AMTDatasouth

Fastmark 600 Series

Barcode Label Printer

User's Guide

Part No. 110462 Rev C

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IMPORTANT SAFETY INSTRUCTIONS
AND OTHER NOTICES

■ This label printer complies with the requirements in Part 15 of FCC rules for a Class A computing device. Operation of this equipment in a residential area may cause unacceptable interface to radio and TV reception, requiring the operator to take whatever steps are necessary to correct the interference.

■ Place the printer on a flat, firm and solid surface.

■ Do not place the printer near a heat source or near water.

■ Refer to the specification label on the bottom of this printer and ensure that your power source exactly meets these requirements.

■ Do not open the printer during operation to avoid electrical shock.

■ Do not attempt to disassemble this printer if it malfunctions.

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CONVENTIONS

Some of the procedures in this guide contain special notices that highlight important information:

Note   Indicate information that you should know to help your printer run properly and efficiently.

Caution   Indicate guidelines that, if not followed, can cause damage to equipment.

Warning   Indicate a situation where there may be a danger to you.

Important Indicate that the associated material needs to be done to ensure proper printer operation.

The use of the term's *right* and *left* assume that you are looking at the front of the printer.

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INTRODUCTION

The printer is a high-performance, low-cost Direct Thermal/Thermal Transfer labeling systems. Its user-friendly design and affordable price set a new standard for the Desktop Label Printer in retail, office and industrial applications.

The printer is designed with the most efficient memory management technology - *True Speed* and prints at a speed of 1 to 6 inches per second. When bundled with its smart printer driver, the user can easily print out bar codes, texts and graphics from any editing application (e.g. CodeSoft, BarTender) under Windows 95/98/2000, and NT. All popular bar codes and fonts are resident in the printer memory to handle versatile applications.

The solid designed mechanism allows quick and easy media (paper) and ribbon loading. The optional Peel and Present, and Cutter provide alternatives of fan-fold label and continuous paper handling.

This printer is a compact, highly integrated, high performance and high resolution on-site labeling system.

The User's Manual will help you understand basic operations of the printer such as set-up, installation, configuration and maintenance. Before reading the manual you should first identify your printer model. The printer model name is located on the back of the printer on its product label.

MODEL OVERVIEW

Models

The Fastmark 600 series supports several models and emulations:

Fastmark 602 (203 dpi – PPLA or PPLB emulations)

Fastmark 603 (300 dpi – PPLA or PPLB emulations)

Fastmark 612 (203 dpi – PPLZ emulation)

These models are similar in many ways. Throughout this manual instructions and illustrations applying to a particular model will be labeled accordingly otherwise the instructions apply to all models.

Note: *The model number is printed on the compliance label attached to the bottom of the printer. After unpacking please record the model number below for reference.*

MODEL No: _____

SERIAL No: _____

Model No:

And
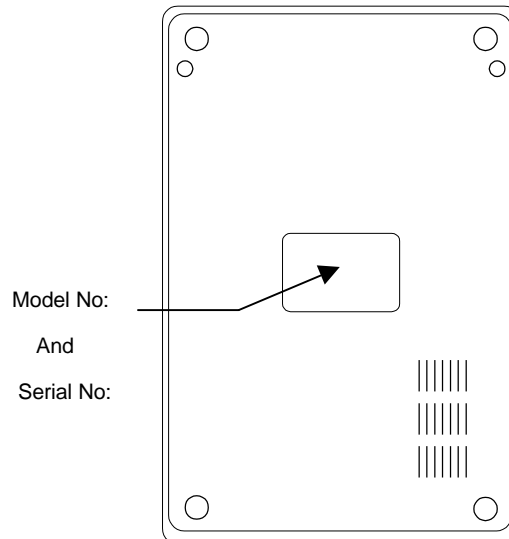
Serial No:

Figure 1 – Model and Serial Number Location

Model Features

For detailed feature specifications, please refer to Appendix A. Below is a brief summary of printer features:

Standard Features

- ❑ **Popular Emulations**. The printer offers multiple emulations. These emulations allow the user to select one of three-printer languages thus allowing exceptional printing abilities with flexible programming abilities. Because it is designed as both a printing and multiple programming languages, it is extremely powerful, flexible, and efficient compared to any other thermal printer language on the market today.

  - • **PPLA** emulation

  - • **PPLB** emulation

  - • **PPLZ** emulation

- ❑ Powerful Windows Drivers are included that enable use with Windows applications

- ❑ Serial and Parallel ports standard

- ❑ Clamshell design for simplified media and ribbon loading

- ❑ Reflective media detection sensor

- ❑ Ribbon out sensor

- ❑ Center Justified Media printing with removable media spindle.

- ❑ Rugged print mechanism with high impact ABS housing

UNPACKING AND INSPECTION

This section is provided to assist you in removing the printer from the shipping container and setting it up in the application environment. Inspect the shipping carton and contact the shipping carrier directly to report any suspected damage.

1. With the shipping container in the upright position, remove the top foam packing material.

2. Carefully, lift the printer straight up out of the box.

3. Remove the printer from the plastic bag and place the printer on a flat stable surface.

4. Remove the accessory kit and supplies.

5. Inspect the shipping container and the printer for any damage that may have occurred during shipping.

   Note: Save the box and all packing materials for future use, in the event the printer needs to be shipped. Units returned for service in non-approved packaging may void the warranty or increase repair costs due to shipping damage.

Verify that the printer box contains the following materials when unpacking:

a. Printer
b. Media Hanger
c. AC Power Cord
d. CD that contains User's manual, Windows drivers, and Printer Utilities
e. A *sample* media roll with a *sample* ribbon roll and a take-up ribbon core
f. Two Ribbon Core adapters for ribbon cores that are smaller than 4.325 inches in width.
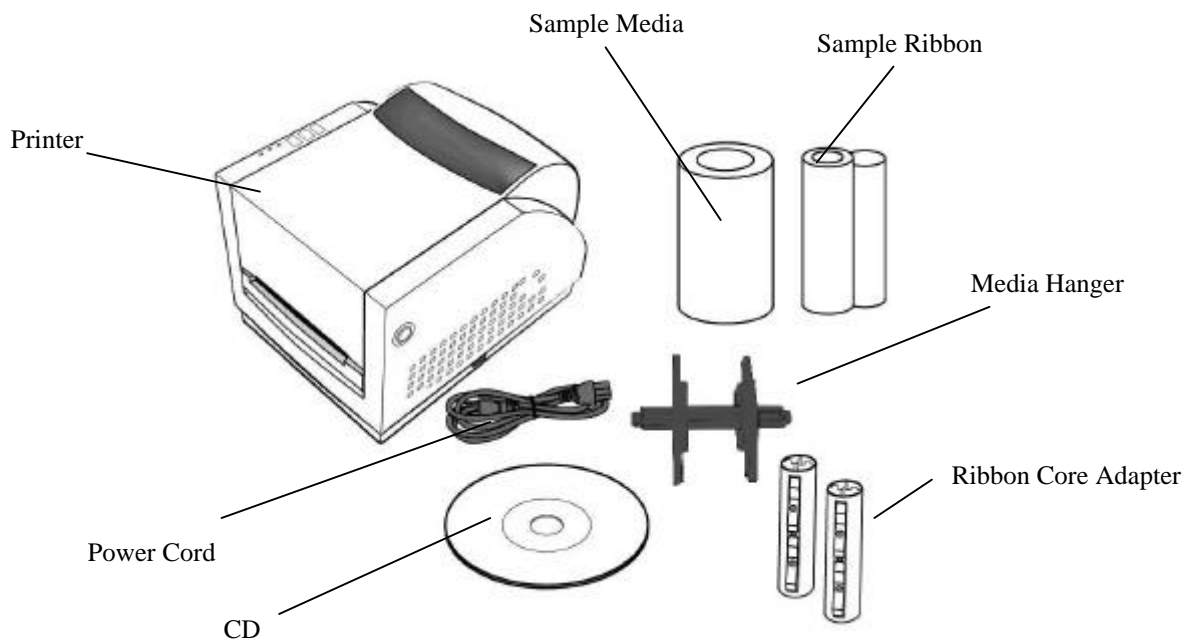
Figure 2 – Shipped with Printer

INSTALLATION AND CONFIGURATION
Finding a Location for the Printer

Determine a suitable location for the printer with the following requirements:

- Find a flat stable surface with sufficient clearance to allow for interface cables and media loading.

- The location should be near the host or terminal. Consider the distance between the host and printer for the communication cable.

- The location should be free from excessive direct sunlight, temperature, humidity, dust, dirt, and debris.

- The location should be near a grounded AC power receptacle wired in compliance with local ordinances.

Printer Parts and Features

Top Cover

External Media Slot

FEED
PAUSE
CANCEL
● READY
● MEDIA
● RIBBON

Media Out Slot

Power Switch

Cover Lock

Parallel Port

Serial Port
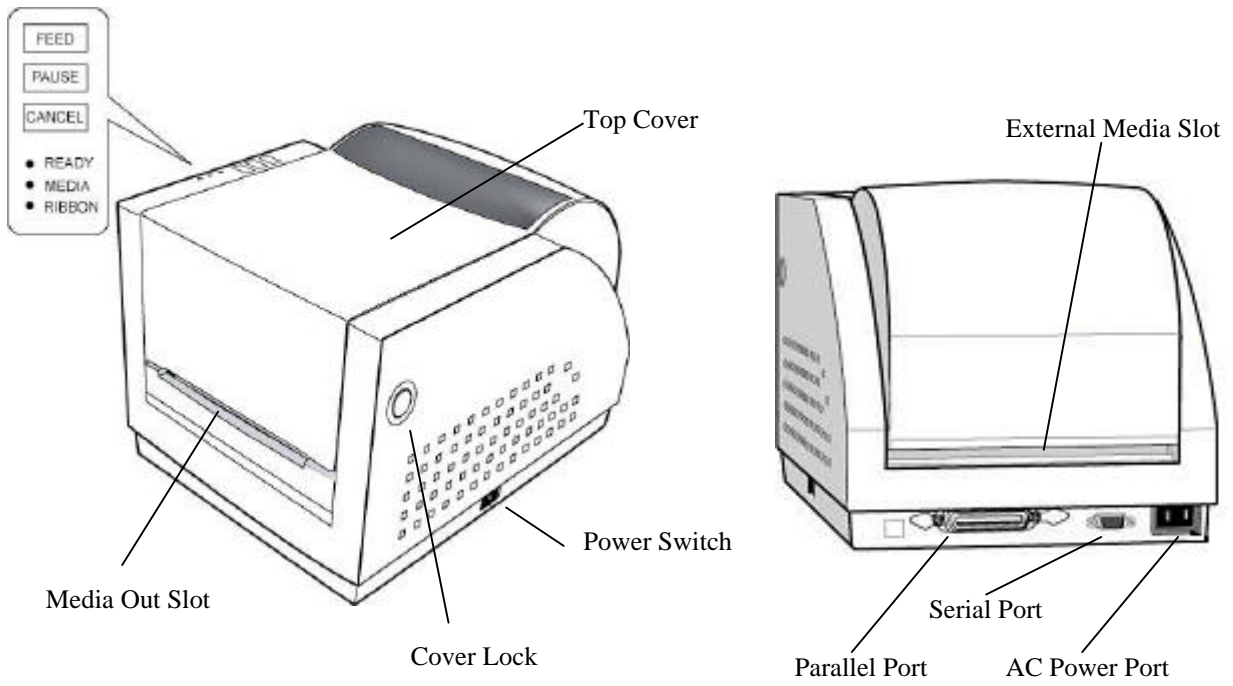
AC Power Port

Figure 3 – External Switches, Indicators and Connections

Top Cover

Media Holder

Thermal Printhead

Ribbon Supply Holder

Media Guides

Media Sensor

Ribbon Take-up
Holder

Media Present Bar

Platen Roller
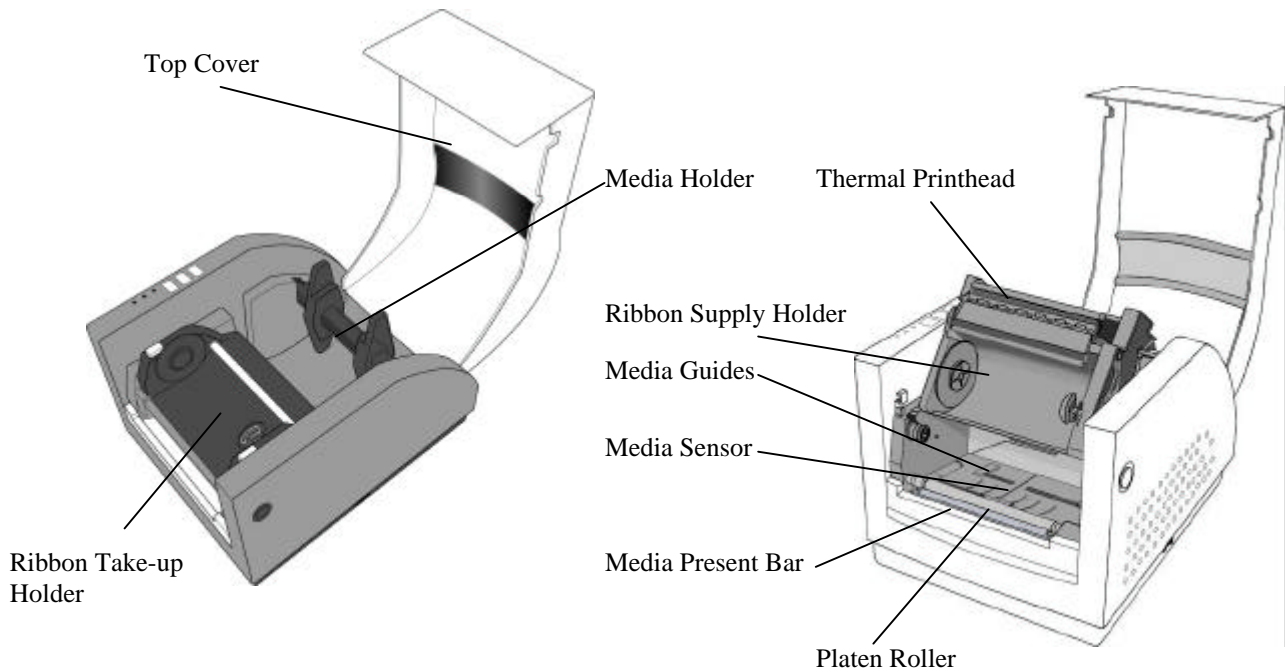
Figure 4 – Internal Features

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Connecting the Power Cord

1. Ensure the printer power switch is Off, "O".

2. Connect the power plug to the back of the printer.

3. Connect AC power plug to a suitable AC source.

4. Connect either a Centronics Parallel or RS-232 Cable.
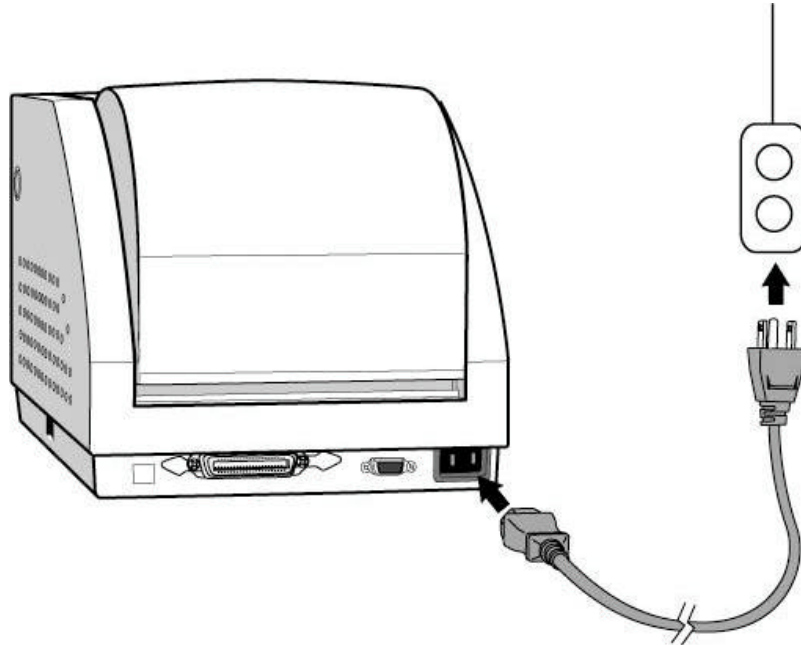
Figure 5 – Power Connection

Connecting the Printer to Your Host

1. You can connect the printer with any standard Centronics cable to the parallel port of the host computer or network print server.

2. Alternatively, you can connect the printer with a serial cable to the RS-232C port of your computer or terminal. (For PC compatibles, the RS-232C port is COM1, COM2 or COM3.)

Parallel Port   Serial Port
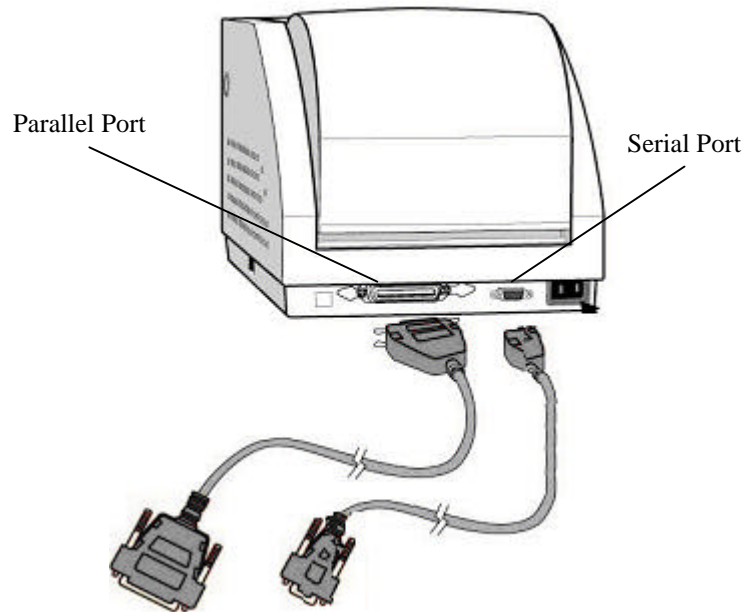
Figure 6 – Communication Cable

3. If you use the serial port with your own cable, refer to the **Appendix B** and check the pin connection.

    Caution: Pin 9 on the serial port is directly connected to +5 volts DC. Do not connect this pin in your cable.

4. Be sure that the speed (baud rate) and protocols are the same between printer and host.

    See your specific installed emulation for commands to set the Serial Communications parameters.

