*i*500™ Plus

LIS Enabled Barcode Label Printer

OPERATOR'S MANUAL

| REF | : BLS500

(FOR LABORATORY USE ONLY)

Doc. No. 953-0063.0; Rev. B; ECO No. 964-SEZ

✕BioGenex

Customer Support: 1-800-421-4149 (USA and Canada Only)

For support outside USA and Canada, please contact your local distributor

E-mail: support@biogenex.com

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Notes:_____

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1.1   *i*500™ **Plus Description**

The i500™ Plus is the best in class thermal printer with the widest range of features. It generates text and barcode through thermal transfer printing at speed of 5 labels per 4 seconds at a print density of 203 dpi. Its ability to integrate with other BioGenex systems along with a wide variety of interface and feature options makes it user friendly to the core.

Features of this system include:

Simplified media loading.

Print up to 7 lines of text.

Auto date function.

Label setup and comment save option.

High quality chemical and heat resistance labels.

Compatible with LIS.

*i*500^{TM} **Plus**

LIS Enabled Barcode Label Printer

1.2   Printer Overview

The front View of i500™ Plus

The back view of i500™ Plus

Number	Name
1	*Release latches*
2	*Status light*
3	*Feed button*
4	*Power button*
5	*USB port*
6	*DC power port*

1.3   Cautions and Warnings

Icon	Caution
	Warns you of the potential for electrostatic discharge.
	Warns you of a potential electric shock situation.
	Warns you of a situation where excessive heat could cause a burn.
	Advises you that failure to take or avoid a specific action could result in physical harm to you.

2.0   Installation and Configuration

2.1   Package Contents

1 Printer

1 Roll of labels (inside printer)

1 Printer ribbon (inside printer)

1 Power adapter

1 Power cord for power adapter

1 USB cable

1 Operator's manual
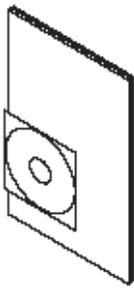
Documentation and Software   Ribbon Core   Printer

USB Cable   Power Cord varies by locale or region   Power Supply

2.2   Printer Installation Instructions

Set up the printer next to the PC.

Make sure the power switch is in the OFF (O) position.

Connect the cord extending from the power supply unit to the back of the printer. Once the connection is made, tighten the connector.

Next, making sure the PC and printer are off, plug in the wider side of the printer cable into the back of the printer. Then plug in the other side into the printer port on the back of the PC.

Finally, turn on the PC. Then turn on the printer by placing the power switch in the ON (l) position. Proceed with software installation.
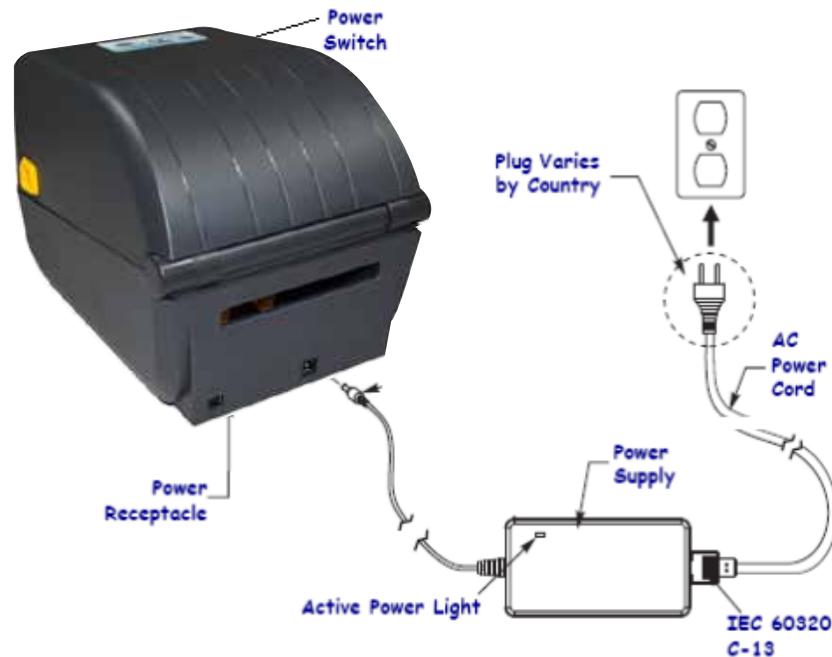
2.3 Software Requirements

Windows® 10 64 bit Operating System.

Minimum 4 GB of RAM.

Minimum   250GB of Hard Drive Space.

2.4 Label Roll Installation

To access the media compartment, open the printer by pulling the release latches towards you and lift the cover.

Use the correct media for the type of printing required. Remove the outside length of media to avoid dragging adhesive or dirty media between the print-head and platen.

Open the media roll holders. Pull the media guides open with your free hand and place the media roll on the roll holders and release the guides. Orient the media roll so that its printing surface will face up as it passes over the platen (drive) roller.

Pull the media so that it extends out of the front of the printer. Verify the roll turns freely. The roll must not sit in the bottom of the media compartment. Verify that media's printing surface is facing up.

