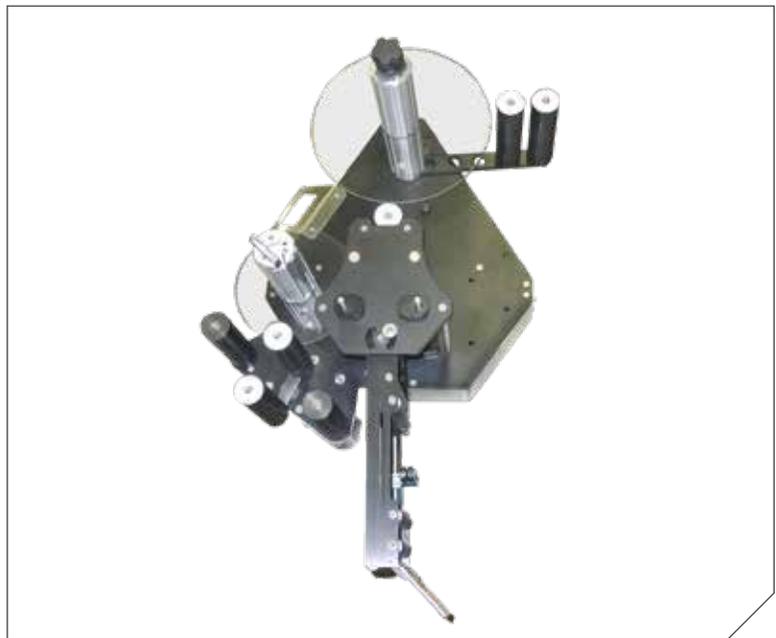# Shibuya Hoppmann™

L510A Labeler

Installation & Maintenance Manual

Refer all servicing to qualified personnel.

This manual is intended for use by qualified mechanics and electricians who install or service the Shibuya Hoppmann L510A Label Applicator.

Record your serial plate information here for future reference ➡

MODEL NUMBER	SERIAL NUMBER/DATE

www.ShibuyaHoppmann.com | **publications@Hoppmann.com**

Thank You!

Thank You for Choosing Shibuya Hoppmann

Thank you for purchasing a labeler from Shibuya Hoppmann. Our labelers, prefeeders, feeders, and automated systems possess an industry-wide reputation of excellence for their quiet and rapid handling of parts, ease of use and low maintenance requirements.

About This Manual

Who Should Read

This manual is intended for those who install and/or operate the L510A Label Applicator. The manual is not intended to meet the training needs of persons new to labeling; nor is it intended to meet the needs of personnel who wish to completely overhaul the unit. These needs will require assistance of experienced personnel and are outside the scope of this manual. Please read the entire manual carefully before operating your labeler.

Caution Symbols and Messages

Caution symbols and messages in this manual call attention to hazardous voltages, moving parts, and other hazardous conditions.

The lightning bolt caution symbol denotes possible personal injury and/or damage to the equipment from electrical hazards.

The exclamation point caution symbol denotes possible personal injury and/or damage to the equipment.

Other Documentation

Product specifications and vendor subcomponents are incorporated into this manual at the discretion of the manufacturer.

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Terms and Definitions

Term	Definition
BLOW-ON MODULE	Blow Module, Label Blow-On Applicator Module. Aids in applying the label to product with the use of blowing air.
TAMP-ON MODULE	Tamp Module, Label Tamp-On Applicator Module. Aids in applying the label to product with the use of pushing the label onto the product with pneumatics.
FR FILTER	Combination pneumatic pressure regulator and secondary particle filter.
PEELER PLATE	Peeler Bar; An edged, flat piece of metal around which the backing or label web material is threaded–the prime function being a mechanical device which causes a pressure-sensitive label to be dispensed from the backing material.
PRODUCT	Any medium to which the labels are applied (boxes, bottles, containers, etc.)
WEB	Webbing; Backing; Label Strip; Label Ribbon; Waste; Continuous Backing;
FLAG	The part of the label with the adhesive exposed before the label is completely removed from the webbing.
LABELER	Label Applicator; Applicator; L3500PA
PA	Print & Apply; Indicates the labeler has a print engine.
PRINT ENGINE	Thermal transfer printer; thermal printer; in-line printer.
PRINT HEAD	Label applicator unit; Print & Apply label applicator; Labeler

Description & Specifications

1

The Label Applicator

Thank you for purchasing a label applicator. The applicator will meet the needs of the single label, the stand alone applications or the integration into an inline product handling system.

The applicator's patented head design has one of the lowest drive inertias in the industry. This means less wear and more accuracy and repeatability.

The following are some of the features of the label applicator:
- Rapid configuration and changeover of applicator modules.
- Accommodates a 14" (356mm) supply roll diameter to minimize down time for reloading.
- Gear powered label drive and torque clutch adjustable rewind.
- One button auto-teach for fast, easy, repeatable changeover.
- Speed matching of label and product.
- Easy access to main components for maintenance and changeover.

The label applicator is offered as a stand-alone unit or as a module which can be integrated into a product handling system. In either case, the applicator includes a controller, operator LCD interface and product detector.

UNWIND
ASSEMBLY

DANCER
ARMS
ROLLERS

IDLER
ROLLERS

DANCER
ARM
ASSEMBLY

REWIND
ASSEMBLY

NIP ROLLERS
LOCKOUT
CAMS

DRIVE
ROLLER

IDLER
ROLLERS

LABEL
PRESENT
SENSOR

PEELER
PLATE
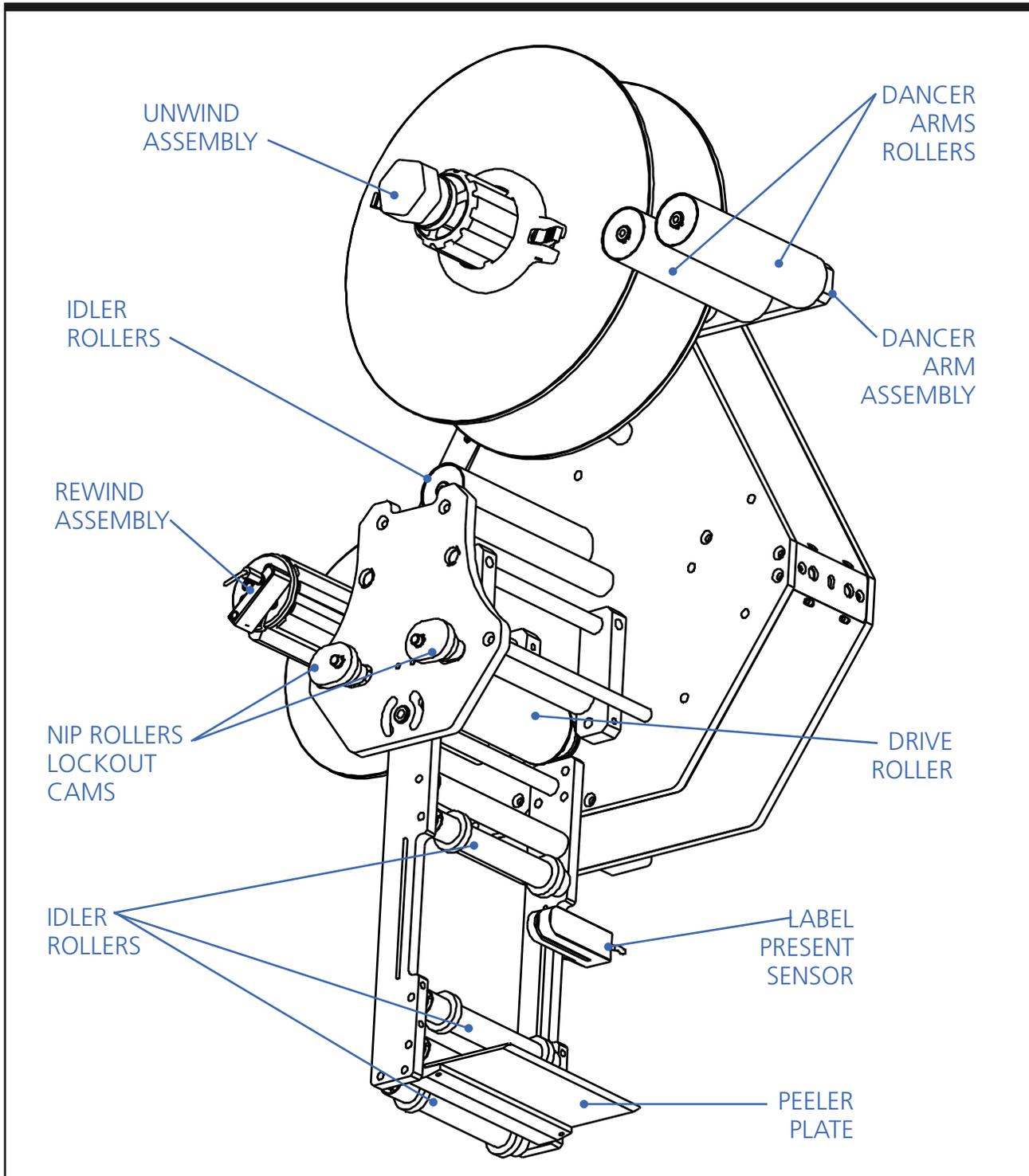
Figure 1-1. L510A Label Applicator - Front View
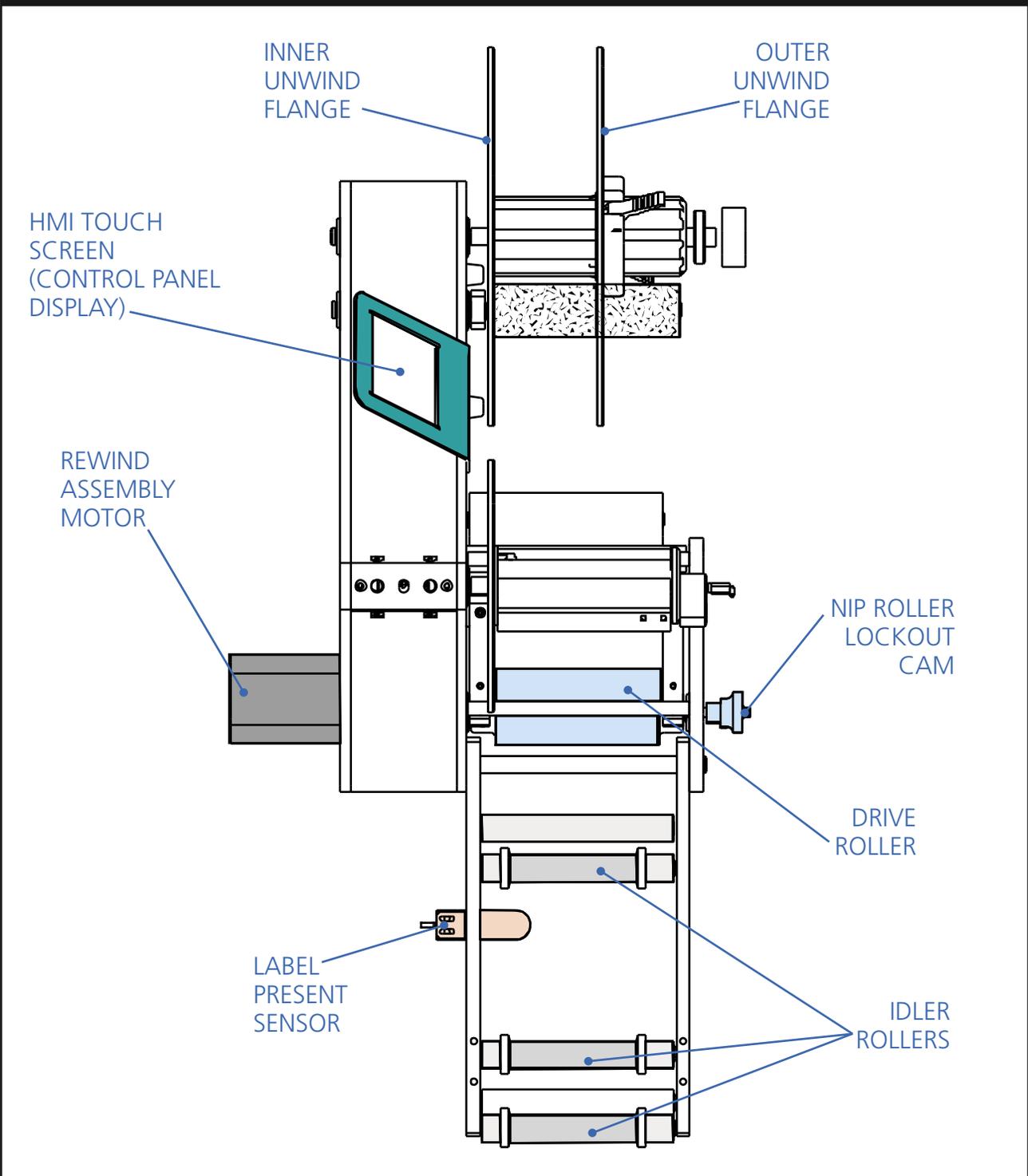
Figure 1-2. Side View of the L510A Labeler

DANCER
ARM
ROLLERS

UNWIND
ASSEMBLY

DANCER
ARM

HMI TOUCH
SCREEN
(CONTROL
PANEL
DISPLAY)

