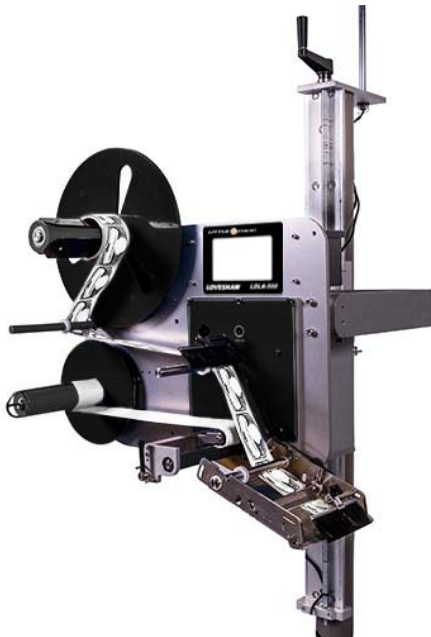


LOVESHAW

Operations Manual

Little David Apply Only Label Applicator



LDLA-500

PN: LDLA-500/M
Revision B

Label Applicator Operations Manual

**LDLA-500
Revision B**

LOVESHAW

The information contained in this manual is correct and accurate at the time of its publication. The manufacturer reserves the right to change or alter any information or technical specifications at any time and without notice.

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Label Applicator

Warranty:

The Label Applicator, including all components unless otherwise specified, carries a limited warranty.

For all warranty terms and conditions, contact the manufacturer for a complete copy of the Limited Warranty Statement.

The Warranty Statement can be found at our web site: www.loveshaw.com

Label Applicator

Section 1: Safety	1
Section 2: Quick Start	3
Step 1: System Orientation.....	4
Step 2: System Alignment.....	6
Step 3: Position Product Detector	7
Step 4: Load Media.....	8
Step 5: Calibrate Gap Sensor	11
Step 6: Set Speed	12
Step 7: Set Dispense Position.....	12
Step 8: Set Rewind Tension.....	13
Step 9: Set Product Delay.....	13
Step 10: Set the System Online.....	14
Section 3: Maintenance	15
Maintenance Schedule Chart.....	15
Section 4: Troubleshooting	16
Common to All Systems.....	17
Wipe Systems.....	18
Diagnostics.....	19
Information, Warning, Error, and Diagnostic Codes	20
Appendix A: System Specifications	21
General Specifications	21
Electrical Specifications.....	22
Performance Specifications	22
Wipe 6"	23

Label Applicator

Appendix B: Application Methods	24
WIPE Mechanical Setup	24
WIPE Parameter Setup.....	25
 Appendix C: Electrical Interface	 27
 Appendix D: Part Numbers	 28
Replacement Kits	29
Service Parts.....	30
Optional Equipment	32

Section 1: Safety

Safety awareness is critical when working with equipment that contains moving parts and extending electric actuators. Please read all warnings and cautions thoroughly before operating this device.

Following is a list of safety symbols and their meanings, which are found throughout this manual. Pay attention to these symbols where they appear in the manual.



Wear safety goggles when performing the procedure described!



Caution or Warning! Denotes possible personal injury and/or damage to the equipment.



Caution or Warning! Denotes possible personal injury and/or equipment damage due to electrical hazard.



NOTE: (Will be followed by a brief comment or explanation.)



ESD protection should be worn when servicing internal printed circuit boards.
After service to the equipment is completed, replace all protective devices such as grounding cables and covers before operating the equipment.



Caution or Warning! Denotes possible personal injury due to heat.



Caution or Warning! Denotes possible personal injury due to pinching/crushing.



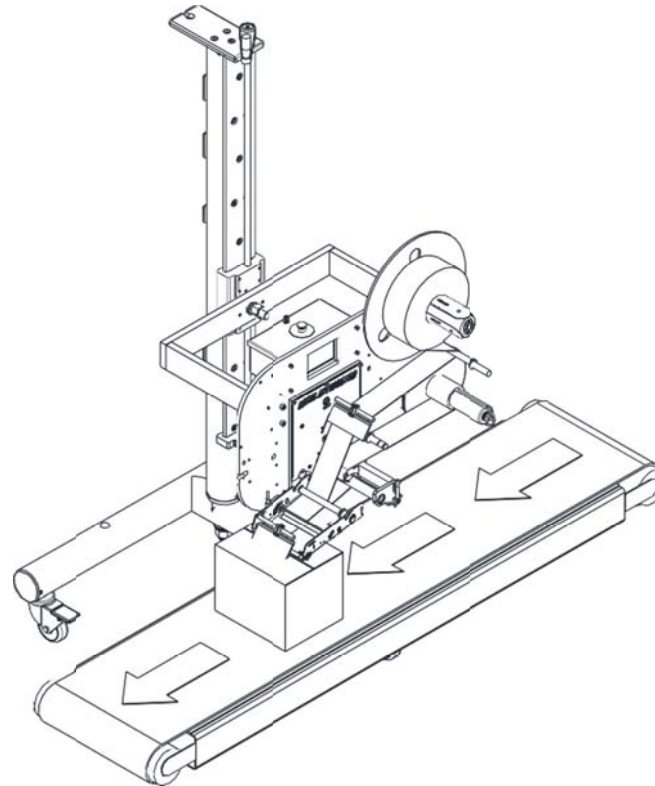
Caution or Warning! Denotes possible personal injury due to pinching/crushing.

WARNING! Tipping hazard: Tie-down ratchet straps are required to be secured to the ground when using this product on non-flat or uneven surfaces and/or where the center of mass may cause an unsafe condition.

WARNINGS

- **WARNING** - Moving parts of this machine can present hazards. Components that cannot be guarded because of loss of functionality are marked with a warning symbol.
- Be aware of the actuator extension distance, and avoid accidental triggering of the photo sensor.
- When servicing the unit's electronic assemblies, always remove the power cord from the unit to prevent accidental shock.
- When running for extended periods of time, use caution when accessing the drive module circuitry. The motor drive power transistors, motor case, and motor heatsink can become hot under constant use.
- Wear personal protective equipment, as instructed by your supervisor, when operating or working near this device.

Section 2: Quick Start



WIPE SYSTEM

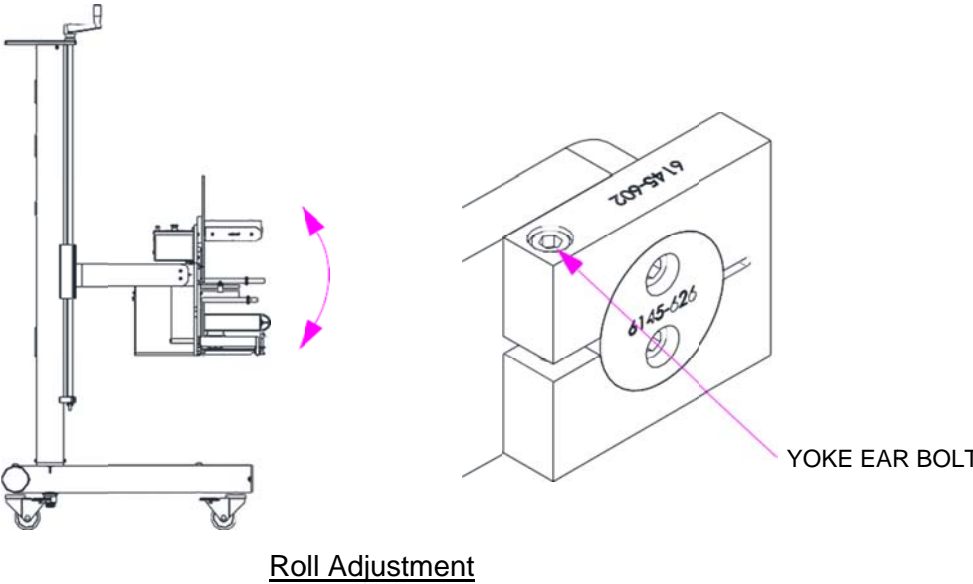
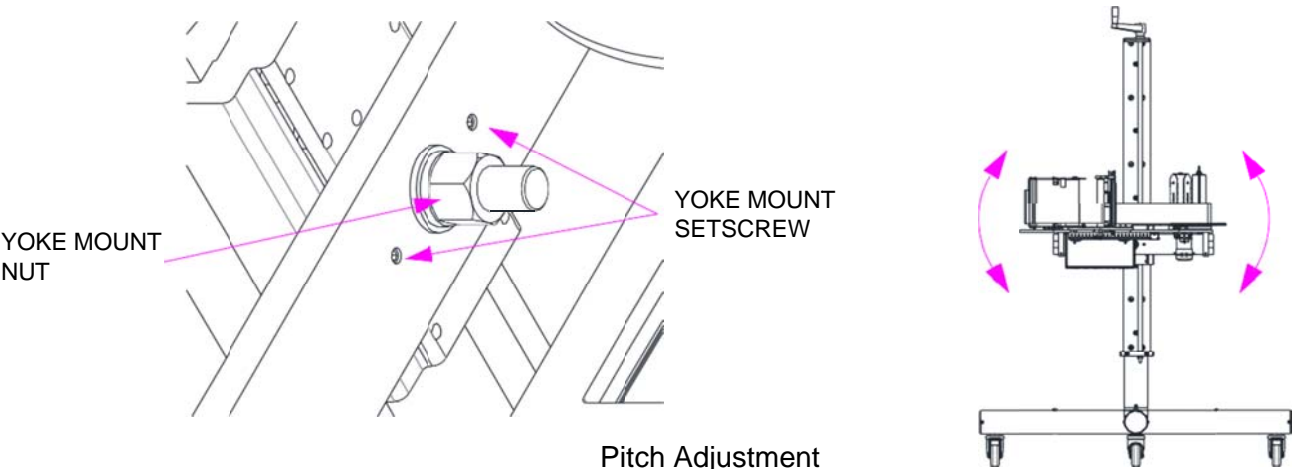
Contents:

- * Main Applicator
- * Product Detector Kit
- * Power Cord
- * Manual (Digital Copy)

Step 1: System Orientation

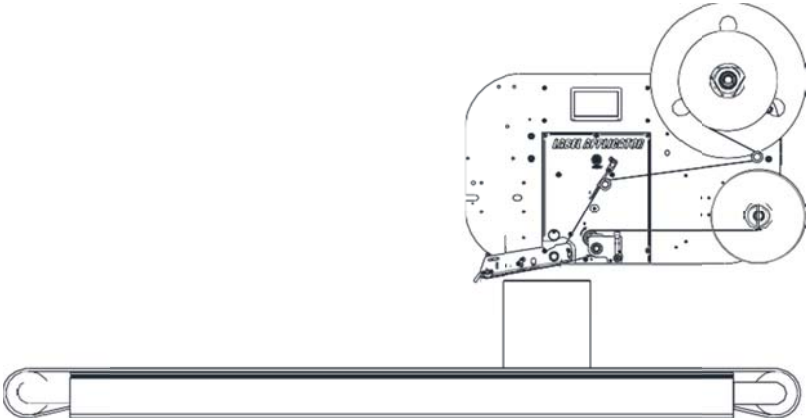


Caution: System is top heavy; take care when adjusting roll. Tie-Down ratchet straps are recommended to secure Stand and Applicator into place while in use.

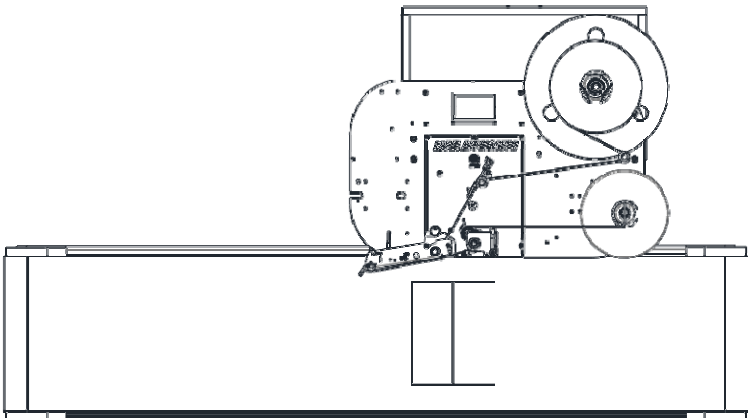


ORIENTATIONS

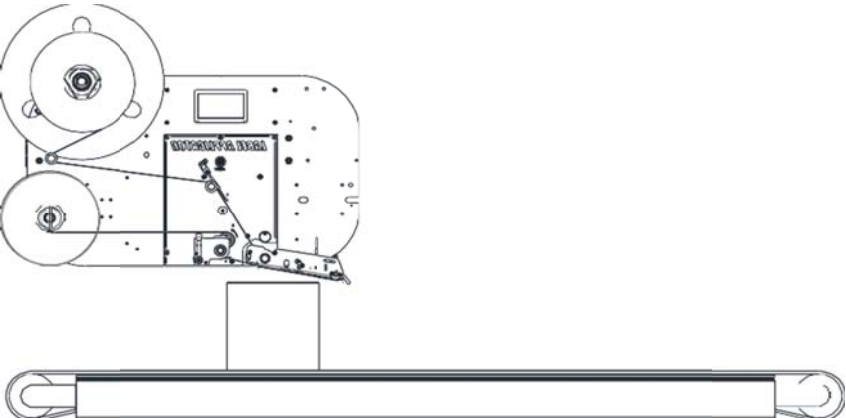
Using the Yoke Mount Nut, Yoke Ear Bolts and Yoke Mount Setscrews, adjust the Label Applicator to the desired orientation.



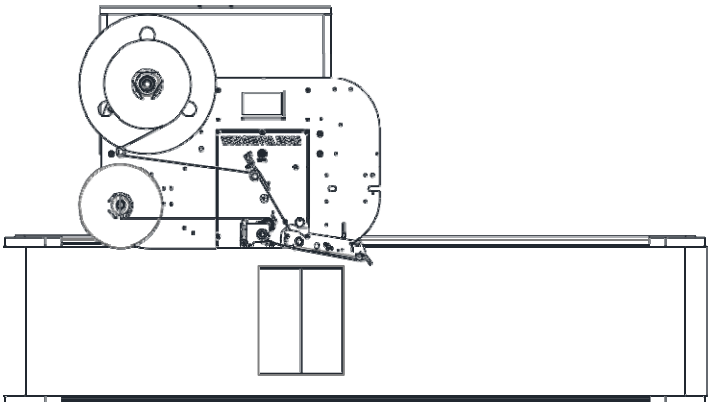
TOP DOWN (LEFT HAND)



SIDE APPLY (LEFT HAND)



TOP DOWN (RIGHT HAND)

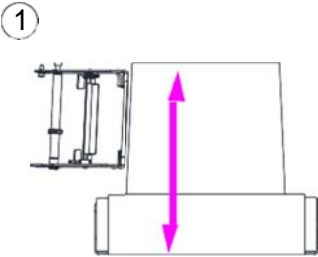


SIDE APPLY (RIGHT HAND)

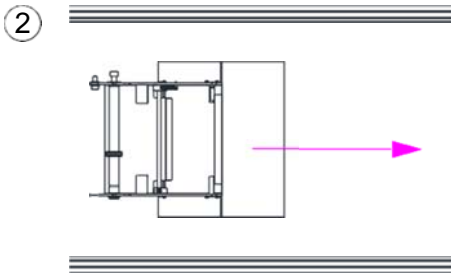
Step 2: System Alignment

WIPE

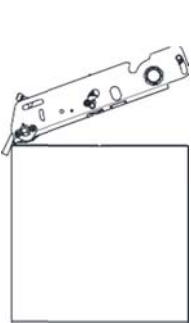
- 1. Verify leading edge of peel blade is parallel with product.
- 2. Verify label direction is parallel with conveyor direction.



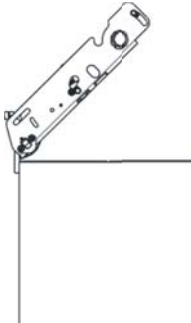
PARALLEL TO PRODUCT



PARALLEL TO CONVEYOR



MIN. ANGLE: 20°



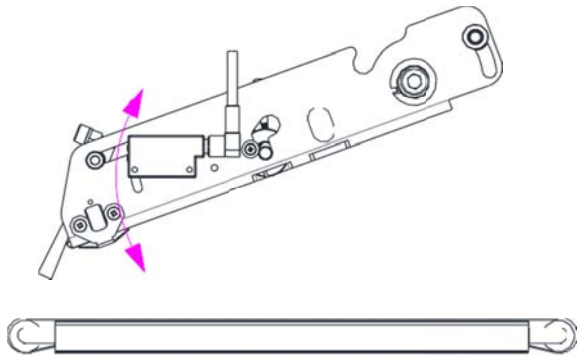
MAX. ANGLE: 45°

CONVEYOR MOUNTING

Step 3: Position Product Detector

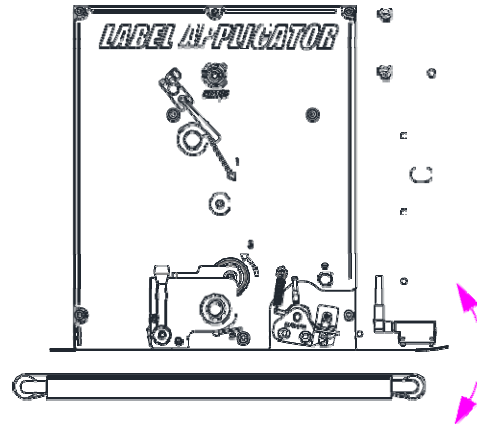
MACHINE MOUNTING

WIPE

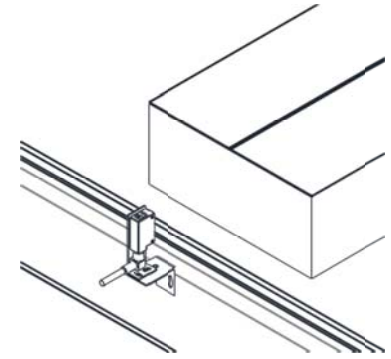


ALIGN WITH CONVEYOR

TAMP



ALIGN WITH CONVEYOR



PRODUCT DETECTOR SETUP

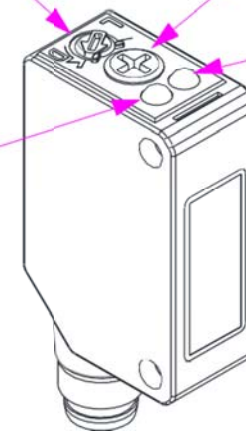
1. To detect product present (Leading Edge), turn Light On/Dark On Selector to L. To detect product absent (Trailing Edge), turn Light On/Dark On Selector to D.
2. Turn Sensitivity Adjuster full counterclockwise.
3. Put a product on the conveyor at the expected distance from product detector during production.
4. Turn Sensitivity Adjuster clockwise until both Power Indicator and Output Indicator are on and solid when product is in front of sensor for Leading Edge, and absence of product for Trailing Edge.
5. Remove product.
6. Verify that detector does not sense movement beyond the far edge of the product. (If so, repeat steps 2 - 6.)