Push the media under the media guides and close the printer by pressing down until the cover snaps closed

1
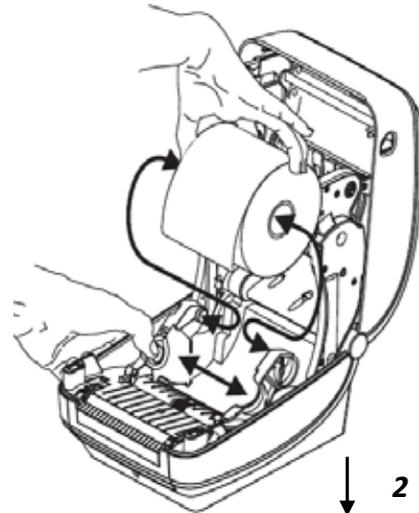
2
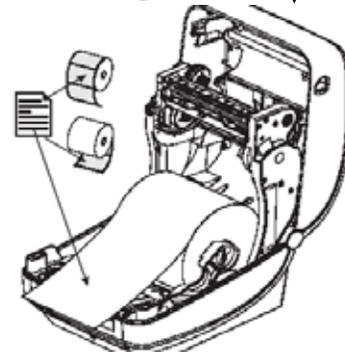
3
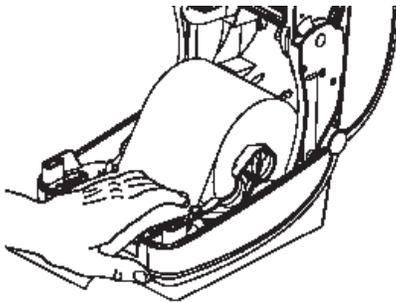
2.5   Ribbon Overview

Ribbon is a thin film that is coated on one side with wax, resin, or wax resin, which is transferred to the media during the thermal transfer process. The media determines whether you need to use ribbon and how wide the ribbon must be. When ribbon is used, it must be as wide as or wider than the media being used. If the ribbon is narrower than the media, areas of the print-head are unprotected and subject to premature wear.

When to use a ribbon?

Thermal transfer media require ribbon for printing while direct thermal media does not. Direct thermal media should never be used with ribbon. Bar codes and graphics can get distorted. To determine if ribbon must be used with a particular media, perform a media scratch test.

2.5.1   Ribbon Scratch Test

Perform the ribbon scratch test when labels are unavailable. To perform a ribbon scratch test, complete these steps:

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

If the ribbon…	Then…
Left a mark on the paper	The ribbon is coated on the outside and can be used with this printer
Did not leave a mark on the paper	The ribbon is coated on the inside and cannot be used

2.5.2   Thermal Ribbon Installation

Prepare the ribbon by removing its wrapping and pulling its adhesive strip free.

With the printer open, place a new ribbon roll on printer's lower ribbon supply spindles.

Place an empty ribbon core on printer's take-up spindles. Rotate the ribbon core until the notches align and lock into the left side of the take-up hub.

Pull the transfer ribbon's leader off the roll and attach it with the adhesive strip on the leader to the empty ribbon core on the supply spindle. Center the ribbon on the ribbon core.

Rotate the thumb wheel on the left side of the supply spindle until the ribbon is pulled tight across the print-head.

Verify that the media is loaded and ready to print and then close the printer cover.

Press the Feed button to have the printer feed a minimum of 10 cm (4 inches) of media to remove slack and ribbon wrinkle, and to align the ribbon on the spindles.