DRIVE
MOTOR

LABEL
PRESENT
SENSOR

WIPER
ARM

PEELER
PLATE
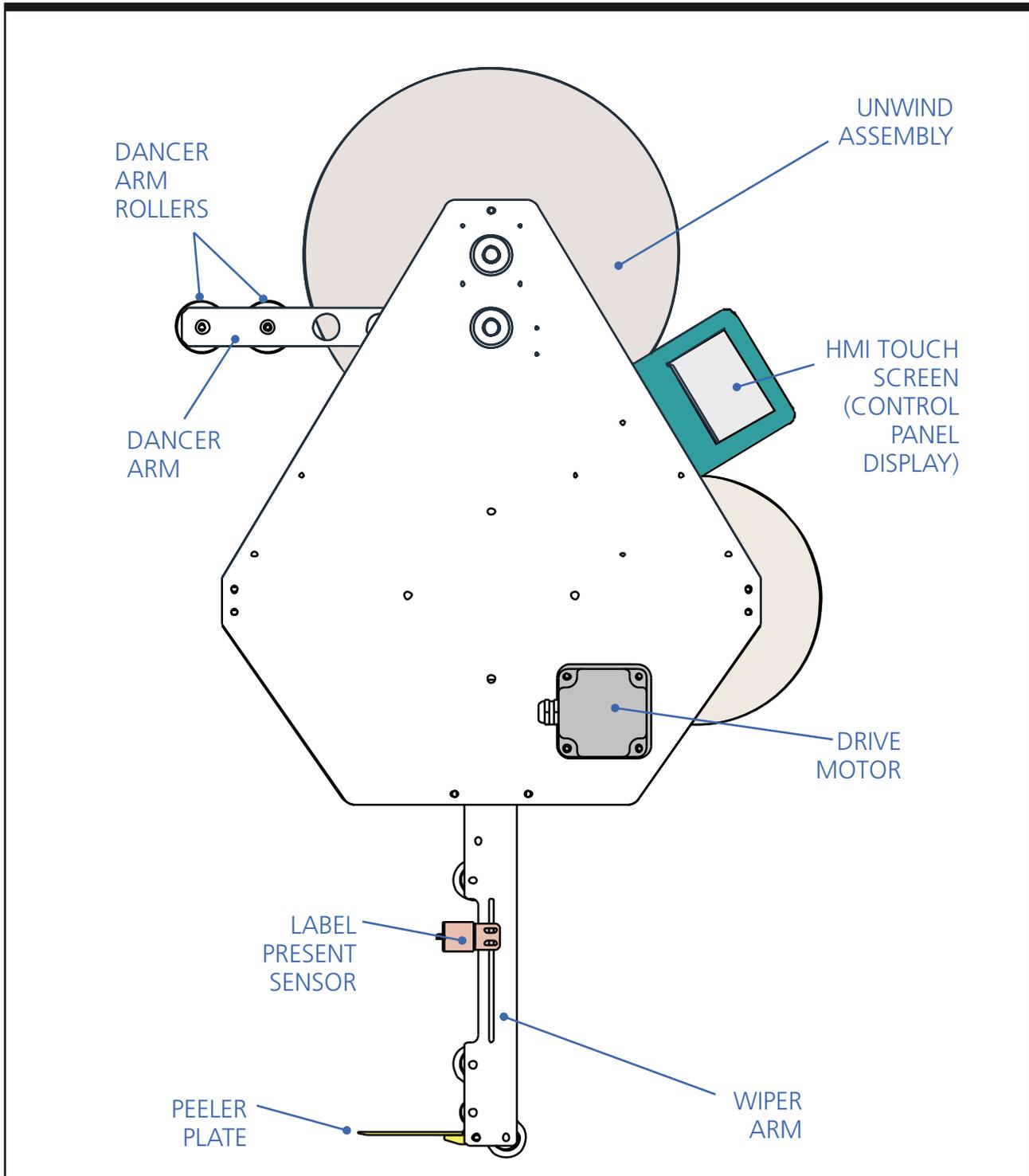
Figure 1-3. Back View of L510A Labeler

Applicator Specifications

The manufacturer or distributor may have changed specifications to match your desired application. Refer to the specifications shown in Table 1-1 for standard applicator specifications.

Applicator Specifications	
Accuracy	±0.02" (±0.5mm) depending on the application module
Controls	Programmable Logic Controller
Product Detection	Photo sensor
Label Sensor	Photo electric
Power Requirements	115 VAC, 60 Hz, single phase, 6 Amp
Shop Air (For Modules Only)	80 psi minimum, 100 psi maximum to the filter/regulator
Environment	41-104°F (5 to 40°C) operating temperature
Relative Humidity	25-85% relative non-condensing humidity
Label Supply Roll	14" (356mm) outer diameter with 3" (76mm) spool inner diameter
Overall Dimensions of Applicator	30.9" wide x 28.5" tall x 18" deep (784.9mm x 723.9mm x 457.2mm)
Weight	Approximately 150 lbs (68kg)

Table 1.1. Applicator Specifications

Notes

Safety Precautions

2

Safety Precautions

This labeler has been designed to be as safe as possible for operators. However, even well-built machines can be installed or operated in a hazardous manner. Safety precautions must be observed by users.

Specific Warnings & Cautions

Turn Power Off! Before servicing the labeler, make sure you have turned off compressed air and electrical power in a way that prevents accidental reactivation. Padlock, and clearly tag, the appropriate electrical and pneumatic disconnects. After disconnecting the electrical power, wait at least two minutes for the motor capacitor to discharge.

Dress Properly and Wear Safety Glasses! To reduce the risk of injury from moving parts, secure loose clothing. Do not wear jewelry or neckties near the machine. Wear safety glasses or other protective eye wear at all times. Never place hands or tools in the tamp, corner wrap, print head, or other movable parts of the labeler when the machine is operating.

Avoid Pinch Points! Exposed pinch points include the unwind and rewind assemblies, dancer arm, idler rollers, pull pins, the peeler plate and the different modules.

Avoid Dangerous Conditions! The standard labeler should not be placed in washdown environments nor is it designed to be used in explosive conditions. The Applicator will be damaged when sprayed by a fire suppressant sprinkler system. Dry conditions are critical for long life duration of the machine. Potentially explosive environments, such as areas where flammable gas and vapors are present, should be avoided due to static electricity caused by normal operations.

Notes

Installation & Start-Up

3

Unpacking and Inspection

Step 1. **Check the Shipping Container.** Make a visual check of the inside of the shipping box. The box and packing in which the unit ships has been carefully designed to prevent damage during shipping. However, if you do find a problem, report any damage to the Shipping Carrier **immediately** and follow their instructions.

⚠️ **The applicator can weigh in excess of 150 pounds (68kg).**

Step 2. **Unpack the Labeler.** Remove the top and sides of the shipping crate to expose the labeler. Remove the packing material. Inventory the container.

Applicator Positioning

The standard mounting procedure uses the two mounting holes that are located on each side of the applicator. The optional U-arm supports the applicator at those mounting locations. The mounting holes are tapped to M12 x 60.

CORRECT

INCORRECT

THE TWO SURFACES SHOULD BE PARALLEL

THESE SURFACES ARE NOT PARALLEL
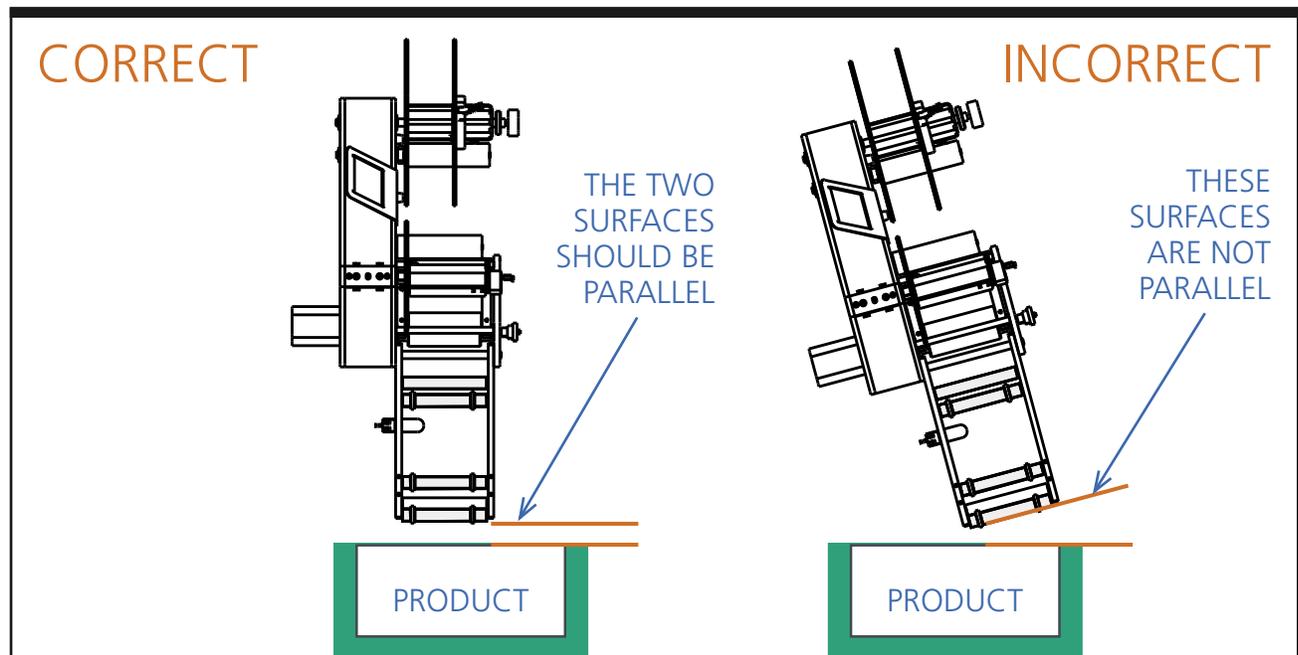
PRODUCT

PRODUCT

Figure 3-1. Correct and Incorrect Label Applicator Positioning

Positioning of the labeler may vary if an application module was purchased with your unit.

The labeler must be positioned so that labels are applied to the product with the proper orientation. Once the correct orientation is obtained, the labeler is ready to be placed into position. The product and labeling surface should be parallel with each other at point of contact (see Figure 3-1.)

Rotation adjustment of the wiper arm and peeler tip (see Figure 3-2) should be made to locate the flag of the label as close to the product as possible. The peeler tip should be located just above the product. A reference of 0˚ (zero degrees) from the product is suggested on the wiper arm. Then, rotate the peeler tip as needed.

Note: *The flag of the label is the amount of label protruding past the peeler tip.*
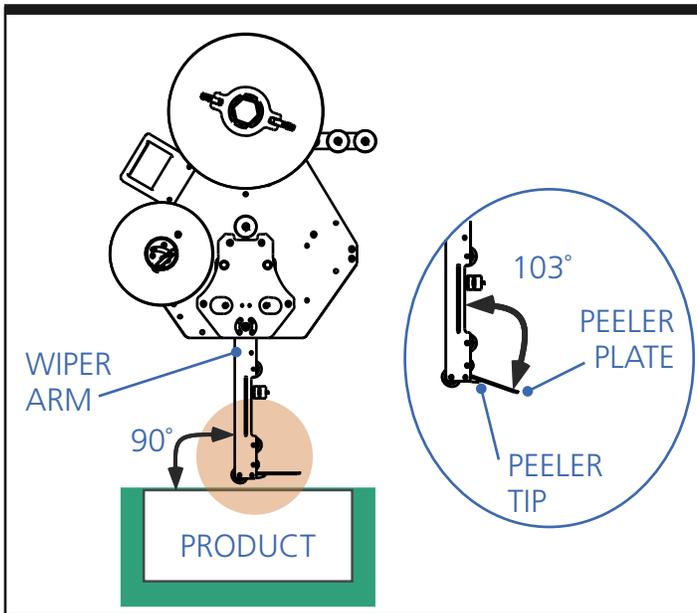
Figure 3-2. Rotation Adjustment of Label Applicator

Placing the peeler tip in the path of the product may cause damage to the applicator.

The applicator needs to be mounted in such a way that there is minimum vibration and rotation, or else the accuracy of the labeling may be compromised. It is also suggested that fine tuning adjustments be made after mounting.

U-Arm & T-Stand
If a T-stand and/or U-arm is purchased with your unit, refer to Figures 3-3 and 3-4 for proper positioning.

SOCKET HEAD ADJUSTMENT

MOUNTING HOLE

MOUNTING BOSS
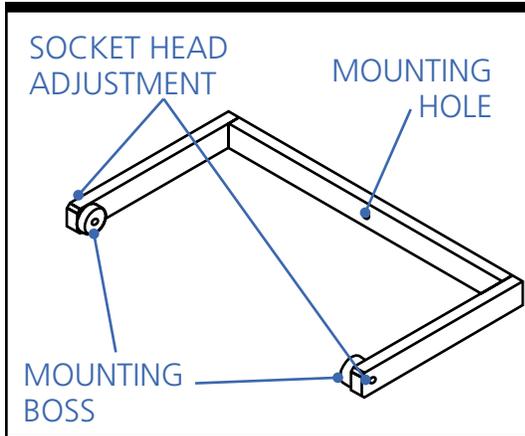
Figure 3-3. U-Arm

To pivot the applicator up or down, loosen the large hex nut which fastens the U-arm to the T-stand. This allows the unit to rotate the peeler tip up or down. Tighten the same nut to secure the applicator's position (see Figure 3-4.)

The applicator may also be positioned for top, side, or bottom panel labeling. Loosen the two large socket head bolts that fasten the U-arm to the labeler. Rotate the applicator into a position where the application module is parallel to the surface of the product to be labeled.

Use the handle at the top of the T-stand to raise or lower the applicator to the desired height relative to the product. (Refer again to Figure 3-4.)