LIGHT ON/DARK ON
SELECTOR

SENSITIVITY
ADJUSTER

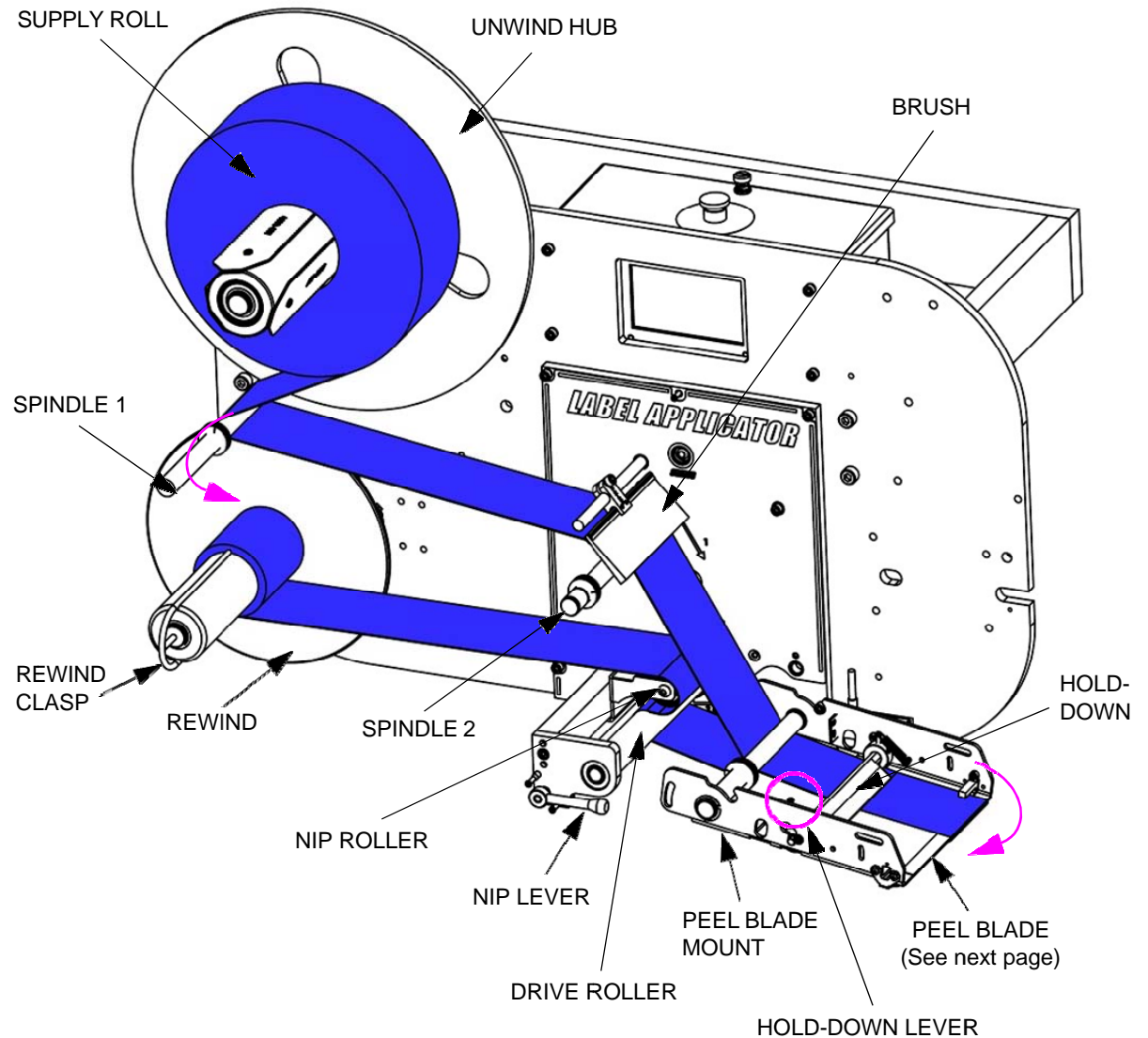
OUTPUT
INDICATOR

POWER
INDICATOR

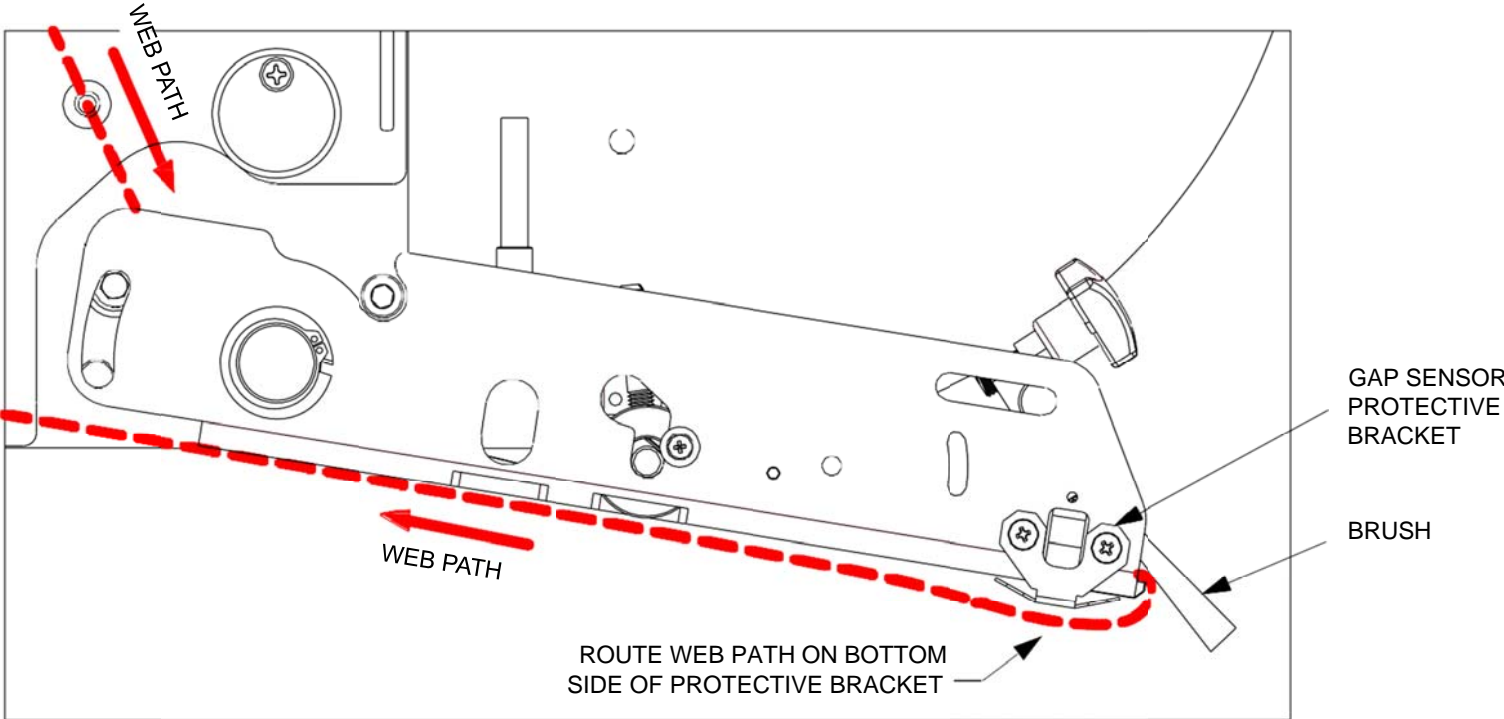


Step 4: Load Media

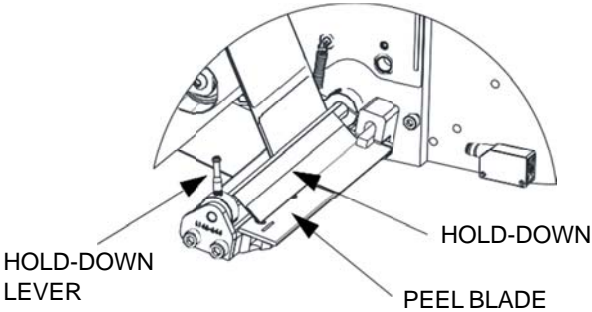
1. Push Supply Roll all the way against Unwind Hub.
2. Thread Web around Spindle 1.
3. Lift Brush to slide Web under the Brush and over Spindle 2.
4. Using the Hold-Down Lever to lift the Hold-Down, feed Web under the Hold-Down. (For Wipe Systems, ensure Web runs under Peel Blade Mount.)
5. Ensure that Nip Lever is open (horizontal). Thread Liner around Drive Roller and Nip Roller as shown.
6. Wrap Liner around rewind hub as shown.
7. Insert Rewind Clasp over Liner, and while holding the Liner, turn Rewind until the Liner grips the Rewind.



NOTE: Remove the leading three feet of labels to reduce the chance of labels sticking to the rollers.