Printer is now ready to print

Note: Always use a ribbon that is wider than the media to protect the print-head from wearing.
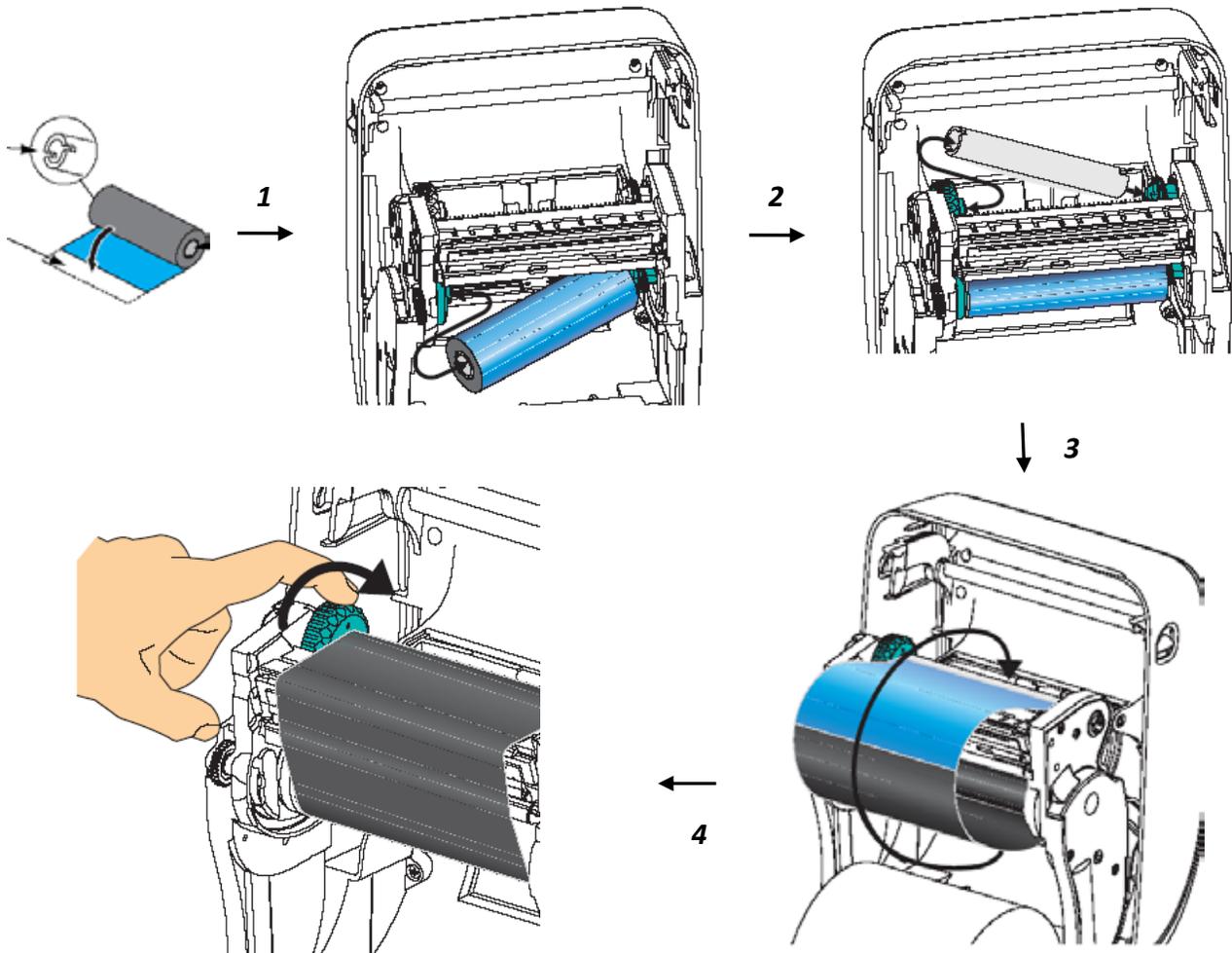
3.0   System Specifications

Dimensions

267mmL X 197mm W X 191mm H

Weight

2.5 lbs/1.1 kg

Adapter's Electrical Specifications

Input: 100-240V, 2.8A 50-60Hz

Output: 24V, 4.1A, 100W Maximum

Normal Operating Temperature

40° to 105° F/4.4° to 41° C

Storage Temp

-40° to 140° F/-40° to 60° C

Label Capacity

2000 labels per roll

Print Speed

6 in./152 mm per second or 4 in./102 mm per second

Operating System

Windows® 10 64 bit OS

4.0   Printer Panels

4.1   LED Status

Located on the top case next to the feed button, the status light functions as a printer operational indicator

Status Light   Feed Button

What the **Status Light** is telling you		
LED Status and Color	**Printer Status**	**Reason**
Off	Off	The printer is not receiving power
Solid Green	On	The printer is on and in an idle state
Solid Amber	Stopped	The printer has failed its power on self test (POST)
Flashing Green	Normal operation	The printer is receiving data
Flashing Red	Stopped	The media is out OR Print-head is open
Double Flashing Green	Paused	Printer is paused
Flashing Amber	Paused	The print-head is over heated
Alternately Flashing Green and Red	Needs Service	FLASH memory is not programmed
Flashing Red, Red and Green	Needs Service	The print-head or motor has had a critical failure.

4.2   Feed Button

Press the Feed button to –

Force the printer to feed one blank label.

Take the printer out of a "pause" condition. The printer is put into "pause" by either a programming command or an error condition.

Go to printer setup and status.

4.2.1   Feed Button Modes

Power Off Mode (Communications Diagnostics Mode)	
With the printer power off, press and hold the Feed button while you turn on the power	
Flash Sequence	**Action**
Rapid Red Flashing	Firmware Download Mode - The printer starts rapidly flashing red to denote entry into the Firmware Download m ode. Releasing the Feed button here will start initializing the printer f or download. The printer is ready to start downloading firmware when the status light begins to slowly flash between red and green.
Amber	Normal Operations Mode - The printer continues into a normal printer initialization. Releasing the Feed button here will allow the printer to start normally without firmware download or operating in communications diagnostics mode.
Green	Communications Diagnostic (Dump) Mode - Release the Feed button immediately after the printer status light turns green. The printer will print 'Now in DUMP' at the top of the label and then advance to the next label. After printing the first label, the printer will automatically enter into diagnostic mode in which the printer prints out a literal representation of all data subsequently received.

5.0   Using Software

5.1   **Working with i500^{TM} Plus**

The toolbar and menu bar options unless specified below are very similar in function to those found in many other Windows applications. The 'Save Label' option saves the values given for each field in the label setup. These setups can then be opened using the 'Open' option. "New" option just creates a new setup.

5.1.1   **Printing Labels**

Once the software is installed (Refer to section 2.4), start the program by double clicking on i500™ Plus icon.

The **<Product Selection>** window will open.


Depending on the BioGenex product being used, the user may select any of the three options

i6000™ Automated Staining System

i6000VIP Automated Staining System

XmatrxElite® Automated Staining System

NanoVIP Automated staining System

NanoMtrx100 Automated staining System

NanoMtrx300 Automated staining System

NanVIP300 Automated staining System

In order for the user to ensure that the software always selects the same unit they may click on the "Remember this Selection" option.