    Default serial port settings:

Speed (baud rate)	9600
Data format	1 start bit, 8 data bits and 1 stop bit
Parity	None
Handshaking (Flow control)	XON/XOFF and RTS/CTS

Loading the Ribbon

*Direct Thermal Media does not require the installation of a ribbon. Skip to the **Loading Media** section.*

*Thermal Transfer media requires an installed ribbon. **Follow the below instructions for ribbon installation.** Note: The media and the ribbon must be compatible. Also the print head temperature setting may need to be adjusted (see emulation commands for heat adjustments).*

1. Open the **Top Media Access Cover** by pressing in on both Cover locks (one on each side of the printer) and lifting the top cover until it rests in the vertical position.
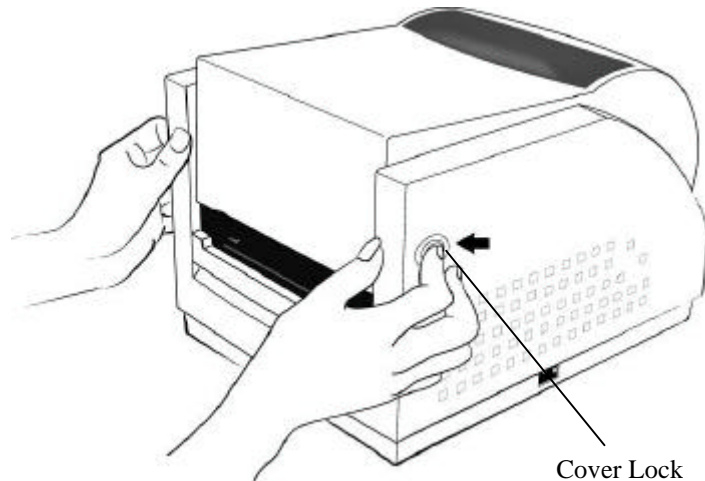
Cover Lock

Figure 7 – Top Media Cover Latches

2. Press down on the two **Print Head Latches** (labeled PUSH) to unlock the print head module**.**

Print Head Module

Print Head Release Latch

Print Head Release Latch
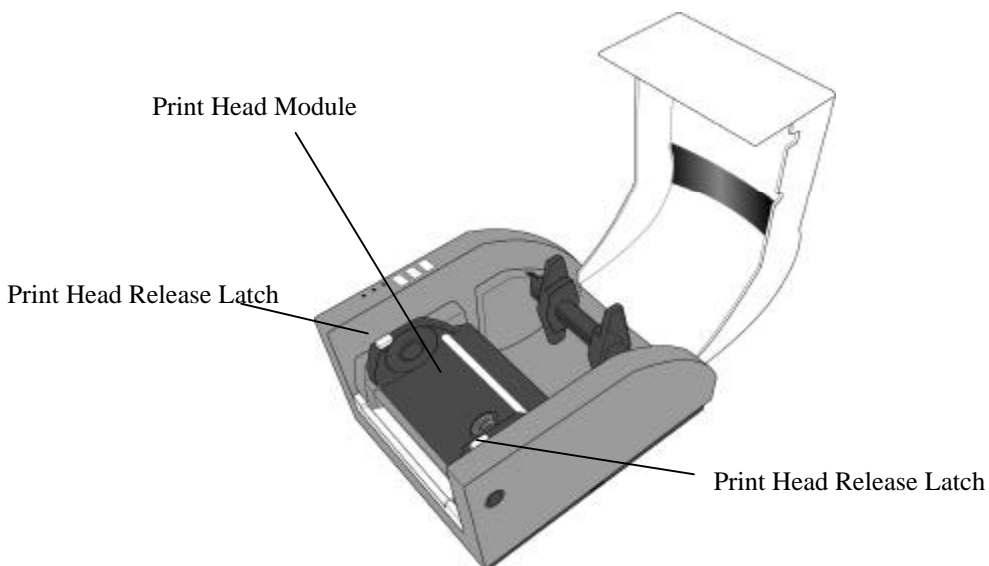
Figure 8 – Print Head Latches

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3. Rotate the Print Head Module to the vertical position.

4. Verify that the **Ribbon Supply Core** and the **Ribbon Take-up Core** have two slots on the left side of the core 180-degree's apart. If the width of the ribbon is less than the minimum core width or if no slots are present, insert one of the supplied **Ribbon Core Adapters** into each ribbon core.

5. The Slots in the Ribbon Core should mate to the Notches in **the Left Ribbon Supply Holder** and the **Left Take-Up Holder**. If using the Ribbon Core Adapter, the adapter's notches will mate with the slots in the Ribbon Holders.

   Note: The notches are the drive mechanism and the ribbon out reporting for the ribbon. If the slots for the Ribbon Core are not correct, contact your ribbon supplier to obtain the correct ribbon. If you need the Ribbon Core Adapter, contact your printer supplier.

Ribbon Supply Holder

Ribbon Supply Core and Take-up Core

Ribbon Notch Location
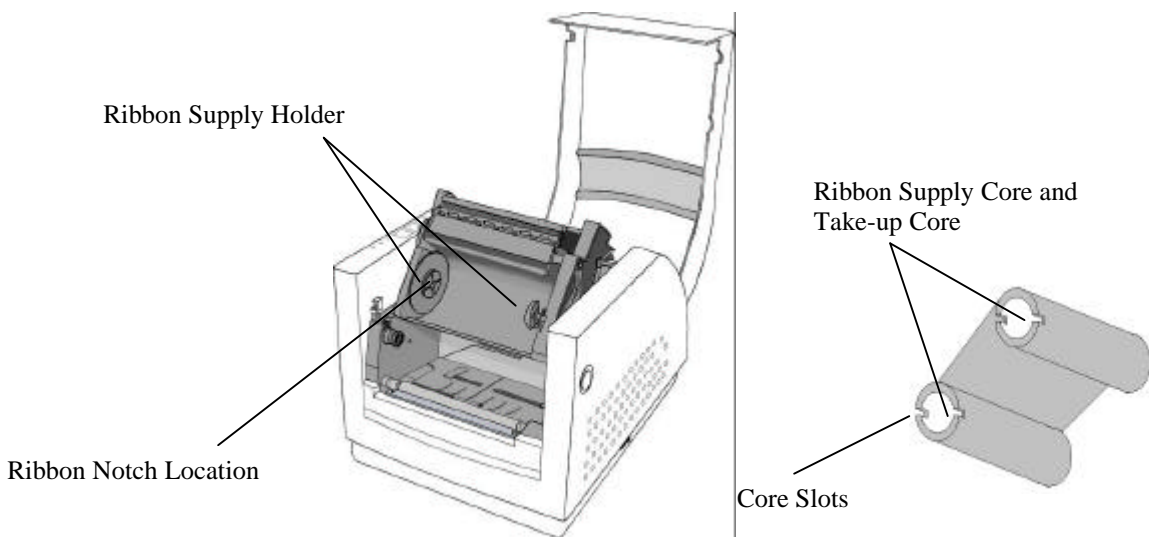
Core Slots

Figure 9 – Ribbon Holder Notches and Ribbon Core Slots

6. Unwrap the **Ribbon Supply Roll** and prepare to place it into the **Supply Holder** area of the print head module. Make sure that the Ribbon is coming off the Top of the Ribbon Roll and to the front of the printer (Ribbon should be a wound-in type). See Supply Ribbon Installation figure below.

7. Insert the **Ribbon Supply Core** into the Ribbon Supply Area by first compressing the **right** side spring and snapping the **left** side of supply core into the left side of the notched wheel. Make sure that the slots in left side of the core mate with the notches on the left side ribbon drive wheel.

Ribbon Supply Roll

Right Side Spring Holder

Ribbon Take-Up Roll
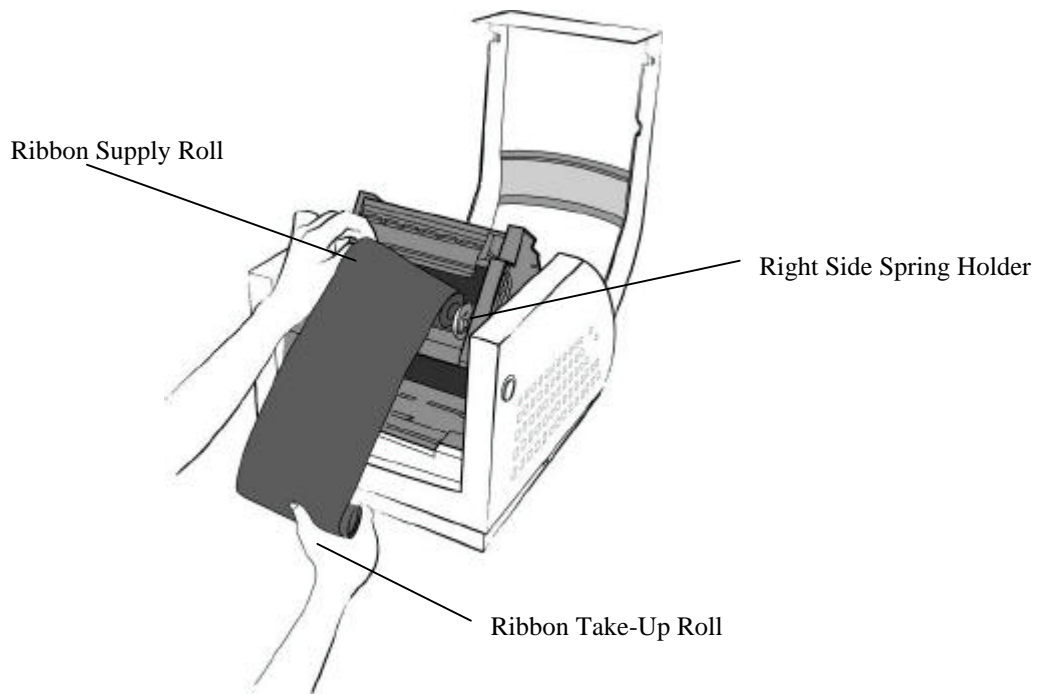
Figure 10 – Supply Ribbon Installation

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8. Loop the ribbon over the Print Head Module. Insert the **Take-up Core** into the Take-Up Area by first compressing the **right** side spring and snapping the **left** side of take-up core into the left side of the notched wheel. Make sure that the slots in left side of the core mate with the notches on the left side ribbon drive wheel.

Take-Up Core

Ink Side of the Ribbon
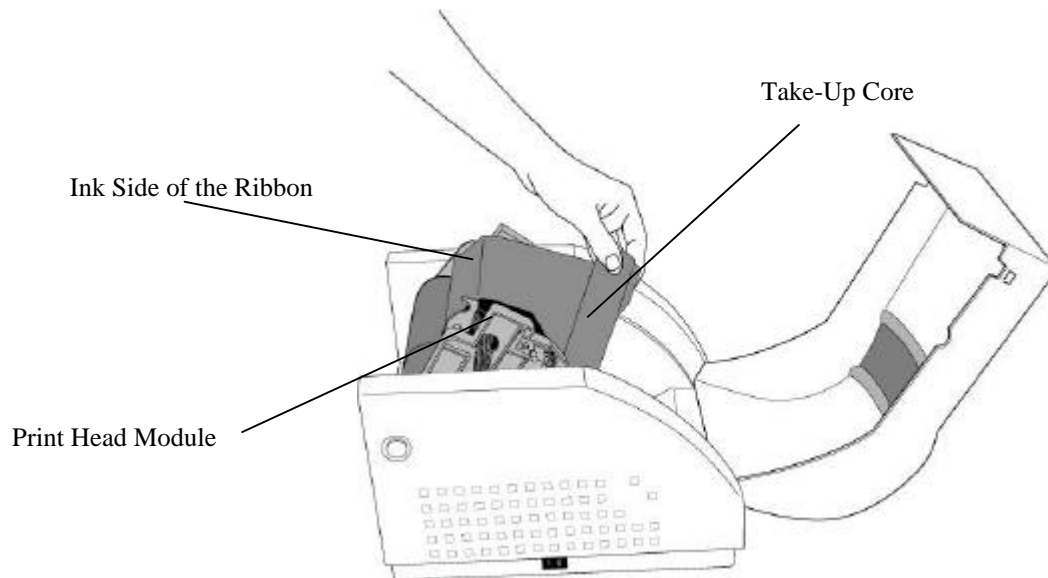
Print Head Module

Figure 11 – Ribbon Take-Up Installation

9. To remove any slack in the ribbon, manually rotate the **Take-up Core Wheel** until the ribbon from the **Supply Holder** is snug around the Print head Module and onto the **Take-up Core**.

Figure 12 – Ribbon Installation

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10. Close and latch the print head module**. Be sure to press firmly on both sides so that both latches clink into place.** If either latch is not clicked into place it will cause the media to not feed properly or print light.

Figure 13 – Print head Module Closed

Note: *The printer must be set to the Thermal Transfer mode to ensure the end of ribbon is detected. Refer to the section Emulation Commands for instructions on how to change the Media Type feature.*

Loading Media

1. Open the **Top Media Access Cover** by pressing in on both Cover locks (one on each side of the printer) and lifting the top cover until it rests in the vertical position.

Cover Lock
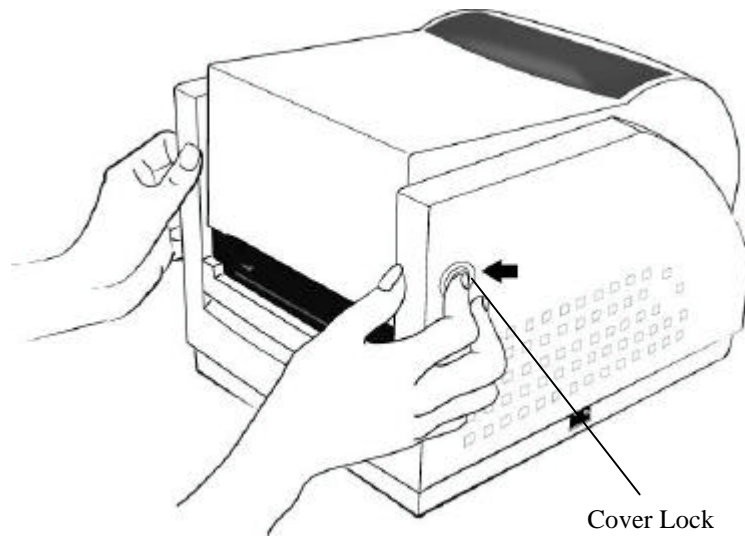
Figure 14 – Top Media Cover Latches

2. Remove the Media Hanger from the printer.

3. Remove one side of the Guides from the Media Hanger and slide the Media Roll onto the Media Hanger, then reinstall the removed Guide.

4. Place the Media Hanger with roll of media into the appropriate slots on the printer and centered the media in the printer.
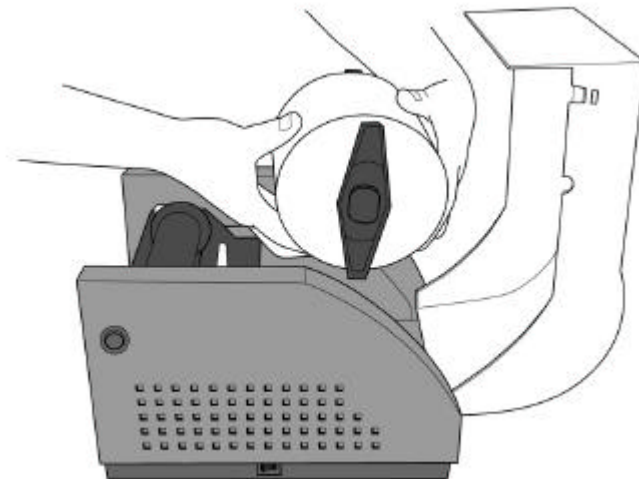
Figure 15 – Media Roll Installation

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5. Press down on the two **Print Head Latches** to unlock the print head module**.**
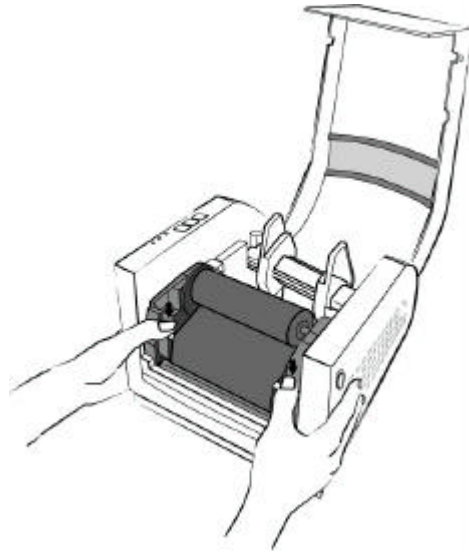
Figure 16 – Print Head Latches

6. Rotate the Print Head Module to the vertical position.

7. Spread the Media Guides to their full open position.
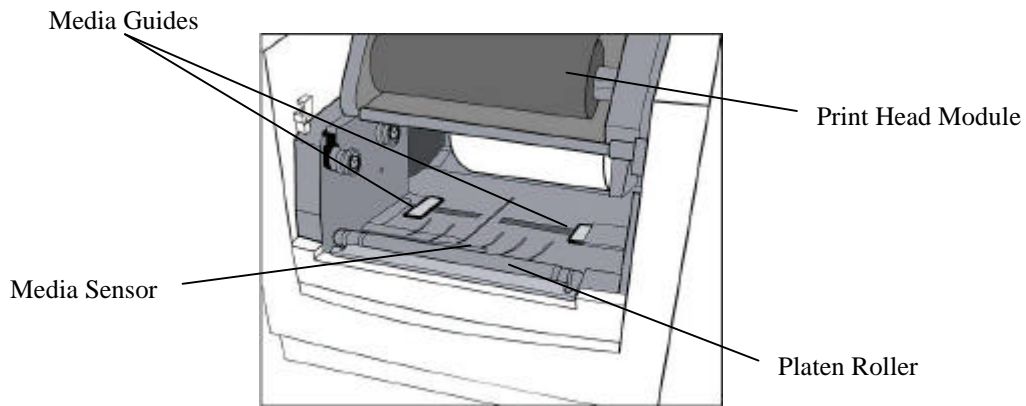
Figure 17 – Media Sensor and Guides

8. With the printing side up, feed the Media off the Media Roll under the Print Head Module and over the platen.
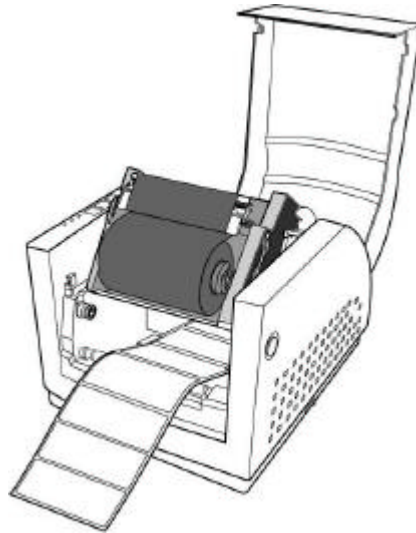
Figure 18 – Loading Media over Platen Roller

9. Position the Media Sensor to the desired location.

To position the Media Sensor examine the back of the Media Stock. As the media is pulled through the printer position the sensor to avoid holes or preprinted information on the back of the stock. These may cause incorrect top of form alignment. Typical media stock backing is blank, therefore position the sensor in the middle of the stock.
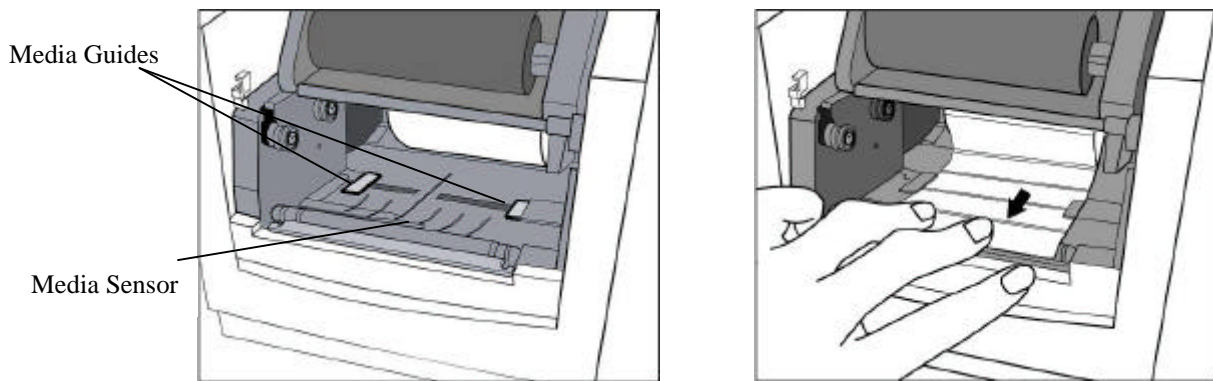
Figure 19 – Positioning Media Guides and Sensor

10. Close the **Right and Left Media Guides** until the Media Stock is under the "U" shaped guides. This will keep the stock from going side to side.

