade should only be performed when available new functionality is needed or when a firmware upgrade is required for compatibility with QuickLabel Systems' software.

Note: It is good operating procedure to first test the printer after installing new firmware as some adjustments may be required. This will minimize the impact on label production within your application.

To upgrade firmware:

1. Download the firmware upgrade from www.QuickLabel.com.
2. Copy the upgrade files to a CompactFlash card. Ensure you place all of the files in the root folder of the CompactFlash card.
3. Turn the printer power on and hold in the SELECT key on the front panel. This sequence will place the printer into a "forced upgrade" mode. The following menu will appear:

Forced Upgrade

Insert CF Card and Press SELECT Key

4. Insert the CompactFlash card that contains the upgrade files in the printer. Then press the SELECT key. The printer will reset and display the following messages as it is performing the upgrade process:

Reading New Files
Erasing Flash
Programming Flash
OCR_A.BIN
etc . . .

When the upgrade is complete, the printer will reset again. Please verify the version displayed during the power-up sequence. Your printer will be ready to use.

QLS-3000Xe QLS-2000Xe **SERIES**

Chapter 6: Troubleshooting

Your printer is designed for long-life and trouble-free operation. However, occasional troubleshooting and printer adjustments may be required to correct printing problems.

This chapter provides the following information:

- Printing problems that can occur.
- Error messages and possible resolutions.
- Troubleshooting procedures.

Printing Problems

Missing print (No print or a clear vertical line in the label)

This is an example of debris on the print line or a blown dot on the printhead.



For this type of missing print you should first try cleaning the printhead then replace it if necessary. Below are tips for trouble shooting other types of missing print.

- 1 Clean the printhead, printline, platen rollers, and ribbon guide shafts.
(See Routine Cleaning on page 6-22)
- 2 Ensure the ribbon is loaded correctly.
(See Loading Ribbon on page 6-24)
- 3 Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 4 Ensure all printheads that you want to use are enabled.
(See Enabling/Disabling Printheads on page 6-29)
- 5 Try a different roll of ribbon.
- 6 Try a different roll of labels/tags.

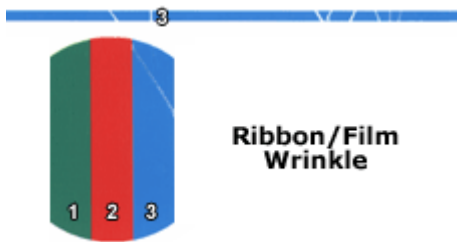
- 7 Check the printhead harness connection.
(See Replacing Printheads on page 6-30)
- 8 Replace the printhead.
(See Replacing Printheads on page 6-30)
- 9 Swap cables on the controller board from a known working printstation.
(See Swapping Printhead Cables on page 6-32)
- 10 Swap cables on the power supply from a known working printstation.
(See Swapping Printhead Cables on page 6-32)

Light or Broken Print (Color prints but doesn't fill-in completely)

- 1 Clean the printhead, printline, platen rollers, and ribbon guide shafts.
(See Routine Cleaning on page 6-22)
- 2 Ensure proper ribbon match for the material you are trying to print on.
- 3 Try a different roll of ribbon.
- 4 Try a different roll of labels/tags.
- 5 Ensure proper printhead intensities for the ribbon formulation being used.
(See Selecting a Printhead Intensity on page 6-33)
- 6 Try adding printhead pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 7 Ensure the platen roller is positioned properly under the printhead.
(See Adjusting Platen Rollers on page 6-37)
- 8 Replace the printhead.
(See Replacing Printheads on page 6-30)

Ribbon wrinkle (Angular or small curved lines in the label)

The color indicated by #3 is wrinkling in this example. Notice the curved lines which indicate no transfer of color in that area.



For small curved lines, ensure the printhead intensity is not too high.

- 1 Ensure the width of the ribbon to that of the label are the same. The ribbon should be the same width (or up to ¼" wider) as the label/tag material. Do not print with ribbon that is narrower than the label/tag material, as it will wear the unprotected area of the printhead.
- 2 Clean the printhead, printline, platen rollers, and ribbon guide shafts. (See Routine Cleaning on page 6-22)
- 3 Ensure the ribbon is loaded correctly. (See Loading Ribbon on page 6-24)
- 4 Ensure the labels/tags are loaded correctly. (See Loading Label/Tag Media on page 6-26)
- 5 Increase the ribbon tension. (See Adjusting Ribbon Tension on page 6-38)
- 6 Reduce the printhead heat intensity on the print station that is wrinkling. (See Selecting a Printhead Intensity on page 6-33)
- 7 Even out the printhead pressure on the print station that is wrinkling. (See Adjusting Printhead Pressure on page 6-35)
- 8 Remove all used ribbon from the rewind core. If the ribbon is not rewinding properly on the rewind core it could cause ribbon drag or wrinkle. Try removing all the ribbon from the rewind core and reload the ribbon.
- 9 Ensure there is no in and out "play" on the ribbon mandrels. The rewind core slides on the ribbon rewind mandrel and there are two set screws

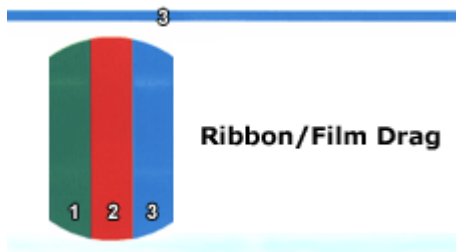
securing it. If they loosen up the mandrel may move "in and out" while printing causing wrinkle. Tighten the set screws (allen screws).

- 10** Ensure the printhead harnesses are not coming into contact with the ribbon.
(See Replacing Printheads on page 6-30)
- 11** Try reducing the speed.
(See Adjusting the print speed on page 6-39)
- 12** Try rotating the image 180 degrees If this is an option for you, it may help avoid wrinkle because it changes the order the dots are printed.
- 13** Ensure the label/tags are not skewing (moving in or out). If they are adjust the drive roll pressure.
(See Adjusting Printhead Pressure on page 6-35)

Ribbon Breakage

- 1 Clean the printhead, printline, platen rollers, and ribbon guide shafts.
(See Routine Cleaning on page 6-22)
- 2 Ensure the ribbon is loaded correctly.
(See Loading Ribbon on page 6-24)
- 3 Reduce the ribbon tension.
(See Adjusting Ribbon Tension on page 6-38)
- 4 Reduce the printhead heat intensity on the print station that is breaking.
(See Selecting a Printhead Intensity on page 6-33)
- 5 Reduce the printhead pressure on the print station that is breaking.
(See Adjusting Printhead Pressure on page 6-35)

Ribbon/Media drag (Faded print and smearing)



The #1 and #3 colors are dragging in the example above. Notice areas of missing color where it should be printing and ghosting, or shadowing, where it shouldn't be printing.

- 1 Reduce the ribbon tension.
(See Adjusting Ribbon Tension on page 6-38)
- 2 Remove all used ribbon from the rewind core. If the ribbon is not rewinding properly on the rewind core it could cause ribbon drag or wrinkle. Try removing all the ribbon from the rewind core and reload the ribbon.
- 3 Reduce the printhead pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 4 Clean the drive roll and pressure roller.
(See Routine Cleaning on page 6-22)
- 5 Make sure the platen roller rotates freely.
(See Replacing Platen Rollers on page 6-40)
- 6 Clean the printhead, printline, platen rollers, and ribbon guide shafts.
(See Routine Cleaning on page 6-22)

Color registration (Alignment of colors)

- 1 Adjust the color registration/alignment.
(See Setting Color Registration/Alignment on page 6-42)
- 2 Check and adjust the printhead angularity.
(See Adjusting Printhead Angularity on page 6-43)
- 3 Ensure the drive roller is not slipping. If it is, adjust the printhead pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 4 If it's still slipping, try replacing the drive roller.
(See Replacing the Drive Roller on page 6-44)
- 5 Ensure there is enough back tension on the label material.

Colors do not match (Color matching from monitor to printed label)

- 1 Try adjusting heat intensities of printheads.
(See Selecting a Printhead Intensity on page 6-33)

Logo, Image, or Text is not clear (Blurry, not sharp)

- 1 Examine the logo/image being used. It should be 300 dpi and not Anti-Aliased.
- 2 If you scanned the image it may need to be cleaned up. The best place to clean up artwork is in the originating program. When exporting as a .tif or .pcx (bitmap) DO NOT enable anti-aliasing.
- 3 Use original artwork, as opposed to scanning, whenever possible. If you can't use the original artwork and recreate the text and you are familiar with a graphics editing package, you can utilize tools to clean-up the image or text. Eliminate anti-aliasing and stray pixels.

Logo or Image does not print

- 1 Ensure the image is not off of the label in the program you are using.
- 2 Ensure the image name does not have any spaces, periods, or any uncommon characters in it. (I.e. image 1.5 x 3.5.tif will not print. Rename it to image15x35.tif)
- 3 Ensure the ribbon is loaded correctly.
(See Loading Ribbon on page 6-24)
- 4 Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 5 Ensure all printheads that you want to use are enabled.
(See Enabling/Disabling Printheads on page 6-29)
- 6 Ensure proper ribbon match for the material you are trying to print on.

Fields do not print as they appear on the monitor (Not positioned correctly on the label)

- 1** Make sure the sensor is correctly positioned over the label.
(See Positioning the TOF (Gap) Sensor on page 6-46)
- 2** Ensure the printer is properly calibrated for the material you are using.
(See Calibrating the Printer on page 6-47)
- 3** Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 4** If comparing how a label prints from one printer to another (when multiple printers are being used), make sure the System Baseline is set properly for each printer.
(See Adjusting the System Baseline on page 6-49)

Media not exiting printer smoothly / Media Hesitates / Media Slips

- 1** Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 2** Ensure the sensor is correctly positioned over the labels/tags.
(See Positioning the TOF (Gap) Sensor on page 6-46)
- 3** Ensure the printer is properly calibrated for the material you are using.
(See Calibrating the Printer on page 6-47)
- 4** Ensure the sensor is clean of any adhesive build-up.
(See Cleaning the TOF (Gap) Sensor on page 6-51)
- 5** Ensure the labels/tags are not binding/stalling at the drive roller. If they are, try decreasing the drive roll pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 6** Reduce the printhead pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 7** Ensure the labels/tags are not slipping at the drive roll. If they are, apply more pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 8** If it's still slipping, try replacing the drive roller.
(See Replacing the Drive Roller on page 6-44)

Feeds Blank Labels

- 1** You will see a leader of blank labels at the beginning of each separate batch sent (approx.12" - 14" of material).
- 2** Cycle power and re-send the batch.
- 3** Ensure the ribbon is loaded correctly.
(See Loading Ribbon on page 6-24)
- 4** Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 5** Ensure all printheads that you want to use are enabled.
(See Enabling/Disabling Printheads on page 6-29)
- 6** Ensure proper ribbon match for the material you are trying to print on.
- 7** Ensure the sensor is correctly positioned over the labels/tags.
(See Positioning the TOF (Gap) Sensor on page 6-46)
- 8** Ensure the sensor is clean of any adhesive build-up.
(See Cleaning the TOF (Gap) Sensor on page 6-51)
- 9** Ensure the printer is properly calibrated for the material you are using.
(See Calibrating the Printer on page 6-47)
- 10** Check the printhead harness connection.
(See Swapping Printhead Cables on page 6-32)
- 11** Check the communication settings.
(See Adjusting Communication Settings on page 6-52)

- 12 Check the connection (both ends) of the parallel and or serial cable being used.
- 13 Try cables that you know are good. (A new cable is not necessarily a good cable)
- 14 Ensure the Windows network or other network is not re-directing the port to another printer or queue.
- 15 Ensure the ports on the computer are working by printing to another printer.
- 16 Try another computer if one is available.