HANDLE FOR VERTICAL MOVEMENT

HEX NUT FOR PEELER TIP MOVEMENT

CAM LOCK

LOCKING CASTERS

SOCKET HEAD BOLTS FOR TOP/ SIDE PANEL LABELING ADJUSTMENTS

LOCKING CASTERS

MOUNTING FOR LEVELING FEET (OPTIONAL)
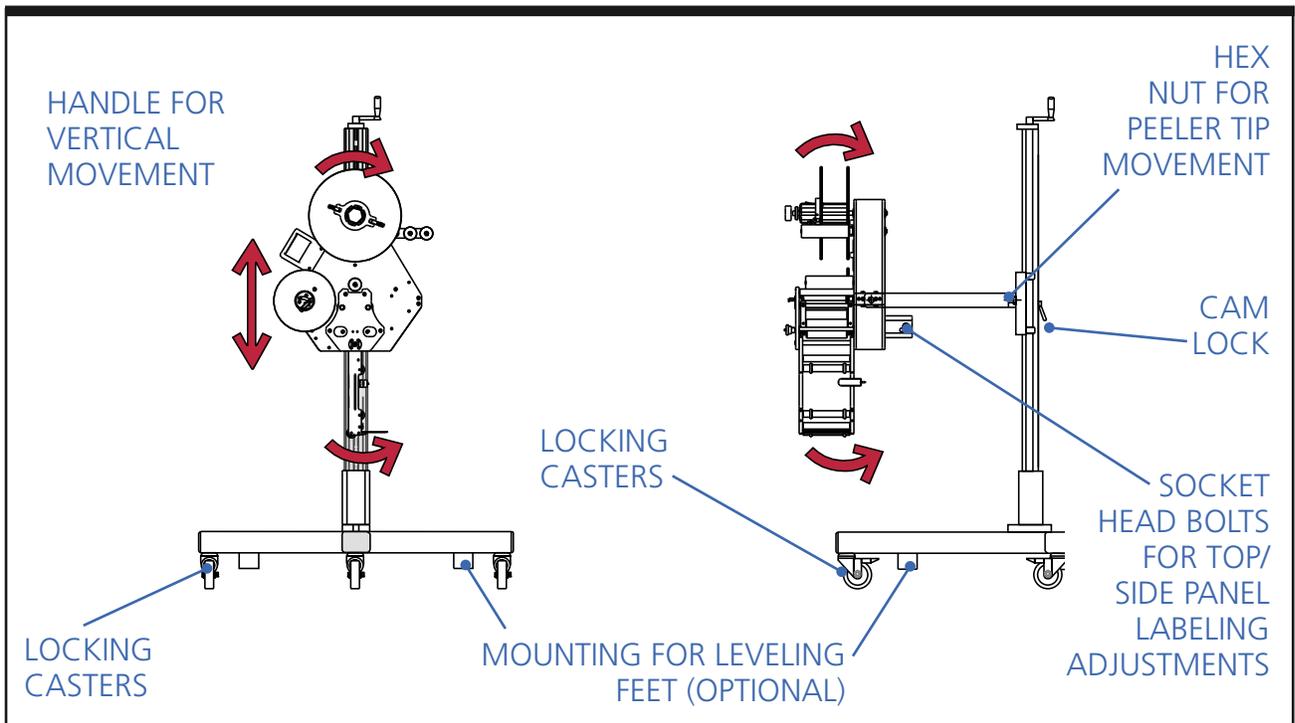
Figure 3-4. Adjustment for T-Stand and U-Arm

To change the horizontal position of the unit, simply unlock the casters on the bottom of the T-stand and roll the unit to the desired location. Lock the casters down once in position.

Power Supply

Supplying the unit with the correct supply voltage and compressed air (if necessary) permits safe and efficient operation. (Refer to Table 1-1 for exact specifications.)

Note: *Compressed air is only needed with certain applicator modules.*

Applicator Setup

4

Label Threading

Only use pressure sensitive labels. More information on label and web specifications are available in Table 4-1.

⚠️ **Before installing a label roll please read Table 4-1 to insure the selection of proper label stock.**

Label and Web Specifications	
LABEL STYLE	Pressure sensitive label with a minimum spacing of 0.125" (3 mm). Remove all die cut waste (skeleton). Label backing must have a release agent such as silicon. Label must free peel when pulled around a standard peeler plate with a minimum label gap of 0.125" (3 mm).
ACCURACY	(A) Linear position of label relative to web or backing must be centered. (B) Die cutting and edge slitting must be controlled to avoid cutting or nicking of the web backing. Failure to regulate this will result in web failure and label dispensing problems. (C) Web must be a minimum of 0.25" (6 mm) wider than label to be dispensed.
ROLL PUT-OUT	Maximum O.D. of roll is 14" (356mm) with a core I.D. of 3" (76 mm). Label orientation is based on equipment and product orientation. The labels must be wound to the outside of the roll.
SPLICES	Splices should be avoided as much as possible, but when splices are needed, please use "Angle" style, flush to the edge and on both sides of backing using 1" (25 mm) cellophane splice tape. Replace the label in the spliced area.
LABEL TOLERANCE	A label tolerance of $\pm$0.05" (0.02mm) can be maintained provided that: (A) Labels are manufactured to the right label specification with no die cuts into liner. (B) Lateral position of labels are within 0.0025" (0.06 mm) on the x and y axes. ⚠️ **Do not use foil or metal labels with capacitance.**

Table 4-1. Label & Web Specifications

Refer to Figure 4-1 to assist in proper label threading. A label threading diagram is supplied on the front of the labeler.

Store label stock in a cool, dry place to avoid heat damage.

Procedure   Refer to the circled numbers (1 through 16) on the front of the Labeler as shown in Figure 4-1 to assist you in following this label threading procedure.
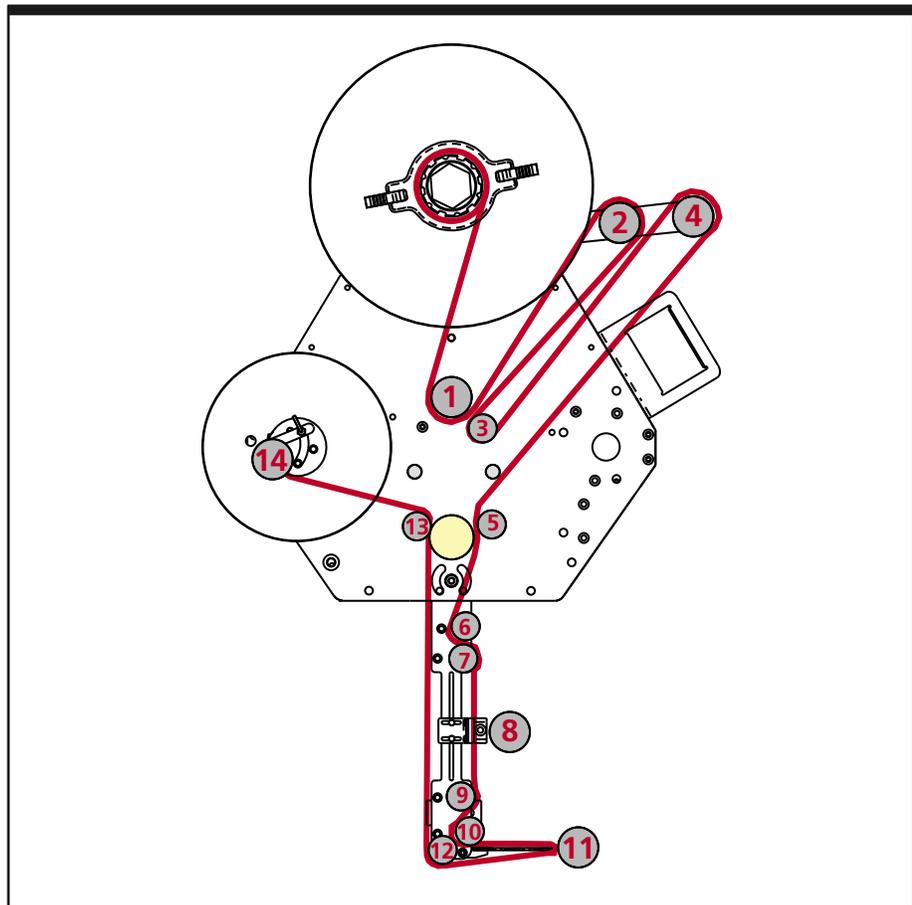
Figure 4-1. Web Path (also called Label Threading Path)

Step 1.   **Remove Outer Flange.** With the power off, remove the outer disk from the unwind roller by releasing the handles and lifting the cover up and off the unwind extrusion. If there is any unused spool, remove that from the extrusion.

Step 2. **Install Label Core.** Install a new spool of labels. Make sure the supply roll is pushed to the inner unwind flange of the assembly. Replace the outer flange by aligning the tabs with the grooves on the extrusion (see Figure 4-2). Once the outer flange is slid down over the spool along the grooves, firmly seat the outer flange down over the spool, and push the tabs into the core of the spool.

Step 3. **Start to Thread the Label Stock.** While holding the inner flange, grab and tug the label stock to make sure the roll does not slip. Once secure, loop the label stock under the idler roller (refer to position #1). Then loop the label stock over the first dancer arm roller (position #2). Route the stock to the inside of the idler shaft (position #3) and back up to the outside dancer arm roller at position #4).

Step 4. **The Nip Roller.** To thread the stock between the drive roller and the nip roller, you must first release the tension on the nip rollers. Lift up on the lockout knob on top of the face plate cover (see Figure 4-3) and rotate them 180˚. Move each cam outward until the cams' locks drop back down into the slots. This locks the nip rollers away from the drive shaft. Thread the label stock between the nip roller (position #5) and the drive shaft.

UNWIND FLANGE

GROOVES

TABS

NEW LABEL STOCK SPOOL

UNWIND EXTRUSION (SHAFT)
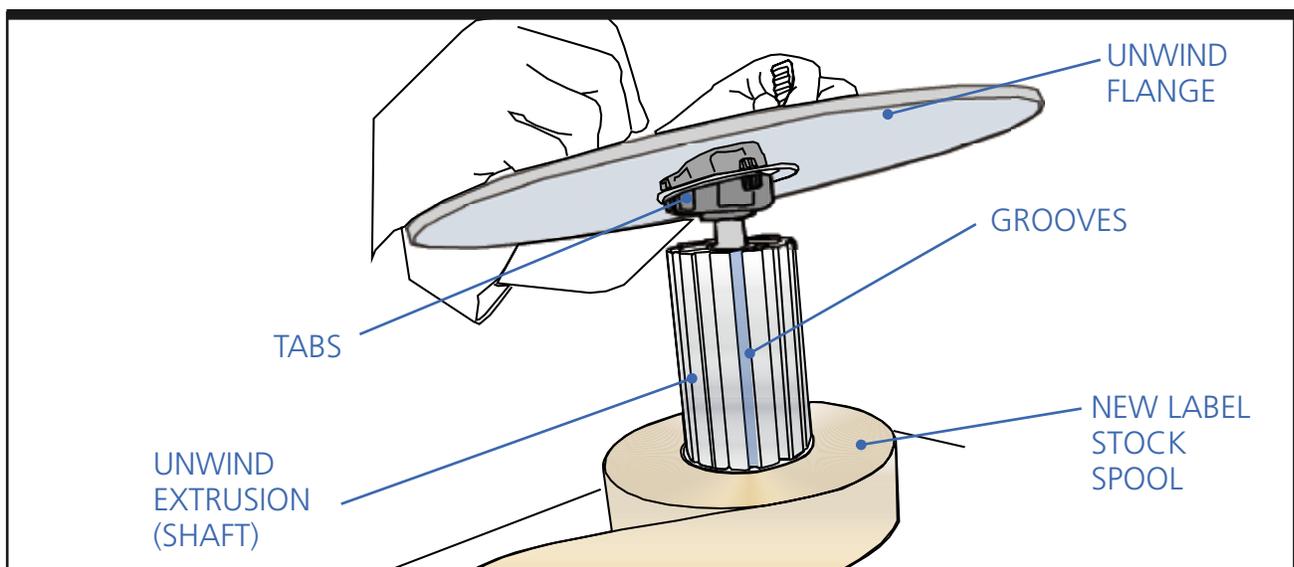
Figure 4-2. Unwind Assembly - Installing New Label Spool

Step 5. **Wiper Arm.** Thread the label stock under the first idler roller (refer to position #6), and then through the second roller (position #7). The label then is threaded through the label sensor (position #8) and under the third idler roller (position #9), then around the 4th roller (position #10). The label stock over the end of the label peeler plate (position #11), and back to the last wiper arm idler roller (position #12) at the base of the wiper arm.

⚠️ **Do not use foil or metal labels with capacitance sensor. They will damage the label sensor.**
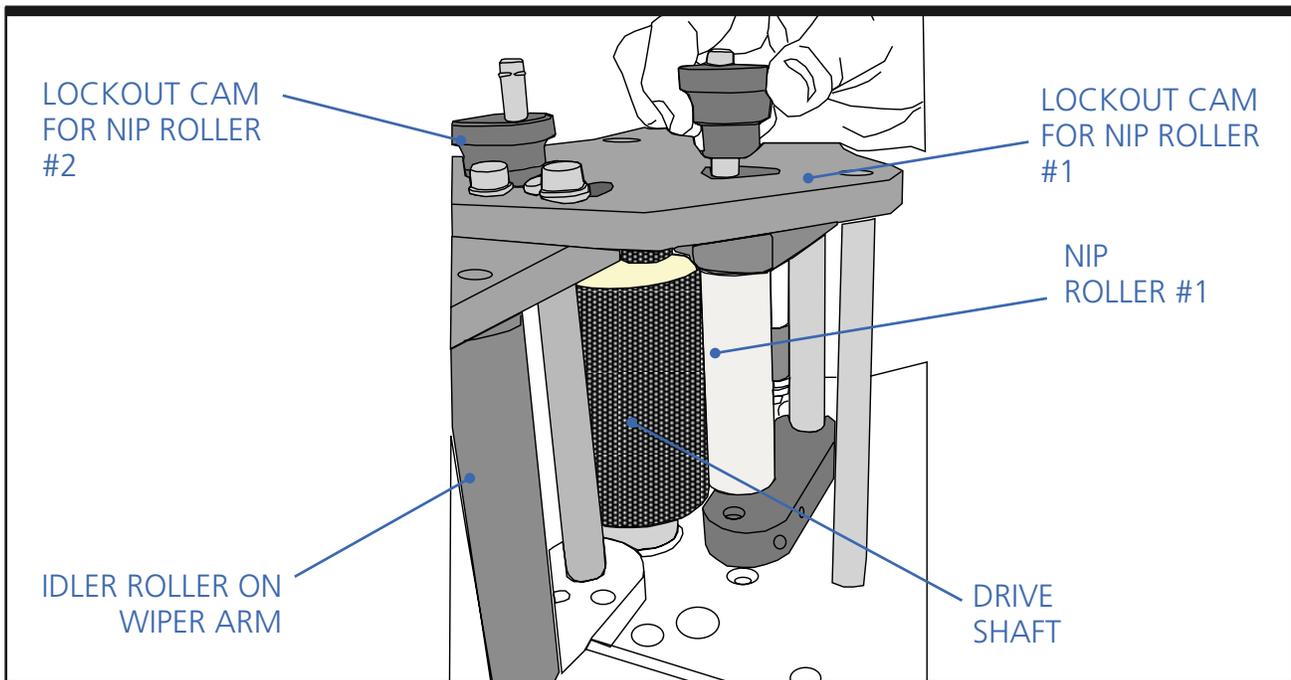
Figure 4-3. Lockout Knobs for Nip Rollers

Step 6. **Second Nip Roller.** Thread the label back up towards the drive shaft, feeding the label between the drive shaft and the 2nd nip roller (refer to position #13).