Note: The Right and Left Media Guides are 'U' shaped parts that are located at the bottom of the paper path. Both Guides move together to hold the stock in the Center of the printer.

*If the printer has the **Peeler, Pinch or Cutter options** go to either the appropriate **Loading Media** sections.*
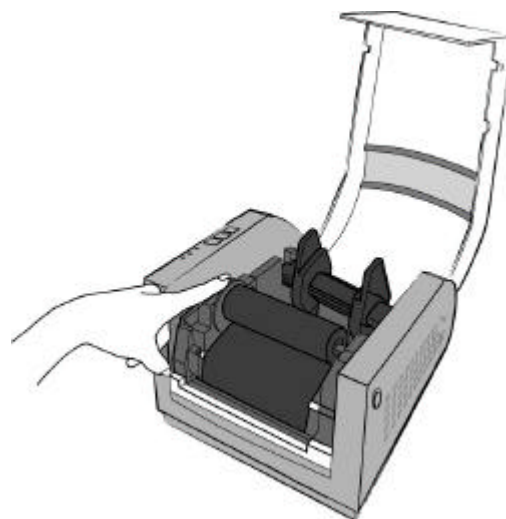
11. Close and latch the print head module. **Be sure to press firmly on both sides so that both latches clink into place.** If either latch is not clicked into place it will cause the media to not feed properly or print light.
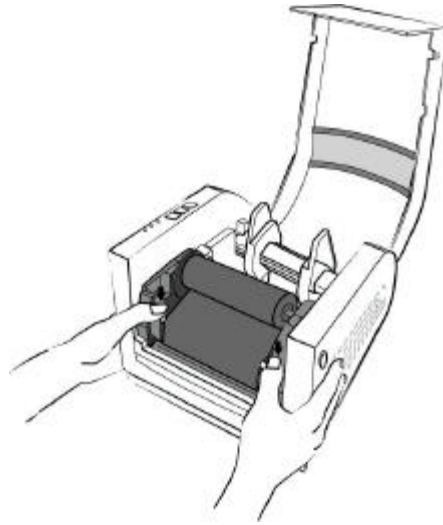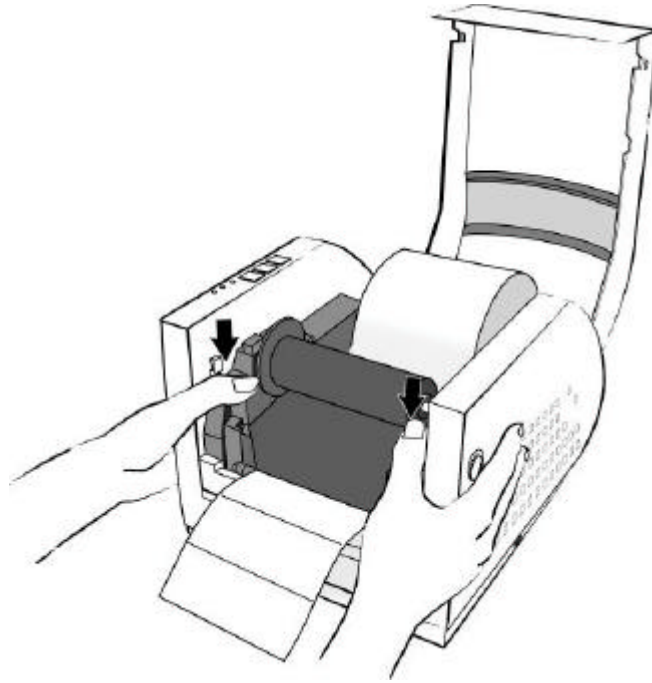

Figure 20 – Print head Module Closed

12. Close the **Top Media Cover**.

13. Press the Feed Button to correctly position the next Top of Label.

   Note: *The first time media is installed, the Media Sensor must be calibrated. After the first calibration no further calibration is required unless the media type (length, color, backing material, etc.) is changed or irregular feeding occurs. Refer to the section **Calibrating Media Sensors** for instructions on how to calibrate the media sensor.*

Loading Media with Peeler option

1. Install media as indicated in the Loading Media Section. Return to these steps when directed to do so.
2. Remove about the first 6 inches of Labels from the media Backing.
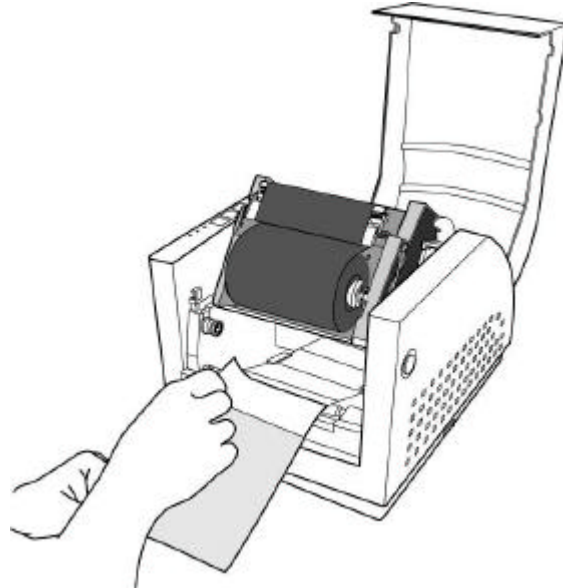
Figure 21 – Label Removal for Peeler Option

3. Make sure the leading edge of the Media Backing has a straight edge.

4. Pull down the Peeler Latch.
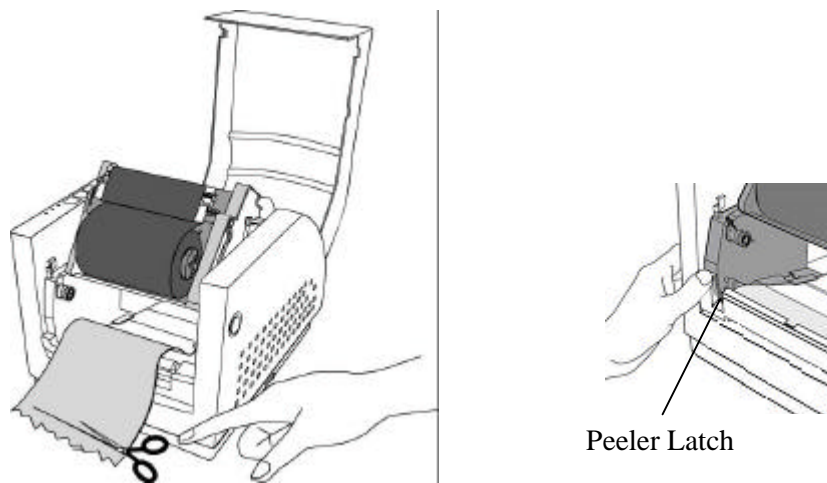
Peeler Latch

Figure 22 – Straight Edge and Peeler Latch

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5. Position the Media Backing out of the printer and over the Peel Bar.

6. Push the Media Backing in the slot just under the Peel Bar and between the front cover. Continue to push the stock until it comes out of the larger slot in the front cover.

7. If the Media Backing will not push through, then press the Feed button one time.

8. Once the media comes out of the larger slot, gently roll the excess media back onto the Media Roll until the Backing is snug around the Peel Bar.
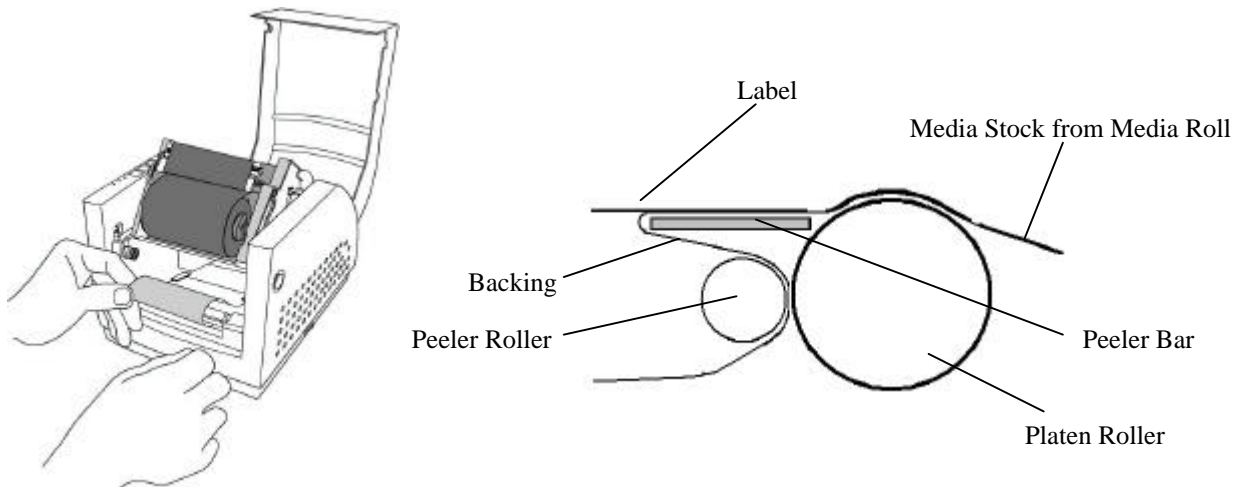
Figure 23 – Feeding into the Peeler Mechanism

9. In this position the Media Backing coming out of the large slot in the front cover should be aligned with the Labels coming out of the printer.
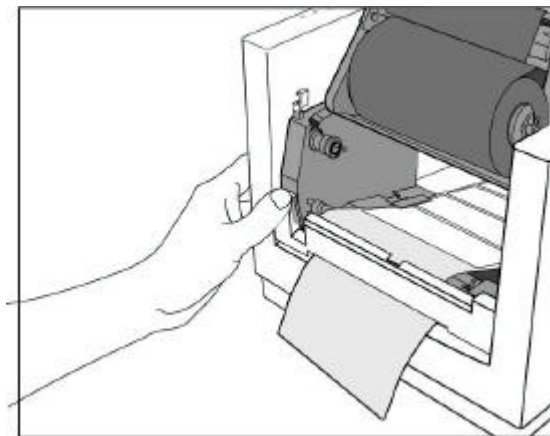
Figure 24 – Backing Exit Position

Note: *If not, then pull down the Peeler Latch and gently pull the backing until they are aligned. Make sure to close the Peeler Latch when done.*

10. Close and lock the print head module by pressing firmly until the right and left **Print Head Latches** snap shut.

11. Close the **Media Access Cover**.

12. Press the Feed Button until the first label is peeled off.

   Note: *In this position the trailing edge of the media may be caught between the Platen and the Printhead and will not be removable until the next printing. Make sure that the following functions are set in your application:*

   ✓ **BackFeed** – Tell the printer to move the printed label out of the printer

   ✓ **Present Distance** – This function tells the printer how far to move the media

   ✓ **Peeler Sensor** – Enable this function. The printer will monitor this sensor to see if the printed label is removed. If the sensor does not see the label then the printer will print the next label. If the label is not removed the printer will wait until the sensor is uncovered before printing the next one.
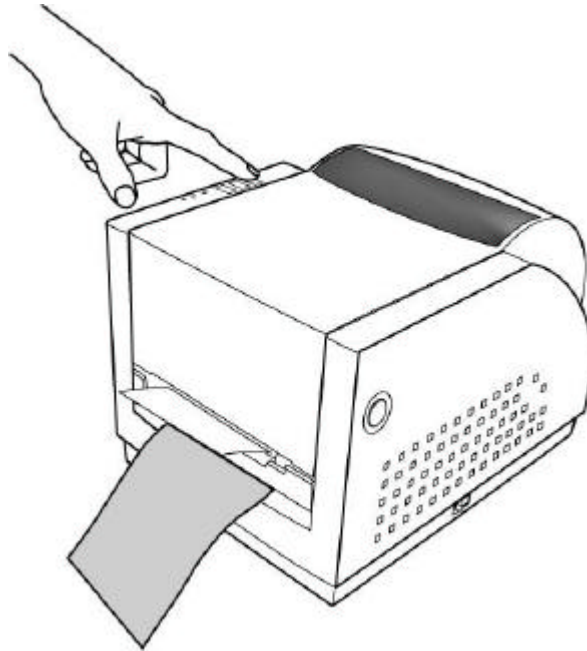
Figure 25 – Peeler Option

Loading Media with Pinch Roller Only option

This procedure should only be used with labels that do not have sticky back. This option increases the surface of the media around the platen, thus resulting in extra pulling force.

Note: This option expects that one-inch of the leading edge of the media will not be printed upon.

1. Install media as indicated in the Loading Media Section. Return to these steps when directed to do so.

2. Pull down the Pinch Roller Latch.
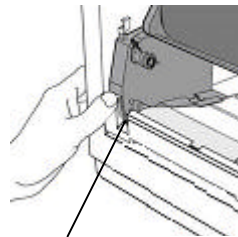
Pinch Roller Latch

Figure 26 – Pinch Roller Latch

3. Push the Media between the Pinch Roller and the Platen Roller. Continue to push the stock until it comes out of the larger slot in the front cover.

4. If the Media will not push through, then press the Feed button one time.

5. Once the media comes out of the larger slot, gently roll the excess media back onto the Media Roll until the Backing is snug around the Platen Roller.

Media Stock from Media Roll

Pinch Roller

Platen Roller
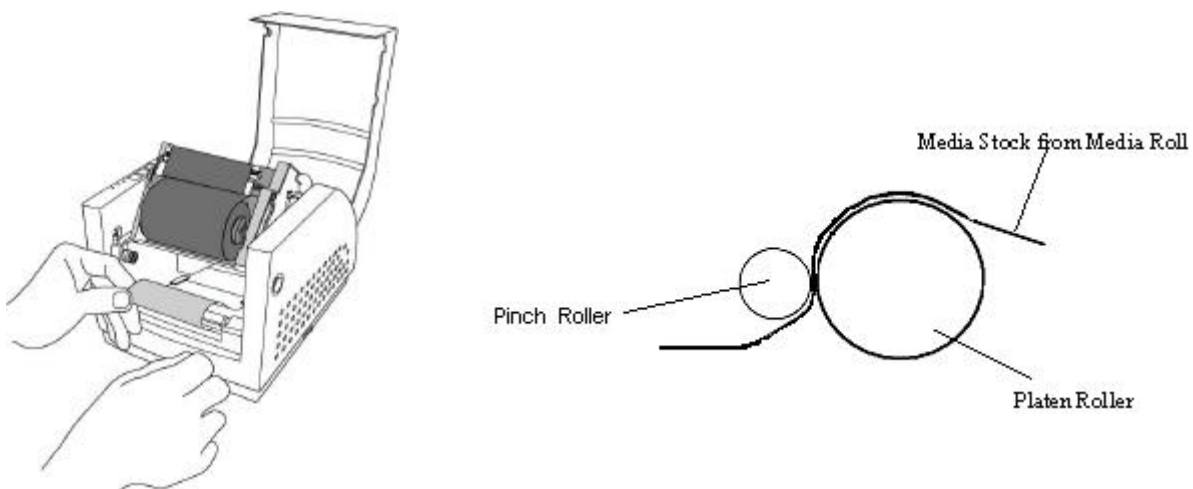
Figure 27 – Feeding into the Pinch Mechanism

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6. In this position the Media Backing coming out of the large slot in the front cover should be aligned with the Labels coming out of the printer.
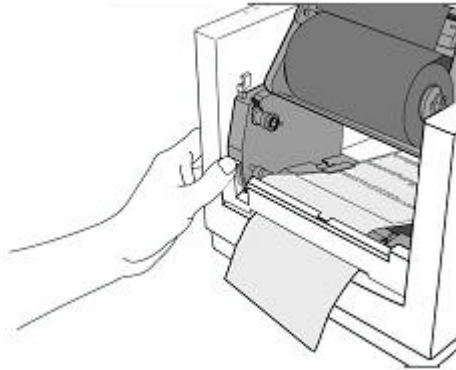
Figure 28 – Media Exit Position

> *Note*: *If not, then pull down the Pinch Roller Latch and gently pull the backing until they are aligned. Make sure to close the Pinch Roller Latch when done.*