Print Station will not Print

- 1** Cycle power and re-send the batch.
- 2** Ensure the ribbon is loaded correctly.
(See Loading Ribbon on page 6-24)
- 3** Clean the printhead, printline, platen rollers, and ribbon guide shafts.
(See Routine Cleaning on page 6-22)
- 4** Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 5** Ensure all printheads that you want to use are enabled.
(See Enabling/Disabling Printheads on page 6-29)
- 6** Ensure proper ribbon match for the material you are trying to print on.
- 7** Check the printhead harness connection.
(See Swapping Printhead Cables on page 6-32)

Skips Labels in a Batch

- 1 Ensure the labels/tags are loaded correctly.
(See Loading Label/Tag Media on page 6-26)
- 2 Ensure the media travel roller rotates freely.
- 3 Ensure the sensor is correctly positioned over the labels/tags.
(See Positioning the TOF (Gap) Sensor on page 6-46)
- 4 Ensure the printer is properly calibrated for the material you are using.
(See Calibrating the Printer on page 6-47)
- 5 Ensure the sensor is clean of any adhesive build-up.
(See Cleaning the TOF (Gap) Sensor on page 6-51)

No Power

- 1 Ensure both ends of the power cable are plugged in.
- 2 Check the fuse.
(See Changing the Fuse / Fuse Voltage on page 6-54)
- 3 Ensure the outlet has power.

No Communications

- 1 Check the communication settings.
(See Adjusting Communication Settings on page 6-52)

Error Messages

MEDIA FAULT! - Out of labels or motor has stalled

- 1 Ensure the labels/tags are loaded correctly. You may have run out.
(See Loading Label/Tag Media on page 6-26)
- 2 Ensure the sensor is correctly positioned over the labels/tags.
(See Positioning the TOF (Gap) Sensor on page 6-46)
- 3 Re-calibrate the printer.
(See Calibrating the Printer on page 6-47)
- 4 Ensure the sensor is clean of any adhesive build-up.
(See Cleaning the TOF (Gap) Sensor on page 6-51)
- 5 Ensure the labels/tags are not binding/stalling at the drive roller. If they are, try decreasing the drive roll pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 6 Try loosening the printhead pressures.
(See Adjusting Printhead Pressure on page 6-35)
- 7 Ensure the labels/tags are not slipping at the drive roll. If they are, apply more pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 8 If it's still slipping, try replacing the drive roller.
(See Replacing the Drive Roller on page 6-44)

MEDIA FAULT! - Verify calibrated media type

- 1 Re-calibrate the printer.
(See Calibrating the Printer on page 6-47)

TTR OUT ON [Front, Bottom, Center, or Rear] PRINT STATION! - Reload thermal transfer ribbon

This message appears when you run out of ribbon. XXXX refers to the station.

- 1 Replace the ribbon on the station (XXXX) that ran out.
(See Loading Ribbon on page 6-24)
- 2 If it did not run out of ribbon but still gave the error, try decreasing ribbon tension.
(See Adjusting Ribbon Tension on page 6-38)
- 3 Ensure there is no excessive printhead pressure.
(See Adjusting Printhead Pressure on page 6-35)
- 4 Ensure the sensor is clean of any adhesive build-up.
(See Cleaning the TOF (Gap) Sensor on page 6-51)

[Front, Bottom, Center, or Rear] PRINthead IS UP! - Do you wish to disable it? NO/YES

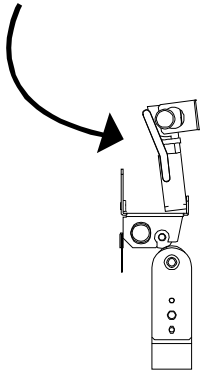
You can enable or disable printheads. If the printer detects that a printhead is not locked in the closed position when turned on or when a printhead is opened while the printer is already on, you will see this message.

Choose to disable the printhead by choosing YES on the front panel and then press Select or enable the printhead.

To re-enable a disabled printhead, close/lock the printhead and cycle the printer power.

DRIVE ROLL IS UP! - Close drive roll to resume printing

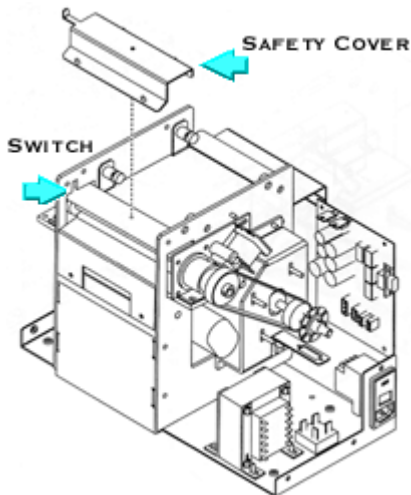
Ensure the drive roll cam is locked in position.



CUTTER FAULT! - Cutter motor stall or stacker is full

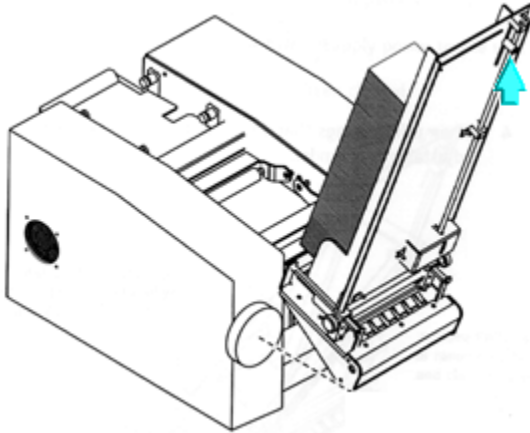
- 1 Ensure the cutter blade safety cover is securely in position over the cutter blade.

The end of the cover must go into the hole where the switch is located. If the switch is not activated by the cover or if it's broken you will receive the "Cutter Stall or Stacker Full" message.



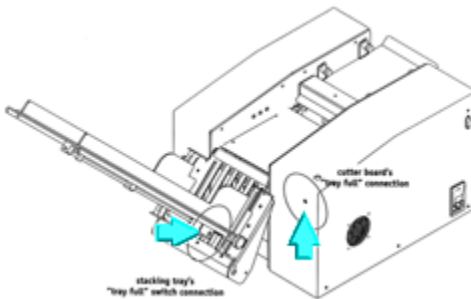
- 2 If using a cutter/stacker, ensure the stacker isn't full and activating the stacker full switch.

When the tray fills up it activates the stacker full switch and gives the "Cutter Stall or Stacker Full" message. Empty the tray and continue printing



- 3 Ensure the cable connecting the cutter section to the stacker tray is securely connected.

Connect the cable from the base to the stacker tray as shown with the arrows.



DRAM Error

- 1 Try rebooting the printer (cycle the power).
- 2 The CPU board may need repair or replacement

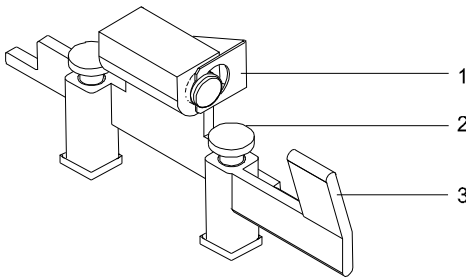
Troubleshooting Procedures

Routine Cleaning

Printer parts accumulate residue, especially those in direct contact with the thermal transfer ribbon. To maintain clear, crisp printing, clean the printer regularly. Cleaning after using a full roll of thermal transfer ribbon is recommended.

To clean the printer:

- 1 Remove the printhead cams and the drive roller cam by flipping each cam open to relieve pressure. Do not lock printheads into the up position.
- 2 Press the silver clip holding each cam, pull the cam completely out, and set aside.



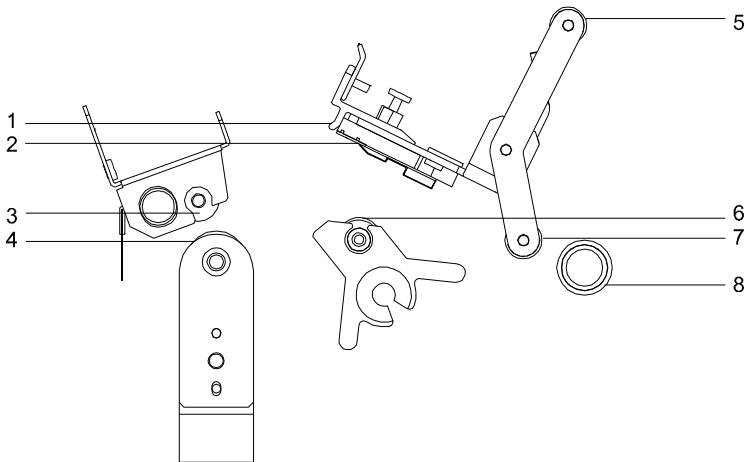
1. Silver retaining clip
2. Outer thumbwheel
3. Cam lever

- 3 Remove any label media and thermal transfer ribbon from the print path.
- 4 Use a cleaning pad, a cotton swab, or a soft lint-free cloth wet with isopropyl alcohol and run it on underside of each printhead, especially on the hairline rows of print elements and along the edge of the struts.
- 5 Also clean the platen rollers, guide rollers, film guide shafts, pressure rollers, and drive rollers.

- 6 Reinstall any label media and thermal transfer ribbon.
- 7 Replace the printhead cams and drive roller cam and lock them closed.

Note: Never use a hard object to clean the printheads. Damage will result if accumulated printing residue is scraped or chipped from the printhead.

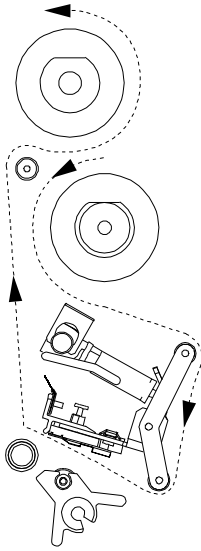
Printer parts that accumulate the most residue are noted in the following illustration.



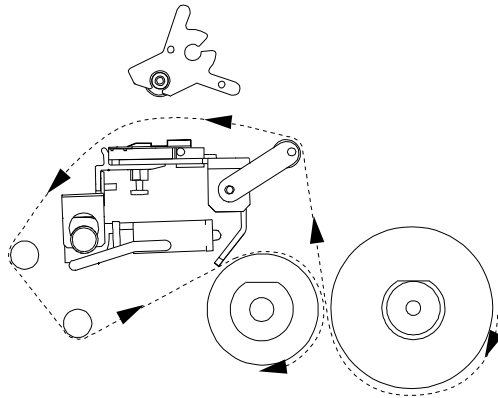
- | | |
|--------------------|--|
| 1. Printhead strut | 5. Thermal transfer ribbon guide shaft |
| 2. Print line | 6. Platen roller |
| 3. Pressure roller | 7. Thermal transfer ribbon guide shaft |
| 4. Drive roller | 8. Guide roller |

Loading Ribbon

The ribbon path will vary based on whether the printstation is in the standard or inverted position. Ribbon path illustrations for each printstation type are provided below.



Standard Printstation



Inverted Printstation

To load ribbon:

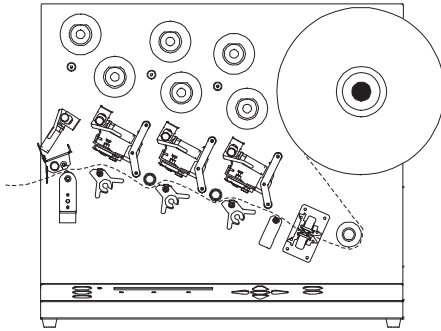
- 1 Be sure power is Off. Raise the printer cover.
- 2 Fully seat thermal transfer ribbon roll on the thermal transfer ribbon unwind mandrel. Ensure that the ribbon unwinds to the left of and beneath the roll.
- 3 Fully seat a cardboard take-up core on the associated thermal transfer ribbon rewind mandrel.
- 4 Open the printhead (flip printhead cam lever counterclockwise on standard printstations, clockwise on inverted printstations).
- 5 Advance the thermal transfer ribbon around the outside of each station's thermal transfer ribbon guide roller(s). An illustration of the ribbon path is screened on the back plate of the printer as a guide.