To synchronize the i500^{TM} Plus with the particular run of the day the user may select the SYNC option. Once the user clicks on "OK", the **<LIS Intermediate Selection>** window will be displayed subsequently.
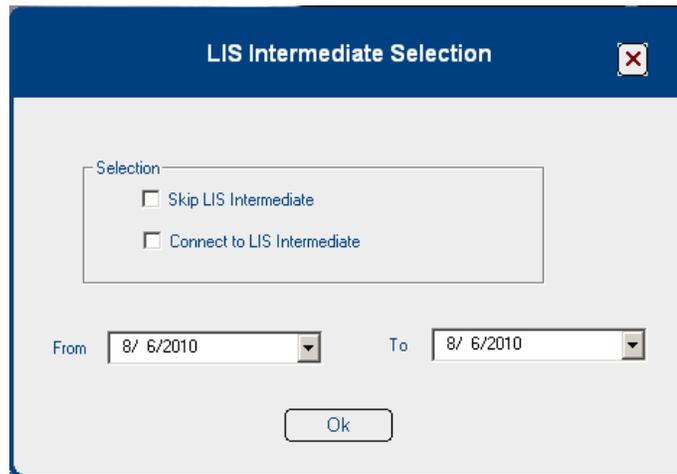
Select **'Connect to LIS Intermediate'** if there is access to Laboratory Information System (LIS). Contact BioGenex for LIS connectivity option.

Select **'Skip LIS Intermediate'** if there is no access to LIS and click 'OK'.

The **<Barcode Labeler Plus>** window will open. The name of the instrument synchronized will appear below the menu bar.

Once the <**Barcode Labeler Plus**> window is open, the user can select up to seven fields of information as needed on the barcode label.

Click on the check boxes adjacent to the respective fields to include in the barcode label

5.1.2   Creating Labels

The Protocol Description field will change depending on the initial synchronization with i6000™/i6000VIP / NanoVIP/ NanoMtrx100/ NanoMtrx300/ NanoVIP300/ XmatrxElite staining systems.

Click on the arrow to select the protocol from the drop down Menu. This will add the protocol name to the barcode label, a preview of which is displayed on the right.

Once the protocol name is entered, the remaining fields are optional. Additional information such as, Accession Number, Physician Name, Patient Name, and Date can be added by manually typing in the respective fields.

If LIS is accessible, specifying the accession number will automatically load the patient information in the respective fields.

When LIS is not accessible, patient information entered manually

When LIS is accessible, patient information automatically loaded by entering the Accession No.

5.1.3 Addition / Deletion of Labels to the Spool

Once the required information is entered, it can be added to the spool using the print spool option.

Specify the number of labels desired, under the Quantity option and click on "Add to Spool" option to add the labels to be printed in the spool box

To remove a label from the spool, select the label and click on **"Remove from Spool"** option.

Clicking on **"Remove All from Spool"** opens a warning message. Click on **'yes'** to delete all the labels from the spool.

5.1.4   Update Label and Test Print

Changes can be done to any of the labels in the spool using the **Update Label** option. Select the label from the spool and change the Protocol Description OR patient information OR quantity as applicable. Click on **Update Label** to apply the changes to the existing label.

In order to "Test Print" a single label, the user may select the label they wish to see, and click on **Test Print**. This option will print only ONE label.

Click on **'Print Spool'** to proceed with printing. A maximum of 99 labels can be printed in one go.

5.2   Menu Options

5.2.1   File

The following options are available under the 'File Menu'.

	Function
New	Opens a new window to create new labels
Open a Saved File…	Opens files which have been previously saved in the appropriate databases
Save labels	Saves the labels that are present in the spool
Manage User Fields…	The user can populate the different fields using this option
Settings….	The default settings are ZPL Commands.
Exit Application	Exit the application

5.2.1.1 Manage User Fields:
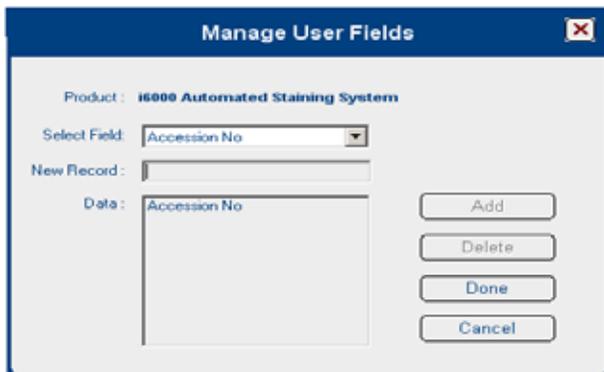
The user can populate the different fields using this option.
a) Type in New record and click on 'Add' to add contents to the database.
b) Click on 'Delete' to remove record.
c) Click on 'Cancel' to cancel the entry.
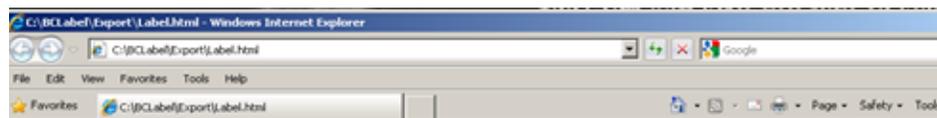d) Click on 'Done' to save entry and close this field.