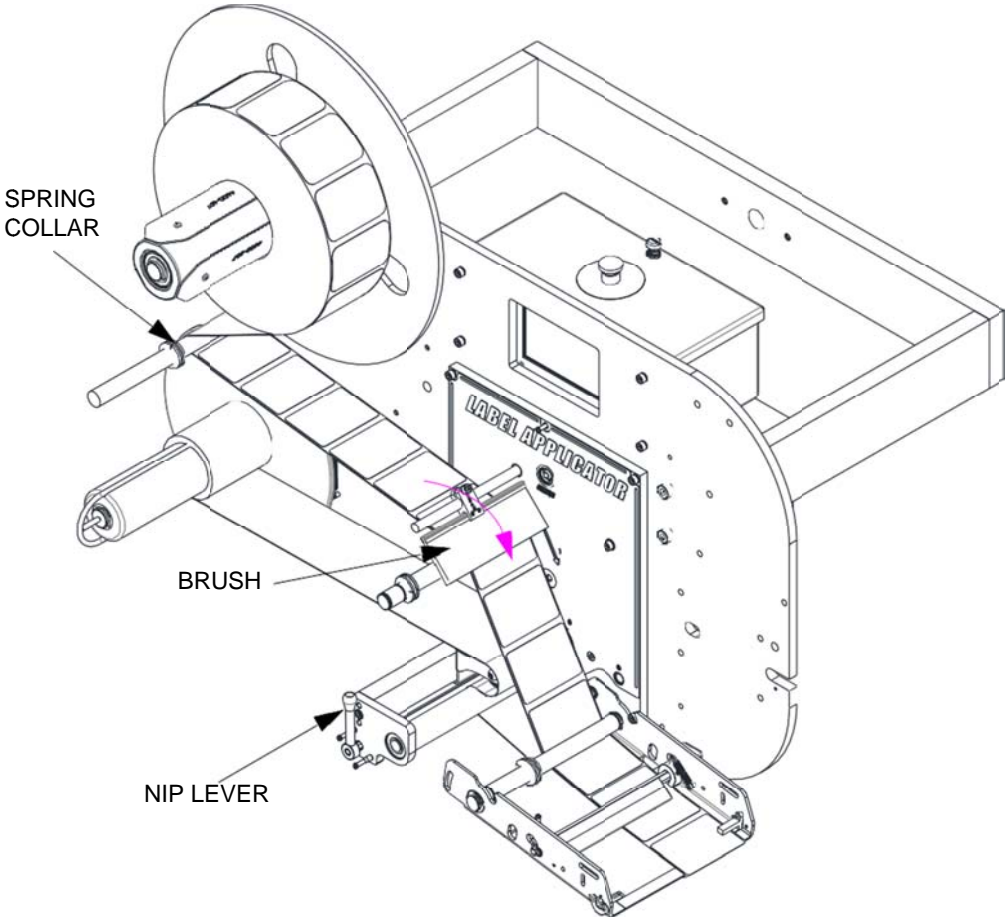


FOR TAMP APPLICATIONS

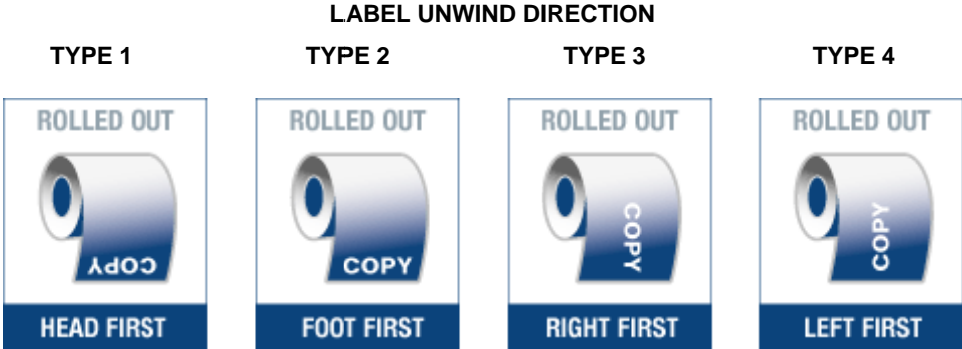


Label Applicator

- 8. Press in all Spring Collars to guide the Liner.
- 9. Replace Brush to apply tight tension on the Liner.
- 10. Turn Nip Lever to the Closed position (vertical).



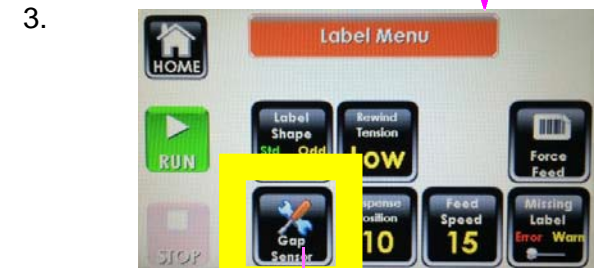
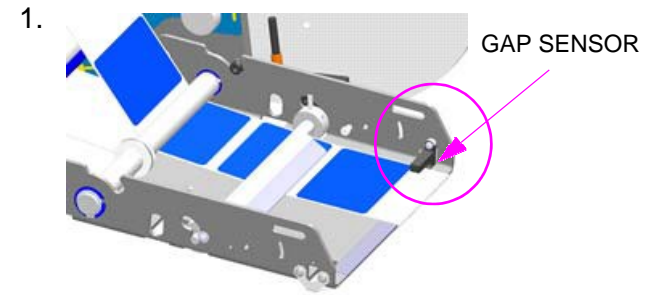
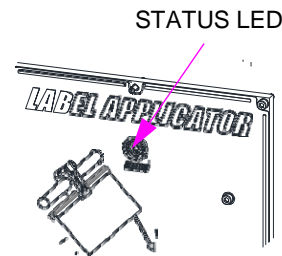
NOTE: This Label Applicator operates with type 1, 2, 3 and 4 labels. Be conscious of your application when ordering labels.



Label Applicator

Step 5: Calibrate Gap Sensor


1. Remove leading label so only liner is below Gap Sensor.
2. Press **LABEL** from the Home Screen.
3. Press **Gap Sensor**.
4. Review the message, then press the message box to close **MSG 36**.
5. Press the **Calibrate** button.
 - Success: The Status LED flashes green, followed by MSG 37.
 - Failure: The Status LED flashes red, followed by MSG 38.



Step 6: Set Speed

1. Press **Feed Speed** from the Label Menu.

2. Enter speed value in Feet Per Minute (FPM) then press OK.

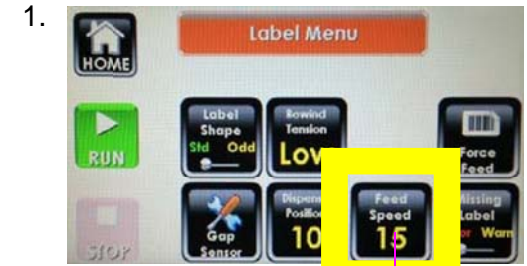
 **NOTE:** For a Wipe Application, insert the conveyor speed; for a Tamp Application, insert 150 FPM. Adjust as needed. For **Encoder Enabled** Wipe Application, see “WIPE Parameter Setup” on page 52.

Step 7: Set Dispense Position

1. Press **Dispense Position** from the Label Menu.

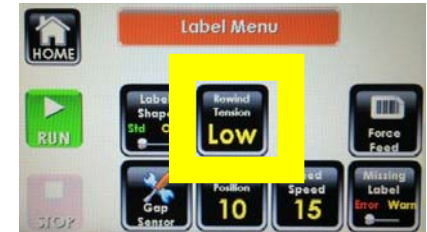
2. Enter a value for the **Dispense Position** in units of 1/100”. This value is the distance the liner has to travel after seeing Gap to align the next label at the edge of the peel blade. (Standard Labels: 50 - 75)

3. Press the **Force Feed** button on the Label Menu to check that the value settings for [Steps 5 to 7](#) have taken effect. One label will feed at the set speed and the next label will stop at the edge of the peel blade.



Step 8: Set Rewind Tension

Change **Rewind Tension** in the Label Menu to desired value. This setting will depend on the feed speed, label length and the liner material type (see LABEL MENU setup in Appendix B: Application Methods).



Step 9: Set Product Delay

1. Press **Setup** from the Home Screen, then press **JOB**.
2. Press **Apply Delay**.
3. Set the delay from when the Product Detector triggers to when the Labeler applies a label, in milliseconds. Press OK. (See JOB MENU setup for the appropriate applicator in Appendix B: Application Methods.)



WIPE JOB MENU



Step 10: Set the System Online

Press the **RUN** button from any screen. The system is ready to apply labels when the background turns green.

Press the **STOP** button from any screen to stop the system from applying a label.



NOTE: Any change made to the settings are permanently saved when Home is pressed. If Home is not pressed, the setting will be temporary.

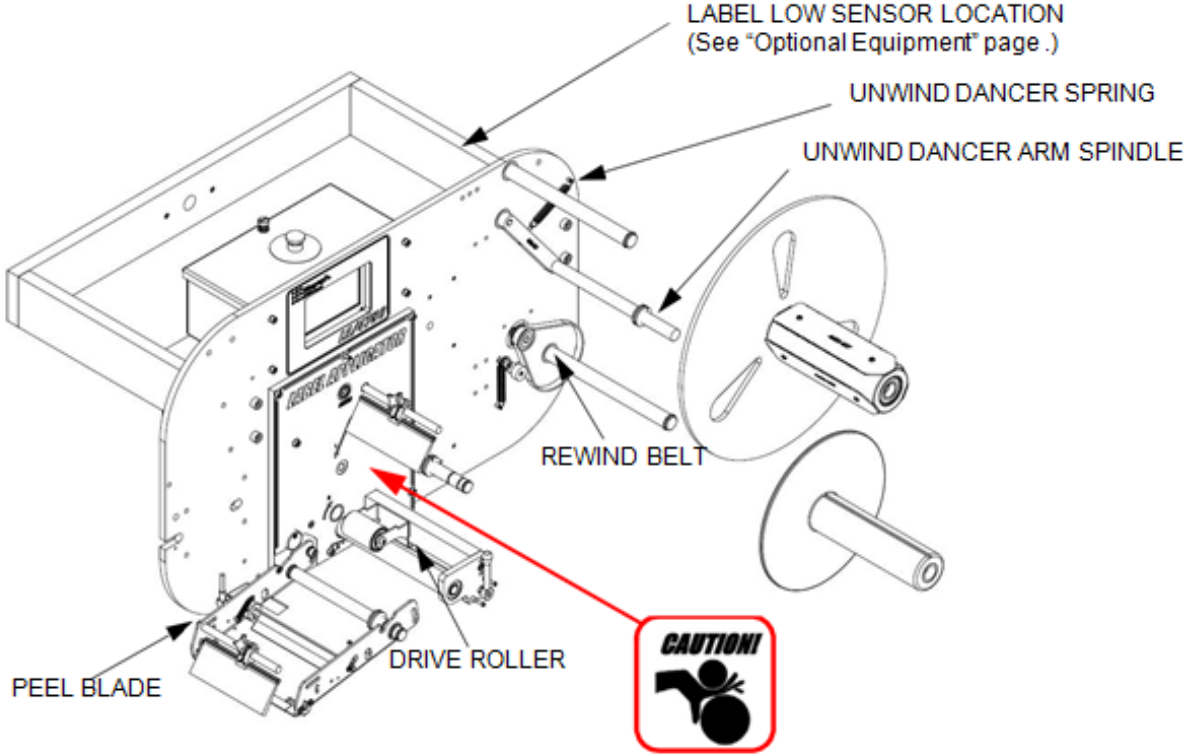
Section 3: Maintenance

Maintenance Schedule Chart

(See drawings on the following page.)