- 6 Advance the thermal transfer ribbon between the printhead and the platen roller.
- 7 On standard printstations, advance the thermal transfer ribbon over the thermal transfer ribbon guide spindle. On inverted printstations, advance the thermal transfer ribbon around the outside of the station's two guide spindles.
- 8 On standard printstations, advance the thermal transfer ribbon beneath and around the cardboard take-up core on the rewind mandrel. On inverted printstations, advance the thermal transfer ribbon above and around the take-up core.
- 9 Tape the thermal transfer ribbon to the core.
- 10 Close the printhead.
- 11 Repeat procedure for remaining printstations.

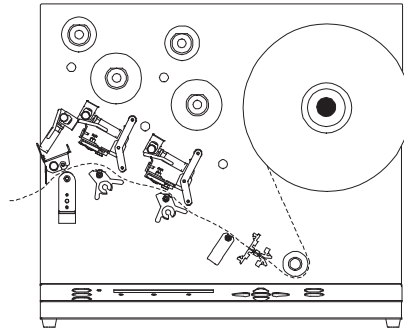
Adjustment of the ribbon tension may be required after loading thermal transfer ribbon. If the thermal transfer ribbon is wrinkling or smudging, adjust the tension to alleviate these conditions.

Loading Label/Tag Media

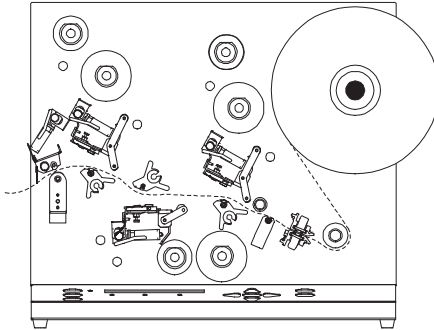
The Media menu allows you to tell the printer what type of media is loaded on the printer: sensors, image dimensions, label dimensions, and any offsets.



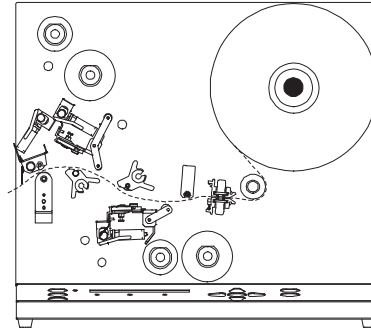
QLS-3000 Xe



QLS-2000 Xe



QLS-3001 Xe

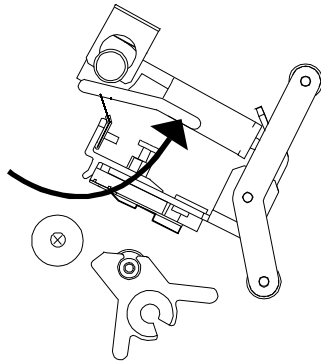


QLS-2001 Xe

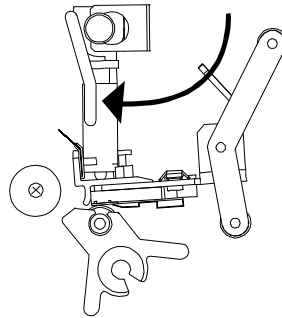
To load label/tag media:

- 1 Be sure power is Off. Raise the printer cover.

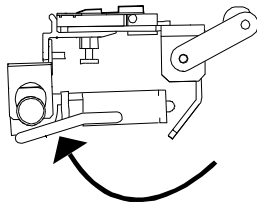
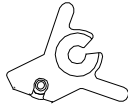
- 2 To open each printhead, flip the cam lever on each (counterclockwise on standard printheads, clockwise on inverted printheads).



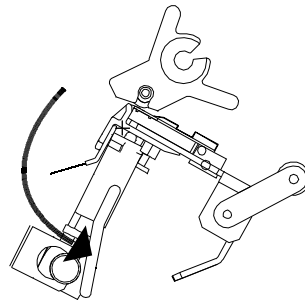
Standard Printhead Open



Standard Printhead Closed

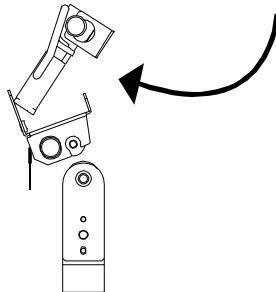


Inverted Printhead Open

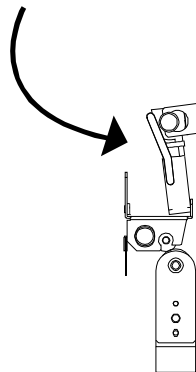


Inverted Printhead Closed

- 3 Open the drive roller by flipping the drive roller pressure cam lever open.



Drive Roll Cam Open

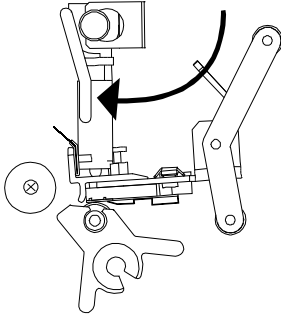


Drive Roll Cam Closed

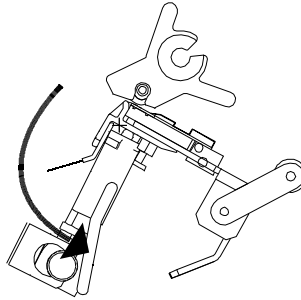
- 4 Remove the media retainer from the media unwind mandrel.
- 5 Install a roll of media on the mandrel. Ensure that the roll is fully seated on the mandrel and reinstall the retainer to secure it.
- 6 Thread the media around the media guide roller and through the media sensor housing.
- 7 On QLS-2001 Xe models, thread media under the media index roller. On all other models thread media over the media index roller.
- 8 On models with standard print stations, thread the media over the platen rollers and under the guide rollers (if present). On models with inverted print stations, thread the media beneath the platen roller.
- 9 After threading the media over the platen roller on the last print station, thread the media over the drive roller and out of the printer.
- 10 Slide the media against the plastic guide block on the vertical plate. Be sure not to buckle the media against this block.
- 11 Close the printheads and the drive roller.

Enabling/Disabling Printheads

Enable - Make sure the printhead(s) that you want to use are locked in the closed position and turn the printer on. If the printer is already on and you would like to enable a printhead that is currently disabled, simply lock the printhead in the closed position.

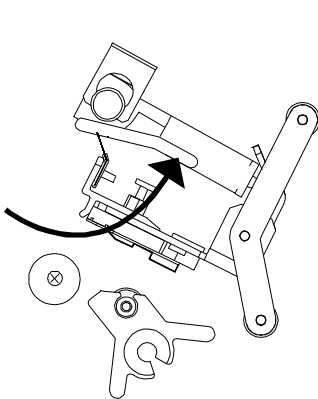


Standard Printhead Closed

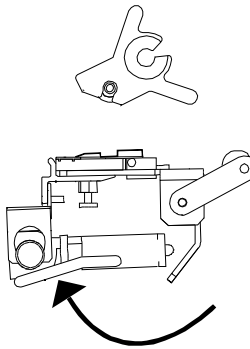


Inverted Printhead Closed

Disable - Make sure the printhead(s) that you do not want to use are opened when you turn the printer on. If the printer is already on and you would like to disable a printhead that is currently enabled, simply open the printhead and press Select on the front panel of the printer when asked if you would like to disable it.



Standard Printhead Open



Inverted Printhead Open

Replacing Printheads

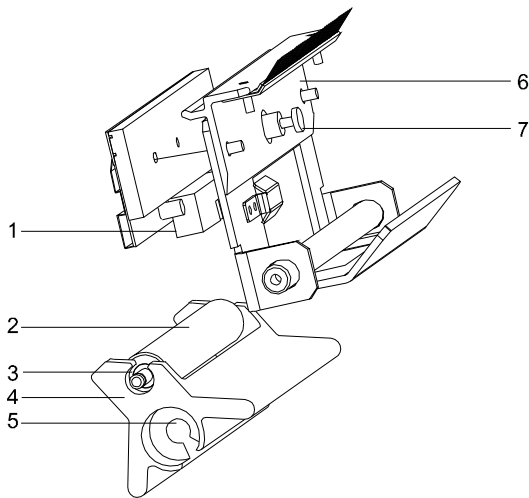
Use the following instructions to replace printheads.

Caution: Printheads can be damaged by static electricity. Always use standard anti-static procedures when replacing printheads.

To remove and replace printheads:

- 1 Turn the printer off and unplug it.
- 2 For standard printheads, flip the printhead cam lever counterclockwise to relieve pressure on and open the printhead. For inverted printheads, flip the cam lever clockwise to open the printhead. Do not lock printheads into the up position.
- 3 Press down the silver clip holding the printhead cam and pull the cam completely out. To provide more maneuverability, the printhead cam on the print station to the right of the printhead you are replacing can also be removed.
- 4 Remove thermal transfer ribbon currently loaded on the print station.
- 5 Loosen the center captive retaining screw on the printhead by turning it counterclockwise. Detach the printhead.
- 6 Be careful not to damage the cable harness that attaches to the printhead. Unplug the printhead cable harness from the printhead. Set the detached printhead aside.
- 7 Plug the printhead cable harness into the replacement printhead.

- 8 Position the replacement printhead against the printhead retaining plate for attachment. Be sure that the two side screws are fitted through the corresponding holes in the new printhead.



- | | |
|--|---------------------------------------|
| 1. Cable harness | 5. Bolt securing platen support strut |
| 2. Platen roller | 6. Printhead retaining plate |
| 3. E-ring/washers securing platen roller | 7. Center retaining screw |
| 4. Platen support strut | |

- 9 Reinsert and tighten the printhead's captive retaining screw. Be sure the cable harness is not crimped or damaged when the printhead is attached to the printhead plate. The wiring harness should fit through the opening formed when the two pieces are joined.
- 10 Reinstall label media and thermal transfer ribbon.
- 11 Reinsert the printhead cam(s) and close the printheads.
- 12 Plug the printer back in.

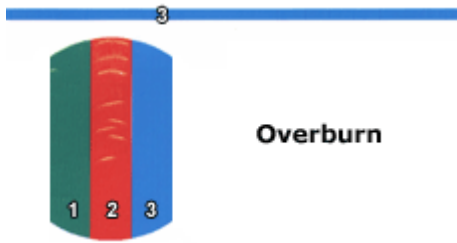
Swapping Printhead Cables

There is only one harness from each printhead to the controller board. It contains the data and power to the printhead. You can swap from one connector to another on the controller board as stated below.

By unplugging the harness on the controller board and plugging it into a different connector on the same board, you can determine if the problem is in the print station or in the controller board.

For example, if you plug the harness from printhead 2 into the connector for printhead 3 and the problem remains on station two, the problem is in the print station and not the controller board.

Selecting a Printhead Intensity



This is an example of overburn. The heat intensity for the color indicated by #2 is too high.

The printhead intensity determines the temperature of the printhead heating elements. The amount of heat applied to the thermal transfer ribbon determines the darkness of the print. The amount of heat that is actually applied to the film by the printhead is determined by two factors:

- Length of time that power is applied to the printhead
- Rate at which the media is traveling under the printhead

The print intensity setting determines the first factor and the second is controlled by the print speed. The printer has 32 discrete heat settings. A setting of 1 is the coolest setting, resulting in the lightest print. A setting of 32 is the hottest setting, resulting in the darkest print.