Step 7. **Wind through the Torque Fork Assembly.** Wind the label webbing through the torque fork assembly's outside roller (#14), the upper roller (#15), the inside roller (#16) and around final roller (#17).

Step 8. **Open the Cam on the Rewind Assembly.** Open the cam (refer to Figure 4-4) on the extrusion shaft of the rewind assembly. Insert a portion of the end of the label into the cam, and rotate the wheel to wrap up excess label stock. The label stock (media) should be riding evenly on the rollers and the tension should be fairly secure, but not too tight.

REWIND
FLANGE

LIFT UP ON PIN TO
MOVE HANDLE -
OPENING CAM IN
EXTRUSION

WIND
FLANGE
GENTLY BY
HAND

CAM OPENS A SLOT IN THE EXTRUSION -
ALLOWING OPERATOR TO INSERT LABEL MEDIA
END INTO THE OPENING HERE
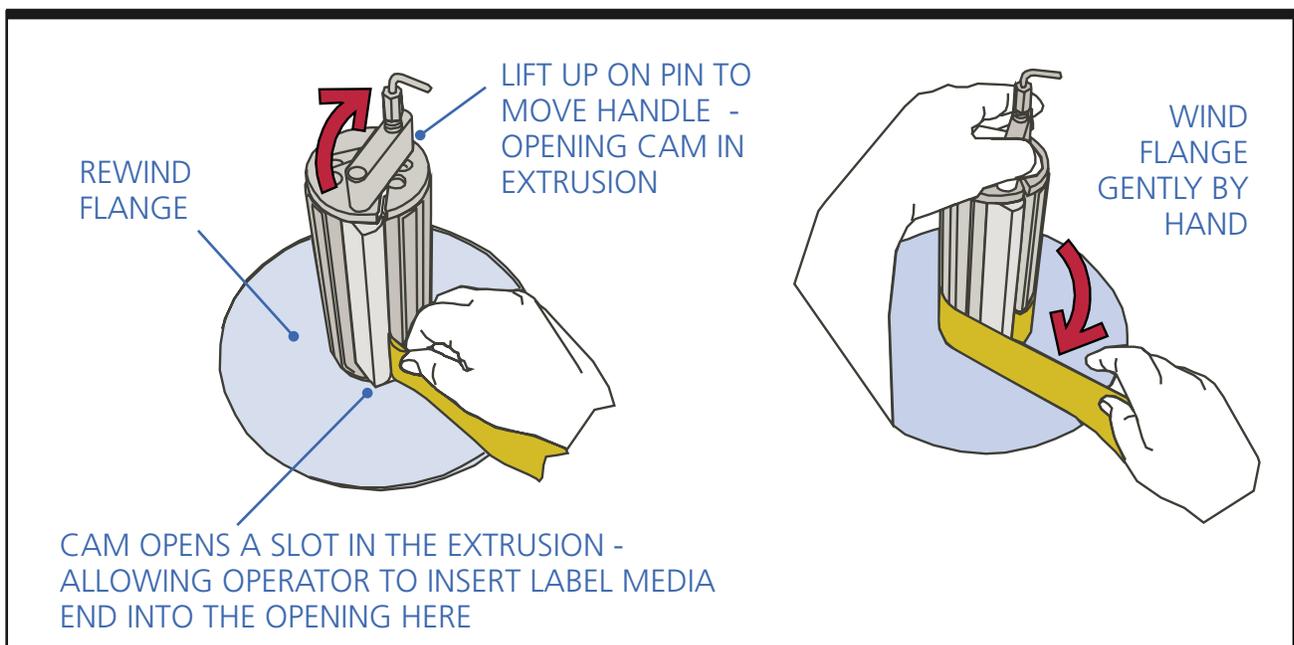
Figure 4-4. Rewind Assembly - Threading

Step 9. **Re-engage the Nip Roller Lockout Knobs.** Re-engage the nip roller lockout knobs by turning the knobs 180°, lifting up on the knobs and pulling them center towards the drive shaft (this should be tight, and maintain a firm grip on the knobs). Once the nip rollers are in place, push the knobs down into the openings on the front cover (see Figure 4-3).

Step 10. **Power Up and Jog the System.** Turn the disconnect switch to "ON". On the keypad, use the JOG command to run labels through at high speed to help the label stock find its proper label path through the labeler. Once the label stock is properly positioned, jog the labeler at low speed to position the label on the peeler plate appropriately.

Step 11. **Using Label Teach in the Control Screens.** Once the label is correctly situated on the peeler plate, go to the Label Teach screen and press "ENTER". This allows the labeler to "learn" the label position. The labeler should dispense three labels off the end of the peeler plate. Refer to Chapter 6, Operator Interface, for further information.

Note: *The aforementioned information is also valid if the labeler is still running (power not turned "OFF"), but to obtain label stock to thread, the dancer arm will have to be pulled clockwise. The dancer arm will dispense the necessary label stock to thread through the labeler.*

RED - INDICATES LABELER IS NOT READY; FAULTED

AMBER - INDICATES LOW LABEL SITUATION

GREEN- INDICATES LABELER IS READY AND RUNNING

Figure 4-5. Light Tower

Light Tower (Optional)

The optional light tower (refer to Figure 4-5) can be connected to the labeler to indicate different conditions of the labeler at any given time.

Figure 4-6. Low Label Sensor

Low Label Sensor (Optional)

The low label sensor is installed as shown in Figure 4-6 on the back side of the labeler near the unwind shaft (it is not visible unless the side covers of the labeler are removed). This sensor detects when the label roll is depleted. When the sensor detects the low level of media, it sends a signal and illuminates the amber light on the light tower (refer Figure 4-5). This sensor is hard wired to terminals in the electrical enclosure (see Appendix for details).

Rewind Clutch Adjustment

Adjust the rewind assembly so the label stock rewinds smoothly. No snapping or slack should occur. Adjust the rewind assembly by turning the hex nut on the end of the rewind shaft clockwise or counterclockwise.

To increase feed rate, turn the nut clockwise to apply more friction to the friction washer located on the rewind assembly. To decrease feed rate, turn the nut counterclockwise which applies less friction to the friction washer (see Figure 4-7.)

As the rewind assembly fills, the rewinding speed may become too slow. This is due to the increased weight of web waste on the rewind assembly. To prevent a slowdown from occurring, adjust the rewind speed as if the rewind assembly was full. Initially, the rewind assembly may exert substantial tension on the web. This will ease as the rewind assembly fills with collected web waste.
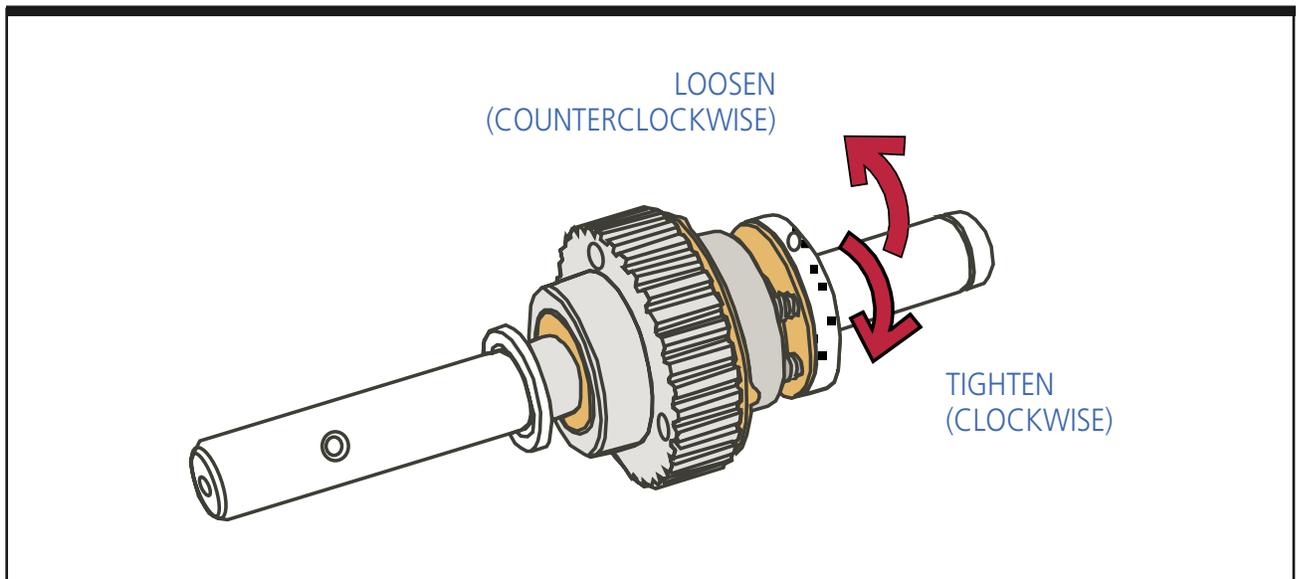
Figure 4-7. Rewind Clutch Assembly

Product Sensor

The sensor supplied with the applicator is hard wired directly to the electrical enclosure. A quick disconnect is provided on the sensor which allows for quick changeover of sensor style as applications dictate.

The sensor should be mounted slightly upstream from the applicator.

The alignment and method of mounting is critical to the performance of the sensor (see Figure 4-8.) Excessive vibration may cause false readings. Anything behind the product that could cause a false sensor reading should be moved or placed as far away as possible.

PARAMETER = 0 to detect rising product sensor signal edge

Sensor output signal to +24V if sensor detects a product
Sensor output signal to 0V (or open output) when sensor is not detecting a product

PARAMETER = 1 to detect falling product sensor signal edge

Sensor output signal to +24V when sensor is not detecting a product
Sensor output signal to 0V (or open output) when sensor detects a product

Figure 4-8. Product Sensor Setup

To select between sensing the leading edge or the trailing edge of a product leave the operate switch (found on the body of the sensor) set to "light operate" at all times. In the PRODUCT SENSOR EDGE screen of the operator interface (refer to Chapter 5) select "LIGHT ON" to detect the leading edge, or select "DARK ON" to detect the trailing edge. The Default Setting is "LIGHT ON". The standard sensor that is shipped with the labeler is set up for "light operate." Refer to Figure 4-9 for adjustments.

Changing the sensor setting from light operate to dark operate will drastically affect the operation of the applicator and any modules being used.

Once the sensor is mounted and the product is in place, apply power and advance the GAIN control to maximum (clockwise rotation). If the sensor is "seeing" its reflected light, the sensor alignment red LED should be on. If a red pulse is not observable, reduce the GAIN control (counterclockwise rotation) to obtain a countable pulse rate.

LED INDICATORS:
THE GREEN LED ILLUMINATES WHEN POWER IS "ON".
THE RED LED TURNS OFF/ON WHEN AN OBJECT IS DETECTED, DEPENDING ON THE STATE OF THE LIGHT/ DARK SWITCH.

LIGHT/DARK OPERATE SWITCH:
IN LIGHT-OPERATE (FULLY CLOCKWISE) MODE - THE SENSOR ACTIVATES AN OUTPUT WHEN THE OBJECT IS PRESENT.

IN DARK-OPERATE (FULLY COUNTER-CLOCKWISE) MODE THE SENSOR ACTIVATES AN OUTPUT WHEN THE OBJECT IS ABSENT.

GAIN CONTROL:
TURN CLOCKWISE TO INCREASE GAIN –
TURN COUNTERCLOCKWISE TO DECREASE GAIN.

Figure 4-9. Product Sensor Setup

Once you feel comfortable with the set GAIN, test by removing the object from the sensing position. The red LED indicator should go "off". If the LED indicator does not go "off", the sensor is reacting to light reflected from a background surface. **Note: If DARK operate is selected, the red LED should turn "ON" if the object is removed.**

Reduce the GAIN until the indicator goes "off" and check the sensor with the object once again. If the sensor indicator does not come "on", when the object is placed in position, then the sensor is receiving more light energy from the background than the object. Consider the following alternatives:

⮑ Move the sensor closer to the object and reduce the sensitivity (GAIN).
⮑ Reduce background reflectiveness by painting the background with flat, black paint, scuffing the background or cutting a hole in it.
⮑ Tilt the sensor or the background so that the sensing beam is not perpendicular to the background.

Set-Up Instructions for Standard Label Sensor

The L510A Labeler uses the "LER" or "LERC" Label•Eye sensor as a standard which is designed specifically for the detection of labels. The sensor, affixed to the wiper arm of the label applicator, has an Autoset™ program for easy setup.

Normal Backing   To start Autoset™, use the external alignment guides to position the gap between labels in line with the dot in the detection zone (see Figure 4-10 on the following page). Once the label is in place, push the Autoset™ button marked "NORMAL."