Action	Daily	Monthly	Annually
Clean Drive Roller		✓	
Replace Drive Roller			✓
Replace Peel Blade			✓
Clean Label Present and Auto-Retract Sensors (if present)	✓		
Clean Label Low Sensor (if present)		✓	
Clean Product Detector Sensor(s)		✓	
Inspect Drive Module Belt		✓	
Replace Drive Module Belt			✓
Inspect Rewind Belt		✓	
Replace Rewind Belt			✓
Replace Unwind Dancer Spring			✓
Clean Tamp Pad	✓		
Replace Unwind Dancer Arm Spindle			✓

Section 4: Troubleshooting



NOTE: Rewind and Unwind Spindles removed for simplicity.

Common to All Systems

(Check these first before proceeding to specific system type.)

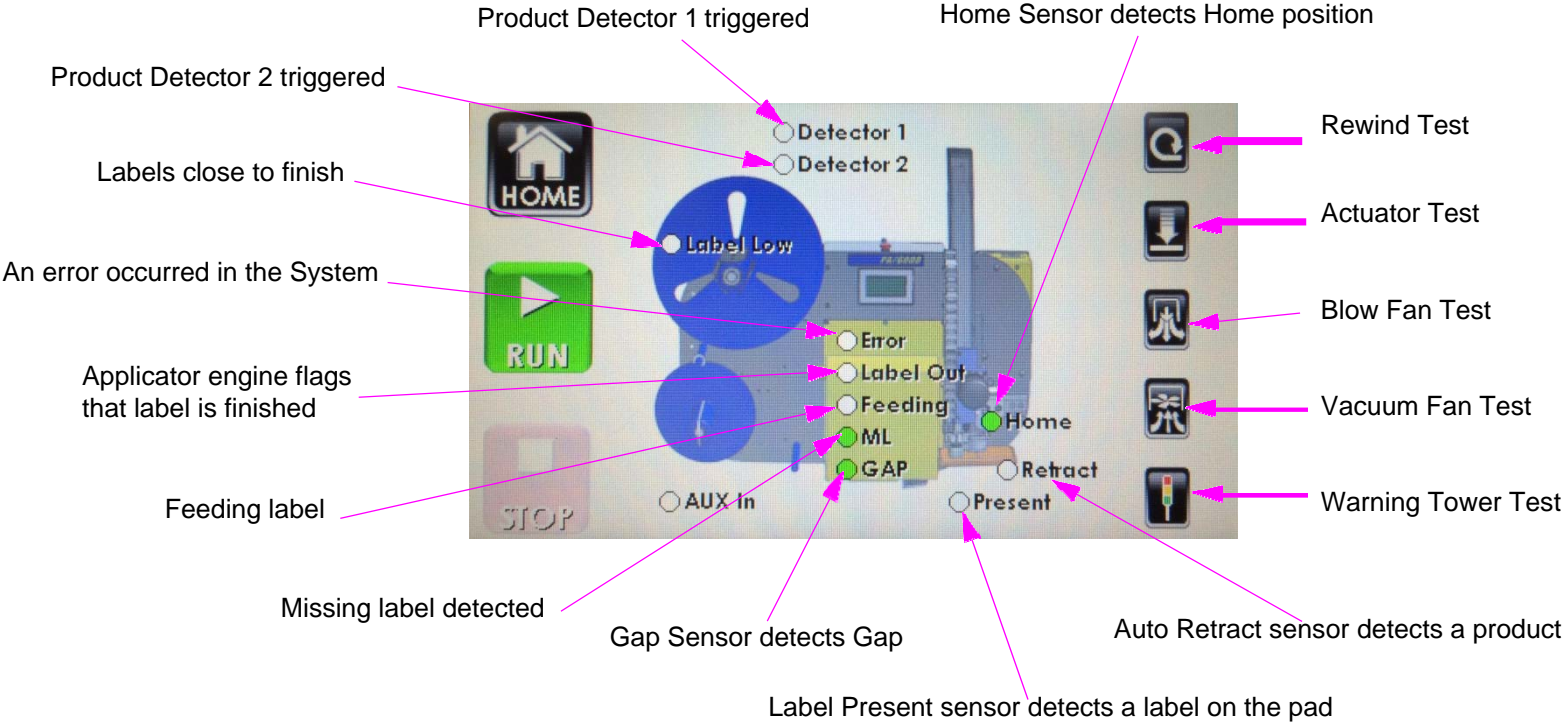
Problem	Possible Cause	Correction
Multiple labels are fed, without a pause between labels	Label gap sensor is not calibrated	Perform the label gap calibration procedure as seen in “Step 5: Calibrate Gap Sensor” page.
	Label liner is not positioned inside label gap sensor	Set the web guides so that the liner passes through the label gap sensor.
	Label is not within 12,7mm (1/2”) of the liner edge	Change material which has the label’s edge to the liner’s edge less than 12,7mm (1/2”).
Drive roller is turning backwards, liner is pulled from rewind	Unit is incorrectly webbed	Re-web the label liner, as seen in “Step 4: Load Media” page.
	Unit is not correctly configured for left-hand or right-hand	Confirm that the unit configuration is correct. (See “Appendix B: Application Methods” section.)
Supply roll is signaling label low too soon	Label Low Sensor position incorrect	Unscrew the label Low Sensor, move it to a position farther away from the unwind supply roll core and screw into position.
	Label Low Sensor malfunction	Refer to “DIAGNOSTICS SCREEN” page to verify sensor functionality.
Calibration of Label Gap results in failure	Liner is too thick	This material may not be compatible with the unit’s standard sensor.
	Sensor is dirty	Remove sensor from peel blade and clean it with isopropyl alcohol.
	Sensor connection is faulty	Check Connector J8 on Controller Board (4750-350).
	Sensor is damaged	Replace sensor.

Wipe Systems

Problem	Possible Cause	Correction
Unit will not dispense a label when product detector is triggered	Unit is off-line or has an error condition	If no errors exist, press RUN button to place unit on-line. If errors exist, determine error type from the display and clear error condition. Attempt to go on-line by pressing the RUN button (this will also check for remaining errors).
	Cabling problem	Verify cabling per "Appendix C: Electrical Interface" on page.
	Product Detector field of view not set up	Verify set-up per "Step 3: Position Product Detector" on page.
Labels are wrinkled (or crumpled) on the product	Feed speed too high	Reduce Feed Speed per "WIPE Parameter Setup" page.
	Peel blade angle is not correct	Set angle between 20° and 45°. Shorter labels require a steeper angle to the product surface. See "WIPE Mechanical Setup" section.
	Wipe-on brush position is too close to peel edge	For labels longer than 50,8 mm (2"), move the brush away from the peel blade edge and angle to 45°.
	The brush on Spindle 2 has become loose. (Refer to picture in "Step 4: Load Media" page.)	Tighten the brush on Spindle 2 to increase the tension on the Liner per "Step 4: Load Media" page.
Liner tracking into the inner or outer guide, web travel is not straight, or excessive paper dust created	Web guides not set properly	Adjust guides per "Step 4: Load Media" page.

Diagnostics

DIAGNOSTICS SCREEN



Information, Warning, Error, and Diagnostic Codes

Message Number	Type	Message	Reason
MSG 6	Error	LABEL OUT	Label Applicator has detected the end of the label supply.
MSG 9	Informational	MISSING LABEL DETECT	Label Applicator has detected a missing label.
MSG 10	Error	LABEL MODULE	Label Applicator has an error.
MSG 36	Informational	GAP SENSOR CALIBRATION	Instructions on how to calibrate the label gap sensor located on the peel edge.
MSG 37	Informational	CALIBRATION SUCCESS	Label gap sensor was properly calibrated.
MSG 38	Informational	CALIBRATION FAILURE	Label gap sensor was not properly calibrated. This can be due to liner thickness or opacity outside of the system specifications, a faulty connection to the sensor, or the optics require cleaning.



NOTE: For additional messages, errors and warnings, refer to [MCAIV Manual \(6000-012\)](#), Section 5: Trouble-Shooting.