The appropriate heat setting will vary depending on the media and ribbons being used as well as the print speed setting. As a general guideline, the ribbon types listed below will function best in the following print intensity ranges:

Wax	1 to 12
Wax/Resin	6 to 20
Resin	16 to 32

In general, lower-quality media that requires more heat to produce a satisfactory image is less advantageous in terms of speed and performance than higher-quality media that images easily and quickly at lower temperatures. If you use media that requires more heat, it is recommended that you set the print speed to a slower rate.

Note: Some thermal transfer ribbon (typically, Resin type) reacts differently, actually printing lighter if too much heat is applied. This is a result of overburning the ink. If this occurs, decreasing the heat will darken the printed image.

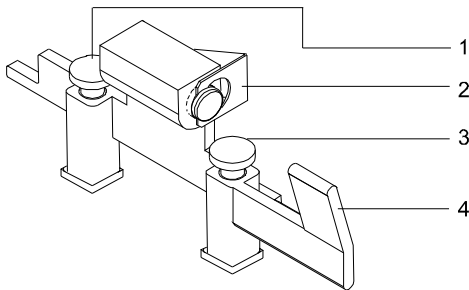
Adjusting Printhead Pressure

If switching between very wide label media and very narrow label media, it may be necessary to adjust the downward pressure on either side of the printheads.

Similarly, if switching between relatively thick media and thin media, printhead pressure adjustments may be necessary.

Downward pressure on each printhead is controlled by two printhead pressure thumbwheels.

Note: The outer thumbwheel is not installed on narrow media configurations.



- | | |
|--------------------------|---------------------|
| 1. Inner thumbwheel | 3. Outer thumbwheel |
| 2. Silver retaining clip | 4. Cam lever |

The inner thumbwheel increases or decreases pressure on the inner half of the printhead. The outer thumbwheel increases or decreases pressure on the outer half of the printhead.

Examine printed labels to determine necessary adjustments.

To adjust pressure on individual printheads:

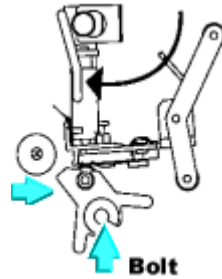
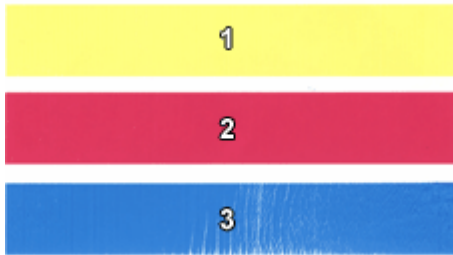
- 1 For standard printheads, flip each printhead cam lever counterclockwise to relieve pressure on and open the printheads, (flip levers clockwise on inverted printheads). Do not lock printheads into the up position.
- 2 This adjustment can be made without removing the printhead cam. However, it may be easier to make adjustments if the cam is removed. To remove the cam, press down the silver clip holding the printhead cam and pull the cam completely out.

- 3 With the cam in hand, adjust printhead pressure by turning the thumbwheels as required to maximize the clarity and detail of the label. Turn thumbwheels counterclockwise to raise them, decrease pressure on the printhead, and lighten the image. Turn thumbwheels clockwise to lower them, increase pressure on the selected printhead, and darken the image.
- 4 Slide the cam back in place. Make sure the silver clip is securely seated.
- 5 Flip the printhead cam closed to restore pressure to the printhead.

If after adjusting printhead pressure, print quality is not improved, check other settings that affect print quality, such as heat intensity.

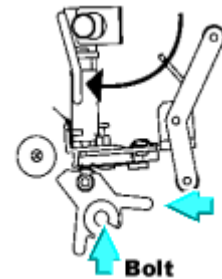
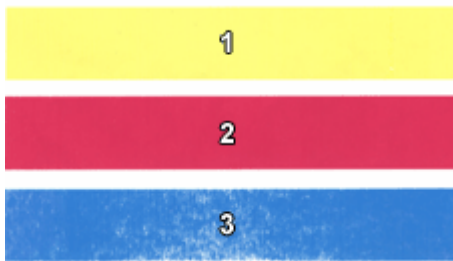
Adjusting Platen Rollers

The platen roller for the color indicated by #3 is too far forward.



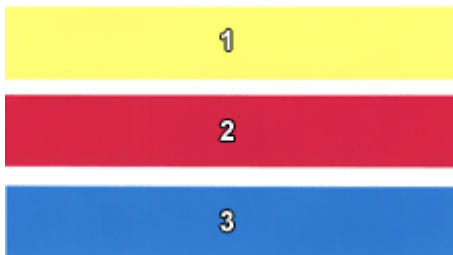
Loosen the bolt securing the platen strut and tap the strut backward to adjust the position of the platen roller.

The platen roller for the color indicated by #3 is too far behind the printhead.



Loosen the bolt securing the platen strut and tap the strut forward to adjust the position of the platen roller.

This is an example of a good print.

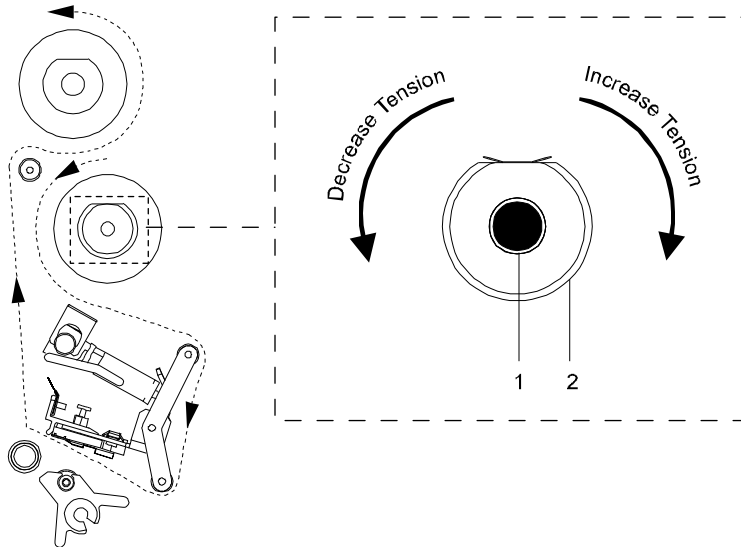


Adjusting Ribbon Tension

Normally, this adjustment should not be required during the life of a film roll. However, if you notice film wrinkling or one of the colors smudging, you can adjust the tension to alleviate these conditions.

If using ribbon less than two inches wide, tension may be excessive when the tension switch is in the High position. If ribbons break, flip the ribbon tension switch to Low.

Ribbon tension can also be adjusted on each individual printstation by turning the knob on the ribbon unwind mandrel.



1. Ribbon tension adjust knob
2. Ribbon unwind mandrel

Clockwise - Increases ribbon tension

Counterclockwise - Decreases ribbon tension

Increase the tension to alleviate ribbon wrinkle.

Decrease the tension to alleviate smudging.

Adjusting the print speed

The printer can print at speeds from 2 to 5 inches-per-second. When setting the motor speed, consider the requirements of the media you are using and the heat setting you are selecting. These three factors determine printer performance on each job.

To set the print speed:

- 1 Press the MENU key. Use the arrow keys to select Print from the menu and then press the SELECT key.

	Intensity		> Print		Memory		Mode	
	Align		Media		Comm		System	

- 2 In the PRINT menu, use the arrow keys to select Speed. Then press the Select key.

(PRINT)	Previous		Recall		Test		> Speed
Speed (inch/s):	2		3		4		5

- 3 Press the left/right arrow keys to select a print speed. Print speeds are specified in inches/second. Then press the SELECT key.

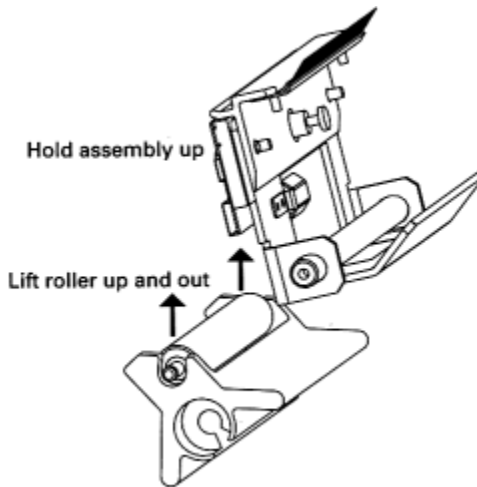
Note: Print speed can also be set in the formatting software. In this case, format settings will override the menu settings.

Replacing Platen Rollers

Occasionally, you will need to replace the printhead platen rollers. After prolonged use, rollers may develop flat areas, which will affect print quality.

To remove and replace platen rollers on standard printheads:

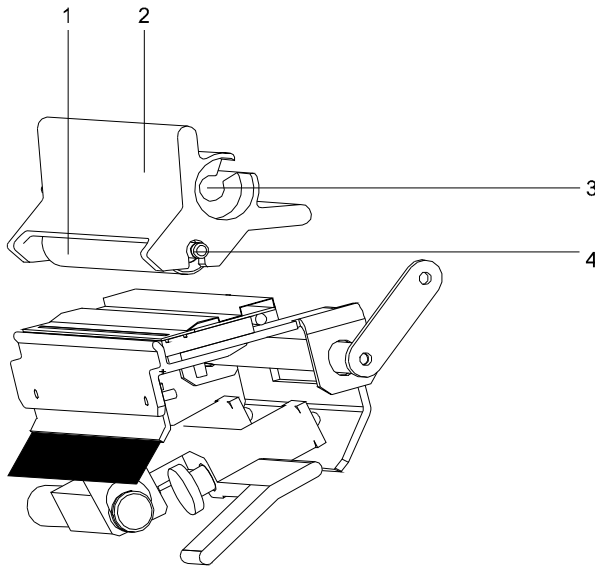
- 1 Turn the printer off and unplug it.
- 2 Flip the printhead cam up to open and lock them open.
- 3 Remove any label stock that may be positioned over the platen roller(s).
- 4 Release (unlock) the printhead cam(s) but do not lock. Press down the silver clip holding the printhead cam(s) and pull the cam(s) completely out.
- 5 Lift and hold the printhead assembly or assemblies completely up to the right. With the platen roller now easily accessible, lift it up and out.



- 6 Gently place the new roller in position. Do not force the roller. Difficult removal or replacement can occur if the roller is held at an angle. To avoid this, lift rollers straight out or drop straight in.
- 7 Lower the printhead assembly or assemblies.
- 8 Reinsert the printhead cam and lock closed.
- 9 Reinstall label media and thermal transfer ribbon as required.
- 10 Close the printhead and turn the printer On again.

To remove and replace platen rollers on inverted printheads:

- 1 Turn the printer Off and lift the cover.
- 2 Flip the printhead cam down and lock open.



1. Platen roller
 2. Platen support strut
 3. Bolt securing platen support strut
 4. E-ring/washers securing platen roller
- 3 Remove any label stock that may be positioned under the platen roller.
 - 4 Use a Philips head screwdriver to remove the bracket on the platen roller assembly.
 - 5 The platen roller on the inverted printhead is held in place by a bracket that is screwed over the assembly. Use a Philips head screwdriver to remove the two screws and washers that secure the bracket. Pull the assembly toward you.
 - 6 Remove the old platen roller.
 - 7 Gently place the new roller in position. Replace the bracket over the assembly and reinstall the printhead cam.
 - 8 Reinstall label media and thermal transfer ribbon, as required.
 - 9 Flip the printhead cam up and lock closed.