If the red and green LED indicators blink four times, the sensor cannot penetrate the backing materials or the presence of labels.
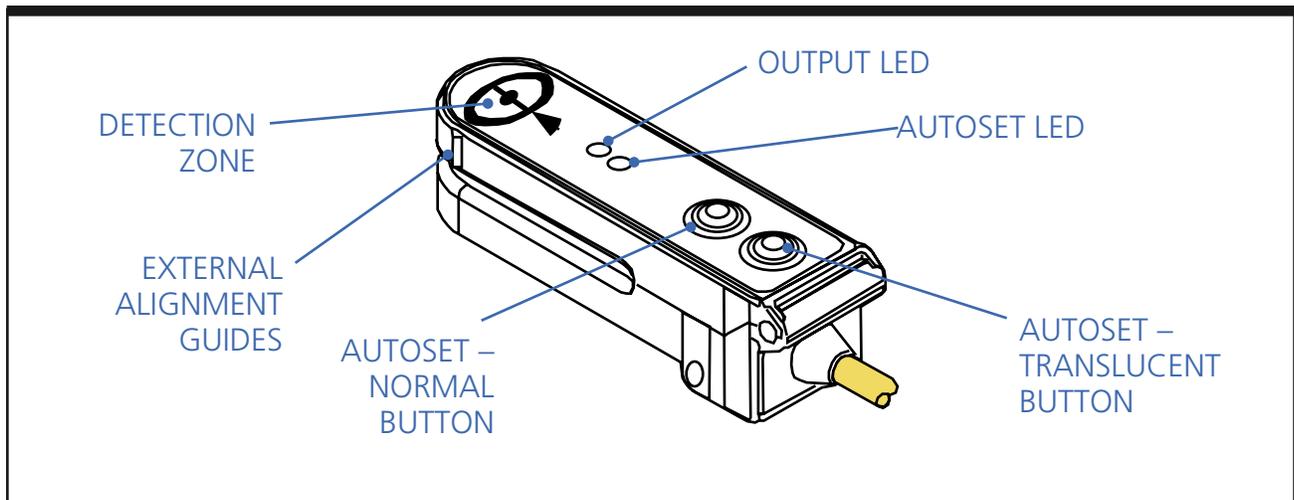
Figure 4-10. Label-Eye Label Sensor (Located on Wiper Arm) Mode Alignment

Translucent Backing   The sensor cannot always detect transparent labels on transparent backing. However, in some cases it may detect the label. Use the Autoset™ procedure above, placing the gap between the label between the external alignment guides, so that it is in line with the dot in the detection zone (see Figure 4-10). Once the label is in place, push the Autoset™ button marked "TRANSLUCENT." If it is detectable, the red LED indicator should go on when the label passes through the detection zone.

Setup Instructions for Lion LRD 2100 Label Sensor (Optional)

Overview   The Lion LRD 2100C Label Sensor is an electronic, capacitive sensor used to count labels and/or monitor label registration. The NPN and PNP outputs show whether the sensor sees the leading or trailing edge of the label as it passes through the sensor.

Warnings and Precautions
- ➲ Make sure sensor body is connect to GROUND.
- ➲ Unused wires must be insulated from contact with other objects.
- ➲ All power must be off when installing the sensor.
- ➲ Gray wire (Output Polarity, pin 5) must be connected to +V or Ground for operation.

Setup   The sensor is stable and should not require re-adjustment after the first initial setup unless there is significant change in the shape and/or thickness of the label, or changes in power supply voltage.

Step 1.   **Remove all material from sensor.**

Step 2.   **Gain Adjust.** Center "GAIN ADJUST" (see Figure 4-11) - Turn GAIN ADJUST four (4) turns counter-clockwise, then turn GAIN ADJUST two (2) turns clockwise.
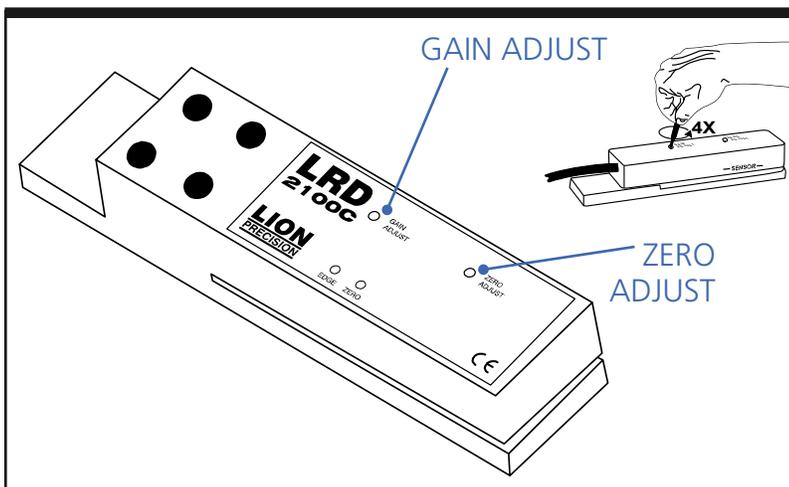
Figure 4-11. Lion LRD 2100C Retroreflective Mode Alignment
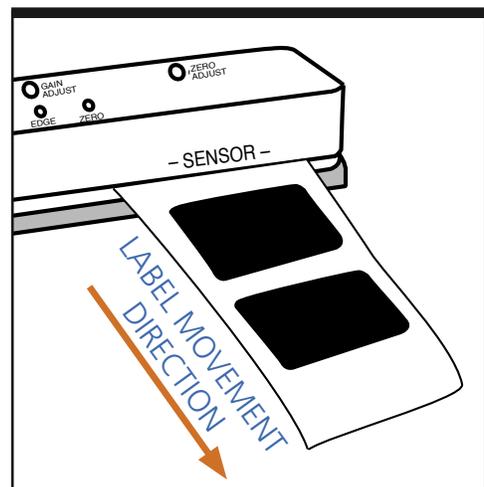
Figure 4-12. Labels Through the Sensor

Step 3.   **Zero Adjust.** Set ZERO ADJUST to the point where the ZERO light just begins to come on. It is not important if the light is on or off - what is important is that the light is very near the point where it changes from off to on.

Step 4.   **Final Gain Adjust.**
Set GAIN ADJUST by inserting material into the sensor and moving them through the sensor. Set GAIN ADJUST at the point when the EDGE light starts to flash; then continue with a one-half (1/2) clockwise turn.

The sensor is now adjusted and should function correctly.

Labeling System Setup

The labeling system is setup for dispensing the maximum number of labels at the maximum applicator speed. There are different ways to set up a labeling system. A setup for maximum performance is described below:

Step 1. **Select Spool Size.** Use the largest spool with the largest label size intended to be dispensed.

Step 2. **Move Label to Dispense Position.** Move the label with the JOG function (see Chapter 5, Operation Procedures) to the dispense position (label flag). Using the JOG feature, press and hold the ENTER button to forward labels.

Step 3. **Place Label Sensor.** Place label sensor to the middle of a label.

Step 4. **Run Auto-Teach Function.** If system stalls, reduce the **ACCEL/DECEL** until the stalling stops.

Note: Default Setting for **ACCEL/DECEL** is 200 Hz/ms.

The system is now set up for maximum performance.

Step 5. **Set Asynchronous Speed.** If you know the maximum labeling speed already, set it as the **ASYNCHRONOUS SPEED** in the parameters then dispense labels in asynchronous mode. If you don't know the maximum labeling speed or should the system stall, increase the labeling speed step-by-step starting from 250 mm/sec (e.g. 250, 400, 508) and find out at which point the stepping motor stalls. If the motor stalls, reduce the maximum speed back to a safe rating.

Step 6. **Increase Acceleration/Deceleration Ramp.** Continue dispensing labels. Now increase the **ACCEL/DECEL**, step-by-step, starting from the default 200 Hz/ms. If the motor stalls, reduce the maximum acceleration /deceleration ramp back to a safe rating.

Note: **Please consider that a high acceleration rate may stress the web and create a loose condition.**

Step 7. **Setup Complete.** As a result of the actions 1 to 6, the system is now set up for maximum performance (most likely required on labeling machines).

Note: **Reference all BOLD CAPPED terms in Operator Interface Chapter.**

Operator Interface

5

Figure 5-1. Mapping of the Operator Interface

Continued from previous page

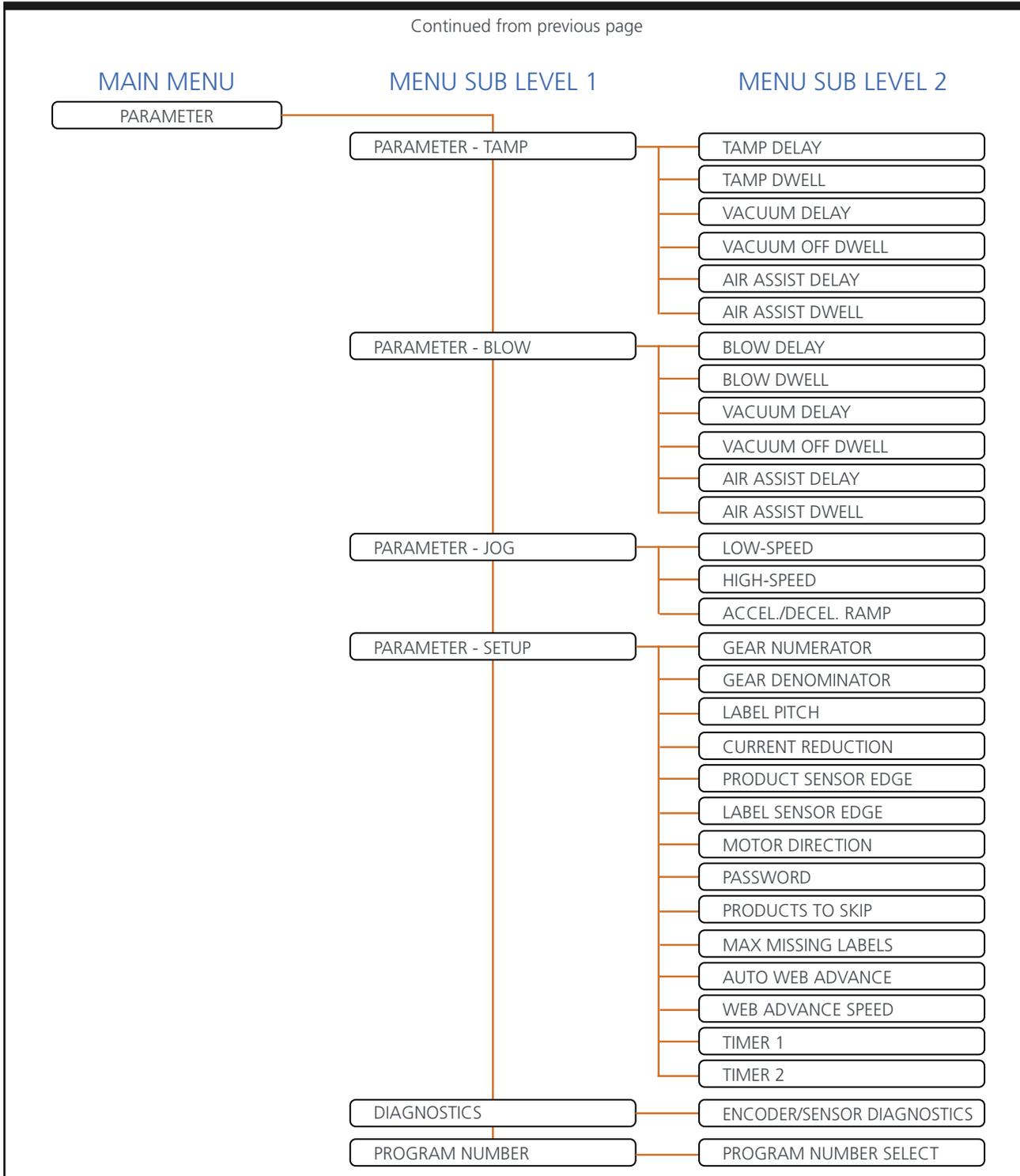| MAIN MENU	MENU SUB LEVEL 1	MENU SUB LEVEL 2
PARAMETER		
	PARAMETER - TAMP	TAMP DELAY
		TAMP DWELL
		VACUUM DELAY
		VACUUM OFF DWELL
		AIR ASSIST DELAY
		AIR ASSIST DWELL
	PARAMETER - BLOW	BLOW DELAY
		BLOW DWELL
		VACUUM DELAY
		VACUUM OFF DWELL
		AIR ASSIST DELAY
		AIR ASSIST DWELL
	PARAMETER - JOG	LOW-SPEED
		HIGH-SPEED
		ACCEL./DECEL. RAMP
	PARAMETER - SETUP	GEAR NUMERATOR
		GEAR DENOMINATOR
		LABEL PITCH
		CURRENT REDUCTION
		PRODUCT SENSOR EDGE
		LABEL SENSOR EDGE
		MOTOR DIRECTION
		PASSWORD
		PRODUCTS TO SKIP
		MAX MISSING LABELS
		AUTO WEB ADVANCE
		WEB ADVANCE SPEED
		TIMER 1
		TIMER 2
	DIAGNOSTICS	ENCODER/SENSOR DIAGNOSTICS
	PROGRAM NUMBER	PROGRAM NUMBER SELECT

Figure 5-1. Mapping of the Operator Interface (Continued from Previous Page)

Operator Interface Map

The previous page contains a brief flow chart of the program layout. Please note that all the screens are accessible through the Operator's Panel. **Turn the labeler off (via the Disconnect Switch) before plugging the remote operator panel into the port. Then turn the power back on to access remote operator panel. Cycle power once remote operator panel is removed from the port.**

Operator Interface Operation

The following information explains the different parameters found within the operator panel. These parameters are extremely important in obtaining a reliable labeling operation. The operator should take time to sample various settings and observe how they affect the performance of the labeler.

Operating Mode

The two operating modes available are **synchronous** and **asynchronous**. The operator may change between modes by simply selecting the appropriate mode in the "WIPE-ON" screen.

When **synchronous** mode is chosen, the labeler will dispense labels at the speed determined by the encoder data sent to the controller. This mode is used for high speed, precise labeling or varying conveyor speed applications.

When **asynchronous** mode is chosen, the labeler will dispense labels at a constant speed determined by the values entered into the operator panel.

The settings the operator enters into the operator panel will affect the labeler differently depending on the mode the operator has chosen.

Additional information on the Controller can be found in the Berger Lahr C229 Single Axis Motion Controller manual (May, 2006).