5.2.2   Operations

The following options are available under the 'Operations Menu'.

Operations	Function
Show File Information	Display the date of creation, product name along with comments if any
Add to Spool	Add label information to the spool for it to be printed
Update Label	Update any of the labels in the spool
Print Labels	Print labels present in the spool
Test Print	Prints only ONE label as an example
Remove From Spool	Removes a single selected label from the spool
Remove All From Spool	Removes all labels from the spool

5.2.3   View

The following options are available under the 'View Menu'.
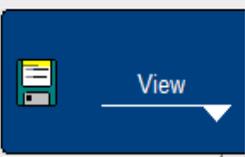
View	Function
HTML Preview	This preview will show an HTML version of the label
Thumbnail	This preview will show a thumbnail version of the label

Html view of Labels

Thumbnail view of Labels

5.2.4   Help

The following options are available under the 'Help Menu'.

	Function
About BarcodeLabeler Plus	The Software version will be displayed

6.0   Label Use

6.1   Perforation

The labels provided with this system are perforated towards the top. These labels are customized for use with the i6000^{TM}, XmatrxElite®, i6000VIP, NanoMtrx100, NanoMtrx300, NanoVIP & NanoVIP300 systems. The perforated portion is meant to wrap around to the back of the side. To do this, attach the label so that the perforation is close to the top of the slide and then wrap the extended portion of the label over the edge of the slide.

Note: The label should be placed on the slide before processing the slide. Place the label on the frosted side of the slide and apply the label firmly.

7.0 Printer Maintenance

7.1 Cleaning Print-head

Always use a new cleaning pen on the print-head (an old pen carries contaminants from its previous uses that may damage the print-head).

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

Rub the cleaning pen across the dark area of the print-head. Clean from the middle to the outside. This will move adhesive transferred from the edges of media to the print-head outside of media path.

Wait one minute before closing the printer.
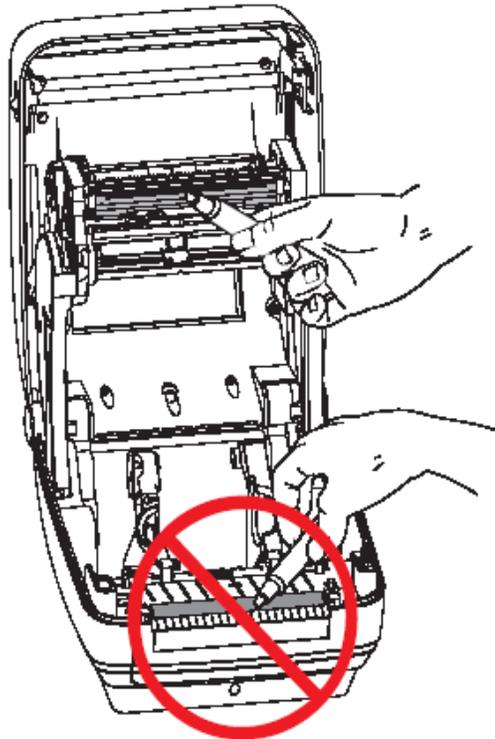
Note: Clean the print-head after every roll of ribbon

7.2 **Cleaning Platen (Drive Roller) and Replacement**

The standard platen normally does not require cleaning. Paper and liner dust can accumulate without effecting print operations. Contaminates on the platen roller can damage the print-head or cause the media to slip or stick when printing. Adhesive, dirt, general dust, oils and other contaminates should be cleaned immediately off the platen.

Clean the platen (and media path) whenever the printer has significantly poorer performance, print quality or media handling. The platen is the print surface and drive roller for your media. If sticking or jamming continues even after cleaning, you must replace the platen.

The platen can be cleaned with a fiber-free swab or a lint free, clean, damp cloth very lightly moistened with medical grade alcohol (90% pure or better).

Open the cover (and dispenser door). Remove media from platen area.

Pull the platen bearing latch release tabs on the right and left sides towards the front of the printer and rotate them up.

Clean the platen with the alcohol moistened swab. Clean from the center outwards.

Repeat this process until the entire roller surface has been cleaned. If there has been heavy adhesive build-up or label jam, repeat with a new swab to remove residual contaminates.

Adhesives and oils, for example, may be thinned by the initial cleaning but not completely removed.

Install the platen in the printer. Make sure the bearings and drive gear are on the shaft of the platen.
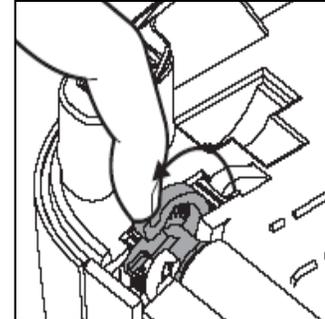
Align the platen with the gear to the left and lower it into the printer's bottom frame.

Rotate the platen bearing latch release tabs down on the right and left sides towards the rear of the printer and snap them into place.

Allow the printer to dry for one minute before closing the dispenser door, media cover or loading labels.