7. Close and lock the print head module by pressing firmly until the right and left **Print Head Latches** snap shut.

8. Close the **Media Access Cover**.

9. Press the Feed Button to set the printer to the next Top of Form.

> *Note*: *In this position the trailing edge of the media may be caught between the Platen and the Printhead and will not be removable until the next printing. Verify that all Peeler Features in the Setup Menu are properly set (BackFeed, Present Distance, and Peeler Sensor) for your application.*
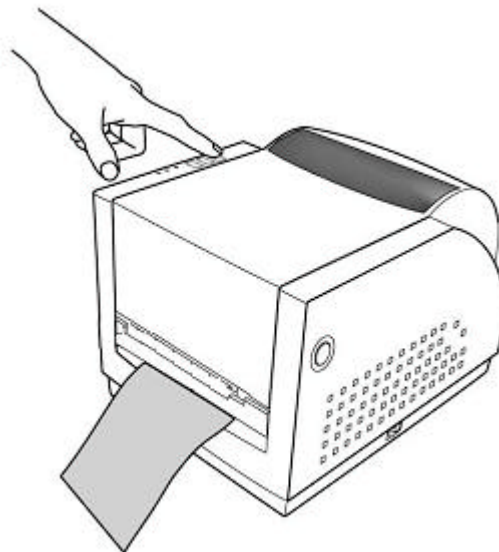
Figure 29 – Pinch Roller Only Option

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Loading Media into the Cutter Option

1. Install media as indicated in the Loading Media Section. Return to these steps when directed to do so.

2. Push the Media Stock through the slot on the Cutter Module near the platen Roller.
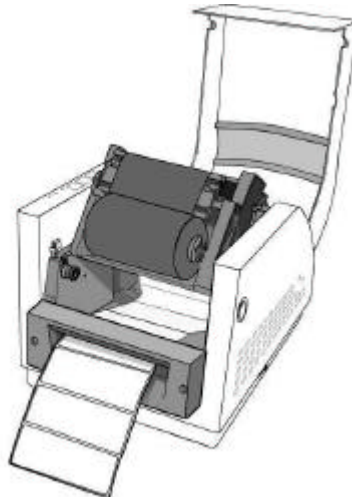
Figure 30 – Inserting Labels in the Cutter Option

10. Close and lock the print head module by pressing firmly until the right and left **Print Head Latches** snap shut.

11. Close the **Media Access Cover**.

12. Press the Feed Button to cut the first label.
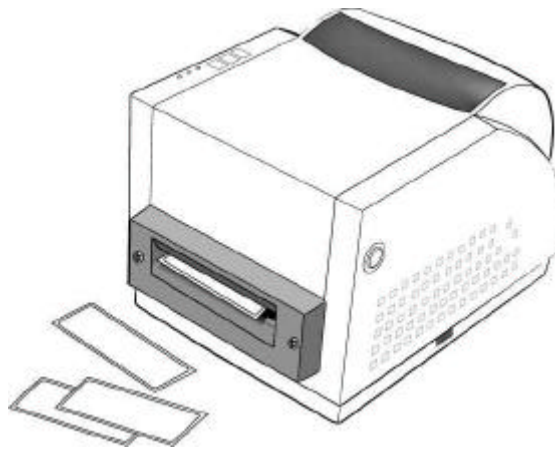
Figure 31 – Cutting Labels

Calibrating the Media Sensor

Important information:

- Calibration should be done when media is first installed in the printer.

- Calibration should be done each time the media type is changed (sensing method, Length, color, etc)

- The printer should be calibrated following a reset of the E^2PROM.

- Following a calibration feed a label to align the printer to the top of the next label.

Procedure to Calibrate the Media Sensor

1. Ensure the printer is powered off.

2. Verify that the media is properly loaded and routed as detailed in **Loading Media** section.

3. Verify the Media Sensor is properly positioned directly over the object to be sensed (gap, hole, and notch).

4. While pressing *and holding* the **PAUSE** key, power on the printer.
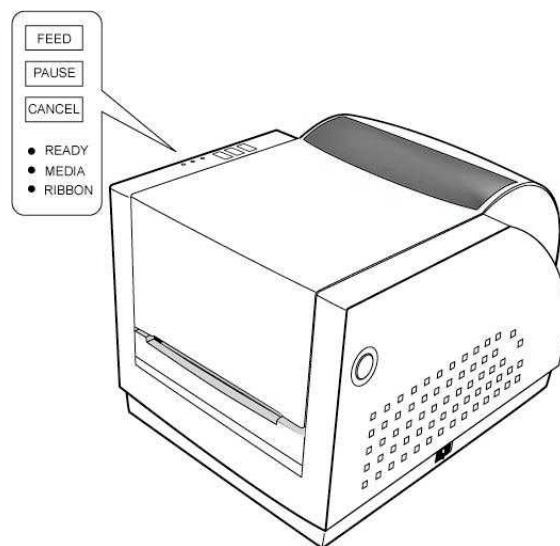
Figure 32 – Calibration of the Media

5. Release the **PAUSE** button when the media begins to feed.

6. When feeding stops the printer has completed the Label Sensor Calibration procedure.

7. When the printer completes the Label Sensor Calibration procedure it will save the related parameters (sensor, label length, gap/notch/hole length) to memory.

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Printing the Configuration Label

Important information:

- The configuration label indicates the current setting and parameters of the printer. Some of the items displayed in this label are:

  Current Firmware revision (Top line of the label).

  RS-232 parameters,

  Media type (DT/TT),

  Label Count,

  Media Sensor Level,

  Resident font types,

  etc.

- Following printing of the configuration page the printer may be in a diagnostic (hexadecimal) mode. To exit the diagnostic mode, turn the power off.

- The printed configuration will be different depending upon the emulation loaded, and current value settings.

Procedure for printing a Configuration Label.

1. Power off the printer.

2. Make sure that the installed media is 4 inches wide and 20 inches in length (five 4x4 labels or four 4x6).

   The printer will first do a label calibration (12 inches in length), then print a configuration label (approximately 5 inches in length).

3. Verify that the media is properly loaded and routed as detailed in **Loading Media** Section.

4. While pressing *and holding* the **FEED** key, power on the printer.

5. Continue to **hold** the **FEED** key until the printer begins to print the configuration label, then you may release the **FEED** key.

The following are examples and may not reflect the actual printed font types.

```
Label Printer with Firmware PPLA R2A0-4.01 081804
RS232 : 9600, 8 DATA BITS, NONE PARITY, 1 STOP BIT.
STANDARD RAM: 2097152 BYTES
AVAILABLE RAM: 1043712 BYTES USASCII
THERMAL TRANSFER            REFLCT. SENSOR
LABEL COUNT: 53             7 M
FLASH MEMORY: ON BOARD
CHECKSUM: 0000
LAB LEN(TOP TO TOP): 0 mm.   0 001C 000E
MEDIA SENSOR LEVEL: 2
```

This is internal font 0. 0123456789 ABCabcXyz
This is internal font 1. 0123456789 ABCabcXyz
This is internal font 2. 0123456789 ABCabcXyz
THIS IS INTERNAL FONT 3. 0123456789 ABCABC
THIS IS INTERNAL FONT 4. 012345678
THIS IS INTERNAL FONT 5. 012345678
THIS IS INTRNL FONT 6
This is internal font 7. OCR-A ABCabc
0123456789
ASD Smooth font (6 points) - 0123456789 ABCabcXyz
ASD Smooth font (8 points) - 0123456789 ABCabcXyz
ASD Smooth font (10 points) - 0123456789 ABCabcXyz
ASD Smooth font (12 points) - 0123456789 ABCa
ASD Smooth font (14 points) - 0123456789
ASD Smooth font (18 points) - 012
Courier Fonts:
R8/E94/PC/PCA/PCB/LG/GK/RUS

```
Label Printer with Firmware PPLB R2B0-3.03 060404
RS232:  9600, N, 8, 1P
STANDARD RAM: 2097152 BYTES
AVAILABLE RAM: 1036992 BYTES   Code Page 437
THERMAL TRANSFER            REFLCT. SENSOR
LABEL COUNT: 51             7 M
FLASH ON BOARD: 512K free
CHECKSUM: 0000
H. POSITION ADJUST.: 0000
LAB LEN(TOP TO TOP): 355 mm.
MEDIA SENSOR LEVEL: 0
```

This is internal font 1. 0123456789 ABCabcXyz

This is internal font 2. 0123456789 ABCabcXyz

This is internal font 3. 0123456789 ABCabcXyz

This is internal font 4. 0123456789 ABCXYZ

THIS IS INTERNAL FNT5

```
Label Printer with Firmware PPLZ R2Z0-1.01 051804
STANDARD RAM : 2097152 BYTES
THERMAL TRANSFER
LABEL COUNT : 4     447 mm.
H. POSITION ADJUST.: +0 mm.
CHECKSUM : 0000
LAB LEN(TOP TO TOP) : 77 mm.     621    0    0B    06
MEDIA SENSOR LEVEL : 0
BASE DARKNESS : 0
BAUD RATE :  9600, N, 8, 1P
RS232 HANDSHAKE : XON/XOFF
EXTENSION FLASH: ON BOARD  1M BYTES
CARET CONTROL CHAR     : <^>   5EH
DELIMITER CONTROL CHAR : <,>   2CH
TILDE CONTROL CHAR     : <~>   7EH
CODE PAGE : USA1
MEDIA : NUN-CONTINUOUS
REPRINT AFTER ERROR : ENABLED
```

THIS IS FONT A. 0123ABCabc
THIS IS FONT B. 0123ABCABC
THIS IS FONT C. 0123ABCabc
THIS IS FONT D. 0123ABCabc
THIS IS FONT E. 0123ABCabc
THIS IS FONT F. 0123ABCabc
THIS IS FONT G.
THIS IS FONT H. 0123ABC

Figure 33 – Configuration Print Samples

KEYPAD OPERATION

The Front Panel keys serve multiple functions. Refer to the following tables for their specific functions.

```
┌──────────┐
│   FEED   │
└──────────┘

┌──────────┐
│  PAUSE   │
└──────────┘

┌──────────┐
│  CANCEL  │
└──────────┘

   ⦿  READY

   ⦿  MEDIA

   ⦿  RIBBON
```
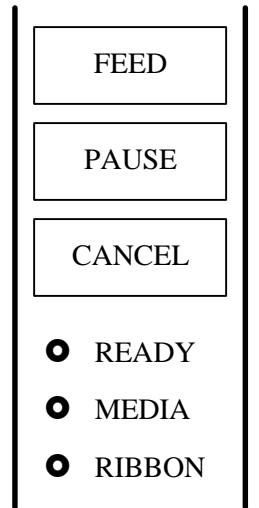
Figure 34 – The Printer's Front Panel

LED Description

LED	Function
❍　　READY	**ON:** Printer is powered on and ready for operation.
	OFF: Printer is receiving data, or in a Fault condition.
	Steady Blinking: Error has occurred.
❍　　MEDIA	**ON:** Printer is online and ready to receive data.
	OFF: Printer is off line and <u>not ready</u> to print. Typically following pressing of the Pause key.
	Steady Blinking: Media Error. (Ready LED will also be blinking)
❍　　RIBBON	**ON**: Print is set for Thermal Transfer Mode.
	OFF: Printer is set for Direct Thermal Mode.
	Steady Blinking: Ribbon error occurred. (Ready LED will also be blinking)

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Key functions

The table below indicates the function performed when a key is pressed during normal operation and when held while the printer is powered up.

Key	Normal Operation	Pressed during Power Up
FEED	Feeds a Label	The printer generates a configuration label. See **Printing the Configuration Label** for details.
PAUSE	Stops printing and places the printer on line. Resumes printing if offline.	The printer performs a Calibration test. See **Calibration of Media Sensor** for details.
CANCEL	Pauses and deletes the current print job. Clears an error condition.	Reset the settings at E^{2}PROM. **See Resetting the Printer** for details

Resetting the Printer to Factory Defaults

Why perform a Factory Reset:

- Reset the printer any time the emulation is switched (PPLA to PPLB, or PPLB to PPLA).

- Reset the printer any time the emulation is upgraded.

- Unexplained errors occur and the printer stops operation.

What is reset by when the printer is reset to Factory Default

- All label parameters. See Calibrating the Media for resetting these parameters.

- Heat (Darkness). If this function is not configured with the transmitted label it may need to be reset.

- Print Speed. If this function is not configured with the transmitted label it may need to be reset.

- Symbol Set. If this function is not configured with the transmitted label it may need to be reset.

- Any other emulation specific setting.

Procedure for resetting the printer to factory defaults

1. Power off the printer.

2. While pressing *__and holding__* the **CANCEL** key, power on the printer.

3. When the Ribbon LED blinks, release the Cancel key.

4. The reset is complete when all the LED's are on.

Windows Drivers

The provided CD contains printer driver can be used with applications under Windows XP/2000/98/95, and Windows NT. These drivers can be used with popular software applications, such as Word, to print labels as long as the applications are using the Windows Print Manager.

Information:

- Follow the instructions on the CD for Proper Installation Procedures.

- Before installation, make sure you have "User right's" up to the level of 'Administrator'.

- There are two Basic Drivers for the Printers:

  - Fastmark 200dpi
  - Fastmark 300dpi

Installing Windows Driver

1. From the task bar select Start->Settings->Printers. The printer's folder should be displayed.

2. Double click the Add Printer icon.
   - The Add Printer Wizard dialog should be displayed.
   - Click the Next button.

3. Select the Local printer option and click the Next button.

4. From the Manufacturers list dialog click the **Have Disk** button.

5. Using the **Browse** button go to the location of the driver files and click OK.

   Select the proper Directory for installation:
   - WIN98
   - WIN2000
   - NT4.0
   - WIN XP

6. From the Install from Disk dialog, select the displayed ***.inf** file and click OK.

7. The Add Printer Wizard should now display the available models for this driver. Select the model you wish to install and click **Next**.

8. Select the desired communication port. If the printer is attached to the Parallel port then select the LPT port. If attached to the serial port then select the COM port. Your PC may have multiple ports available. Make sure that you select the appropriate port that your printer is attached to.

9. When you have answered all the questions, Click the Finish button on the Completing the Add Printer Wizard. If a Hardware Installation message is displayed, click Continue Anyway. A printer icon should be added to the list of printers. If a message is displayed indicating the installation could not be completed, you may need to change the security level for installing drivers and repeat the installation process.

Notes:

- If you have set the printer as the default printer, the driver is now ready for use.

- If you did not set the printer as the default printer, you can change the setting by right clicking on the printers' icon and select 'Set as Default' from the dialog.

- If you are updating an existing driver, it is suggested that you delete the old driver first.

- A Windows driver must be installed prior to installing Xbar.

- Be sure to select they appropriate width model (2 inch, 3 inch, 4 inch or 6 inch model). If you select a smaller width model than the printer all your applications will be truncated at that width. Example: If the printer being used has a width of 6 inches and the driver selected is for a 4 inch model, then only 4 inches of information will be printed on the label.

- A label printed using a Windows driver is printed using GDI graphics. The installed emulation (PPLA, PPLB or PPLZ) is not used when printing using the Windows driver. The Application or the Driver controls all printing.

Setting the Printer's Windows Parameters

After installing the driver, you can follow the path below to set parameters:

Start → Settings → Printers → Printer Name 200dpi → Properties

The parameters include:

- **Ports** Select the I/O port to link with the printer.

- **Paper size** Select the paper size on the menu. If there is no desired size, select "Custom" (only in Win98/95/Me) to define the paper sizes.

- **Create a new size** Define paper size in Win 2000/XP/NT4.0 under File→ Server Properties.

- **Orientation** Set portrait or landscape according to the print direction.

- **Paper source (Media type)** T/T stands for thermal transfer (ribbon) mode and D/T for direct thermal mode (without ribbon).

  Labels typically have a specific beginning or Top-of-Label. This TOL is may be defined by a **GAP** (blank space between labels) or a **Black Bar** (black line on the back or the media). A **Continuous** roll is media without a defined break between labels.

- **Media choice (Darkness)** sets the heat value or darkness. The darkness value ranges from 0 to 15.

- **Copies** Designates the number of printed copies of each page.

- **More option (Accessory setting)** When one of the mechanical options is installed, use this to enable the cutter and peeler function.

- **Device options (Speed)** Sets the printer speed. For 203dpi printers, the speed ranges from 2 to 6 IPS, for 300 dpi printers the range from 2 to 4 IPS.