Main Screen

Main Screen   Once powering up the applicator, the main screen is accessible after thirty (30) seconds. Choose the operating function (JOG, LABEL-TEACH, etc.) in order to set up the parameters for the different operating modes (refer to Figure 5-2).
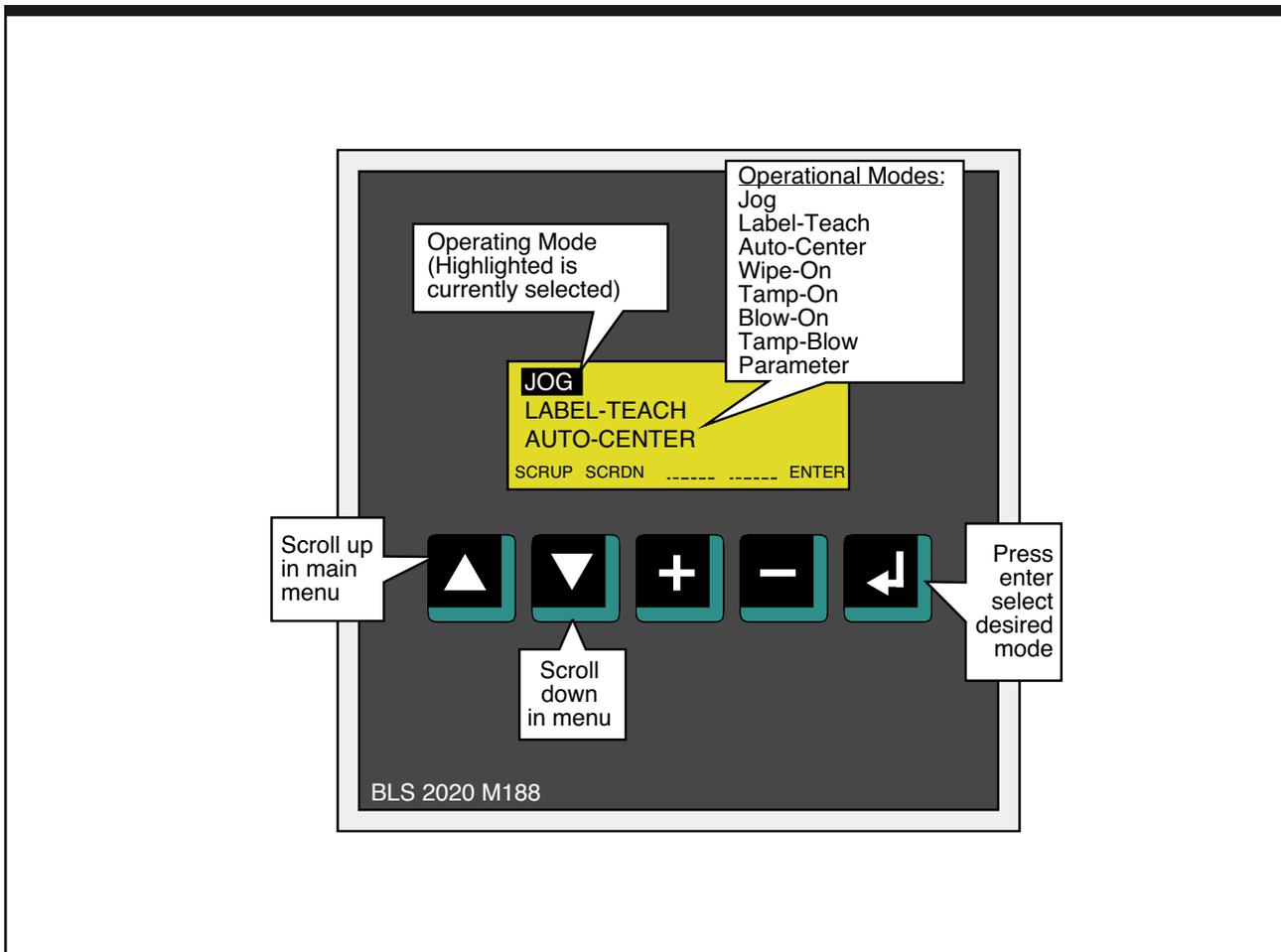
Figure 5-2. Main Screen

Parameter Display Screen

Key Assignment of Parameter Display Menu:
(shows the established values on the parameter screen for that parameter)

Parameter Group

Parameter Name

PARAMETER - WIPE

Parameter Unit

START DELAY
+00000 [Increm]

Parameter
Value

SCRUP SCRDN   +   -EXIT ENTER

Scroll up
in menu

Press
enter to
change
parameter

Scroll
down
in menu

– Exit
Parameter
Display

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Key Assignment of Parameter Menu:
(lets the operator change the values on the parameter screen for that parameter)

Increase
Digit
Value

Store
Value
and
Exit

Decrease
Digit
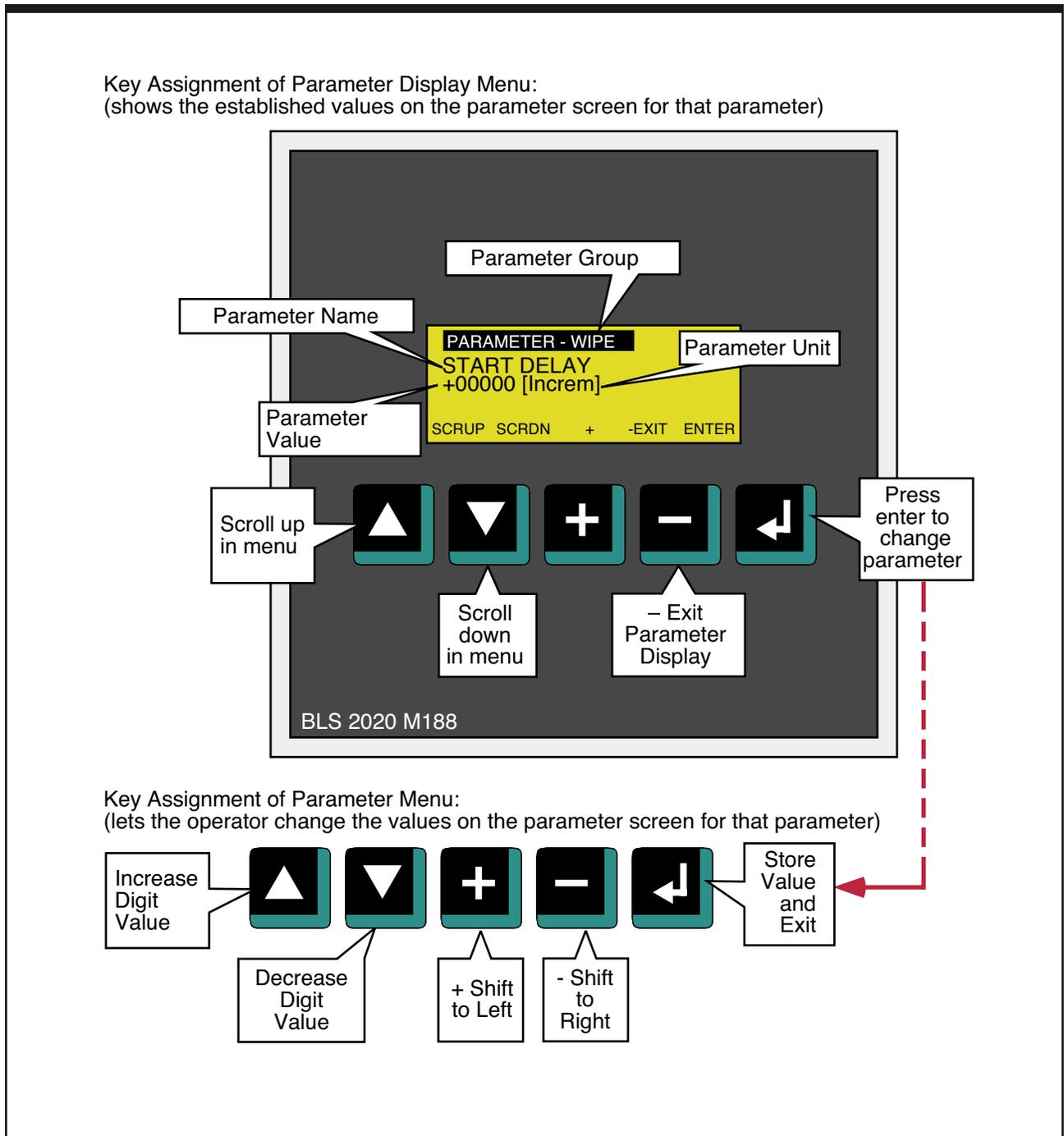Value

+ Shift
to Left

- Shift
to
Right

Figure 5-3. Parameter Display Screen/Edit Screen and Function of Buttons on Screen

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Operational Modes - Jog

The JOG function is used to manually position the label to the correct position at the peeler plate. It can also help to adjust the labeler dispensing speed (using a tachometer) while in asynchronous labeling mode. Jog can only be used if you are not in any other Operational Mode (for example: Wipe-On).

```
JOG            HIGH SPEED
          +123

MENU    MODE    JOG    -----    -----
```

HIGH SPEED JOG	Dispenses labels at a speed as set in the Parameter Jog Section.
LOW SPEED JOG	Dispenses labels at a speed as set in the Parameter Jog Section.
LABEL PITCH	Dispense labels at a speed which ASYNCHRONOUS speed is set to in the parameter screen (simulates product sensor).
SINGLE STEP	Dispenses labels one motion step at a time.

To use JOG, enter the JOG screen and select one of the four modes: HIGH SPEED, LOW SPEED, LABEL PITCH or SINGLE STEP. The values for High Speed and Low Speed can be set in the parameter section (Parameter - Jog further in this chapter).

Once the desired speed is set, press the JOG button on the control panel to advance the label web.

The position counter displays the amount of steps that the motor has moved in positive direction after the JOG mode was started. The counter will be reset when the JOG mode is restarted.

Operational Modes - Label Auto-Teach

This function is used to determine the length of a label pitch and the stop distances used for the labeling process. It begins when START is pressed. The speed for the Label-Teach mode is the low jog speed. Stepping motor controllers determine the position of the motor while the motor is running in relation to the label sensor input signal.

There are two ways to enter the label pitch and stop distance for the Label-Teach operation:

Option 1. Measure label pitch (length + gap) and stop distance and enter as parameters using the terminal. Note: All values are in motor steps.

Option 2. Place label web with manual function to the dispensing position. Then activate the LABEL_TEACH to start teach in procedure (Note: motor moves with the low jog speed).
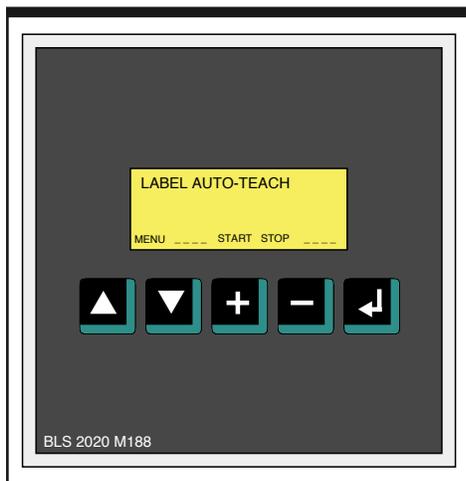

Figure 5-4. Label Auto-Teach Screen

While setting up the labeling machine, the JOG operation is required to move the label to the correct position at the peel plate. The LABEL-TEACH learning movement function is used to determine the manually adjusted operating position for the AUTOMATIC OPERATION.

The LABEL-TEACH learning movement is started by selection LABEL-TEACH in the main menu. The function advances the web 3-4 label lengths with the manual low speed.

With the digital input LABEL_SENS a total of 3 label lengths including the gaps between the labels are measured and the average length of the 3 label lengths is then calculated as a set value (LABEL PITCH) then later used in the actual labeling operations.

Problems with the adjustment of the label sensor or with label web itself can be detected with the learning movement. It is required to move the label sensor further away from the label edge if the sensor is placed just at the label end after a learning movement, because this is a disadvantageous position for the automatic operation.

Only after an error free LABEL-TEACH learning movement all the measuring results are accepted by the controller and saved as operating parameters permanently to EEPROM.

1. The label pitch (pitch = label length + gap between labels)
2. The stop distance after detecting a label end signal.

Operational Modes - Auto-Center Teach, Auto-Center and Encoder-Value Teach

This function is used to "teach" the product length and is used in combination with the AUTO-CENTER function. (Refer to the Parameter-Setup section later in this chapter for additional information on Auto-Center parameter). **Auto-Center only works in WIPE-ON synchronous dispensing mode.**

The AUTO CENTER FUNCTION works properly if:
 ⮑ The RATIO ADJUST factor is set to the default value of 100%. The gear numerator and gear denominator must be set accurately for this. Please refer to the section PARAMETER SETUP.
 ⮑ The labeling mode is switched to synchronous.
 ⮑ The following steps are followed:

1. Switch controller to WIPE-ON mode and synchronous dispensing mode first and make that AUTO CENTER function switched of. In case the AUTO-Center icon is displayed switch the AUTO-CENTER function off first.
2. Start dispensing labels at low speed and by using the START DELAY parameter adjust the label position on the product so that the leading edge of the label is flush with the leading product edge.

LABEL IS PLACED AT THE LEADING EDGE OF THE PRODUCT AND AUTO CENTER IS SWITCHED OFF

LABEL

3. Return to the main menu (AUTO-CENTER TEACH screen).
4. Press START and watch the screen.

At this time all the key descriptions in the M188 screen disappear except MENU. The controller expects a signal from the product sensor. In this state you cannot interrupt the AUTO-CENTER TEACH function except by switching the controller off.

5. Put the product on the conveyor and run it past the product sensor at low speed. The controller measures the length of the product in encoder increments. Product length: Leading product edge to trailing product edge detected by the product sensor.
6. The measured product length is displayed on the screen in increments. This value shows the encoder value. Enter this value for the Encoder value. If AUTO-CENTER is not required, exit at this point.
7. Switch AUTO-CENTER on by pressing the corresponding menu key on the screen. A symbol appears in the lower left screen corner to indicate that AUTO-CENTER is ON. The AUTO CENTER symbol is also displayed in the WIPE-ON function screen.