Appendix A: System Specifications

General Specifications

Category		Parameter
Dimensions (with Yoke)		787mm (31") L x 584.2mm (23") H x 685.8mm (27") D
Weight	WIPE Stand	36,7 kg (81 lbs) (includes yoke, no stand) 37,6 kg (83 lbs)
Accuracy	WIPE	±1,6mm (±0.06")
Certifications		IEC 61000-6-2 2005/AC:2005 Immunity IEC 61000-6-4 2007/A1: 2011 Emission FCC Part 15b CSA CAN/CSA-C22.2 No. 62368-1:2014 UL62368-1:2014, N 62368-1:2014/AC:2017-03 IEC 62368-1:2014, CE
Supply Roll Capacity		355,6mm (14") OD
Core		76,2mm (3") ID
Label Length		12,7mm (0.5") Min. to 558,8mm (22") Max.
Label Width	Narrow Web Wide Web	25,4mm (1") Min. to 152,4mm (6") Max. 25,4mm (1") Min. to 228,6mm (9") Max.
Product Rate	WIPE	800 PPM Max.
Line Speed	WIPE	300 FPM Max.
Temperature		5°C - 40°C (41°F - 104°F)
Humidity		10 to 85% Relative Humidity, Non-Condensing

Electrical Specifications

Category	Nominal	Minimum	Maximum
AC Voltage Supply	100 - 240 VAC, 1.6A 50/60 Hz	90 VAC 47 Hz	264 VAC 63 Hz
Product Detector	Low: 0 to 3 VDC High: 3 to 5 VDC Supplies 24 VDC	0 VDC	24 VDC
Product Detector Pulse Width	10 mS	1 mS	Infinite
Auxiliary Output Warning Tower	0 and 24 VDC 1 Amp sinking	0 VDC 0 mA	24 VDC 3 Amps sinking
Discrete Inputs (Optional)	Low: 0 to 10 VDC High: 10 to 24 VDC	0 VDC	26 VDC
Discrete Input Pulse Width Detection	10 mS	1 mS	Infinite
Discrete Outputs (Optional)	0 - 24 V AC/DC at 150 mA	0 V AC/DC, 13 ohms	30 V AC/DC at 400 mA

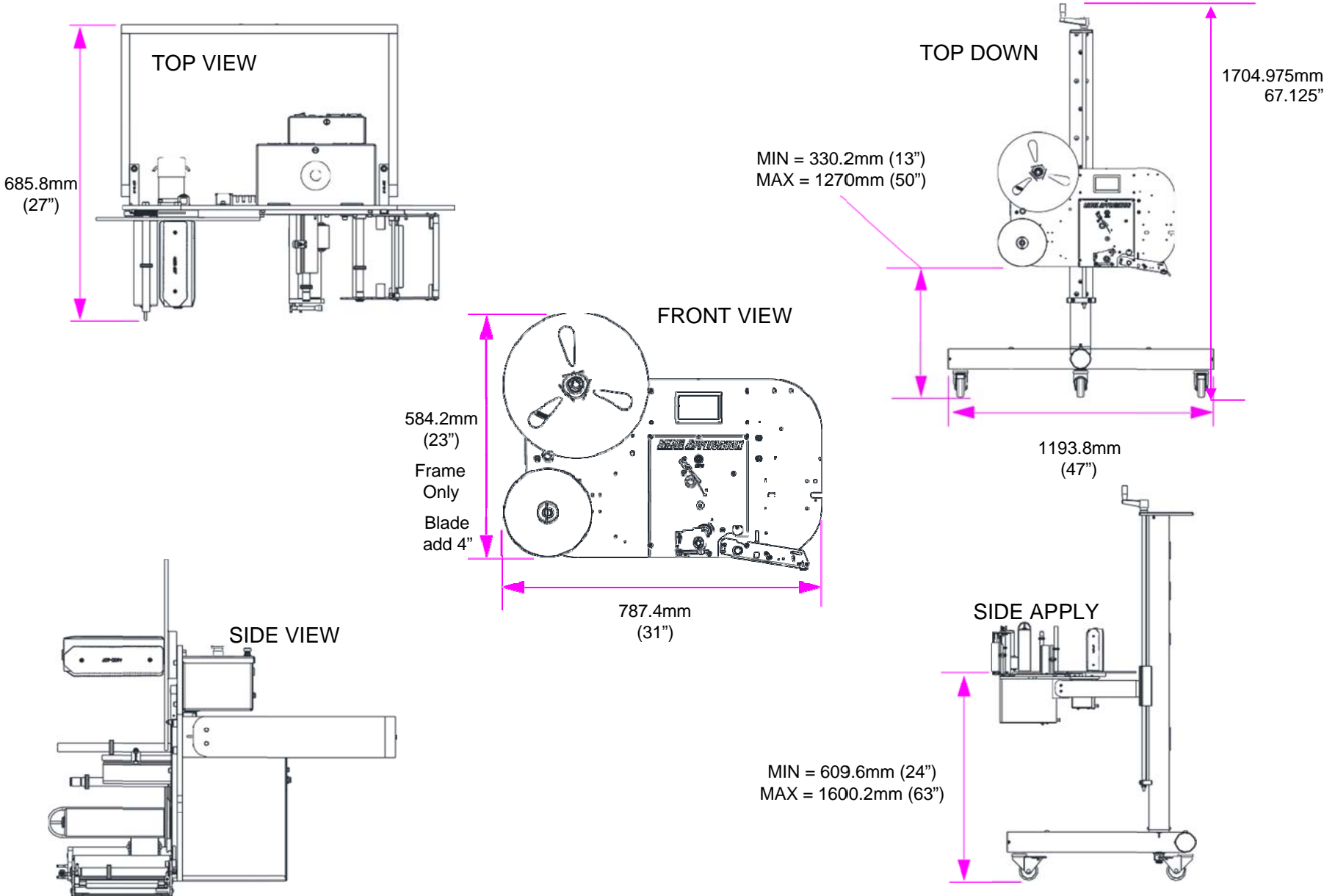
Performance Specifications

WIPE Application	Label Size	PPM Maximum
WIPE	2" x 1"	500 PPM*

* WIPE Maximum PPM greatly relies on label size, line speed and product size.

Label Applicator

Wipe 6"

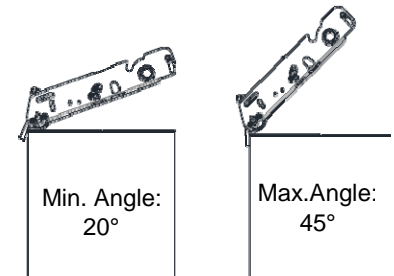
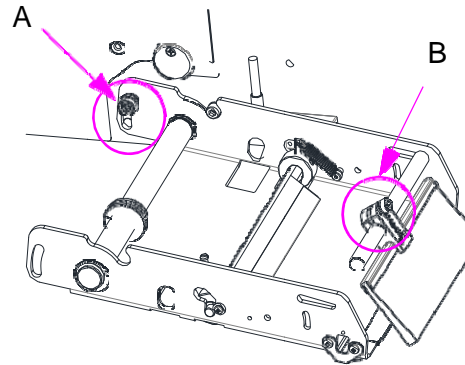


Appendix B: Application Methods

WIPE Mechanical Setup

ANGLE ADJUSTMENT

1. Loosen Rotator Screw (A).
2. Adjust angle.
3. Tighten Rotator Screw (A).



NOTE: Increase the angle to the product (more parallel feeding of label to product's surface) for surfaces that have an outward bow. Decrease the angle to the product (more perpendicular to the product's surface) for recessed areas or plastic-based labels that tend to trap air pockets.



NOTE: Using an angle less than 20° or greater than 45° can cause label misplacement or unnecessary wear on applicator.

BRUSH ANGLE AND POSITION ADJUSTMENT

The brush should be positioned at the point where the label will make contact with the product.

1. Loosen the brush clamp handle (B).
2. Position the brush to match the point of contact between the label and the product.
3. For short labels, the brush should be positioned next to or contacting the peel blade (product will push bristles back when in contact).



NOTE: If the brush is positioned too far away from the merge point, the label position consistency can change due to label slippage. In addition, the brush can curl up the front edge and, in certain conditions, can remove the label.



WIPE Parameter Setup

Wipe application allows for pre-printed standard and irregular labels to be applied at maximum speed of 300 FPM (Feet Per Minute).

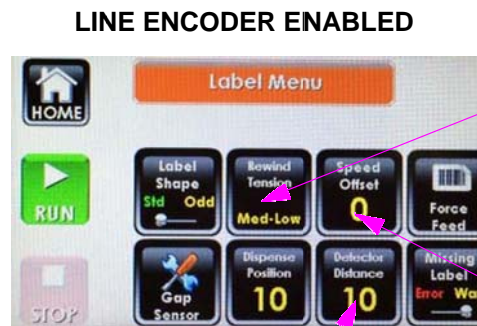
LABEL MENU - Enter LABEL Menu from the Home Screen.

Std for rectangular labels with 3,2mm (1/8") gap or **Odd** for any shape label that passes gap sensor.

The distance liner has to travel after gap for the next label to align at the edge of peel blade. For standard labels usually set to 50-70 (0.5 to 0.7 inches).



Depends on the product speed and PPM. Set for fastest throughput for the application.

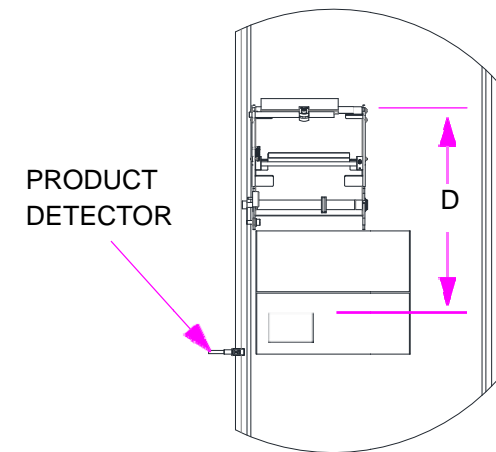


Sets the distance between product detector and edge of the peel blade (0.01 inch increments).

Sets the amount of tension applied to the rewind on a feed cycle. Set lower for speeds less than 100 FPM or labels shorter than 101,6mm (4").

The percentage applied to encoder input to increase (>100%) / decrease (<100%) feed speed.

NOTE: When using Line Encoder, if product detector is triggered on trailing edge of the product, set PD Distance to zero and set "D" in inches as Position Distance.



SYSTEM MENU - Enter SYSTEM Menu from the Setup Screen.



Sets the rewind motor direction.