The following pages contain the various Windows display screens

Windows 98

Details Tab

➢ Ports
Communications port.
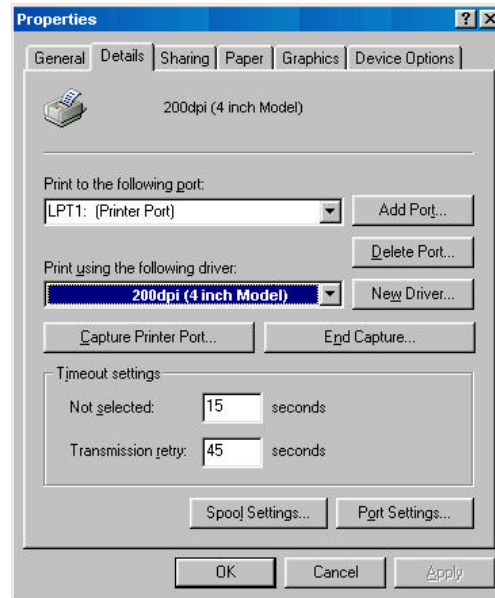
Paper Tab

➢ Paper size
Paper size selection

➢ Orientation
Rotation of the label

➢ Paper source (Media type)
Type of media loaded

➢ Media choice (Darkness)
Heat setting for the Print Head

➢ Copies
Number of copies to be printed
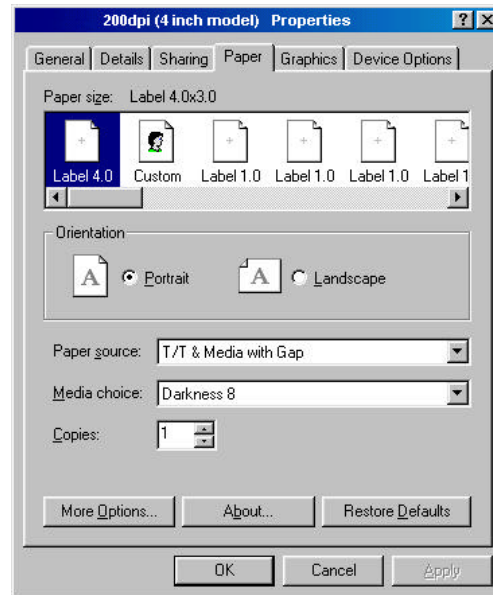
➢ More Option Button
Selection of output options

User Manual
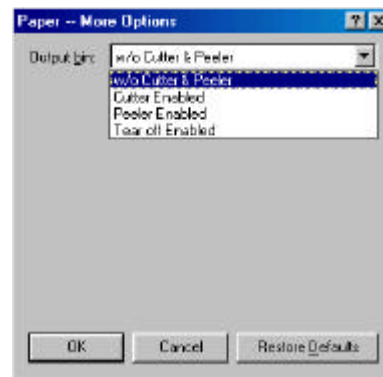
Device Option Tab

➢ Print Quality
Print Speed selection. Note: Depending upon density of label the printer will vary the print speed to maintain print quality.
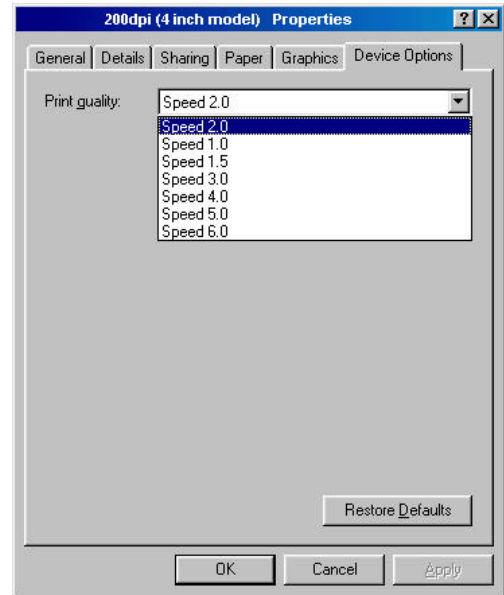
Creating User-Define Paper

➢ To define a Custom form click on the Custom Paper Size.
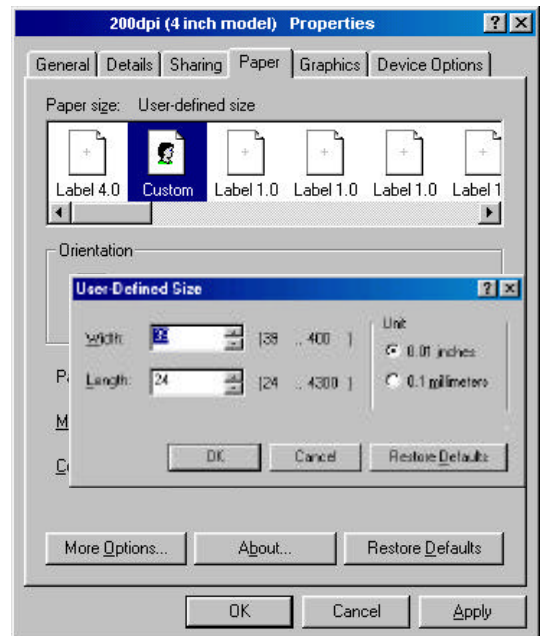
Windows 2000

Ports Tab

➢ Ports
Communications port.
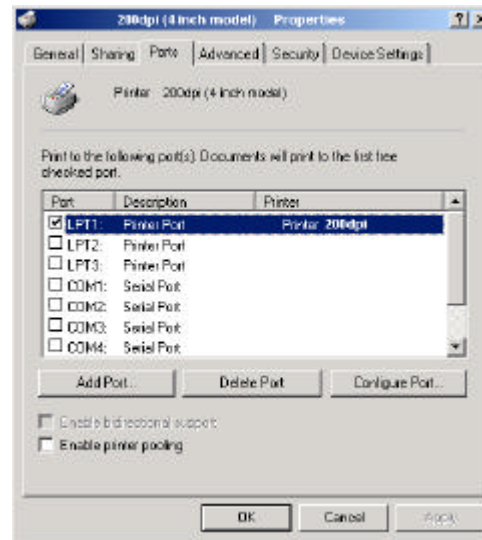
General Tab

➢ Printing Preference Button
Layout and Paper/Quality

➢ Print Test Page Button
Prints a sample label
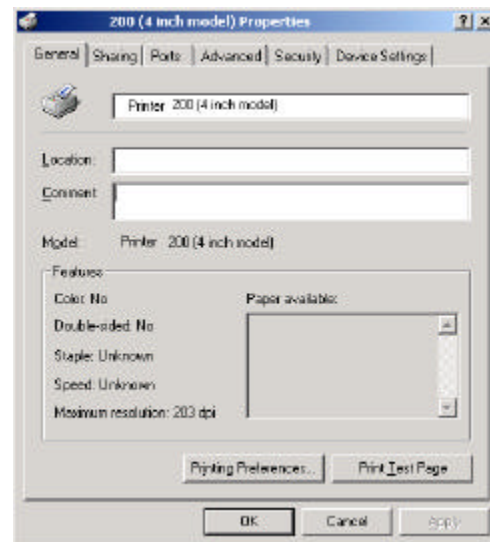
Paper Quality

➢ Determines the Media and Top-of-Label method

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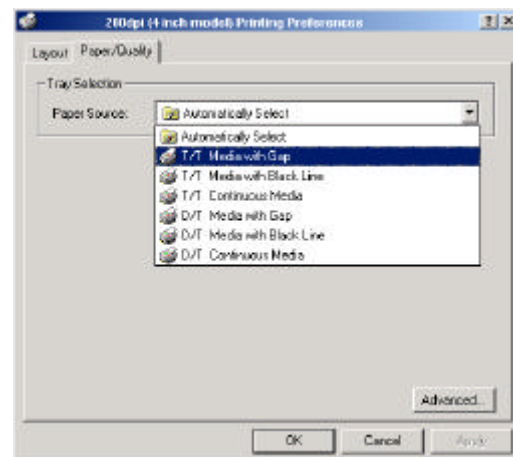
Layout

➢ Orientation of label print
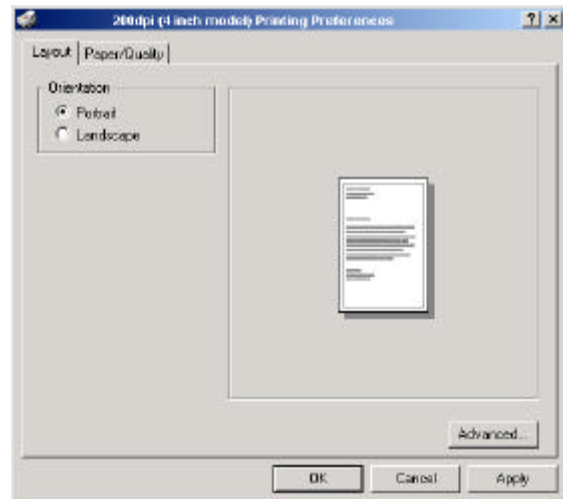
Advance Option Button

➢ Paper size
➢ Copies
➢ Media choice (Accessory setting)
➢ Paper/Output (Speed)
➢ Print quality (Darkness)

User Manual
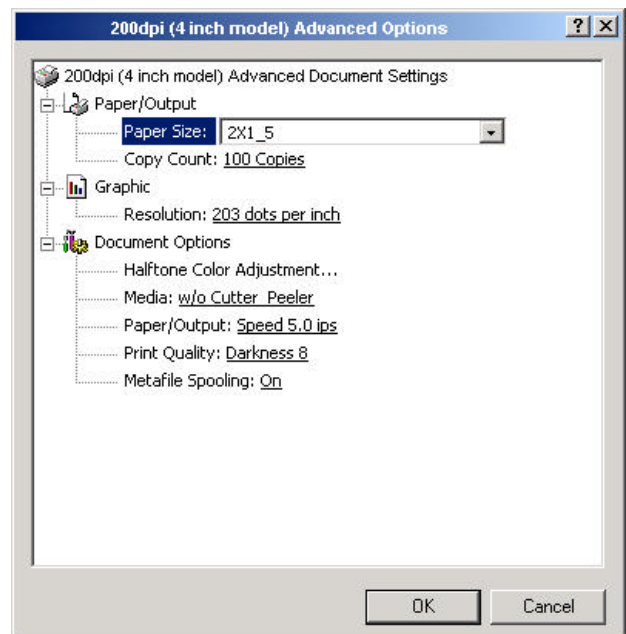
Create a new size

To create a custom label size requires the user to do so though the Server Properties. Once the size is created then it is available for all printers.

To access the Server properties go to the main Printer Folder.

- ➢ Select the Server Properties (File tab).
- ➢ Click on the Create a New Form box.
- ➢ Fill in the Measurements
- ➢ Name the form in the Form Description line.
- ➢ Click on Save Form button.

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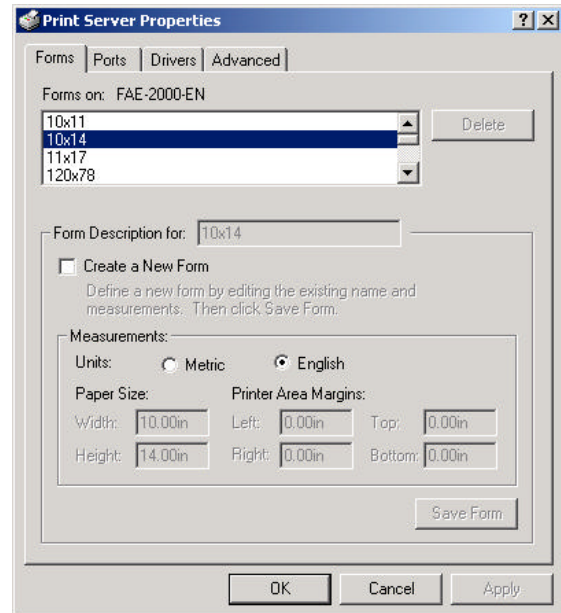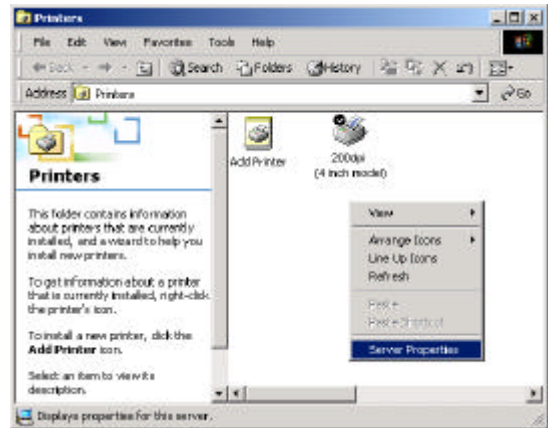
Windows NT 4.0

Ports

➢ Ports
   Communications setup
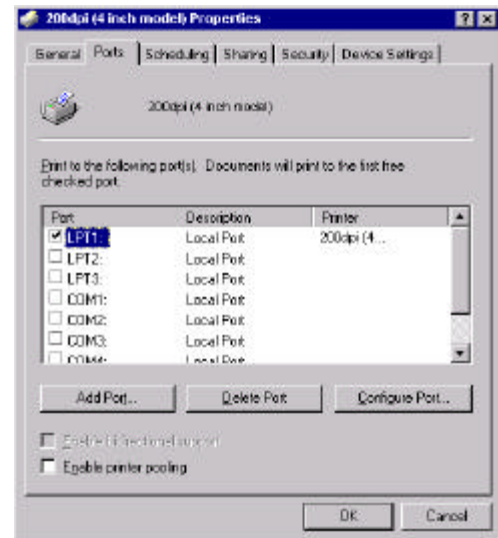
General Tab – Documents Defaults

Advanced Tab

➢ Paper size

➢ Orientation

➢ Paper source (Media type)

➢ Copies

➢ Media choice (Accessory setting)

➢ Paper/Output (Speed)

➢ Print quality (Darkness)
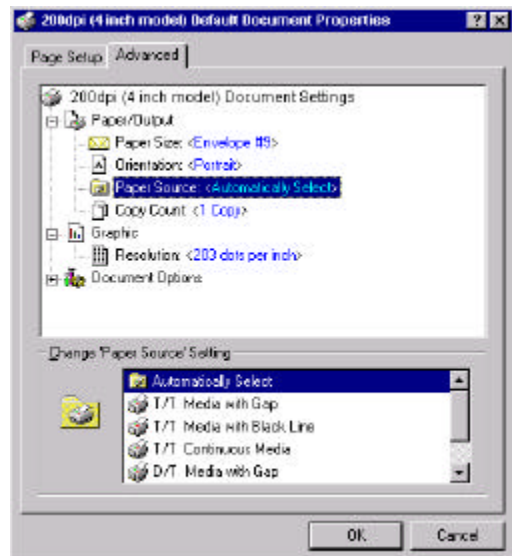
Create a new size

Please refer to the procedure to create a new size under Windows 2000.
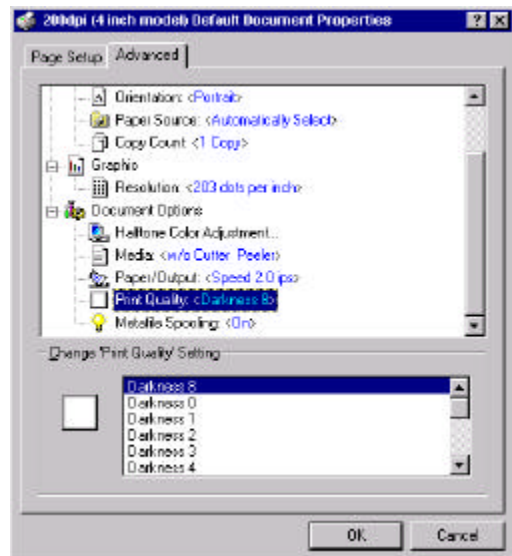
Windows XP

Ports
➢ Ports
   Communications setup

General Tab - Printing Preferences
➢ Paper / Quality
   Media type installed

➢ Layout
   Orientation

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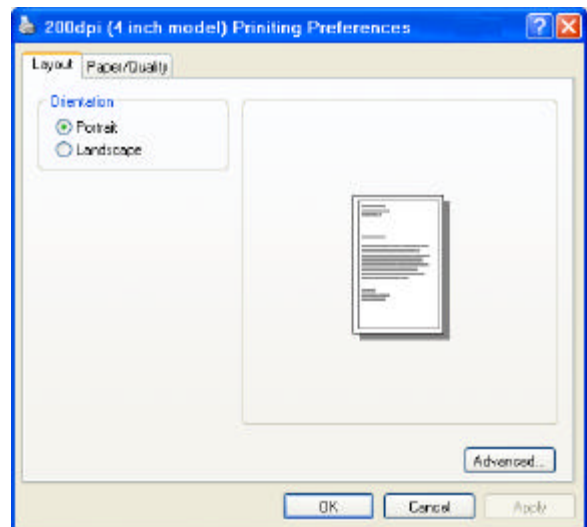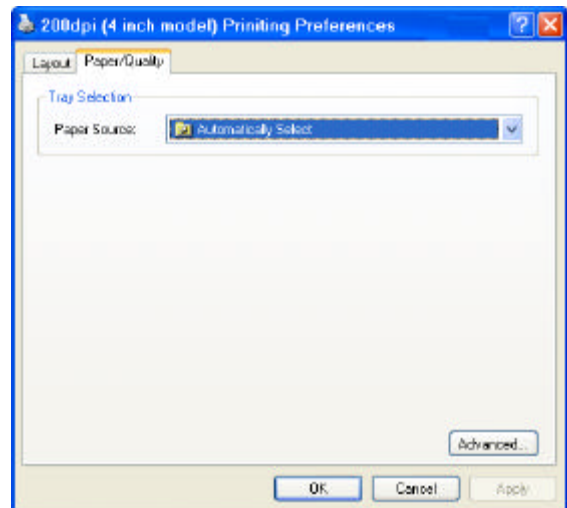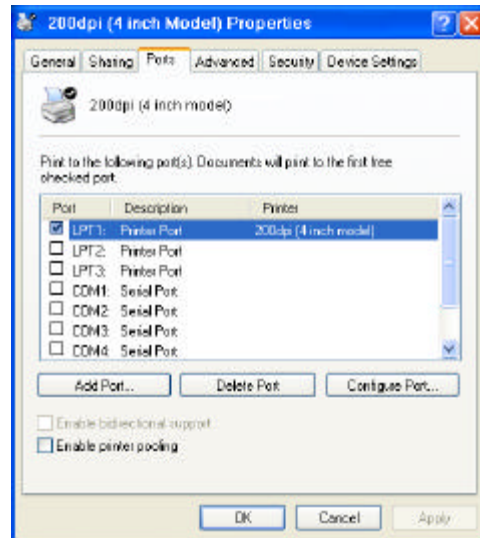
General Tab - Printing Preferences (continue)

➢ Advanced Options
    Paper size
    Copies
    Media choice (Accessory setting)
    Paper/Output (Speed)
    Print quality (Darkness)
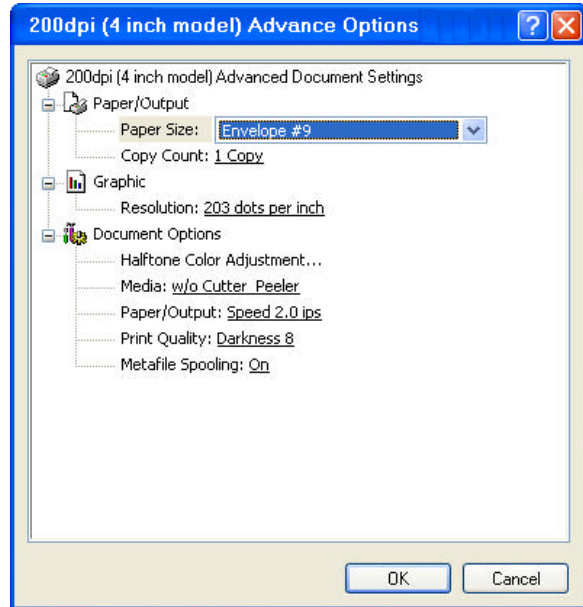
Creating a new label size

➢ Printer menu - Server Properties
➢ Enter a form name for the new form
➢ Modify the paper size in the specific squares of the "Form description"
➢ click "OK"
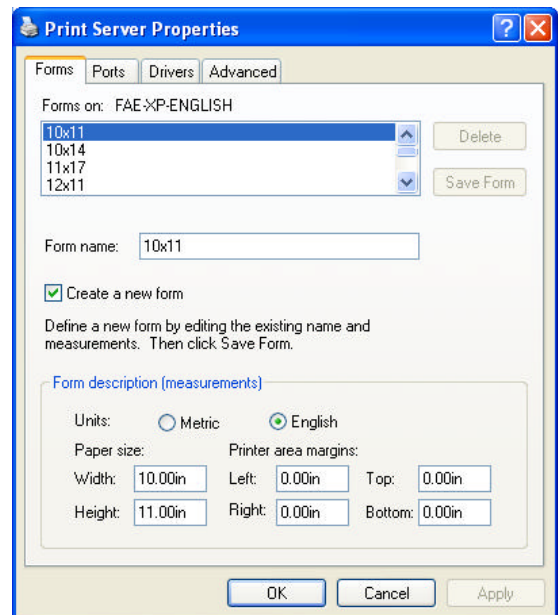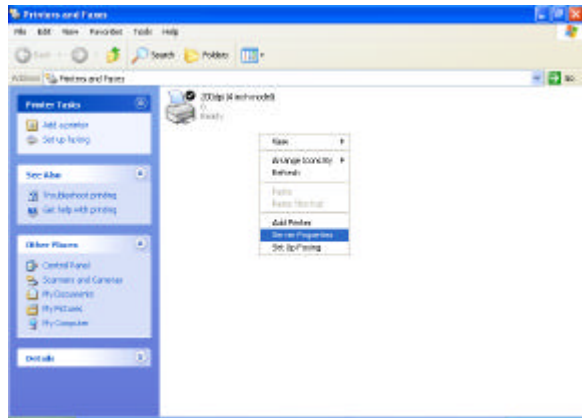
TROUBLESHOOTING AND MAINTENANCE

When the printer detects a malfunction or an abnormal condition occurs the READY LED will begin to blink. The printer will also stop printing and communication with the host will stop.