LABEL IS PLACED IN THE CENTER OF THE PRODUCT AND AUTO-CENTER IS SWITCHED ON.
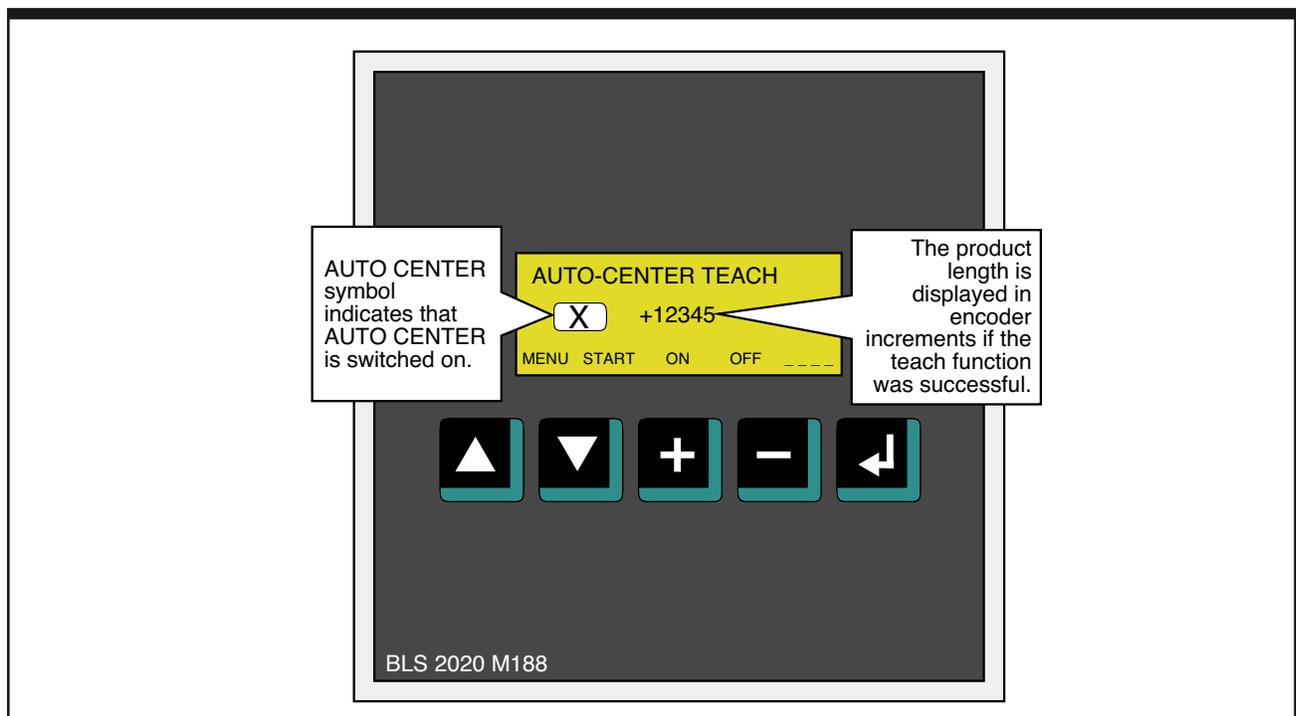
LABEL

AUTO CENTER symbol indicates that AUTO CENTER is switched on.

AUTO-CENTER TEACH

X   +12345

MENU   START   ON   OFF   _ _ _ _

The product length is displayed in encoder increments if the teach function was successful.

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Figure 5-5. Auto-Center Teach Screen

Operational Modes - Wipe-On Mode

The WIPE-ON mode can run in either synchronous or asynchronous dispensing mode. Both modes can be used to dispense labels up to a high speed range.

While WIPE-ON mode is running. The DELAY and the SPEED can be adjusted with the M188 terminal. The ENTER key toggles between SPEED and DELAY adjust. In asynchronous dispensing mode the ASYNCHRONOUS SPEED is adjusted by increasing the speed + 1% or – 1% of the previously set value. In synchronous dispensing mode the gear RATIO ADJUST is also changed + 1% or –1% of the previously set value. All the values are stored in retain memory and the values can be viewed in the parameter setup menu. The DELAY is adjusted in single encoder increments.

Note: See also important information on the DELAY parameter in section PARAMETER setup describing the effects of the DELAY function in the dispensing modes ASYNCHRONOUS and SYNCHRONOUS.
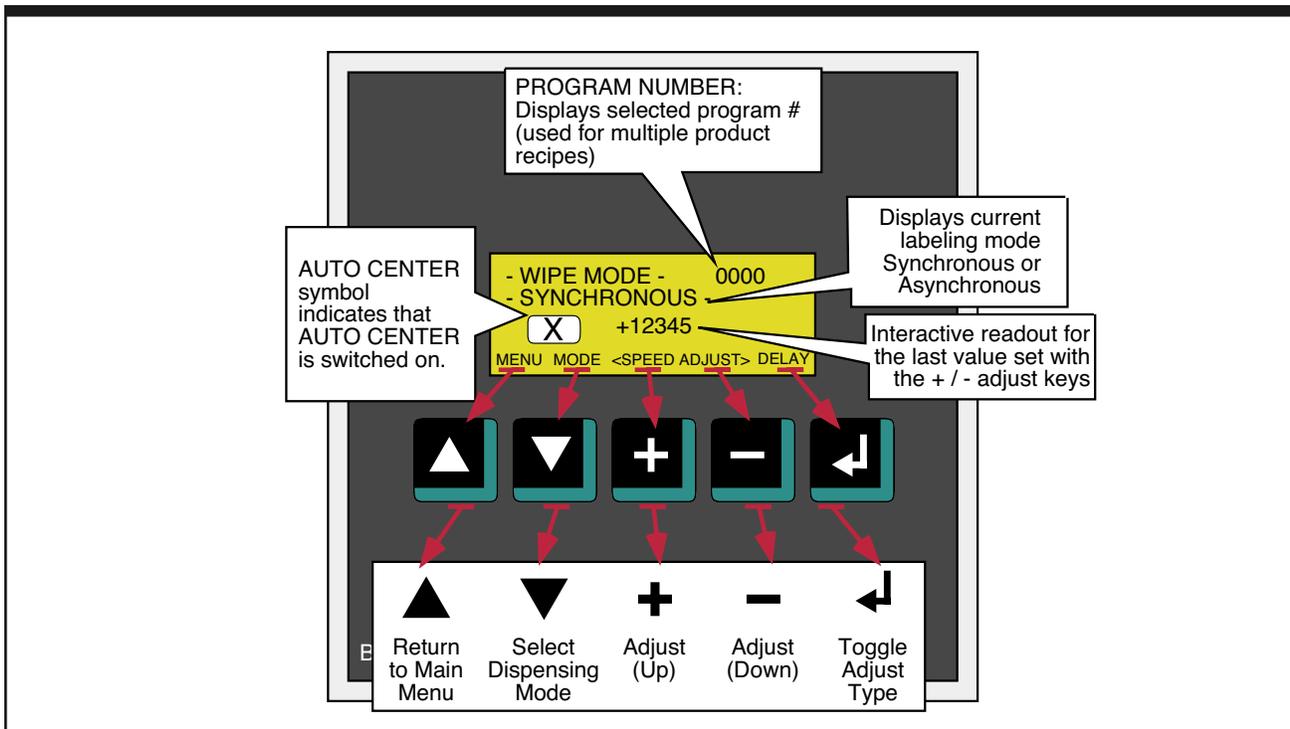

Figure 5-6. Wipe-On Mode Screen

How the adjust keys work:

➲ **MOMENTARILY**
Push the adjust + or - key momentarily advances the selected parameter by one increment.

➲ **HOLD**
Push and hold the adjust + or - key advances the selected parameter slowly.

➲ **HOLD 5 seconds**
Push and hold the adjust + or - key for 5 seconds will advance the selected parameter fast.

Note: It is recommended to set the delay in the parameter menu first as close as possible to the desired position. Especially when there is a high encoder line count the change of the label position on the product is minimal for a single encoder increment and it will take a long time to adjust the label position.
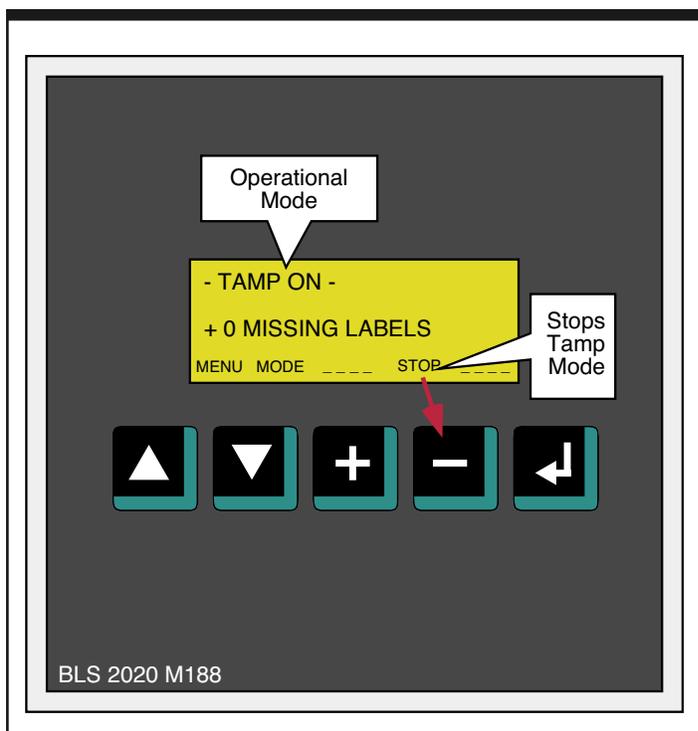
Operational Modes: Tamp-On, Blow-On, and Tamp-Blow

Using the main screen, different operating modes can be chosen: Tamp-On, Blow-On, Tamp-Blow or Wipe-On (previously discussed.)

Figure 5-7. Tamp-On Screen

Operator Screens

Starting the Labeler   When the operator starts the labeler, the first screen is the Parameter Access Screen which requires the operator to enter a password to access the other screens to operator the labeler. Use function keys below the message (▼ ▲ + - ↵) to enter the password [default=00000]. Once you have entered the correct password, use the enter key to have the password accepted and move on to the Parameter Group Screen.

Parameter Group Screen

The Parameter Group Screens allows the operator to select the group (parameter) to display or edit. The up/down arrow function buttons (▼ ▲) allow the operator to move up and down the list to choose the parameter. The choices are:
- ➲ Parameter - Wipe
- ➲ Parameter - Tamp
- ➲ Parameter - Blow
- ➲ Parameter - Jog
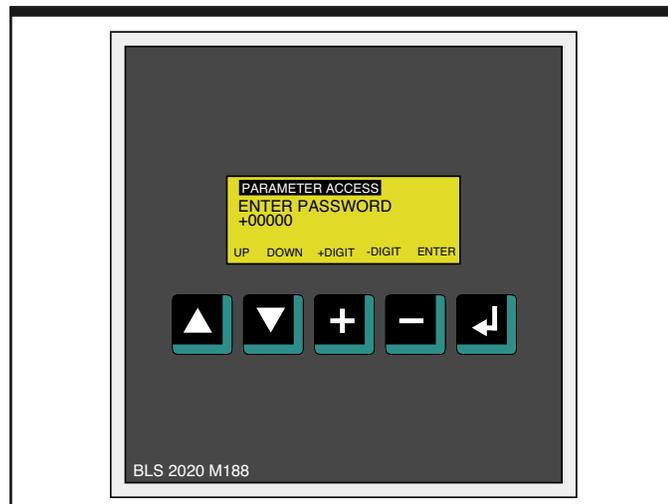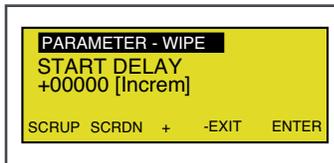- ➲ Parameter - Setup
- ➲ Diagnostics
- ➲ Program Number

Figure 5-8. Parameter Group Screen - Sample

Parameter Menu - Wipe

```
PARAMETER - WIPE
START DELAY
+00000 [Increm]

SCRUP  SCRDN   +    -EXIT   ENTER
```

START DELAY
The Start Delay parameter is used to adjust position of the label on the product.

Mode: **Asynchronous**
Value is a time-delay.
➲ Increase value to position label closer to trailing edge of product.
➲ Decrease value to position label closer to leading edge of product.
Note: Predicated on product sensor located upstream of peeler plate.

Calculation internal to program is Asynchronous time delay =

$$\frac{[\text{START DELAY (increments)} \bullet (\text{Gear Numerator/Gear Denominator})]}{\text{Asynchronous Speed (Hz)}}$$

Mode: **Synchronous**
The number of encoder pulses the labeler receives, once the product sensor senses the product, before the label starts to dispense from the peeler tip.
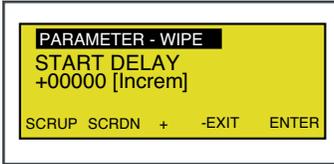➲ Increase value to position label closer to trailing edge of product.
➲ Decrease value to position label closer to leading edge of product.
The value is based on the Encoder setup. Need to calculate encoder resolution (mm/increments) based on setup (see example under Encoder Setup page) and then value input is multiplied by encoder resolution to obtain distance in millimeters.

➲ **Min Value: 0 (Increm); Max Value: 99999 (Increm)**
➲ **Default Setting: 100**
➲ **Setting is retained when power is turned off.**

The manufacturer of the controller recommends that when no encoder is used and the labeling machine runs only in ASYNCHRONOUS MODE, that both the GEAR NUMERATOR and GEAR DENOMINATOR are set to 1000.

```
┌─────────────────────────────┐
│  PARAMETER - WIPE           │
│  START DELAY                │
│  +00000 [Increm]            │
│                             │
│  SCRUP  SCRDN  +   -EXIT    ENTER │
└─────────────────────────────┘
```

STOP DISTANCE

The Stop Distance parameter defines the position of the labels at the peeler plate. It references the position from which each dispensing cycle is started.

The "Label-Teach" function learns the movement to determine the exact pre-dispensing position. Refer to Label-Teach operation further in this chapter.