An optional line encoder can be used to follow the speed of the conveyor. Using a line encoder changes some of the settings.

Wipe is used for this application.

Typically leading edge product triggers will offset the label placement from the front. If the product lengths vary, and the label needs to be placed off of the trailing edge of the product, set this value to No.

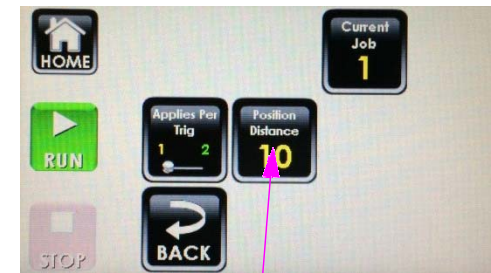
JOB MENU - Enter JOB Menu from the Setup Screen.

LINE ENCODER DISABLED



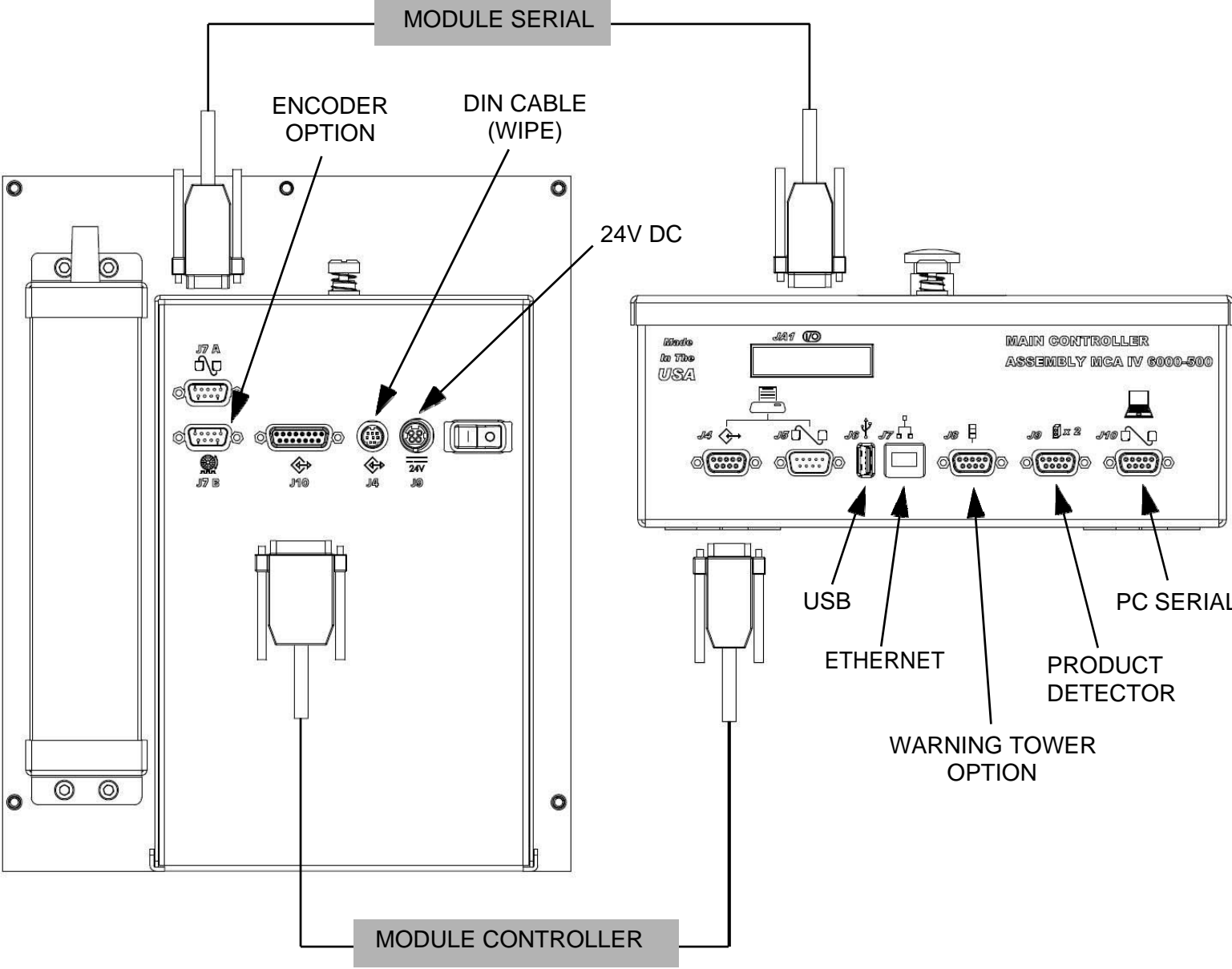
Determines the amount of time to delay from the product detector trigger to label feeding. The setting depends on feed speed and label placement on the product, but is usually kept at a minimum value.

LINE ENCODER ENABLED



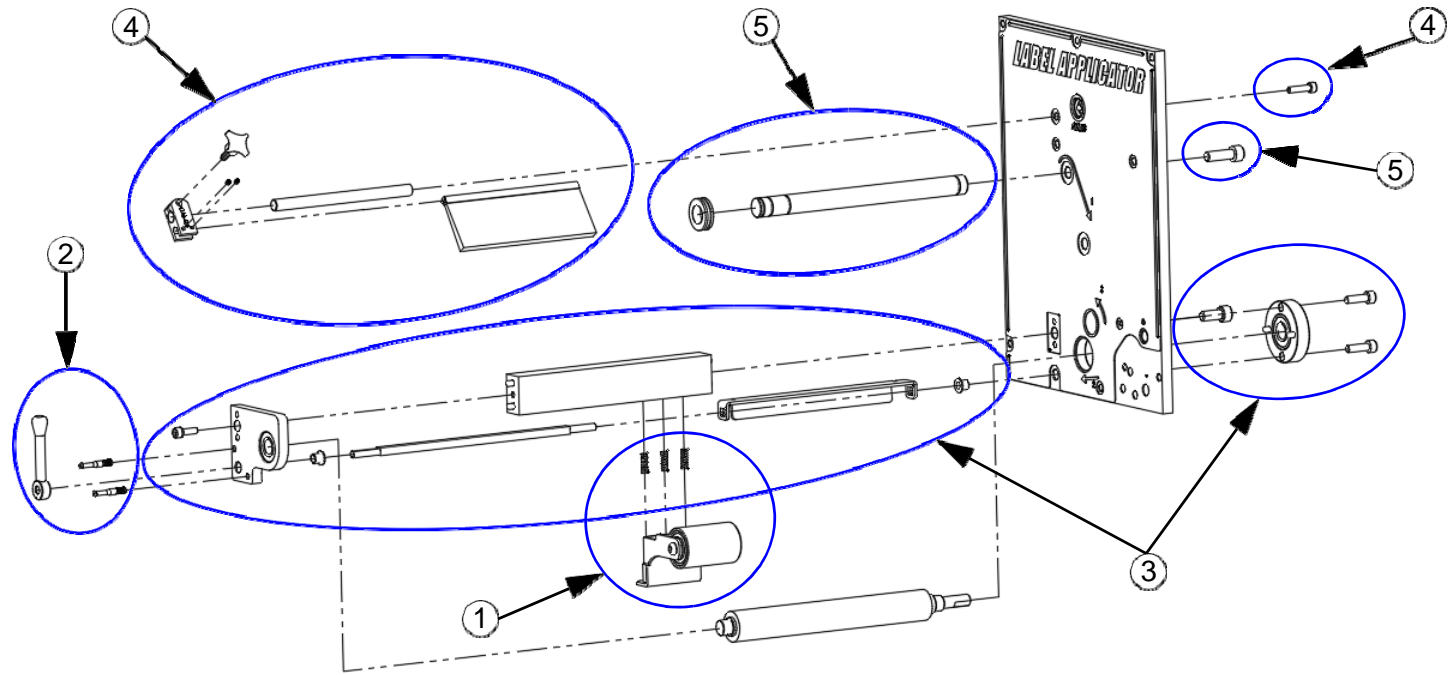
Sets the distance from the leading edge of the label to the leading edge of the product.