Platen Bearings
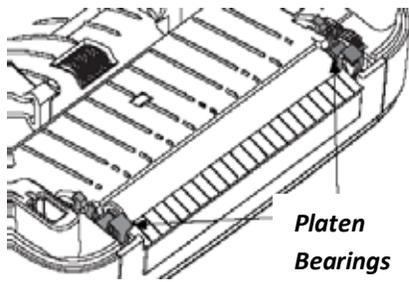
1
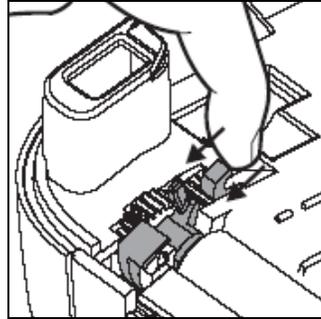
Release the latches

2

Pull the platen and clean with the swab

3
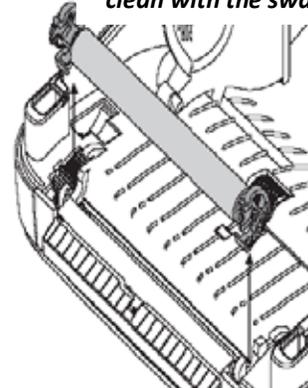
Align the platen with the gear

4
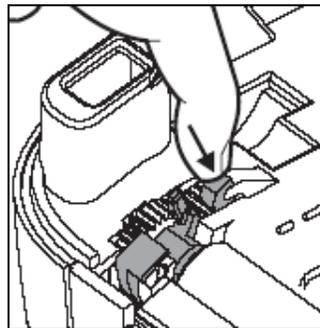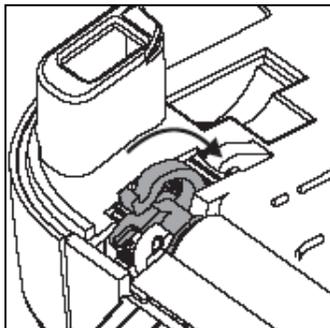
Push down the latches to snap the planten in place

7.3   Media Path Considerations

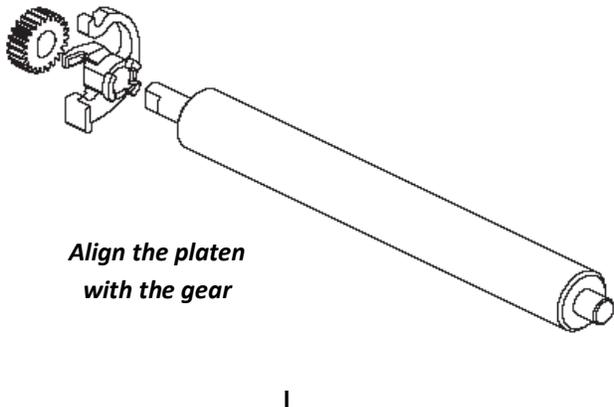Use a cleaning swab to remove debris, dust or crust that has built-up on the holders, guides and media path surfaces.

> Use the alcohol in the cleaning swab to soak the debris and to break up the adhesive.
>
> Wipe the ridges to remove accumulated debris.
>
> Wipe the inside edges of both edge guides to remove any built-up residue.
>
> Wait one minute before closing the printer.
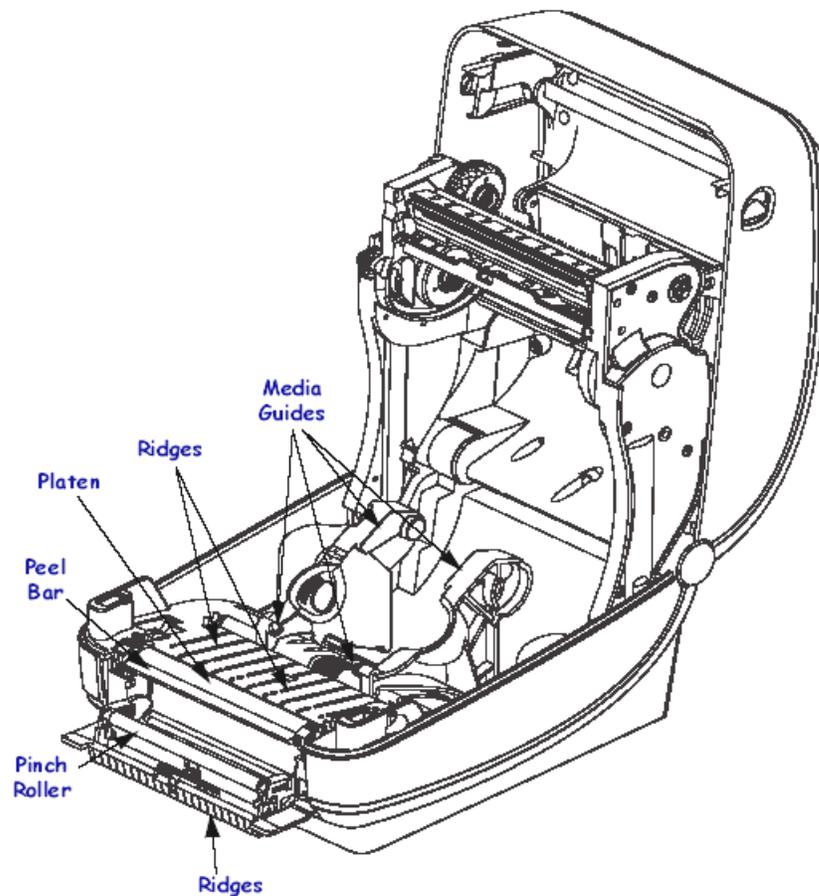
> **Important –** Using too much alcohol can result in contamination of the electronic components requiring a much longer drying time before the printer will function properly.