Setting Color Registration/Alignment

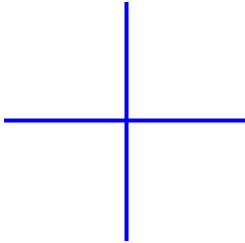
The normal procedure for aligning color in multi-station printers is to select the "Block Test Pattern" in the printer menu. Adjust the "Down Web" and "Cross Web" values in the "Align" selection in the display until all the colored blocks in the pattern are in exact alignment.

Printers with a reversed print station add a measure of complexity to the front and back image relationship. It is particularly challenging to observe this block pattern when narrow media is selected. Therefore in this case selecting the self test pattern for color alignment is not advisable.

The procedure below is a fast and accurate method for aligning all images on both sides of the media for narrow two-sided printing.

- 1 Create a cross in the center of the label on both pages 1 and 2. Make these lines the color of the front print station. Repeat this process for all the other print stations.

Click on File >> Print >> Properties >> Device Options. Check "Enable Duplex Printing".



- 2 Print these images and compare how they overlap. Caretag and tag stock permit images printed on the back to bleed through to the front when held up to the light.
- 3 Select "Align" in the printer menu and adjust the "Down Web" & "Cross Web" for all stations until the crosses are all in alignment.
- 4 In rare cases the "Cross Web" may not have enough range to line up the front and back vertical lines. Increasing or decreasing the width dimension by .1 inch in the computer may help to correct for this out of range condition. Center justify these images again.

Adjusting Printhead Angularity

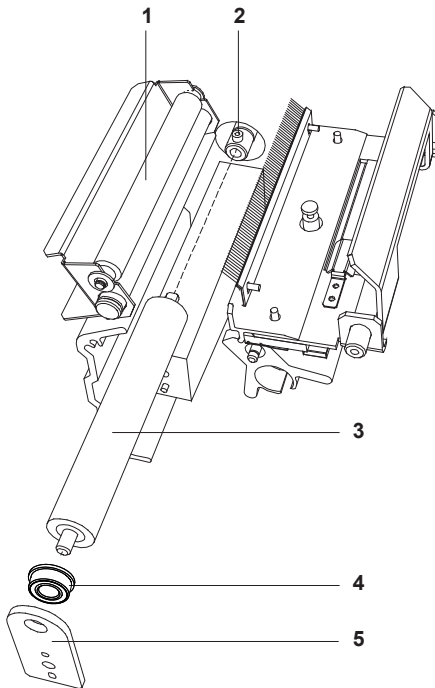
- 1 Print the line test pattern built into the printer.
- 2 There is an "L" bracket on each print station. Loosen the center philips screw on the print station that needs adjustment and move the printhead bracket forward or backwards to line it up with the other colors.
- 3 Repeat the horizontal line pattern to check your adjustment.
- 4 If using labels with a GAP, the lines should be parallel with the gaps.

Replacing the Drive Roller

After prolonged use, the drive roller and the rubber pressure roller above it may wear. This will impede the smooth exit of label stock. When this occurs, the roller requires replacement.

To replace the drive roller:

- 1 Turn the printer off and unplug it. Open the printer cover.
- 2 Remove any label stock that may be exiting over the drive roller.
- 3 Flip the drive roller cam up to relieve pressure on the roller and open it, but do not lock into the open position.
- 4 Press down the silver clip holding the cam, pull the cam completely out, and set it aside.
- 5 To provide more room to maneuver, the printhead cam on the print station to the right of the drive roller can also be removed.

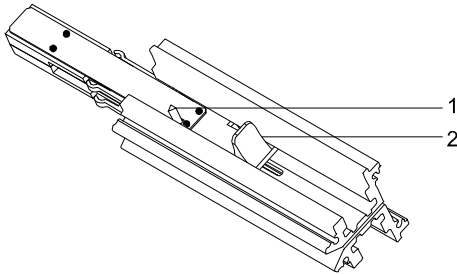


- | | |
|--------------------|---------------------------------|
| 1. Pressure roller | 4. Bearing |
| 2. Allen screw | 5. Drive roller retaining plate |
| 3. Drive roller | |

- 6 To access the drive roller, lift the pressure roller off the drive roller.
- 7 On the outside of the drive roller, remove the bearing and retaining bracket by removing the Phillips screw on the lower portion of the plate. Set the screw, bearing, and plate aside.
- 8 Beside the drive roller, against the inside of the printer, locate the Allen screw. With a 7/64 Allen wrench, loosen the Allen screw until the drive roller easily pulls out.
- 9 Insert the fresh drive roller, making sure that the roller is fully inserted, with the flat edge of the shaft coming in contact with the Allen screw.
- 10 Replace the retaining plate, lining up the flange and two small pins and ensuring they are fully inserted into the plate.
- 11 Reinsert and tighten the Phillips screw.
- 12 Tighten the Allen screw until the new drive roller is held firmly in place.
- 13 Reposition the label stock and thread the stock until it exits over the drive roller.
- 14 Flip the pressure roller back into contact with the drive roller.
- 15 Reinsert the drive roller cam and lock it into the down position to close the cam.

Positioning the TOF (Gap) Sensor

Ensure the Pointer shown in the illustration below is positioned over the label material when using labels with gaps between them, or directly over the notch or hole punch.



1. Pointer

2. Red slider

Confirm that the gap, notch, string hole, or punchout is aligned with the pointer on top of the media gap sensor: If the media has a gap between labels, the pointer must be positioned within the width of the label. To adjust the pointer, slide it into alignment.

Calibrating the Printer

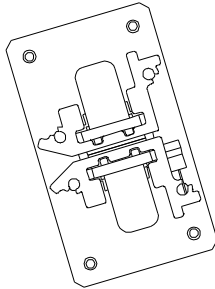
Calibrating the printer for the media being used is essential. Calibrate after every change of label type.

During calibration, the printer senses any top-of-form indicator between labels and allows the printer to position widely varying types of media automatically and correctly. The printer stores the last calibrated values and menu setups even after shut down and restart.

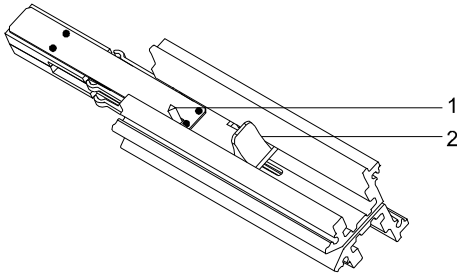
When calibrating continuous media, media length cannot be calibrated. Instead, the printer is calibrated to detect the Media Out condition.

The printer's internal label queue is reset during calibration. Any labels pending in the queue are terminated.

- 1 Press the Pause/Print button to pause the printer.
- 2 Press and hold the Form Feed/Advance pushbutton until the gap, notch, or index mark separating labels on the media roll is positioned within two inches of the media sensor housing.



- 3 Confirm that the gap, notch, string hole, or punchout is aligned with the pointer on top of the media gap sensor: If the media has a gap between labels, the pointer must be positioned within the width of the label. To adjust the pointer, slide it into alignment.



1. Pointer
2. Red slider

- 4 Confirm that the correct type of media (gap, continuous, inverted gap, or mark) is specified.

Continuous - media sensor detects no gaps, notches, or hole punches.

Gap - media sensor interprets a gap, notch, or hole punch as a top-of-form indicator.

Inverted Gap - media sensor interprets a solid area as a top-of-form indicator.

Mark - media sensor interprets a dark reflective mark as a top-of-form indicator

- 5 Press Calibrate. Confirm that the correct type of media appears on the display. If the media type displayed is not the actual type loaded, select No and return to step 4.
- 6 Press the arrow keys to move the on-display indicator to Yes, then press Select. The printer will perform an automatic calibration. When calibration is complete, a message will be displayed that shows the relative reflectivity or transmissiveness between the label and top-of-form mark or gap.

Note: The difference between the two transmissiveness values should be at least 60.

Adjusting the System Baseline

As with any equipment, the printer has certain machine tolerances, which are acceptable production variances. When multiple printers are used in an environment in which the same digital label format will be printed to any of them, the machine variance from printer to printer may result in an image printing in a slightly different vertical position on the label on each printer.

Accordingly, a "System Baseline" compensates for these slight printer-to-printer variations.

The System Baseline is accessed through the printer's front panel.

- 1 Press the MENU key. Use the arrow keys to select System from the menu and then press the SELECT key.

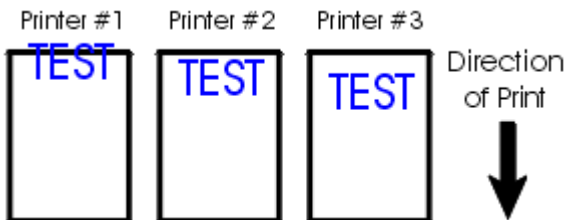


- 2 In the SYS menu, use the arrow keys to select SysBase. Then press the SELECT key.



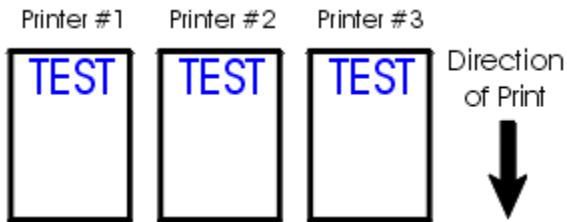
- 3 Press the up/down arrow keys to increase/decrease the system baseline. Then press the SELECT button. The baseline may be adjusted by +/- 120 dots using the up/down arrow keys.

Typically, only users of multiple printers will use the System Baseline feature. With the print offset and system baseline set to zero, print identical labels on each printer. Choose a label with a field located near the top or bottom of the label. Compare the labels from each printer. Now adjust the system baseline on each printer so that the vertical position of the fields is consistent from printer to printer.



In the above example, the user has three printers and has printed a label with the word "TEST" on each printer. Assuming that #2 has the field in the correct location, #1 would need a negative system baseline, and #3 would need a positive system baseline.

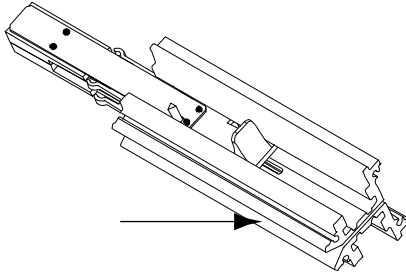
After making the changes, the labels print as seen below.



Note: Always verify the System Baseline after upgrading printer firmware.

Cleaning the TOF (Gap) Sensor

Examine the path where the labels travel through the sensor housing. Use alcohol to clean any build-up you may see.



Use compressed air and direct it between the sensor's top and bottom bracket. The reflective sensor is mounted, facing upward, on the inside portion of this bracket, as well, and can be cleaned with isopropyl alcohol and a cotton swab or with a can of compressed air.

Adjusting Communication Settings

- 1 Press the MENU key. Use the arrow keys to select Comm from the menu and then press the SELECT key.

	Intensity		Print		Memory		Mode	
	Align		Media		>Comm		System	

- 2 In the COMM menu, use the arrow keys to select Ptcl. Then press the SELECT key.

(COMM)	Port		Hshk		>Ptcl		Pref		Delim
Printer Protocol:		QLS-3001							

- 3 Use the up/down arrow keys to select a protocol option.

Printer Name - Select the printer name if you are printing via host commands. The printer name will reflect the printer model you are using.

Graphics - Select Graphics if you are printing via the Windows driver.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?	
>NO	YES

- 4 Use the left/right arrow keys to select YES, then press the SELECT key.
- 5 Press the SELECT key again to return to the COMM menu.
- 6 In the COMM menu, use the arrow keys to select Pref. Then press the SELECT key.

(COMM)	Port		Hshk		Ptcl		>Pref		Delim
Cmd Prefix: =		<SOH>			Fmt Prefix:=		<STX>		

- 7 Use the up/down arrow keys to select a command prefix. The default command prefix is <SOH>.

- 8 Use the left/right arrow keys to select the Fmt Prefix option. Then use the up/down arrow keys to select a format prefix. The default format prefix is <STX>.

Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?
> NO YES

- 9 Use the left/right arrow keys to select YES, then press the SELECT key.
- 10 Press the SELECT key again to return to the COMM menu.
- 11 In the COMM menu, use the arrow keys to select Delim. Then press the SELECT key.

(COMM) Port | Hshk | Pctl | Pref | > Delim
Command Delimiter: = <CR><LF>

- 12 Use the up/down arrow keys to select a command delimiter. The default command delimiter is <CR><LF>.

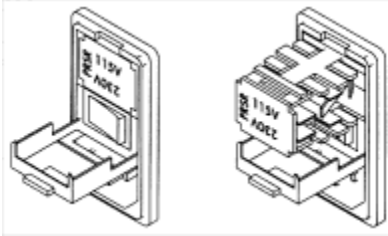
Press the SELECT key. A confirmation message will appear on the display.

Change Comm parameters permanently?
> NO YES

- 13 Use the left/right arrow keys to select YES, then press the SELECT key.

Changing the Fuse / Fuse Voltage

- 1 Use a small screw driver to access the fuse compartment in the AC input module.
- 2 Pull the fuse holder out and replace the fuse.



Changing the Fuse Voltage

The fuse size varies from 220 VAC to 110 VAC. To change from 110 VAC to 220 VAC, remove the existing fuse from the fuse holder. Then turn the holder upside down, remove the shunt covering the second fuse compartment, and install the two correct fuses for 220 VAC. Reinstall the fuse holder.

110/120 VAC

6.3 Amp (Qty = 1)

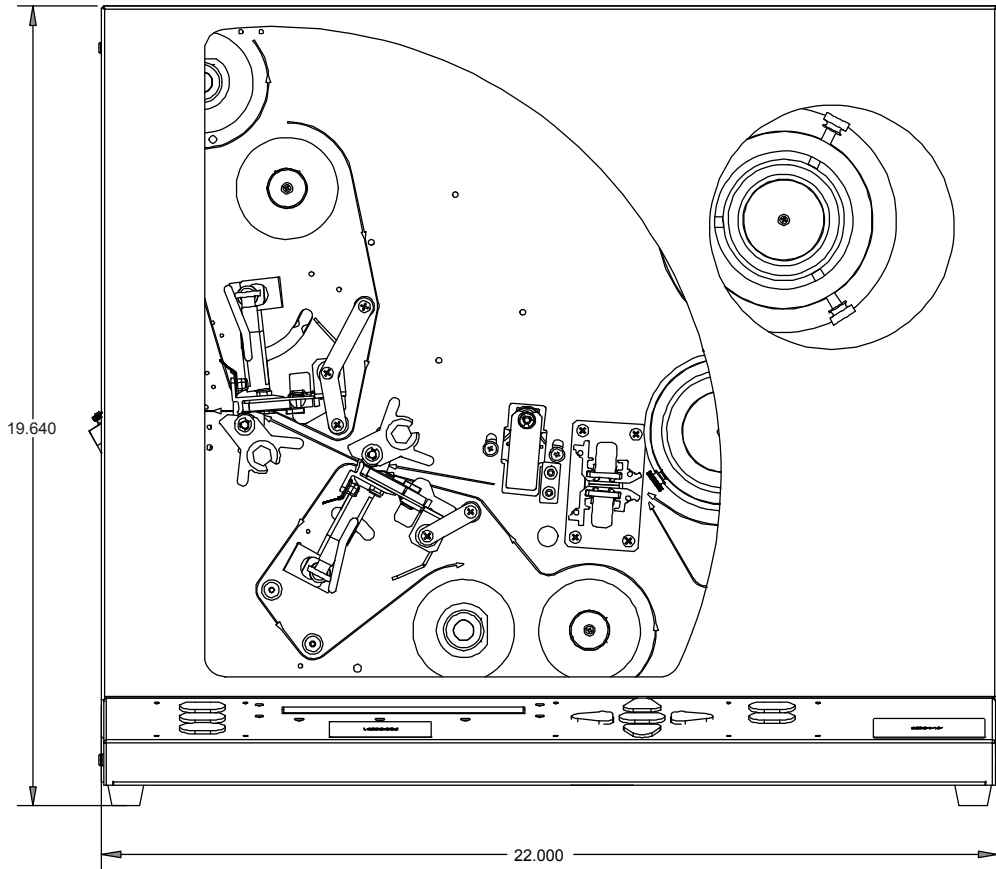
220/240 VAC

4.0 Amp (Qty = 2)

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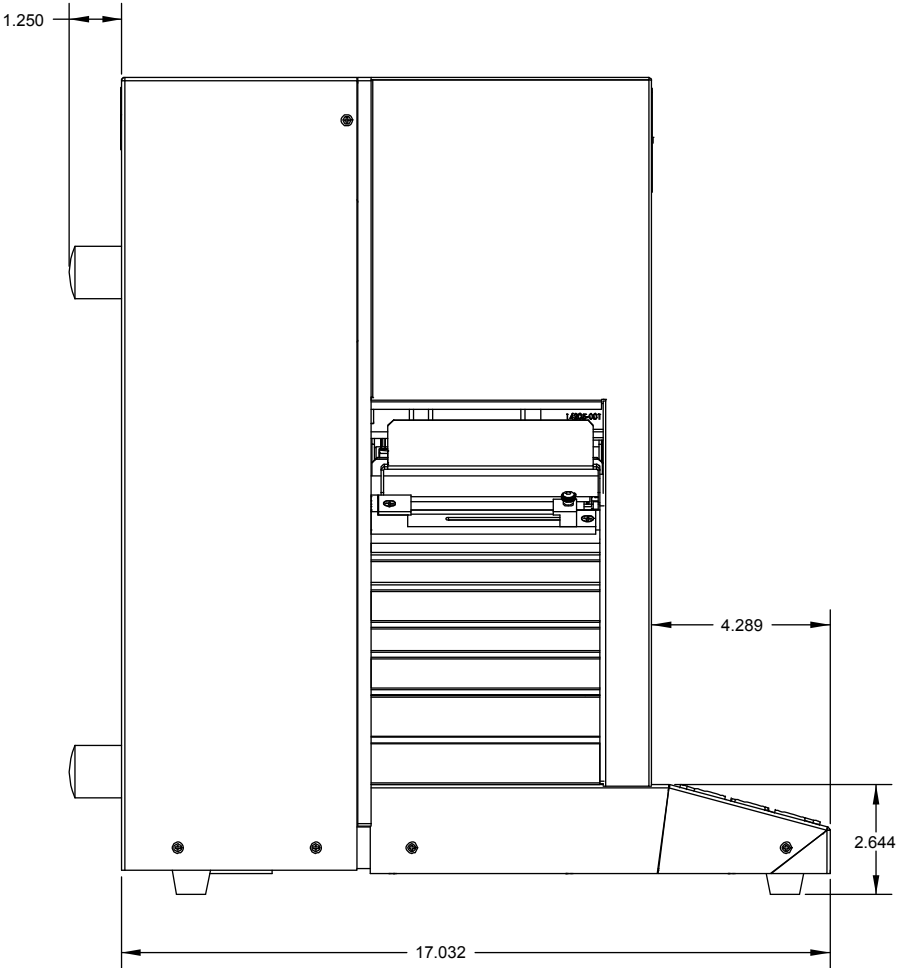
Appendix A: Physical Data

QLS-3000/2000 Xe Series Dimensions



All dimensions are in inches

QLS-3000/2000 Xe Series Dimensions



All dimensions are in inches

QLS-3000Xe
QLS-2000Xe
SERIES

Appendix B: Specifications

QLS-3000/2000 Xe Series Specifications

Print Method	Thermal transfer Spot color (QLS-2000 Xe, QLS-2001 Xe, QLS-3000 Xe, QLS-3001 Xe) CMY Process color (QLS-3000 Xe)
Print Stations	QLS-3000 Xe (3 on top of media) QLS-3001 Xe (2 on top, 1 of bottom of media) QLS-2000 Xe (2 on top of media) QLS-2001 Xe (1 on top, 1 on bottom of media)
Resolution	304 dpi
Print Speed	2" (50 mm) –5" (127 mm) per second
Maximum Print Area	4.4" (112 mm) from the inside (left) edge of label 44" (111.8 cm) with Windows Driver; 22" (55.9 cm) with Custom QuickLabel
Fonts	7 TrueType® fonts resident; other TrueType fonts can be downloaded from your PC
Resident Barcodes	All Standard symbologies, including 2-Dimensional
Control Panel	Ergonomic Key Pad for Menu functions, Backlit LCD display
Connectivity	PC, AS/400®. Parallel (IEEE-1284 Centronics), Serial (RS-232)
Interface Software	Windows-based Printer Drivers included; Custom QuickLabel Label Creation Suite (optional)
Color Halftoning	Printer optimized for MicroCell dot placement algorithm available in Windows Driver and Custom QuickLabel software
Memory	Standard 128 MB 3.5 MB user-available fonts 7.0 MB user-available bitmap images Compact FLASH (Type 1) memory cards

Dimensions	20" (508 mm) H x 17" (432 mm) D x 22" (559 mm) L
Weight	84 lbs. (38 kg) - no media, no ribbons
Power Requirements	110/240 VAC, 50/60 Hz, 400W
Thermal Transfer Ribbon	Number of rolls varies based on number of print stations. Each roll 300 m long; Spot or CMYK rolls.
Label / Tag Size	Width: 4.625" (117 mm) Max., 1" (25 mm) Min. Length: 22" (558 mm) Max., .395" (10 mm) Min.
Label / Tag Thickness	12 point Max.
Label / Tag Roll Capacity	10" (254 mm) Outside Diameter Max.
Compliance	Safety: EN 60950-1:2001 CAN/CSA C22.2 No. 60950-1-03 EMC: EN 55022:1998, Class A EN 55024:1998 EN 61000-3-2:2000 EN 61000-3-3:1995

QLS-3000Xe
QLS-2000Xe
SERIES

Appendix C: Replacement Parts

Replacement Parts

Part Number	Description
30995037	Printhead
26316800	Drive Roll (60 durometer polyurethane)
25897201	Drive Roll (knurled metal)
26316700	Drive Roll (clear/green polyurethane, 70 Dur.) – Care Labels & Hang Tags
25898600	Pinch Roller (white silicone, 60 Dur.)
25651000	Pinch Roller (smooth metal) – Care Labels & Hang Tags
25898000	Pinch Roller (black silicone, 65-70 Dur.)
26025000	Platen Roller Kit (black silicone, 70-75 Dur.)
26395600	Platen Roller Kit (white silicone, 60 Dur.)
26390600	Platen Roller Kit (brown polyurethane, 60 Dur.) – Hang Tags
26390700	Platen Roller Kit (clear/green polyurethane, 70 Dur.) – Care Labels
10531005	Bearing (1 on outside of drive roll) 15mm diameter
14058300	Bearing Block (drive roll)
10617024	Screws - to be used with above bearing block (qty 3)
10531001	Bearing (2 on pinch rollers & 1 on the outside of the index roller)

Recommended spare parts are noted in bold.

Parts specifications are subject to change without notice.

Contact QuickLabel Systems Technical Support to identify the correct parts and obtain current pricing. Please have the serial number of your printer available.