Check the following LED conditions when the READY LED is blinking.
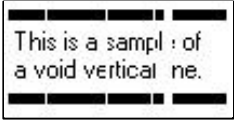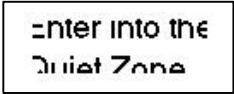
LED	Error Condition and possible Cause and Correction
❍ READY	**Blinking:** ➢ The format or baud rate of the RS232 protocol is incorrect between the printer and host. ➢ The cutter can not cut off the media, check the media and cutter. ➢ The printer buffer is full. Can be caused by the loaded soft fonts, graphics or forms.
❍ MEDIA	**Blinking:** Media Error. A reflective sensor under the media stock monitors the media. If the media sensor does not see the media stock or if the next Top-of-Label is not at the expected location or if the back of the media stock absorbs the reflection this error may occur. ➢ Typically a Media OUT has occurred. Install a new media. ➢ Verify that Media Sensor is in proper position. ➢ Verify that a foreign substance does not cover the Media Sensor slot. ➢ Verify that the media stock have dark information printed on the back. ➢ Calibrate the printer.
❍ RIBBON	**Blinking:** Ribbon error occurred. The printer monitors the motion of the Supply roll. If the printer is set for Thermal Transfer and the Supply Roll does not turn, then a ribbon error will occur. ➢ Typically the ribbon is out. Install a new ribbon. ➢ Ribbon has broken. Verify that the Heat and the Print Speed settings do not result in burning the ribbon in two. Also, very large black lines that are full length of the media may also cause the ribbon to separate. ➢ Does the Ribbon Supply and Ribbon Take-up Cores have notches on the left side of the core. If not then use the adapter cores. ➢ Verify that the ribbon is being pulled by the Take-up roll.

User Detected Errors

The following tables contain solutions other than user detected or visualized errors.

Description of Issue	Possible Cause	Possible Correcting Procedures
No power *or* LEDs are not ON	Printer not attached to a power source.	1. Verify Power Plug on back of printer is pushed firmly in. 2. Verify Power Adapter is connected to a known power source. 3. See Maintenance Manual for procedure of verifying and changing of the fuse.
	Power Switch is not in the on position.	1. Verify Switch is in the '1' position. 2. Toggle switch to verify both off and on conditions.
Media not feeding properly	Media Latches not closed.	1. Open the Top Cover. 2. Verify Media is installed according to the Loading Instructions. 3. Press firmly on the top of the Printhead Mechanism and verify the both the right and left latches are locked. 4. Close the Top Cover.
	Media not installed correctly	Verify Media is installed according to the Loading Instructions.
Media is drifting to the right as it comes out of the printer.	Media Guides not in the proper position.	1. Open the Top Cover. 2. Verify Media is installed according to the Loading Instructions. 3. Verify that the right Media is in the proper Position. The media needs to be snug between the left and right guides.
Text prints off the right of left side of the media	Improper loading of the stock.	1. Verify Media is installed under the media guides. 2. Verify that the right Media Guide is in the proper Position. The media needs to be snug between the left and right guides.
	Width of stock is incorrect.	1. Verify that the width of the stock matches that of previous roll. If not contact media supplier. 2. Verify that the label is centered properly on the backing of the stock. If not contact media supplier.
Printer feeds blank labels before printing	Media is not Calibrated	Run Media Calibration procedure
	Media not installed under Media Guides	1. Verify Media is installed under the media guides. 2. Verify that the right Media Guide is in the proper Position. The media needs to be snug between the left and right guides.
	Media Sensor not functioning	1. Turn off the printer and remove the media. 2. Using a Swab dipped in Alcohol clean the Media Sensor. See User's Manual for location of sensor.
	Backing of stock to dark for media sensor	Verify that the stock matches that of previous roll. If not contact media supplier.

Description of Issue	Possible Cause	Possible Correcting Procedures
LEDs indicate Media Out	Media Latches not closed. Or Media is too far from the Media Sensor to be detected.	1. Open the Top Cover. 2. Press firmly on the top of the Printhead Mechanism and verify the both the right and left latches are locked. 3. Close the Top Cover.
	Media Guide not in the proper position.	1. Verify Media is installed under the media guides. 2. Verify that the right Media Guide is in the proper Position. The media needs to be snug between the left and right guides.
	Media is not going **flat** across the sensor.	1. Verify Media is installed according to the Loading Instructions. 2. Verify that the right Media Guide is in the proper Position. The media needs to be snug between the left and right guides. 3. Rewind the Media stock onto the supply roll until stock is flat across the sensor.
	Media not Calibrated	1. Verify Media is installed according to the Loading Instructions. 2. Run the Calibration Procedure.
	Media Sensor needs to be cleaned	1. Turn off the printer and remove the media. 2. Using a Swab dipped in Alcohol clean the Media Sensor. See User's Manual for location of sensor.
Printer prints a label then continually feed labels through the printer.	Media is not Calibrated	Run Media Calibration procedure
	Media Sensor not functioning	1. Turn off the printer and remove the media. 2. Using a Swab dipped in Alcohol clean the Media Sensor. See User's Manual for location of sensor.
	Spacing between labels is incorrect or does not exist.	Verify that the stock matches that of previous roll. If not contact media supplier.
No print on Label	Media Stock incorrect	Verify stock type (Direct Thermal or Thermal Transfer) If Thermal Transfer Stock, add the appropriate Ribbon. To Verify stock is Direct Thermal material, heat the material. If the material turns color (Black) then stock is DT. If DT media verify that the correct side is next to the print head.
	Verify printer will do a Self Test	1. Power on the printer while holding the Feed button.
	Media installed incorrectly	Verify Media installation using the Loading Instructions.
	No communication with attached host.	1. Send Data from a host system. 2. If LED blinks the printed is physically connected by the cable. 3. Reset the Printer to Factory Defaults.
	Communication parameters incorrect.	Reset the Printer to Factory Defaults. Then verify host and printer communication parameters.

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Description of Issue	Possible Problem	Possible Correcting Procedures
Vertical Streaks on output	Dirty printhead	1. Turn off power and open the Top Cover and Printhead Mechanism. 2. Using an alcohol swab wipe the printhead. 3. Allow the alcohol dry, close the Printhead Mechanism, close the Top Cover and retry.
	Vertical line on all printed samples.	1. Verify line occurs after pressing the Feed Button. 2. Verify nothing in the paper path is causing the line. 3. If not, replace the Printhead. See Maintenance Manual for Procedure. 4. If replacing Printhead does not correct issue, replace PCB.
	Media Damage	Verify there are no nicks or burrs anywhere in the paper path such as a scratched rail and that the media is not creased.
Host indicates PRINTER TIME OUT	Communication cable not attached	Verify communication (Serial or Parallel) is attached to both printer and host.
	Printer not turned on	Verify Printer's power switch is in the on position and LEDs are on.
	Host transmitting out incorrect port.	Verify that host is transmitting out the correct port. Verify that Windows sending data to the proper location
Data is sent but no output.	Incorrect Windows Driver	Verify that the Application is communicating to the correct printer.
	Incorrect emulation installed in the printer	Verify the application is using PPLA, PPLB or PPLZ emulation. Verify the printer has the correct emulation installed. (Use Printer's Self test to verify). If available, put the printer into HEX mode to verify data is being sent to the printer.
Text cut off at top or bottom of the label.	Unprintable location on label.	Verify that area on label is printable.
	Text position too close to label's edge.	Text need to be at a minimum no closer than 0.1 (1/10th) of an inch to the edge of the label, often called the Quiet Zone. Adjust text to not print in the quiet zone around the label.
Poor Print Quality	Verify Media stock	1. Change Media with Stock from another unopened box. 2. Verify that Stock is Direct Thermal material.
	Verify Printhead Latches are closed.	1. Open Top cover 2. Press firmly on the Printhead Mechanism and verify that the right and left latches are locked.
	Other Possible Solutions	1. Verify type of media and ribbons are compatible. 2. Verify ribbon is not being used with direct thermal media. 3. Lower the print speed and adjust print darkness. 4. Verify print head is clean. 5. Verify platen roller is clean. 6. Verify media and ribbons are both loaded as described in media and ribbon loading sections. 7. Replace print head if print out continues to be streaked or missing and all of above does not resolve.

Peel and Present Sensing

Description of Issue	Possible Problem	Possible Correcting Procedures
Printer prints multiple labels before pausing	Top Cover is not closed.	Close Top Cover.
	Sensor is not working properly	1. Clean Present Sensor 2. Recalibrate the Present Sensor. See Maintenance Manual for procedure.
Printer does not Retract the label after it is taken.	Printed label has not been removed.	1. Remove previously printed label. 2. Open and close top cover. 3. If label retract, Clean the Present sensor or recalibrate the sensor.
	Label backing is not tight around the Peel Bar.	1. Properly install the media stock. 2. Make sure to rewind the stock onto the supply roll until the backing is tight around the peel bar.
Printer Retracts media only after top cover is lifted.	Sensor is in the incorrect position.	Verify that the sensor in pointing down to the media stock.
	Sensor is dirty.	1. Clean Present Sensor 2. Recalibrate the Present Sensor. See Maintenance Manual for procedure.
	Sensor is not plugged into main PCB	See Maintenance Manual for installation of Peel and Present option.
	Sensor is faulty.	Replace sensor and cable. See Maintenance Manual for Procedure.
Does not print the next label	Backing of the media is not tight across the Peel Bar.	1. Verify Media installation using the Loading Instructions. 2. Make sure following installation that the supply roll is rewound so that the media is not loose across the Peel Bar.
	Media not retracted and ready for next print and label is removed.	Open Top Cover. 1. If media reverse feeds and prints the next label, clean the present sensor. 2. The Present sensor is located on the top cover. With the Top Cover open, use a Swab dipped in Alcohol to clean the sensor. 3. Verify that the Sensor is pointing down to the paper.
	Printed label not removed.	1. If the previous label has been removed and the printer does not reverse, Open and close the top cover. 2. If label retract, Clean the Present sensor or recalibrate the sensor. 3. If calibrating the Present Sensor does not correct the problem, then printer may need to be serviced.

Preventive Maintenance

Before performing any Preventive Maintenance be sure to turn off the printer's power and unplug the power cable.

Cleaning the Thermal Print Head (TPH)

It is recommended at a minimum that the Print Head should be cleaned:

- Each time a Ribbon is changed.
- Each time a new roll of media is installed.

1. Turn off the printer, open the top cover, and if installed remove the ribbon.

2. Lift the print head module to the vertical position.

3. Rub the print head with a piece of cotton, which has been moistened with Isopropyl Alcohol, or use a thermal head-cleaning pen. The Cleaning Location is a Glass Area just below the Metal edge.

4. Check for any traces of discoloration or adhesive on the cotton after cleaning.

5. Repeat if necessary until the cotton is clean, after it is passed over the print head.
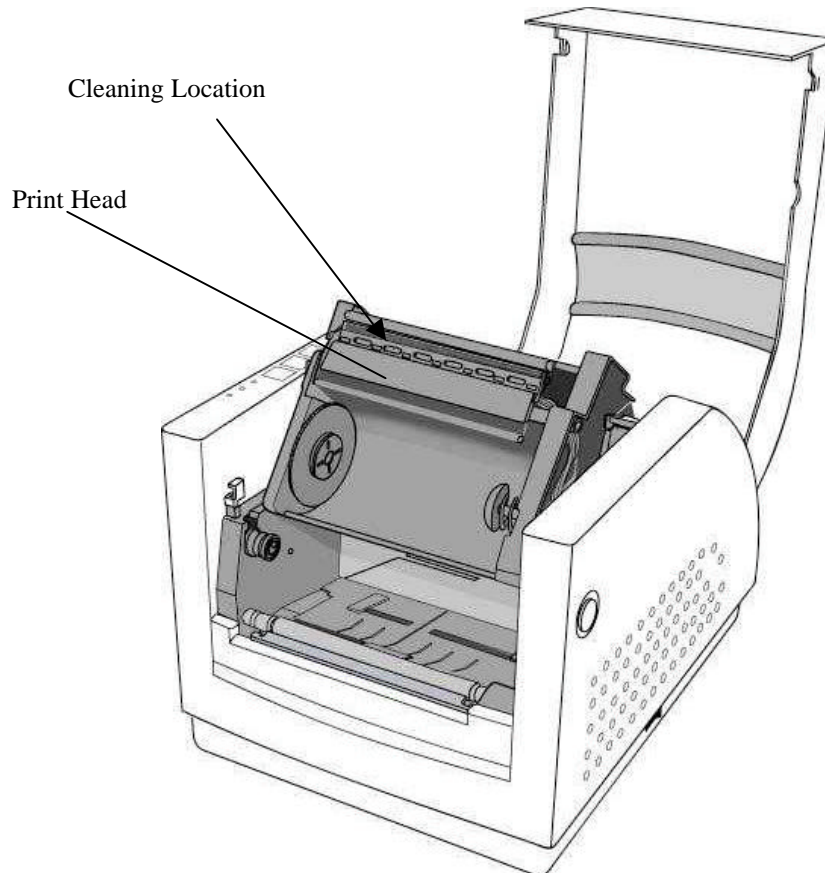
Figure 35 – Print Head Location

Note: The print head should be cleaned at least every time the ribbon is replaced and more often depending on actual usage and conditions.

Cleaning the Platen Roller

It is recommended that the platen roller should be cleaned when:

- Excessive dusty condition exists.
- Following a media jam where the adhesive comes in contact with it.
- Because of the squeezing process of feeding the media the roller can become sticky from the adhesive being pressed out from behind the label.

1. Turn off the printer and open the top cover.
2. Lift the print head module to the vertical position.
3. Rub the full length of the platen available with a piece of cotton, which has been moistened with Isopropyl Alcohol.
4. Manually rotate the platen and repeat step 3 until the entire platen has been cleaned.

Cleaning the paper sensor

It is recommended that the Paper Sensor be cleaned regularly if exposed to a dusty environment. This will prevent false paper OUT or paper IN conditions.

1. Turn off the printer and open the top cover.
2. Remove paper dust by blowing using compressed air or vacuuming.
3. Clean the two Paper Sensor LED's with cotton stick, which has been moistened with Isopropyl Alcohol. Sensor is located in the small slot that is movable from side to side.

Media Sensor
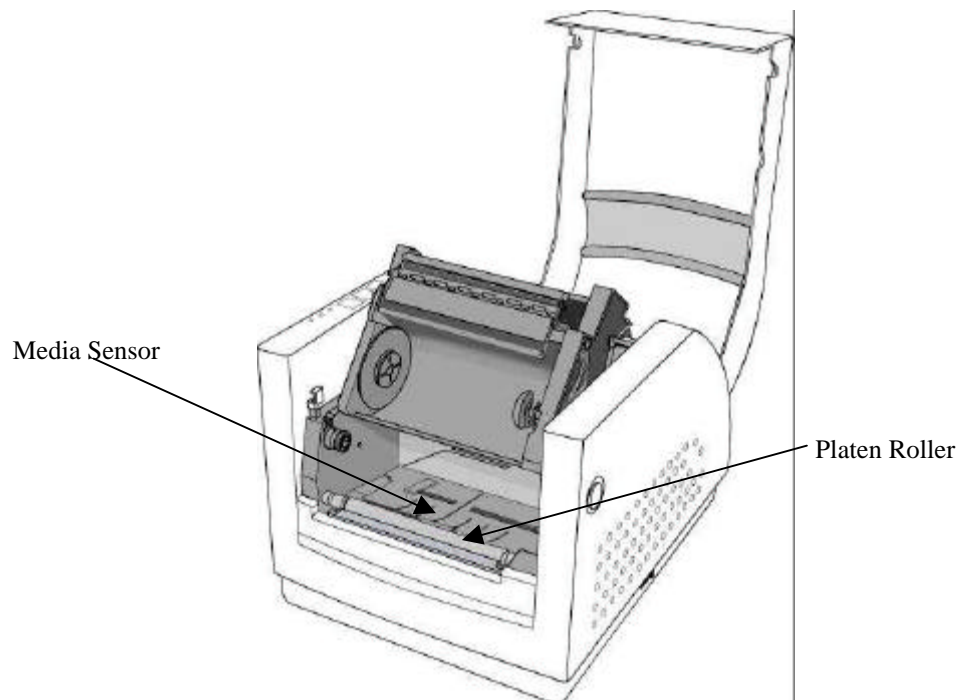
Platen Roller

Figure 36 – Platen Roller and Media Sensor

Note: The roller should be cleaned whenever it has been in contact with foreign materials such as dust or adhesives

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Cleaning the Paper Compartment

It is recommended that the Paper Compartment be cleaned regularly if exposed to a dusty environment. This will keep dirt and dust from contaminating or damaging your printer (Print Head and Platen).