7.4   Cleaning the Sensors

Dust can accumulate on the media sensors.

Gently brush away dust; if necessary, use a dry swab to brush away dust. If adhesives or other contaminates remain, use an alcohol moistened swab to break it up.

Use a dry swab to remove any residue that may be left from the first cleaning.

Repeat above steps as required until all residue and streaks are removed from the sensor.

Troubleshooting

8.1   Status Light Error Resolutions

The printer is not receiving power.

Have you turned on the printer power?

Check power connections from the wall outlet to the power supply and from the power supply to the printer.
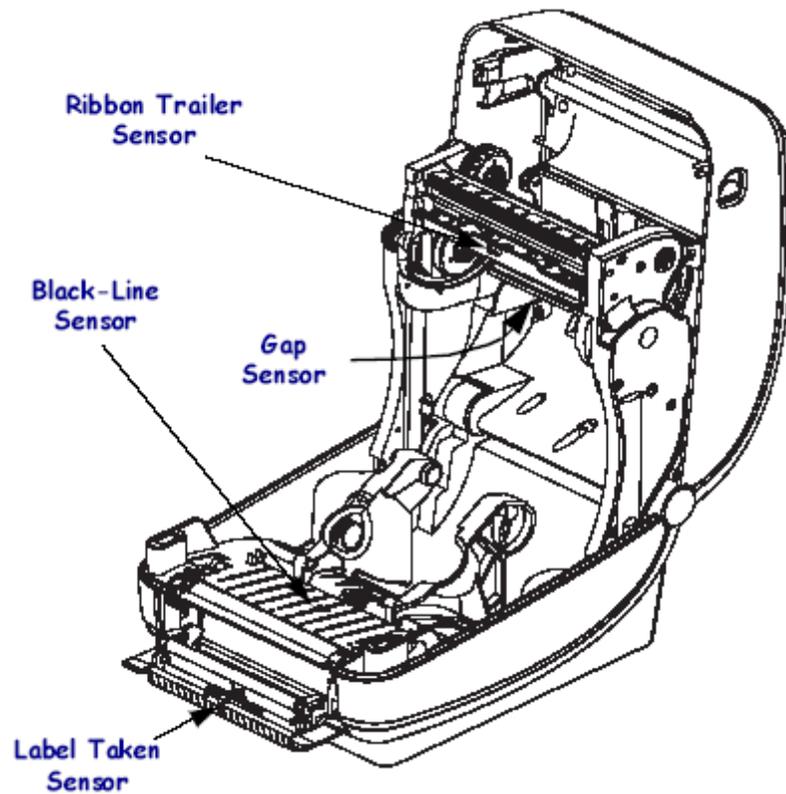
Disconnect the printer from the wall outlet for 30 seconds and then reconnect the printer to the wall outlet.

The printer is on and in an idle state.

No action necessary.

The printer has failed its power on self test (POST).

If this error occurs right after you turn on the printer, contact an authorized reseller for assistance. When the printer is operating normally, the printer status light will be amber for about 10 seconds before turning green (solid or blinking).

There is a memory error.

If this error occurs after you have been printing, turn the printer power off and on, and then resume printing.

The print-head needs to cool down.

If this error continues, turn the printer power off for five minutes or more, and then turn on. If the amber light persists, then the printer requires service.

The printer is receiving data.

As soon as all of the data has been received, the status LED will turn green and the printer will automatically resume operation.

The media is out.

Follow the instructions for Loading Roll Media in section 2.5 and then press the Feed button to resume printing.

The ribbon is out.

The printer has sensed the end of the ribbon roll. Replace the ribbon.

The print-head might be open. Close the top cover and then press the Feed button to resume printing.

The printer is paused.

ress the Feed button to resume printing.

The print-head is over temperature.

Printing will stop until the print-head cools to an acceptable printing temperature. When it does, the printer will automatically resume operation.

FLASH memory is not programmed.

Contact BioGenex Technical Support.

The print-head or motor has had a critical failure.

Contact BioGenex Technical Support.

8.2   Print Quality Problems

No print on the label.

Is the media loaded correctly? Follow the instructions for Loading Roll Media (Section 2.4). For printing using transfer ribbon, refer to Thermal Ribbon Installation (Section 2.5.2)

The printed image does not look right.

The print-head may be dirty, clean it.

The print-head is under temperature.

Adjust the print darkness and/or print speed.
   a. Use the commands from the programming guide
   b. Manually adjust print darkness with the six-flash sequence of Feed Button Modes (Section 8.3)

The print-head has worn out. The print-head is a consumable item and will wear out due to friction between the media and print-head. Replace the print-head. Contact BioGenex technical support.

The platen may need cleaning or replacement. The platen (driver) roller maybe losing traction due to:
   a. Foreign objects attached to its surface.
   b. The rubbery smooth surface has become polished and slippery, or
   c. There is damage to the normally smooth and flat print surface such as box knife cuts.