Replacement Parts

Part Number	Description
10531005	Bearing (for inside of index roller) (1)
23701170	Belt, Timing (QLS-2001 Xe & QLS-3001 Xe only)
23701105	Belt, Timing (QLS-2000 Xe & QLS-3000 Xe only)
24034002	Fuse 6.3 A (110VAC)
24034004	Fuse 4.0 A (220VAC)
13832000	Cleaning Pads (Case of 50)
25747000	Motor, Assy Main
25162000	Motor, Assy Thermal Transfer Ribbon
23682114	Pulley, 14T
24847000	Pulley, 56T
24972700	Anti-static Brush (1/station)
25089500	Sensor, Drive Roll Speed
25124000	Sensor Encoder Wheel (*requires .035" Allen wrench)
25123000	Sensor Optical Encoder
25748000	Sensor Harness TOF
24816000	Sensor Harness RTOF
26183100	Micro Switch & Harness Assy (1/station)
11461000	Switch Interlock (only)
42776100	Controller Board with end plate, PCB
42338001	Front Keypad, PCB
32541000	LCD Display, Assy harness
24159410	Fan, Assy harness
42525100	Power Supply
24164020	Cable, High Speed Parallel
24164000	Cable, Serial
10787001	Cord, Power

Recommended spare parts are noted in bold.

Parts specifications are subject to change without notice.

Contact QuickLabel Systems Technical Support to identify the correct parts and obtain current pricing. Please have the serial number of your printer available.



Appendix D: Custom QuickLabel Setup

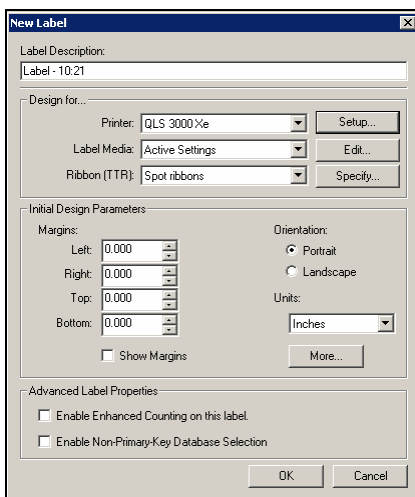
Custom QuickLabel setup

The following guide explains how to configure Custom QuickLabel software for use with the QLS-3000/2000 Xe Series printer. If you are using an older version of software (i.e. Color QuickLabel), please contact QuickLabel Systems for an upgrade.

To configure Custom QuickLabel from Create and Print:

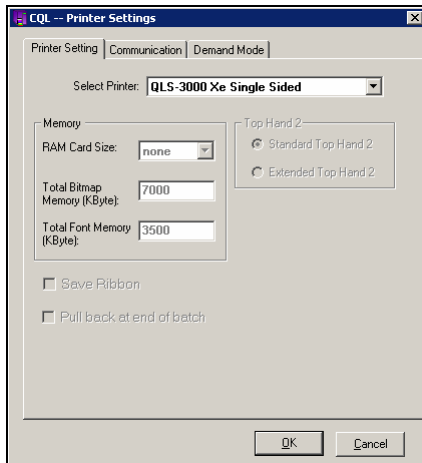
Note: Skip to step 4 if you are configuring the Print application. Steps 1 - 3 are for configuring a new or existing label format in the Create application.

- 1 Open the File >> New Label... or File >> Label Setup... menu. The following screen will appear:

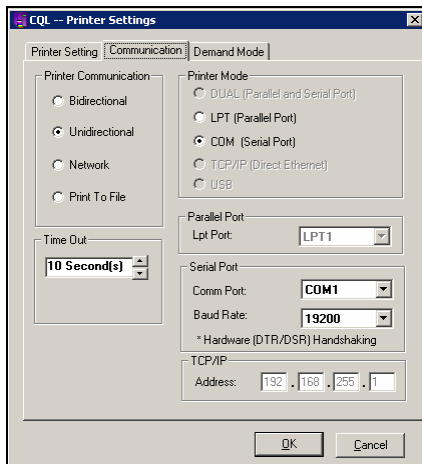


- 2 Select QLS 2000 Xe, QLS 2001 Xe, QLS 3000 Xe, or QLS 3001 Xe from the Printer pull-down menu list.
- 3 Configure any other options as necessary, then click OK when finished.

- 4 Open the File >> Print Setup menu. The following screen will appear:



- 5 Choose your printer from the Select Printer pull-down list. If you are using the QLS-3001 Xe printer, select single sided or double sided.
- 6 Click on the Communications tab. The following screen will appear:



- 7 Select the desired Printer Communication:

Bidirectional (recommended) - This option permits two-way communication with the printer. The printer will report status back to the host computer.

Unidirectional - This option permits one-way communication with the printer. The printer status cannot be transmitted back to the host when using this communication method.

Note: A CompactFlash memory card is required for unidirectional communication.

Network - Used to communicate with a printer in a networked environment. This is the optimal setting for a single printer with multiple users requiring queuing via the Windows print spooler. Printer status cannot be transmitted back to the host when using this communication method. The QuickLabel Systems Windows Printer Driver must be installed to use this communication mode.

Print to File - This communication method is used to generate ASCII label format files and binary image/font files. No communications interface connections are required when this option is selected.

- 8 Select the appropriate Printer Mode.

DUAL – Select this option for parallel and serial port connection.

LPT – Select this option for parallel-only connection.

COM – Select this option for serial-only connection.

USB – Select this option for a USB-only connection.

TCP/IP – Select this option for an ethernet connection.

- 9 Select the appropriate Parallel Port and Serial Port settings as necessary.

Note: Custom QuickLabel supports parallel ports LPT1 and LPT2 and serial ports COM1 and COM2. The maximum supported baud rate for the serial port is 38,400 baud. Hardware handshaking (DTR/DSR) is always used by default.

- 10 Click OK when all printer settings have been made.



Appendix E: Windows Printer Driver Setup

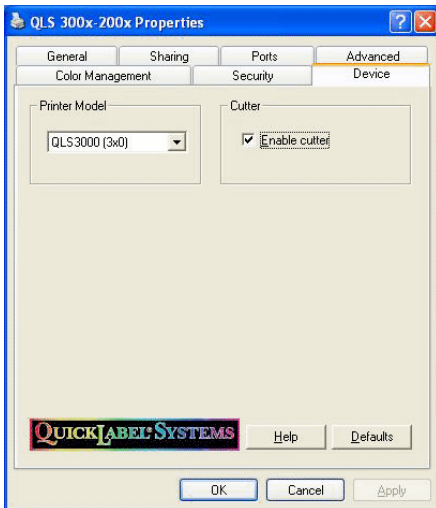
Windows Printer Driver Setup

The following guide explains how to configure the Windows Printer Driver for use with the QLS-3000/2000 Xe Series printers.

Accessing Device Options

- 1 Open the Printers and Faxes window.
(Start >> Control Panel >> Printers and Faxes)
- 2 Right-click the QLS 300x-200x Xe printer option and choose Properties.
The QLS 300x-200x Xe Properties window will open.

Device Options



Printer Model - Select the printer model you are using. The following options are available:

- **QLS3000 (3x0)** - Select this option if you are using the QLS-3000 Xe printer.
- **QLS3001 (2x1)** - Select this option if you are using the QLS-3001 Xe printer.
- **QLS2000 (2x0)** - Select this option if you are using the QLS-2000 Xe printer.
- **QLS2001 (1x1)** - Select this option if you are using the QLS-2001 Xe printer.

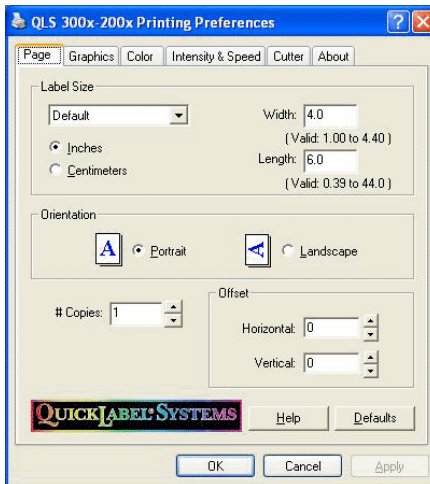
Cutter - Check this option if your printer is connected to a cutter or cutter/stacker accessory. If this option is checked, the Cutter tab will appear in the Printing Preferences window.

Note: If you are not using a cutter or cutter/stacker, ensure this option is not checked or a printer error may result.

Accessing Printing Preferences

- 1 Open the Printers and Faxes window.
(Start >> Control Panel >> Printers and Faxes)
- 2 Right-click the QLS 300x-200x Xe printer option and choose Printing Preferences. The QLS 300x-200x Xe Printing Preferences window will open.

Page Options



Label Size - Use this drop-down list to select the label size you are printing. The following options are available:

- **Custom** - Select this option to enter your own custom label size in the Width and Length fields.
- **Diskette** - Select this option to print a label that will fit on a diskette. The appropriate Width and Length values will be entered automatically.
- **Business Card** - Select this option to print a label the size of a business card. The appropriate Width and Length values will be entered automatically.

- **Bumper Sticker** - Select this option to print a label the size of a bumper sticker. The appropriate Width and Length values will be entered automatically.
- **Default** - Select this option to set the Width and Length fields to their default value.

Inches/Centimeters - Select the unit of measure that will be used on the label.

Width - If you are setting up a custom label size, enter the label width. The minimum and maximum label widths are displayed directly below the Width field. If you enter a width larger than the indicated maximum width, the printer will crop the image.

Length - If you are setting up a custom label size, enter the label length. The minimum and maximum label lengths are displayed directly below the Length field. If you enter a length larger than the indicated maximum length, the printer will crop the image.

Orientation - Orientation is often set within the design application. However, if you cannot select an orientation in the design application, choose from the following options:

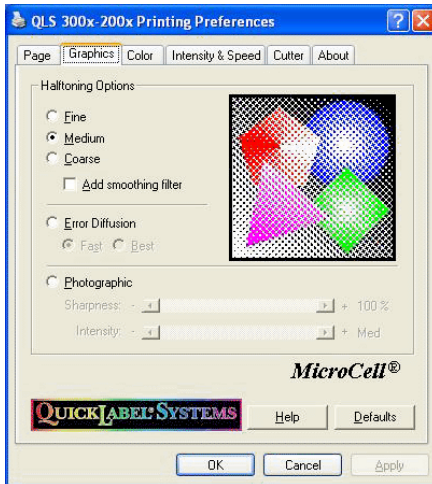
- **Portrait** - Select this option if you want to print the label in a portrait orientation on the label roll.
- **Landscape** - Select this option if you want to print the label in a landscape orientation on the label roll.

Copies - The number of copies of a label to print are specified within the application before printing. You can override that value here, or utilize this setting if the application does not provide a setting.

Offset - If necessary, use the offset options to adjust the printing position of the label image.

- **Horizontal** - You can enter a horizontal offset ranging from -1200 to +1200 dots (-4 inches to +4 inches). Negative values shift the image to the left on the label. Positive values shift the image to the right on the label.
- **Vertical** - You can enter a vertical offset ranging from -1200 to +1200 dots (-4 inches to +4 inches). Negative values shift the image down on the label, away from the printer. Positive values shift the image up on the label, toward the printer.

Graphics Options



Halftoning Options

- **Fine** - Choose Fine for labels containing large areas of light solid colors. This option produces a close pattern that can best represent continuous tone color.
- **Medium** - Choose Medium for best all around halftoning. This is the default setting.
- **Coarse** - Choose Coarse for best color representation, or when certain combinations of ribbon and media types cause excessive dot gain or dot bleed.

You can also apply a smoothing filter to the fine, medium, and coarse halftoning options. Results are best for photographic images or for labels without large solid areas.

Error Diffusion - Choose Error Diffusion for labels containing complex graphics and logos. It can also be used to better represent darker solid color areas. The following error diffusion options are available:

- **Fast** - Choose this option when an error diffusion pattern is desired, especially for lighter solid colored areas, but when the processing time required to produce the best quality error diffusion pattern would be objectionable for larger labels.
- **Best** - Choose this option for labels containing complex graphic images or where the best error diffusion output is desired.

Photographic - Choose Photographic for labels containing photographic quality images and logos. It also allows for photographic control of image sharpness and intensity.