Appendix C: Electrical Interface



Appendix D: Part Numbers

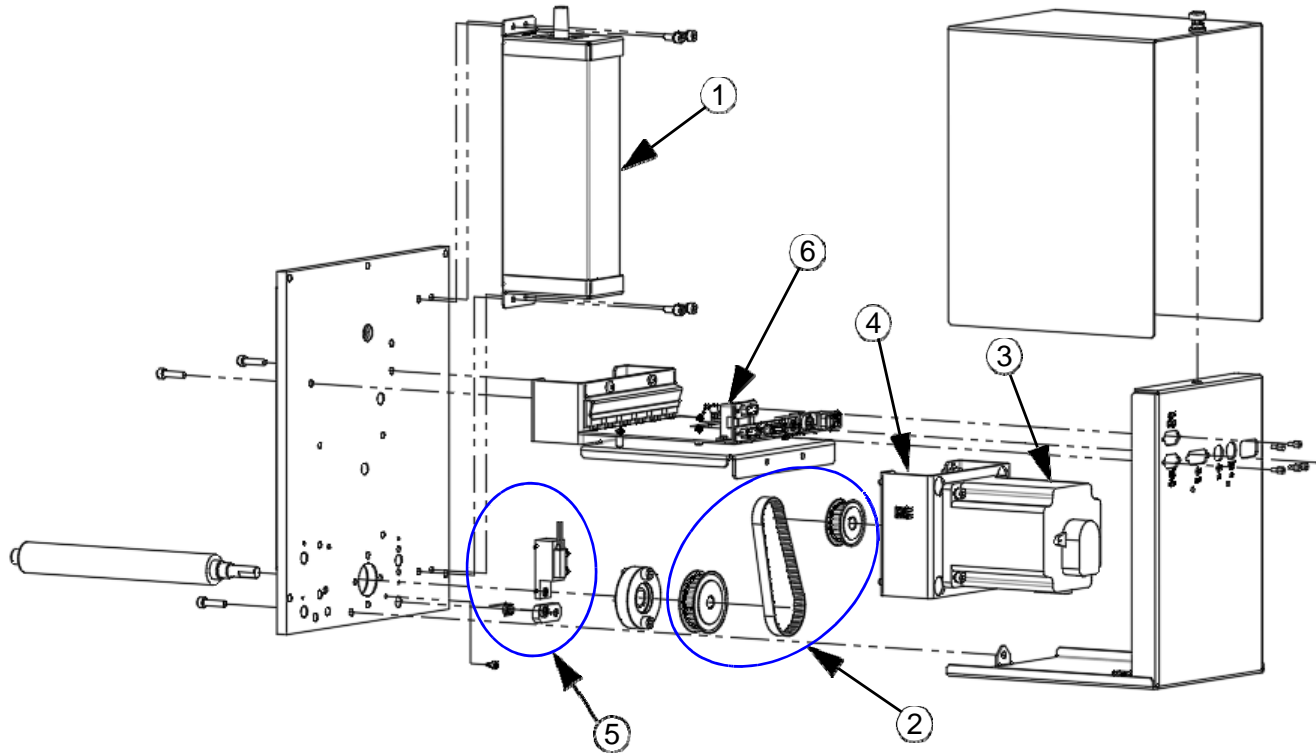
Replacement Kits



Item	Part No.	Description	Contents
1	4750-201	Kit, Nip Roller	(1) Nip Roller Assembly and (3) Springs
2	4750-222	Kit, Nip Roller Handle	(1) Collar, (1) Nip Lever Cover, (1) Screw and (2) Hangar Studs
3	4750-223L	Kit, Main Bracket, 6", Left-Hand	(1) Main Bracket, (1) Bearing Bracket Assembly, (1) Housing Bearing Assembly, (2) Flange Bearings, (3) Springs, (1) Rotator Shaft, (1) Rotator Bracket and (4) Screws
	4750-223R	Kit, Main Bracket, 6", Right-Hand	
	4750-228L	Kit, Main Bracket, 9", Left-Hand	
	4750-228R	Kit, Main Bracket, 9", Right-Hand	
4	4750-224	Kit, Brush Mount, 6"	(1) Nylon Brush, (1) Brush Attachment Shaft, (1) Brush Bracket, (1) Knob and (3) Screws
	4750-225	Kit, Brush Mount, 9"	
5	4750-226	Kit, Web Tension Shaft, 6"	(1) Peel Blade Shaft, (1) Spring Collar and (1) Screw
	4750-227	Kit, Web Tension Shaft, 9"	

Label Applicator

Replacement Kits (continued)

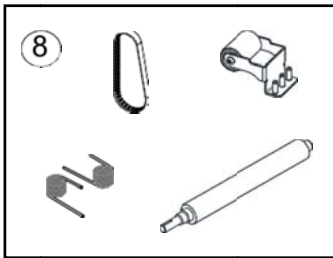
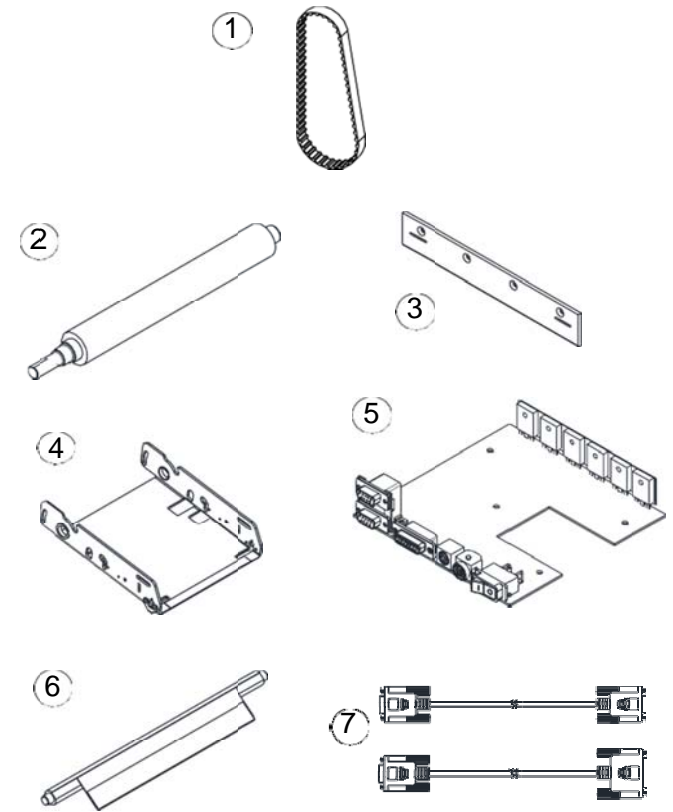


Item	Part No.	Description	Contents
1	4750-229	Kit, Power Supply	(1) Power Supply, (2) Power Supply Brackets and (4) Screws
2	4750-230	Kit, Drive Pulley Replacement	(1) 20 Groove Timing Pulley, (1) 28 Groove Timing Pulley and (1) Timing Belt
3	4750-231	Kit, Motor	(1) Motor and (4) Screws
4	4750-232	Kit, Motor Mount	(1) Motor Mount Bracket, (2) Tie Mounts, (4) Screws and (4) Washers
5	4750-233	Kit, Nip Switch Sensor	(1) Nip Switch Cable, (1) Magnet, (1) Magnet Mount, (1) Sensor Mounting Block, (1) Left-Hand Torsion Spring, (1) Right-Hand Torsion Spring and (6) Screws
6	4750-234	Kit, PC Board Mount Assembly	(1) Controller Board Assembly, (1) Hold-Down Mosfet, (1) Circuit Board Mount Assembly and (8) Screws

Service Parts

LA/4750 Components

Item	Kit No.		Description
	Standard	Wide Web	
1	4750-200		Belt
2	4750-202	4750-210	Drive Roller
3	4750-203	4750-211	Tamp Peel Blade
4	4750-204	4750-212	Wipe Peel Blade
5	4750-205		PC Board
6	4750-206	4750-213	Hold-Down Parts
7	4750-207		LA4750 Cable Assembly
8	4750-208	4750-218	Wear Items
9	4750-217		Torsion Spring Replacement
10	6146-611	6146-682	Brush
11	4600-900		Product Detector Assembly, Diffuse
12	1901-141		AC Power Cable
13	4600-647		Rewind Clasp
14	4750-221		Container of Fasteners, 4750
15	4750-235		Label Gap Sensor
16	4600-950		Platinum Series Wear Items (not pictured)



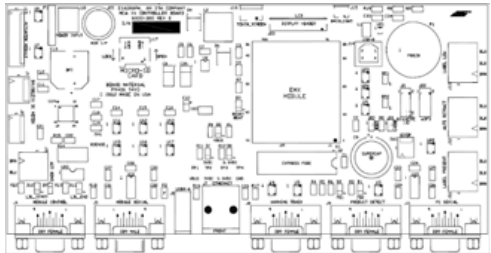
MCA Components

Item	Kit No.	Description
1	6000-202	Display Assembly
2	6000-203	PC Board Assembly

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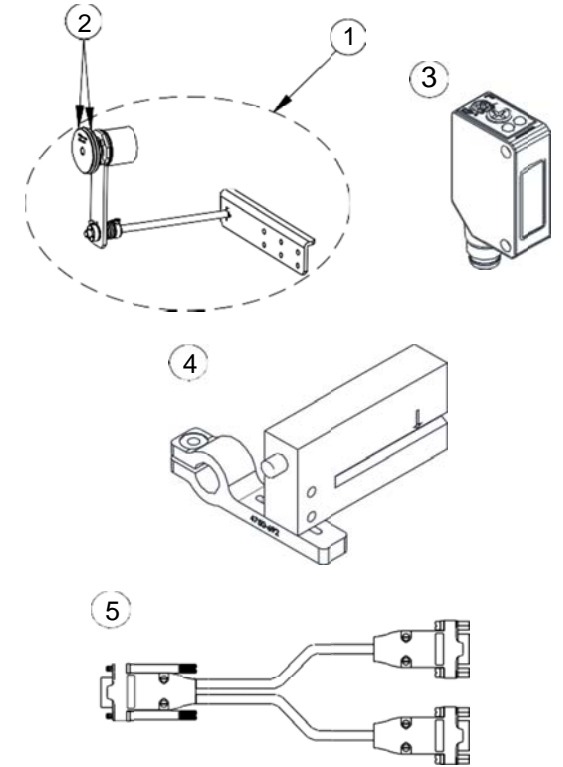


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Optional Equipment

Item	Kit No.	Description
1	5760-820-IJ	Encoder Assembly with Mounting Bracket & 25' Cable
2	5765-206	Encoder O-Ring Replacement
3	4600-901	Product Detector, Break-Beam
	4600-902	Product Detector, Laser
4	4750-209	Clear Label Gap Sensor (See Note below)
5	6000-518	Y-Cable, Product Detector
6	6000-260	Remote Hand-Held
7	6000-552	Parking Brake
8	6000-903	Auto Retract, Label Low or Label Present Sensor
9	4750-216	Core Adapter, 3" to 6"
10	4750-215	Bracket & 6" Long Bristle Brush
11	6000828	LED Warning Light Tower (Standard with unit when ordered)
	6000828AUD	Warning Tower, Audible
12	4600-625	Tie-Down Cleats for Stand (3 pack)



NOTE: Refer to Instruction Sheet 4750-209N for setup instructions for the Clear Label Gap Sensor.