There are long tracks of missing print (blank vertical lines) on several labels

The print-head is dirty, clean it.

The print-head elements are damaged.

The printing does not start at the top of the label or misprinting of one to three labels.

The media may not be threaded correctly. Follow the instructions for Loading Roll Media – in section 2.4

The printer needs to be calibrated. Refer to the flash sequence of Feed Button Modes (Section 8.3)

Manual Calibration

Manual calibration is recommended whenever you are using pre-printed media or if the printer will not correctly auto calibrate.

Make sure media is loaded.

Turn on the printer power.

There are two buttons present in Zebra printer

1. Power Button

2. Flash Button

Hold the Power button to turn on the printer ,it flashes red then green

Press the Flashs button,if it will flashes red means we missed 3 things

Either the media/ribbon is empty,or the printer is not closed correctly

Once placed the media/ribbon then it turn into green colour.

Manual Calibration:

Press and hold the feed button until the green status light flashes once, then release it after the status light flashes twice

The printer will set the media sensor for the label backing being used. After it is done making this adjustment, the roll will automatically feed until a label is positioned at the Print-head. A profile of the media sensor settings (similar to the example below) will print. Upon completion, the printer will save the new settings in memory and the printer is ready for normal operation.
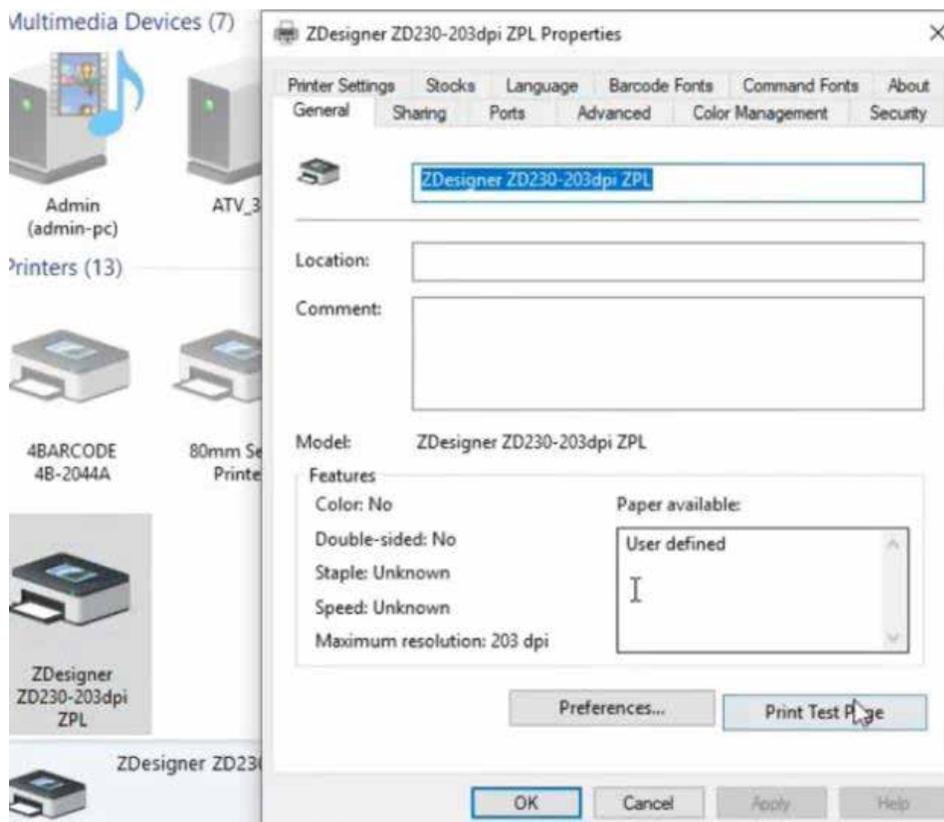
Press the Feed button. One entire blank label will feed. If this does not happen, try defaulting (refer to the four-flash sequence in "Feed Button Modes" later in this chapter) and recalibrating the printer.

Install Printer Drivers:

Insert the usb to the device then recognize the printer as shown below

Click on Printer properties as shown

Click on Print Test page to see the printed label

8.3   Troubleshooting Feed Button Modes

Power On Modes

With the printer power on and top cover closed, press and hold the Feed button for several seconds. The green status LED will flash a number of times in sequence. The explanation at the right (Action) shows what happens when you release the key after the start specific number of flashes and before the next flash sequence starts.

Flash Sequence	Action
* ** *** **** ***** ******	**Print Darkness (Density) Adjustment** - Prints a succession of bar code simulation patterns starting at the minimum darkness (print density/heat) and ending in the printer's maximum darkness in increments of four (4) using the ZPL darkness setting range values. Press the Feed button once the pattern is clear and legible. Do not continue to increase the darkness setting. Bar code line widths may become distorted reducing readability. Note that the printer driver and applications can override this setting.

If the Feed button remains pressed after a 8-flash sequence, the printer exits the configuration mode when the Feed button is released.

Please contact BioGenex Technical Support for calibration and troubleshooting.

8.0   Technical Support

For further inquiries and/or product ordering, please contact:

✕BioGenex

BioGenex Tech Support: 1-800-421-4149

Email: support@biogenex.com

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