1. Turn off the printer and open the top cover.

2. Remove paper dust by blowing using compressed air or vacuuming.

3. Clean the paper compartment with cotton, which has been moistened with mild detergent.

Appendix A: General Specifications

Specifications	Fastmark 602 and 612	Fastmark 603
Printing method	Direct thermal or Thermal Transfer	
Printing resolution	203 dpi (8 dots/mm)	300 dpi (12 dots/mm)
Printing speed	2 ~ 6 ips (51~150 mm/s)	2 ~ 4 ips (51~ 102 mm/s)
Printing length	0.4" ~ 43" (10 mm ~ 1092 mm)	0.4" ~ 14" (10 mm ~ 355.6 mm)
Printing width	Max 4" (101.6 mm)	Max 4" (101.6 mm)
Memory	2MB DRAM 1MB Flash ROM	
CPU type	32 bit RISC microprocessor	
Media sensor	Reflective (Movable)	
Display	Three LED indicators	
Operation interface	Three Buttons	
Communication interfaces	Centronics parallel RS-232 serial	
Fonts (Emulation Dependent)	Int'l character sets standard 5 alpha-numeric fonts from .049"~ .23"H (1.25mm~6.0mm) All fonts are expandable up to 24x 24 4 direction 0º~270º rotation Soft fonts are downloadable	
2D Barcodes	Maxicode, PDF-417, Data Matrix	
Graphic	PCX bit map, GDI graphics	
Software (Emulation)	PPLA or PPLB Language PPLZ (FM612 only) Windows Driver (Win 98/2000/NT/XP) Label editing software – Xbar Lite	
Media	Roll-feed, die-cut, continuous, fan-fold, tags, ticket in thermal paper or plain paper and fabric label Max width 4.3" (110 mm) Min width 0.6" (15 mm) Thickness .0025"~. 01" (.0635mm ~. 254mm) Max roll capacity 6" (OD 152 mm) Core size 1" (ID 25mm) (3" ID Core can be used with media core adapter)	
Ribbon	Wax, Wax/Resin, Resin (inside costing) Ribbon width – 4" (smaller widths can be used with Ribbon Core adapter) Ribbon roll – max 2.67" (OD 68 mm) Ribbon length – re-sin 300 m , wax 360 m (OD 68 m) Core size - ID 1" core (25 mm)	
Mechanism information	Built-in Tear off bar, front-open cover, clear window, fan fold paper slot, wound-in ribbon, TPH carrier not adjustable.	
Weight	9.3 lbs (4.2 kgs)	
Power source	Auto Sensing Power supply (90 ~ 250 VAC)	
Agency listing	CE, UL, CUL, FCC class A, CCC	
Operation environment	40ºF ~ 100ºF (4ºC~38ºC) 10~90% non condensing	
Optional items	Cutter, Dispenser kit, Real time clock card	

Note: Fonts, Graphics, Character sets and Barcodes will differ between PPLA, PPLB and PPLZ emulations.

Appendix B: INTERFACE SPECIFICATIONS

This appendix presents the serial and parallel interface specifications. These specifications include pin assignments, protocols and detailed information about how to properly interface your printer with your host or terminal. The Serial ports Communication protocol can only be changed through the installed emulation.

Serial Interface

Pin Configuration

The RS-232 serial interface uses a female, DB-9 connector.

Pin	Direction	Definition
1	Tied to in 6	Not used
2	In	Receive Data (RxData)
3	Out	Transmit Data (TxData)
4	-	No connection
5	-	Logic Ground
6	Tied to pin 1	Not used
7	Out	Request to Send (RTS)
8	In	Clear to Send (CTS)
9	Out	+5V

*Note: Pin 9 is reserved for Keyboard Device Unit (KDU) only, **do not connect** this pin if you are using a general host like a PC.*

Connection With Host

Host 25S		Printer 9P	Host 9S		Printer 9P
(PC or compatible)			(PC or compatible)		
DTR 20	………	1 DSR	DTR 4	………	1 DSR
DSR 6	………	6 DTR	DSR 6	………	6 DTR
TX 2	………	2 RX	TX 3	………	2 RX
RX 3	………	3 TX	RX 2	………	3 TX
CTS 5	………	7 RTS	CTS 8	………	7 RTS
RTS 4	………	8 CTR	RTS 7	………	8 CTS
GND 7	………	5 GND	GND 5	………	5 GND

Three Wire Connection

This method is the simplest method of connecting the printer to a host or terminal. This method requires Software Protocol Handshaking (XON/XOFF flow control).

Host 25S		Printer 9P	Host 9S		Printer 9P
(PC or compatible)			(PC or compatible)		
TX 2	………..	2 RX	TX 3	………..	2 RX
RX 3	………..	3 TX	RX 2	………..	3 TX
GND 7	………..	5 GND	GND 5 ………..		5 GND
pin 4			pin 4		
pin 5			Pin 6		
pin 6			Pin 7		
pin 20			Pin 8		

The simplest way to connect to other hosts (not PC compatible) or terminals is:

Printer		Terminal/Host
Pin 2- RxData	………	TxData
Pin 3- TxData	………	RxData
Pin 5- Ground	………	Ground

In general as long as the data quantity is not too large or you use Xon/Xoff as flow control, there will be no problem at all.

Baud rate: 600, 1200, 2400, 4800, 9600, 19200 and 38400.

Data format: always 7 or 8 data bits; 1,2 stop bit.

Parity : none, even, odd parity.

Handshaking : XON/XOFF as well as CTS/RTS (hardware flow control).

Parallel (Centronics) Interface

The parallel port uses a standard 36-pin Centronics connector.

Pin	Direction	Definition	Pin	Direction	Definition
1	In	/STROBE	13	Out	SELECT
2	In	Data 1	14,15		NC
3	In	Data 2	16	-	Ground
4	In	Data 3	17	-	Ground
5	In	Data 4	18		NC
6	In	Data 5	19 to 30	-	Ground
7	In	Data 6	31		NC
8	In	Data 7	32	Out	/Fault
9	In	Data 8	33 to 36	-	NC
10	Out	/ACK			
11	Out	BUSY			
12	Out	PE			

Appendix C: ASCII TABLE

The following table may be used to determine HEX values of ASCII characters. For example the character A is hex 41 commonly shown as 0x41H.

	0	1	2	3	4	5	6	7
0	NUL			0	@	P	`	P
1	SOH	XON	!	1	A	Q	a	Q
2	STX		"	2	B	R	b	R
3		XOFF	#	3	C	S	c	S
4			$	4	D	T	d	T
5		NAK	%	5	E	U	e	U
6	ACK		&	6	F	V	f	V
7	BEL		'	7	G	W	g	W
8	BS		(	8	H	X	h	X
9			)	9	I	Y	i	Y
A	LF		*	:	J	Z	j	Z
B		ESC	+	;	K	[	k	{
C	FF		,	<	L	\	l	|
D	CR		-	=	M	]	m	}
E	SO	RS	.	>	N	^	n	~
F	SI	US	/	?	O	_	o	DEL

Appendix D: Fonts, Bar Codes and Graphics

The specifications of fonts, bar codes and graphics depend on the printer emulation. The emulation is a printer programming language, through which the host can communicate with your printer.

Printer Programming Language A, PPLA

Specification	203dpi Printers	300dpi Printers
General fonts	7 alpha-numeric fonts, OCR A and OCR B	
ASD smooth fonts	6, 8, 10, 12, 14 and 18 points	4, 6, 8, 10, 12, 14, and 18 points
Symbol sets for smooth fonts	USASCII, UK, German, French, Italian, Spanish, Swedish, and Danish/Norwegian	
Courier fonts	8 symbol sets (PC, PC-A, PC-B, EAMA-94, Roman , Legal, Greek and Russian)	
Soft fonts	Downloadable PCL fonts	
Font expandability	1x1 to 24x24	
Bar code types	Code 39, Code 93, Code 128/subset A,B,C, Codabar, Interleave 2 of 5, UPC A/E/2 and 5 add-on, EAN-8/13, UCC/EAN-128, Postnet, Plessey, HBIC, Telepen and FIM. MaxiCode PDF417 and DataMatrix (2D symbologies).	
Graphics	PCX, BMP, IMG and HEX formats	
Stand-alone operation without host	Fastkey	

Notes: As the font board and flash modules use the same connector they cannot function simultaneously.

PPLA Emulation Printer Control commands

See Programmer's Manual for more details.

Interactive Commands

These commands expect a printer response or action

Interactive Commands	
Command	Description
<SOH>#	Resets the printer
<SOH>A	Requests a printer status from printer
<SOH>B	Toggles pause status
<SOH>D	Disable the interaction command
<SOH>E	Requests a status of how many labels are queued
<SOH>F	Requests a 1 byte status report

Printer Editing Commands

These commands are saved into the EEPROM

<STX>KI7*n*	Sets Media Type (DT/TT)
<STX>KI8*n*	Sets Baud Rate
<STX>KI9*bdpt*	Sets Baud Rate, Databits, parity, stop bits
<STX>KI<*m*	Sets symbol set for smooth fonts
<STX>KIX*nnnn*	Sets label length for continuous label
<STX>KI0*n*	Sets cut mode
<STX>KI5*nn*	Sets the gap distance
<STX>KI;*n*	Sets control code set
<ESC>KI;*n*	Sets offset value for cutting or peeling
<ESC>KI:*n*	Sets horizontal shift position
<ESC>@0	Clears Flash memory

Printer System Level Commands

These commands will not be saved into the EEPROM

<STX>A*wmmddyyyyhhMMjj*	Sets date and time into the RTC
<STX>a	Requests a <RS> following printing of a label
<STX>c*nnnn*	Sets continuous label length
<STX>D*nnnnnnn*	Clears the memory contents
<STX>E*nnnn*	Sets copy count
<STX>e	Select Gap Media sensing
<STX>f*nnn*	Sets present position and automatic backfeeding
<STX>G	Prints Stored Label format
<STX>I*mbfnnn...n*	Downloads a graphic file
<STX>J	Will cause the printer to pause between each label (Press Feed key to print next label.)
<STX>j	Cancels the pause condition (<STX J>) command
<STX>KQ	Inquires printer memory configuration
<STX>L	Enters label formatting mode
<STX>M*nnnn*	Sets Maximum label length
<STX>m	Sets unit of measure to metric
<STX>n	Sets unit of measure to inches
<STX>O*nnnn*	Sets start print position
<STX>P	Enters in to printer's HEX mode
<STX>Q	Clears memory (Ram and Flash)
<STX>q*n*	Clears memory module
<STX>r	Sets reflective sensor for Gap mode
<STX>S*n*	Sets label feed rate
<STX>T	Prints test pattern
<STX>U*nncccc*	Replaces the data of a specified field
<STX>V*n*	Sets cutter and Peeler modes
<STX>v	Inquires printer version
<STX>W*n*	Inquires the graphics/fonts and memory status
<STX>x*mtn…n*	Deletes file form memory

Label Formatting commands

These commands are used to format the printed label.

:*nnnn*	Sets cut amount (see c*nn* command)
A*n*	Sets logical image printing mode
C*nnnn*	Sets left margin
c*nn*	Sets cut amount (valid with cutter is installed)
D*wh*	Sets width and height pixel size
E	Ends job and exits Label Formatting mode
G	Stores previous data to global register
<STX>S*n*	Retrieves the global register contents
H*nn*	Sets heat value
M	Toggles the mirror mode
m	Sets unit of measure to metric
n	Sets unit of measure to inches
P*n*	Sets print speed
Q*nnnn*	Sets the quantity of labels to print
R*nnnn*	Sets vertical offset
r*mnn..nn*	Retrieves label data from printer buffer
s*mnn..nn*	stores label data to printer buffer
T*nn*	sets end-of-line code
z	Toggles slash zero to normal zero
+*nn*	Makes auto increment for numeric
>*nn*	Makes auto increment for alphanumeric
-*nn*	Makes auto decrement for numeric
^*nn*	Sets count amount
<STX>T*<string>*	Prints date and time

Image Editing Commands

Rthvoooyyyyxxxx[data string]	Text (t - font type)
Rthvoooyyyyxxxx[data string]	Barcode (t- barcode type)
*RX11000yyyyxxxx*L*aaabbb*	Line drawing
*RX11000yyyyxxxx*l*aaabbb*	Line drawing
*RX11000yyyyxxxx*B*aaabbbtttsss*	Box Drawing
*RX11000yyyyxxxx*b*aaabbbtttsss*	Box Drawing
1Y11000*yyyyxxxxnn...nn*	Graphics

Font Downloading command

<ESC>*c###D	Assigns soft font ID number
<ESC>)s###W	Downloads font descriptor
<ESC>*c###E	Sets character code
<ESC>(s###W	Downloads character descriptor and image

Printer Programming Language B, PPLB

Specification	
General fonts	5 fonts with different point sizes
Symbol sets (Code pages)	8 bits: code page 437, 850, 852, 860, 863 and 865. 7 bits: USA, British, German, French, Danish, Italian, Spanish, Swedish and Swiss.
Soft fonts	Downloadable soft fonts
Font expandability	1x1 to 24x24
Bar code types	Code 39(checksum), Code 93, Code 128/subset A, B, C, Codabar, Interleave 2 of 5(checksum), Matrix 25, UPC A/E 2 and 5 add-on, EAN-8/13, Code 128UCC, UCC/EAN, Postnet, German Postcode. MaxiCode and PDF417 (2D symbologies).
Graphics	PCX and binary raster
Stand-alone operation without host	Fastkey

Notes: As the font board and flash modules use the same connector they cannot function simultaneously.

PPLB Emulation Printer Control commands

See Programmer's Manual for more details.

Note: Each command has to end in a Line Feed

Command	Description
A*p1,p2,p3,p4,p5,p6,p7,"DATA"*	Prints Text
A*p1,p2,p3,p4,p5,p6,p7,***Cn**	Prints Text Counter String (See Command C)
A*p1,p2,p3,p4,p5,p6,p7,***Vn**	Prints Text Variable String (See Command V)
A*p1,p2,p3,p4,p5,p6,p7,"DATA"***Cn**	Prints Text Data with a Counter String (See Command C)
A*p1,p2,p3,p4,p5,p6,p7,"DATA"***Vn**	Prints Text Data with a Variable String (See Command V)
B*p1,p2,p3,p4,p5,p6,p7,p8,"DATA"*	Prints Barcode Data
B*p1,p2,p3,p4,p5,p6,p7,p8,***Cn**	Prints Barcode Counter String (See Command C)
B*p1,p2,p3,p4,p5,p6,p7,p8,***Vn**	Prints Barcode Variable String (See Command V)
B*p1,p2,p3,p4,p5,p6,p7,p8,"DATA"***Cn**	Prints Barcode Data with a Counter String (See Command C)
B*p1,p2,p3,p4,p5,p6,p7,p8"DATA"***Vn**	Prints Barcode Data with a Variable String (See Command V)
bp1,p2,p3,[specific parameters and data]	Prints 2D barcode
C*p1,p2,p3,p4,***"MSG"**	Defines Counter
D*p1*	Sets Darkness (heat setting)
EI	Prints soft font list
EK*"ID"*	Deletes soft font
ES*"ID"..<font data>..*	Downloads soft font
FE	Ends forms storage
FI	Prints forms list
FK*"ID"*	Deletes Stored Form
FR*"ID"*	Retrives stored form

PPLB continued

Command	Description
FS*"ID"*	Stores form
GG*p1,p2"ID"*	Prints Graphic
GI	Prints Graphics list
GK*"ID"*	Deletes Stored Graphic
GM*"ID"p1*	Stores Graphic
GW*p1,p2,p3,p4,[raster image]*	Prints Graphic immediately
I*p1,p2,p3*	Selects symbol set
JB	Disables Back feed
JF	Enables Back feed
LE*p1,p2,p3,p4*	Line Draw by Exclusive OR operation
LO*p1,p2,p3,p4*	Line Draw by OR operation
LW*p1,p2,p3,p5*	Draws white line
N	Clear Image Buffer
O*p1*	Select Options (DT, Cutter, Peeler)
P*p1,p2*	Prints a Label
PA	Prints Automatically
Q*p1,p2*	Sets Label and Gap length
q*p1*	Sets Label width
R*p1,p2*	Set Origin location
S*p1*	Sets Print Speed
TD*[p1][p2][p3]*	Defines date format
TT*[p1][p2][p3]*	Defines Time format
TS*p1,p2,p3,p4,p5,p6*	Sets Real Time Clock
U	Prints Configuration
UN	Disables Error Reporting
US	Enables Error Reporting
V*p1,p2,p3,p4,***"MSG"**	Defines Variable Data
X*p1,p2,p3,p4,p5*	Draws a box
Y*p1,p2,p3,p4*	Sets Serial port
Z*p1*	Sets Print Direction
ZN	Disables Flash Memory
ZS	Enables Flash Memory
?	Downloads Variables and counters
d0,1	Enables Euro character
d0,0	Disables Euro character
d5,0	Cutter with backfeed
d5,1	cutter without backfeed
<ESC>KX*nnnn*	Label length of continuous labels
<ESC>KI;*nnnn*	Cut and Peeler position
<ESC>@0	Clears flash memory

Appendix E: Parts Lists and Mechanical Drawings

ITEM	PART NO.	DESCRIPTION	QTY	DETAIL
1	90.R4002.001	COVER MODULE	1	B
2	39.R4002.003	MIDCOVER	1	B
3	39.R4004.004	BOTTOM USB	1	D
4	90.R4001.005	CHASSIS MODULE	1	C
5	90.R4003.007	CHASSIS2 MODULE V7	1	D
6	42.R4004.003	PAPER-GUIDE (R) V3	1	D
7	42.R4003.003	PAPER-GUIDE (L) V3	1	D
8	32.R4004.001	GEAR 33T	3	D
9	35.R4004.003	SHAFT -FIBER	2	C,D
10	34.R4004.001	BUSH 4	4	D
11	42.R4010.001	BUSH-RIBBON	1	D
12	47.R4001.001	FIBER	4	D
13	40.R4005.001	PL ATE -FIBER	1	D
14	34.R4010.002	SPRING-FIBER2	1	D
15	42.R4011.001	BUSH-RIBBON	2	D
16	34.R4007.002	SPRTNG-RIBBON2	1	D
17	34.R4009.002	SPRTNG-FIBER1	1	D
18	33.R4010.001	BRACKET -SPRING	1	D
19	34.R4001.001	BUSH 1	4	D
20	47.A2008.011	RUBBER- USB (BLACK)	1	D
21	32.R4003.001	GEAR 66 T	1	D
22	33.R4009.001	BRACKET-FIBER	1	D
23	33.R4001.001	BRACKET -GEAR1	1	D
24	32.R4005.001	GEAR 46T	1	D