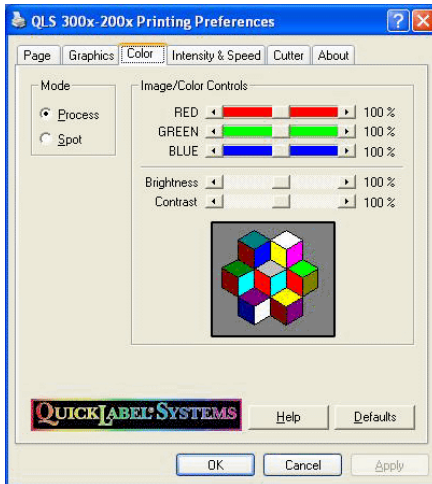
- **Sharpness** - Allows you to change the overall sharpness of the printed photographic image. 100% sharpness will yield sharpest quality with some chance of pattern artifacts in large regions of solid color. Lower the sharpness percentage if you would like to generate more random patterns with less likelihood of artifacts in large areas of solid color.

Lowering the sharpness from 100% will affect overall line definition and perceived spatial resolution of printed sample.

- **Intensity** - Allows you to adjust overall intensity of image. Low intensity will generate the lightest halftoned image. Dark will generate the darkest halftoned image.

Sample Graphic - As you select halftoning options, the sample graphic will be updated based on your selection. Experimentation with each option is required as label image content varies. The sample graphic changes as options are changed, but actual output is dependent upon many factors, including media type, ribbon type, printer heat settings and speed, etc.

Color Options - Process



Red, Green, and Blue - Use the color sliders to adjust the amount of red, green, and blue on the label. Numbers to the right indicate in percent the amount adjusted from a nominal of 100%. The higher the number, the more intense a particular color component will print.

The sample graphic changes as options are changed, but actual output is dependent upon many factors, including media type, ribbon type, printer heat settings and speed, etc.

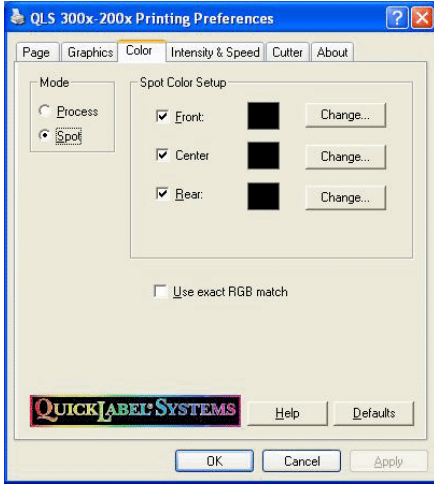
Brightness and Contrast - Use these controls to adjust the brightness and contrast of the image. As you adjust the brightness and contrast, the sample graphic will be updated. Actual output is dependent upon many factors, including media type, ribbon type, printer heat settings and speed, etc.

- **Brightness** - Use the Brightness slider to adjust the brightness of the entire label. A setting of 100% is the default brightness.
- **Contrast** - Use the Contrast slider to adjust the intensity of colors around the Contrast Threshold.

Colors above the threshold are adjusted the percent specified above the threshold. Colors below the threshold are adjusted the percent specified below the threshold. The nominal settings for contrast is 100%.

The nominal setting for the threshold is 50% of the entire range of the color components. That is, a color intensity is defined as a number between 0-255. A threshold of 50% corresponds to 128 or mid-range intensity.

Color Options - Spot



Spot Color Setup - Use the spot color setup options to indicate the spot colors that are installed on your system.

- **Checkbox** - Some printer models provide a checkbox next to each printhead color setting. If the check box is unchecked, the print station will not be used by the driver.

If ribbon is installed on an unused print station, you may want to disable the print station to conserve ribbon. Refer to the user documentation for your printer for information about disabling a printhead.

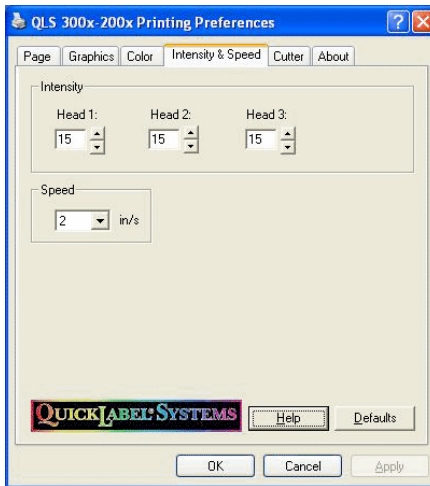
Note: If no checkbox is displayed, the associated print station is always enabled.

- **Color Box** - A color box is associated with each print station. It displays the current color set up on the print station. You can display a color's RGB values by hovering the mouse pointer over the color box.
- **Change** - Choose this button to open the standard Windows color selection window and select a new color for the print station.
- **Use exact RGB match** - If you check this option, the color on the label must match the defined spot color exactly.

If you leave this option unchecked, the driver executes a nearest color algorithm, and attempts to match the label colors with the correct printhead.

In this case, no specific RGB value setup is required. Simply pick colors that closely resemble those that are on the label when setting up the driver.

Intensity & Speed Options



Intensity - Use the Intensity settings to adjust the printhead temperature on each printhead. Intensity values range from 1 to 32. Higher numbers result in more heat being applied, resulting in transfer of more color to the label. The optimal setting for intensity will vary greatly depending on the media type being used.

The degree of heat is determined by two factors: the length of time that power is applied to the printhead, and the rate at which the stock passes below the printhead. The first factor is controlled by the print intensity (printhead temperature) you select, while the second factor is controlled by the motor speed.

In general, lower-quality stock that requires more heat to produce a satisfactory image is less advantageous in terms of speed and performance than higher-quality stock that images easily and quickly at lower temperatures. If you use stock that requires more heat, it is recommended that you set the speed at a slower rate.

Note: When increasing the heat, a point may be reached where the image will turn lighter. This is a result of over-burning the ink. At this point, decreasing the heat will darken the printed image.

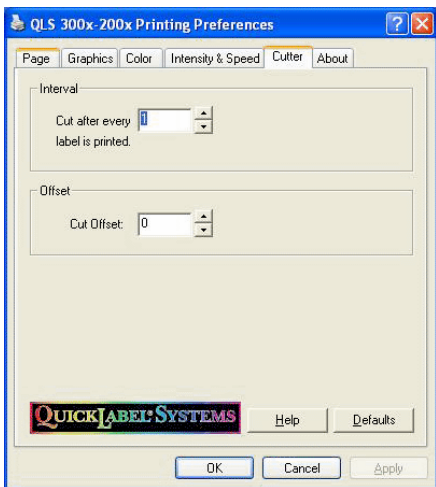
Speed - Use the speed option to control the printer's motor speed. The available speed range is 2 - 5 inches/second.

When setting the motor speed, consider the requirements of the media you are using and the heat setting you are selecting. These three factors are interrelated in determining performance on a particular job.

In general, the lower the speed, the higher the print quality. For large batches where quality is less important, high speed will produce labels quickly.

Cutter Options

Note: This tab is available only if the cutter was enabled in the Device tab of the Properties window.



Cutter Interval and Offset - Use these settings to configure the installed cutter or cutter/stacker.

- **Cut Interval** - This setting specifies the number of labels to print before cutting. The default setting is 1.
- **Cut Offset** - Cut offset allows the adjustment of the cutter up or down the label, allowing correct positioning of the cut. Range of adjustment is +/- 1200 dots (+/- 4 inches).



Appendix F: Format Error Codes

QLS-3000/2000 Xe Series Format Error Codes

- 1 **Field X location error**
The X coordinate of a Set Field Location command (<STX>FLx,y) is out of bounds.
- 2 **Field Y location error**
The Y coordinate of a Set Field Location command (<STX>FLx,y) is out of bounds.
- 3 **Alphanumeric field font error**
The font parameter of a Define Alphanumeric Field Font command (<STX>AFfont,r,w,h,m) is invalid.
- 4 **Alphanumeric rotation error**
Valid rotations are 0, 90, 180, 270°.
- 5 **Alphanumeric character height error**
Valid settings for font height are 10 to 2000 for TrueType® fonts and 1 to 10 for bitmap fonts.
- 6 **Alphanumeric character width error**
The range for width values is the same as for height values.
- 7 **Bar-code field type error**
The barcode type value of a Define Bar-code Symbol command (<STX>BFtype,r,...) is out of bounds.
- 8 **Bar-code field rotation error**
Valid rotations are 0, 90, 180, 270°.
- 9 **Bar-code height error**
Bar-code height is out of bounds.
- 10 **Bar-code narrow element error**
The narrow element value in a Define Bar-code Symbol command is out of range.
- 11 **Bar-code wide element error**
The wide element value in a Define Bar-code Symbol command is out of range.

- 12 Bar-code interpretation error**
The selection for enabling bar-code text interpretation is faulty.
- 13 Bar-code check digit error**
The selection for enabling the bar-code check digit is faulty.
- 15 Bar-code interpretation width error**
The range for width values is the same as for height values.
- 16 Bar-code interpretation height error**
Valid settings for font height are 10 to 2000 for TrueType fonts.
- 17 Bar-code interpretation font selection error**
The font parameter of a Define Bar-code Symbol command (<STX>BFn,...,i,...) is invalid.
- 18 Alphanumeric write method error**
The AF command contains an invalid “write method” parameter (must be “1”).
- 20 Format command error**
The structure of one or more label format commands is faulty. Some examples would be:
- misplaced or missing delimiter
 - invalid characters in the command string (e.g., <STX>FQ...)
 - missing or faulty line termination (<lf><cr> rather than <cr><lf>)
- 21 Numeric value error**
A numeric value in a format string is invalid. If a non-numeric string is placed where the printer expects a numeric string, this error will occur.
- 30 Label length error**
The length parameter of the Set Label Length command is out of range.
- 31 Batch count error**
Acceptable batch count range is 1 to 100000.
- 32 Group count error**
Acceptable group count range is 0 to 100000.
- 33 Serial copies error**
Acceptable serial copies range is 1 to 100000.

- 35 Box width error**
The width value of a graphics field is invalid.
- 36 Box height error**
The height value of a graphics field is invalid.
- 37 Line thickness error**
The value for line thickness in a graphics field is invalid.
- 38 Print intensity error**
Valid print intensity settings are 1 to 32.
- 39 Print speed error**
Valid print speeds are 2 to 5 inches per second.
- 40 Field color error**
An invalid color number has been specified. Valid field colors range from 1 to 15.
- 41 Print disable command error**
Print disable command contains invalid parameters (<STX PD).
- 80 .PCX Bitmap scale error**
Valid scale factors for .PCX graphics fields are 1 to 10.
- 81 Code 49 start character error**
The value to enable start and stop characters in a Code 49 bar-code field is invalid.
- 82 Code 49 group error**
The group size value is out of range.
- 83 Code 49 symbol error**
The symbol specifier is invalid. (Refer to the Define Bar-code Symbol command for Code 49.)
- 84 Reverse-image field association parameter error**
The association parameter in the Define Reverse-Image Field command is invalid.

- 85 Field data string error**
An invalid data string is part of the label format. Valid ASCII characters are from 20h to FFh, and all data fields must be terminated with an End Field Data command (<STX>FE). This error results from any of the following:
- Too much data (barcode, font, GS1 Data Matrix)
 - GS1 Data Matrix symbol that extends off the label
 - Bar-code field strings contain characters not supported by the chosen symbology.
- 88 PDF417 security level error**
An invalid error correction (security) level has been specified for a PDF417 bar code.
- 89 PDF417 reserved 1 error**
Must be 0
- 90 PDF417 reserved 2 error**
Must be 0
- 91 PDF417 reserved 3 error**
Must be 0

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