ITEM	PART NO.	DESCRIPTION	QTY	DETAIL
25	59.R4003.001	CORE ADAPTER (RIBBON) 2	2	B
26	110478.1	KIT, PLATEN ROLLER	1	D
27	32.21406.003	GEAR 42T	2	C,D
28	34.R4003.001	BUSH 2	1	D
29	34.21408.001	RUBBER FOOT	4	D
30	110478.4	KIT, STEPPING MOTOR	1	D
31	32.R4002.001	GEAR 20X39T	1	D
32	32.21407.001	GEAR 66X 17T	1	C
33	33.R4016.003	SPRING-TOPCOVER	1	D
34	42.R4012.004	PAPER-SENSOR	1	D
35	32.R4007.001	PL ASTIC GEAR	1	D
36	33.R4002.002	BRACKET-GEAR2	1	C
37	33.R4004.003	BRACKET-SWITCH (L)	1	C
38	34.R4016.001	SPRING-BUTTON (L)	1	C
39	33.R4007.001	BRACKET -SHAFT (L)	1	C
40	34.R4012.001	SPRING-CHASSIS (L)	1	C
41	42.R4005.001	BUTTON-CHASSSI	2	C
42	35.R4001.001	SHAFT -HOLDER1	1	C
43	42.R4001.001	HOLDER-RIB	2	C
44	88.21131.409	WASHER (SW)	4	C
45	42.R4002.002	HOLDER-RIB2 V2	2	C
46	34.R4006.003	SPRING-RIBBON V3	2	C
47	35.R4003.001	SHAFT-HOLDER3	2	C
48	34.R4013.001	SPRING-CHASSIS (R)	1	C

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ITEM	PART NO.	DESCRIPTION	QTY	FIGURE
49	35.R4008.002	SHAFT2-CHASSIS	1	C
50	32.R4006.001	GEAR 48T	1	C
51	33.R4005.002	BRACKET-SWITCH (R)	1	C
52	34.R4017.001	SPRING-BUTTON (R)	1	C
53	33.R4008.001	BRACKET-SHAFT (R)	1	C
54	34.R4011.004	SPRING-TPH	2	C
55	33.R4003.007	BRACKET-TPH V7	1	C
56	110478.2	KIT, 200 DPI PRINTHEAD	1	C
	110478.3	KIT, 300 DPI PRINTHEAD	1	
57	110478.7	KIT, RIBBON SENSOR	1	D
58	33.R4011.003	COVER-TPH	1	C
59	35.R6001.001	SHAFT-TPH (L)	1	C
60	35.R4007.002	SHAFT1-CHASSIS	1	C
61	39.R4003.001	COVER-A	1	B
62	110948	GUIDE, MEDIA SUPPLY	2	B
63	110947	SPINDLE, MEDIA SUPPLY	1	B
64	34.R6001.001	SPRING-SHAFT (R)	1	C
65	35.R6002.001	SHAFT-TPH (R)	1	C
67	42.R4007.002	BUTTON-TOP (R)	1	B
68	42.R4006.002	BUTTON-TOP (L)	1	B
69	42.R4008.001	BUTTON (3-KEY)	1	B
70	55.R4001.011	PANEL BOARD	1	B
71	33.R4006.001	BRACKET-PEELER	1	D
72	33.R4014.002	BRACKET-CONNECTOR	1	D

ITEM	PART NO.	DESCRIPTION	QTY	DETAIL
73	38.05008.001	SPACE-SUPPORT	1	D
74	55.R4005.002	CONNECT-PCB V2	1	D
75	110478.8	KIT, PAPER SENSOR	1	D
76	33.R4012.001	BRACKET -COVER1	1	D
77	32.R4001.001	GEAR 20X26T	1	D
78	42.R4014.001	RACK2-PAPER	2	D
79	33.R4015.001	SPRING-RACK2	1	D
80	33.R4013.001	BRACKET-COVER2	1	D
81	110478.5	KIT, MAIN PCB FM612	1	D
	110478.6	KIT, MAIN PCB FM602/603	1	
82	98.R4003.002	R400 SWITCHING POWER	1	D
83	34.R4015.001	SPRING-PEELER (R)	1	NOT SHOWN
84	34.R4014.001	SPRING-PEELER (L)	1	NOT SHOWN
85	42.R4019.001	PEELER-SWITCH (R)	1	NOT SHOWN
86	35.R4005.002	SHAFT-PEELER V2	1	NOT SHOWN
87	35.R4006.001	SHAFT-PEELER2	1	NOT SHOWN
88	42.R4017.001	PEELER-SWITCH (L1)	1	NOT SHOWN
89	42.R4018.001	PEELER-SWITCH (L2)	1	NOT SHOWN
90	39.R4007.002	PEELER-COVER	1	NOT SHOWN
91	55.R4004.001	PEELER-SENSOR	1	NOT SHOWN
92	33.20070.003	SPRING-RIBBON	4	NOT SHOWN
93	32.R6001.001	GEAR 22X33T	1	D
94	47.R4004.001	WASHER-SPRING	1	D

ITEM	PART NO.	DESCRIPTION	QTY	DETAIL
95	47.R4005.001	WASHER2	2	C
96	33.R4020.001	BRACKET -SPRING2	1	D
97	42.R4023.001	BUSH-RIBBON	1	D
98	33.R4019.001	BRACKET-ADJ	1	C
99	35.R4001.002	SHAFT-HOLDER1 V2	1	C
100	88.12301.C06	WASHER-SPRING	2	C
A	86.1A324.4R0	SCREW M3X4 BLACK	6	C,D
B	86.VA824.4R0	SCREW T3X4 BLACK	13	C,D
C	86.VA324.6R0	SCREW T3X6 BLACK	27	C,D
D	86.AA324.6R0	SCREW I3X6 (T) BLACK	7	C,D
E	86.5A524.5R0	FLAT HEAD	4	C
F	86.VG524.6R0	SCREW T3X6 WASHER	2	D
G	86.1A324.6R0	SCREW M3X6 BLACK	1	D
H	88.81241.806	E -RING #5	5	C,D
I	88.81241.606	E -RING #3	14	C,D
J	88.81241.A08	E -RING #6	2	C
K	88.81241.406	E -RING #4	2	C
L	86.VA324.8R0	SCREW T3X8	6	D
M	86.VA424.370	SCREW T3X37	2	NOT SHOWN
N	86.1A522.2R0	SCREW M2X2 NI	2	NOT SHOWN
O	86.AA522.6R0	SCREW T2X6	4	NOT SHOWN
P	86.1A524.8R0	SCREW M3X8 NI	1	C
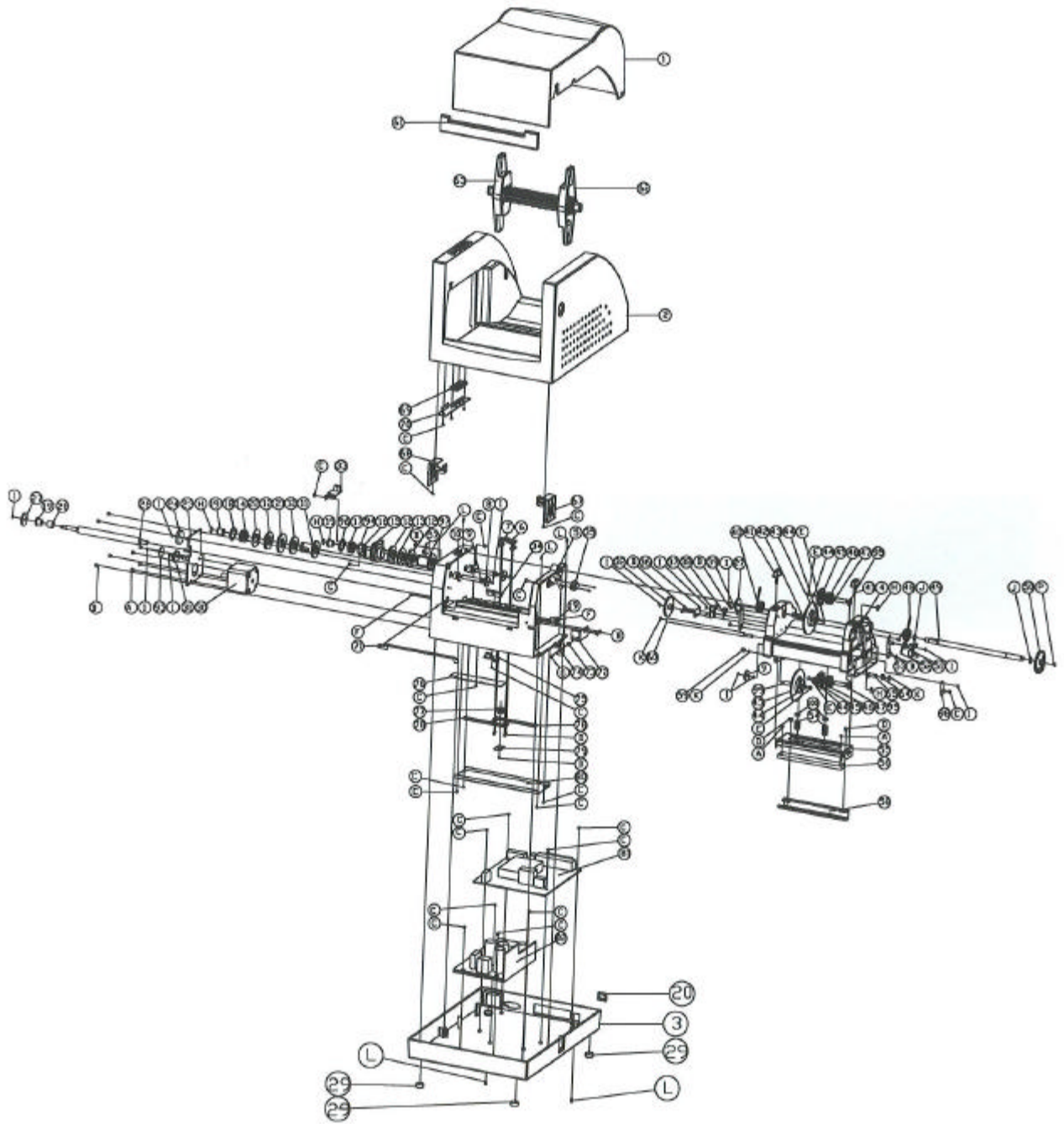
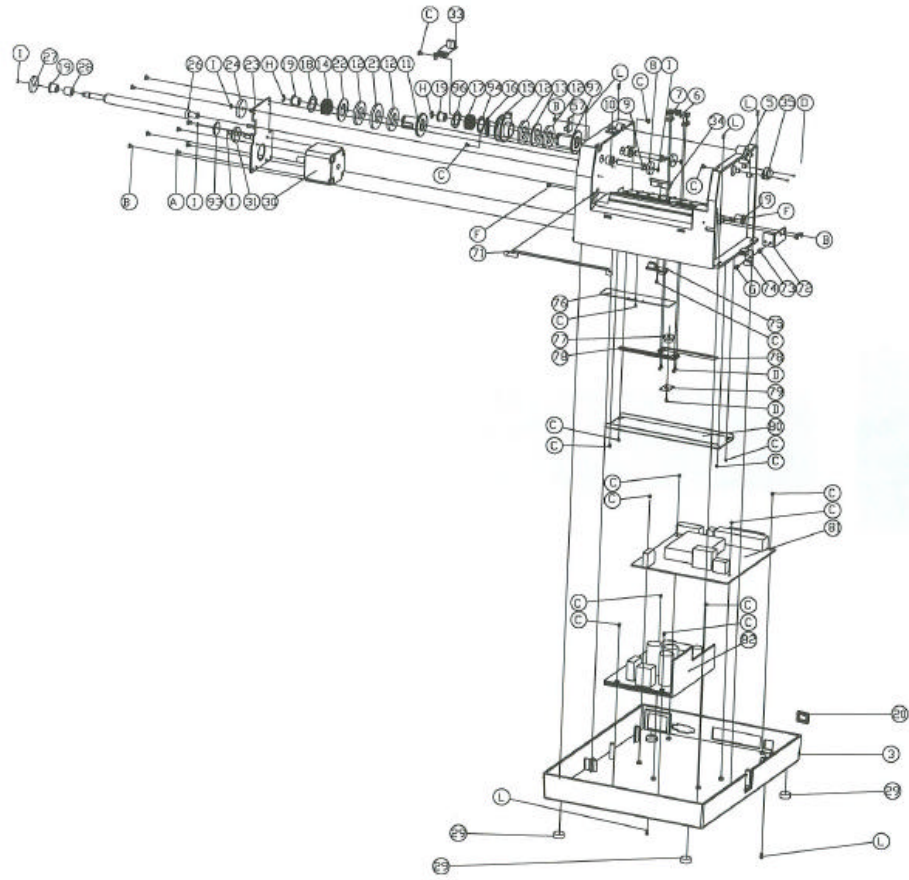**Detail A**
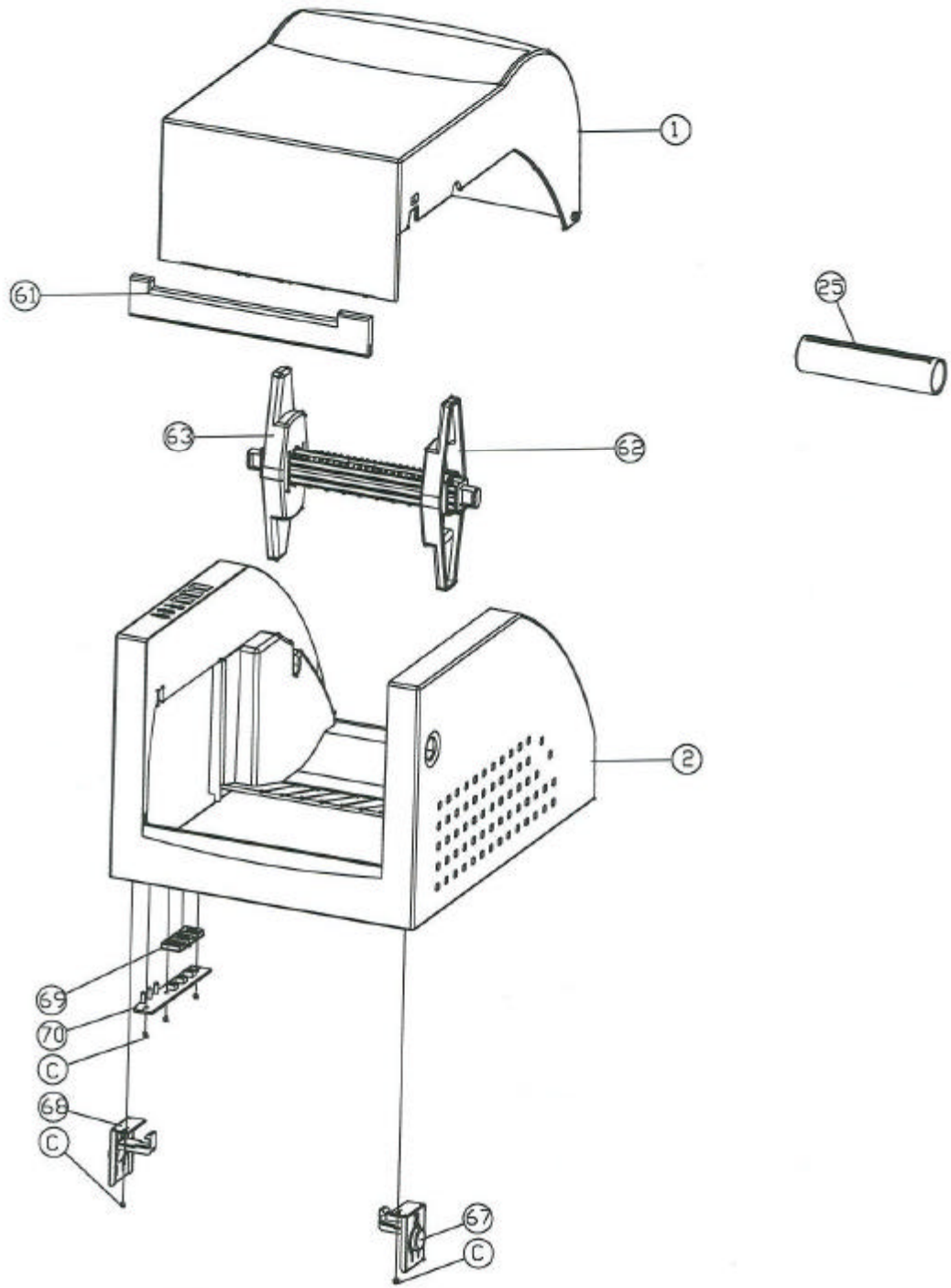
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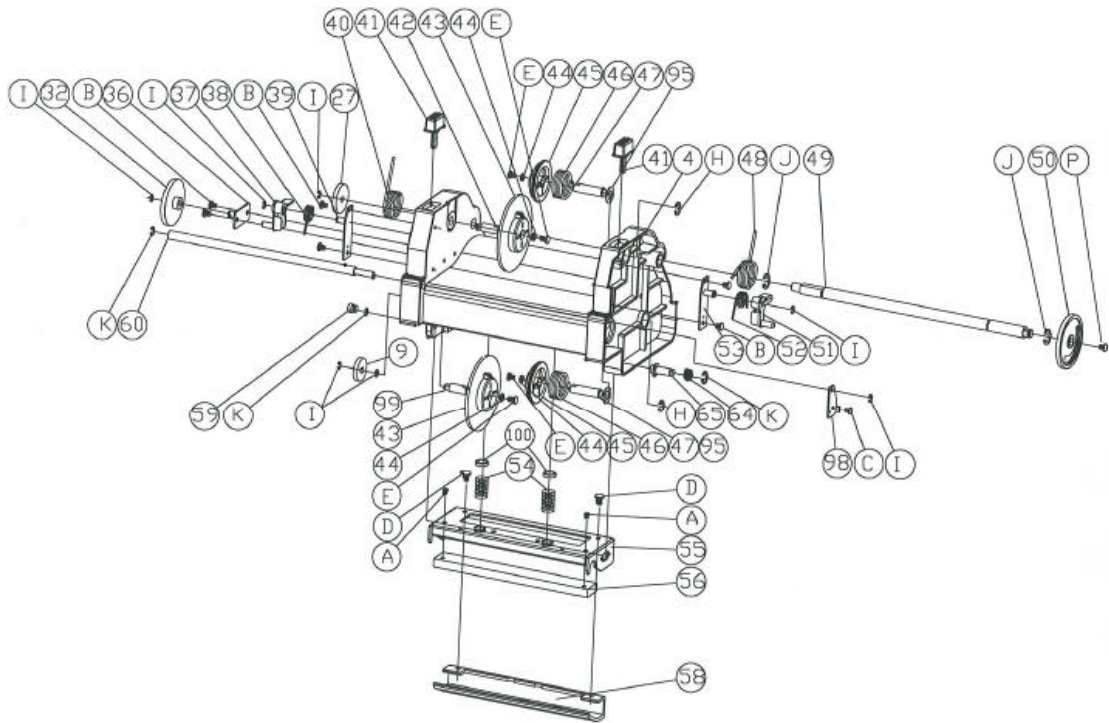
Detail C

Detail D

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