➲ **Min Value: 0 (steps); Max Value: 99999 (steps)**
➲ **Default Setting: 100**
➲ **Setting is retained when power is turned off.**

Lead – Initiates timing on the leading edge of the product.
Trail – Initiates timing on the trailing edge of the product.

```
┌─────────────────────────────┐
│  PARAMETER - WIPE           │
│  COMPENSATION SPEED         │
│  +10000 [Hz]                │
│                             │
│  SCRUP  SCRDN  +   -EXIT    ENTER │
└─────────────────────────────┘
```
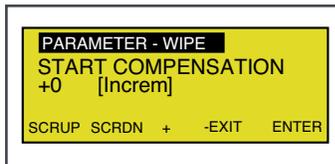
COMPENSATION SPEED

The Compensation Speed parameter defines the maximum motor speed for the synchronous dispensing operation.

➲ **Min Value: 1 (Hz); Max Value: 99999 (Hz)**
➲ **Default Setting: 10000**

The default value should not be changed unless authorized by manufacturer.

```
┌─────────────────────────────────┐
│  ┌──────────────────┐           │
│  │ PARAMETER - WIPE │           │
│  START COMPENSATION            │
│  +0      [Increm]              │
│                                │
│  SCRUP  SCRDN   +    -EXIT   ENTER │
└─────────────────────────────────┘
```

START COMPENSATION

The Start Compensation distance is the offset of the label position at the maximum synchronous dispensing speed (see above). Without the use of the controller, internal compensation routines the label placement varies with dispensing speeds. At higher speeds, the offset increases.

➲ **Min Value: 0 (increm); Max Value: 99999 (increm)**
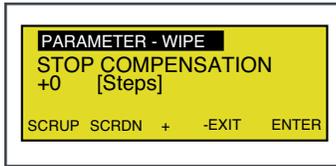➲ **Default Value: 0**

If this value requires changing then perform the following steps: How to set up the **Start Compensation**:

Step 1. Dispense labels in synchronous labeling mode at low speed (less or equal to 100 Hz). Mark the position of the labels on the product.

Step 2. Dispense labels at the highest labeling speed you want to reach with your labeling head.

Step 3. Measure the offset distance between the two variations in encoder increments.

Step 4. Use the highest labeling speed used as the compensation speed and the amount of steps as a positive start compensation distance value. Enter this value into the screen.

Step 5. This compensation needs to be done only once since it is a fixed machine parameter. If you change anything in the mechanics or the product sensor, the start compensation will need to be set up again.

⚠️ **The start delay distance must be long enough to guarantee that the start compensation works efficiently since the determined increments are subtracted from the delay distance at higher speeds.**

Note: **Acquire STOP COMPENSATION value before the START COMPENSATION Value.**

```
┌─────────────────────────────────┐
│  PARAMETER - WIPE               │
│  STOP COMPENSATION              │
│  +0      [Steps]                │
│                                 │
│  SCRUP  SCRDN   +    -EXIT   ENTER │
└─────────────────────────────────┘
```

STOP COMPENSATION

The Stop Compensation sets up the maximum and minimum labeler speed and measures the label flag change with respect to the peeler tip. This value compensates for the reaction time of the label sensor and the controller input.

➲ **Min Value: 0 (steps); Max Value: 99999 (steps)**
➲ **Default Value: 0**

How to set up the **Stop Compensation:**

Step 1. Feed the labels in ASYNCHRONOUS labeling mode at the lowest required labeling speed (less than or equal to 100 Hz). Mark the position of the labels at the peeler plate.

Step 2. Dispense labels at the highest labeling speed you want to reach with your label head.

Step 3. Determine the offset distance in motor steps. Knowing the mechanical parameters and gear factors of the labeling head make it possible to calculate the amount of steps the label is off at high speeds.

Step 4. Use the highest labeling speed as the compensation speed and the amount of steps as a stop compensation distance value. Enter this value into the screen.

Step 5. This compensation needs to be done only once since it is a fixed machine parameter. If you change anything in the mechanics or the product sensor, the stop compensation will need to be set up again.

⚠️ **The stop distance must be long enough to guarantee that the stop compensation works efficiently. To start, place label sensor in the center or close to the trailing edge of the label.**

PARAMETER - WIPE
ASYNCHRONOUS SPEED
+1000 [Hz]

SCRUP SCRDN +   -EXIT   ENTER
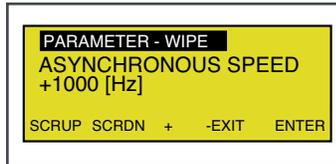
ASYNCHRONOUS SPEED

Asynchronous speed is the speed at which the label dispenses from the peeler tip. This speed is typically set to the product line speed.

➲ **Min Value: 1 (Hz); Max Value: 20000 (Hz)**
➲ **Default Value: 1000**

Note: Screen input is only relevant in the ASYNCHRONOUS mode. It cannot exceed the maximum speed of the labeler.

The asynchronous speed value (Hz) is dependent on the motor resolution setting. See examples below.

MOTOR RESOLUTION 1000:
Desired dispense speed is 100 ft/min, calculation is below:

$$\left(\frac{100ft}{min}\right)\left(\frac{12\ in.}{ft}\right)\left(\frac{25.4mm}{1\ in}\right)\left(\frac{1\ min}{60\ sec}\right)\left(\frac{STEP}{.1mm}\right) = 5080\ Hz$$

DESIRED DISPENSE SPEED — CONVERSION FACTORS — RESOLUTION OF LABEL HEAD — ASYNCHRONOUS SPEED VALUE TO ENTER

MOTOR RESOLUTION 2000:
Desired dispense speed is 100 ft/min, calculation is below:

$$\left(\frac{100ft}{min}\right)\left(\frac{12\ in.}{ft}\right)\left(\frac{25.4mm}{1\ in}\right)\left(\frac{1\ min}{60\ sec}\right)\left(\frac{STEP}{.05mm}\right) = 10160\ Hz$$

DESIRED DISPENSE SPEED — CONVERSION FACTORS — RESOLUTION OF LABEL HEAD — ASYNCHRONOUS SPEED VALUE TO ENTER

PARAMETER - WIPE
ASYNCHRONOUS SPEED
+1000 [Hz]

SCRUP SCRDN +   -EXIT   ENTER

ACCEL./DECEL. SPEED

Acceleration / Deceleration speed is the time the motor takes to obtain (reach) operating speed.

The smaller value = less time for the motor to reach speed.
The larger value = more time to reach maximum speed.
➲ **Min Value: 1 (ms); Max Value: 1000 (ms)**
➲ **Default Value: 50**

⚠ **Larger labels generally require more torque and therefore, a lower rate. A ramp set too high can cause the motor to stall.**

```
PARAMETER - WIPE
AUTO CENTER
+0      [ms]

SCRUP  SCRDN   +    -EXIT    ENTER
```
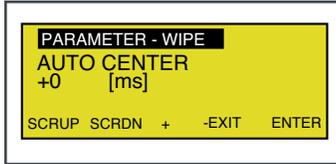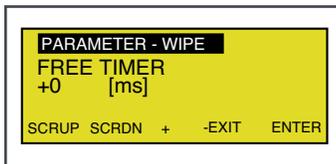
AUTO CENTER

Auto Center enables the "AUTO-TEACH" function of the system.

Setting: 0 = Auto Teach is NOT enabled.
Setting: 1 = Auto Teach IS enabled.
➲ **Min Value: 0; Max Value: 1**
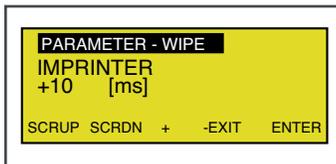➲ **Default Value: 0**

AUTO-CENTER only works in WIPE-ON mode.

```
PARAMETER - WIPE
FREE TIMER
+0      [ms]

SCRUP  SCRDN   +    -EXIT    ENTER
```

FREE TIMER

Free Timer is started in Wipe-On mode when a product is detected. The Free Timer is a parallel timer to the dispensing process and activates the TIMER_T1 output.

The smaller value = less time for the motor to reach speed.
The larger value = more time to reach maximum speed.
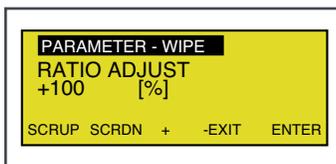➲ **Min Value: 1 (ms); Max Value: 1000 (ms)**
➲ **Default Value: 50**

Note: See WIPE-ON timing chart for more information.

```
PARAMETER - WIPE
IMPRINTER
+10     [ms]

SCRUP  SCRDN   +    -EXIT    ENTER
```

IMPRINTER

The Imprinter timer is started in Wipe-On mode when the label cycle is completed. It can be used to trigger peripheral equipment (counters, etc.).
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
➲ **Default Value: 0**

```
PARAMETER - WIPE
RATIO ADJUST
+100       [%]

SCRUP  SCRDN   +    -EXIT    ENTER
```

RATIO ADJUST

The Ratio Adjust is used to override the gear factor set by the gear numerator and gear denominator (thereby overriding encoder values). It only works in synchronous dispensing mode.
➲ **Min Value: 50 (%); Max Value: 150 (%)**
➲ **Default Value: 100 (This means 100%. To decrease, the value must be less than 100 - such as 90%, or 80%.)**

Parameter Menu - Tamp

```
PARAMETER - TAMP
TAMP DELAY
+00000   [ms]

SCRUP  SCRDN   +     -EXIT    ENTER
```
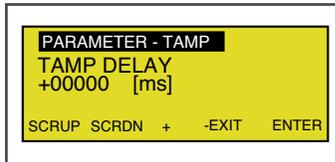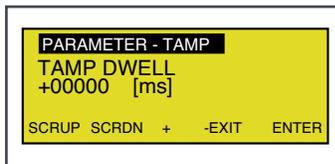
TAMP DELAY

Sets delay between sensing of product and activation of tamp assembly.

Larger number to position label closer to trailing edge of product. Smaller number to position label closer to leading edge of product.
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
➲ **Default Value: 0**

```
PARAMETER - TAMP
TAMP DWELL
+00000   [ms]

SCRUP  SCRDN   +     -EXIT    ENTER
```
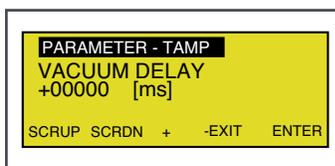
TAMP DWELL

Sets dwell time for the tamp assembly.

Larger number to extend the time the tamp is extended.
Smaller number to reduce the time the tamp is extended.
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
➲ **Default Value: 100**

```
PARAMETER - TAMP
VACUUM DELAY
+00000   [ms]

SCRUP  SCRDN   +     -EXIT    ENTER
```
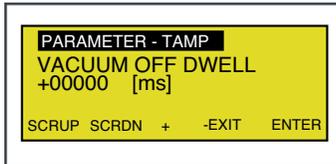
VACUUM DELAY

The Vacuum Delay is the amount of time once the tamp home sensor goes "high" that the vacuum turns off.

Larger number to turn the vacuum off later.
Smaller number to turn the vacuum off earlier.
➲ **Delay starts when tamp assembly gets to home position.**
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
➲ **Default Value: 0**

```
┌──────────────────────────────┐
│ PARAMETER - TAMP             │
│ VACUUM OFF DWELL             │
│ +00000   [ms]               │
│                              │
│ SCRUP SCRDN  +   -EXIT  ENTER│
└──────────────────────────────┘
```
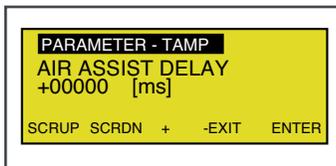
VACUUM OFF DWELL

Sets the amount of time the vacuum stays off as the label is fed onto the pad.

Larger number to keep the vacuum off for more time.
Smaller number to keep the vacuum off for less time.
- **If the leading edge of the label does not arrive all the way to the edge of the tamp, increase this setting.**
- **Min Value: 0 (ms); Max Value: 99999 (ms)**
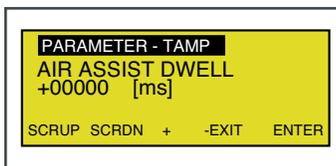- **Default Value: 100**

```
┌──────────────────────────────┐
│ PARAMETER - TAMP             │
│ AIR ASSIST DELAY             │
│ +00000  [ms]                │
│                              │
│ SCRUP SCRDN  +   -EXIT  ENTER│
└──────────────────────────────┘
```

AIR ASSIST DELAY

Used to smooth the transition of the label from the peeler tip to the tamp pad. See also VACUUM DELAY screen.

Larger number to turn the air assist valve on later.
Smaller number to turn the air assist valve on earlier.
- **Delays activation of the air assist valve. Delay starts when the tamp assembly is fully retracted (tamp home position).**
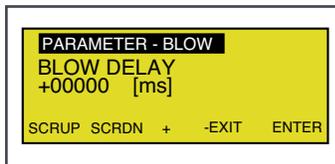- **Min Value: 0 (ms); Max Value: 99999 (ms)**
- **Default Value: 0**

```
┌──────────────────────────────┐
│ PARAMETER - TAMP             │
│ AIR ASSIST DWELL             │
│ +00000   [ms]               │
│                              │
│ SCRUP SCRDN  +   -EXIT  ENTER│
└──────────────────────────────┘
```

AIR ASSIST DWELL

Used to help push the label further onto the tamp pad.

Larger number to keep the air assist valve activated for more time.
Smaller number to keep the air assist valve activated for less time.
- **Sets how long air assist valve stays activated to blow the label up onto the tamp pad.**
- **Min Value: 0 (ms); Max Value: 99999 (ms)**
- **Default Value: 150**

Parameter Menu - Blow

```
PARAMETER - BLOW
BLOW DELAY
+00000  [ms]

SCRUP SCRDN  +    -EXIT   ENTER
```

BLOW DELAY

Sets delay between sensing of product and activation of blow assembly.

Larger number to position label closer to trailing edge of product. Smaller number to position label closer to leading edge of product.
- ➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
- ➲ **Default Value: 0**

```
PARAMETER - BLOW
BLOW DWELL
+00000  [ms]

SCRUP SCRDN  +    -EXIT   ENTER
```
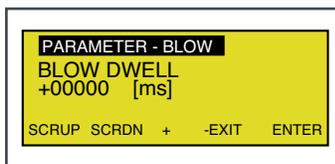
BLOW DWELL

Sets dwell time for the blow assembly.

Larger number to extend the time the blow assembly is activated. Smaller number to reduce the time the blow assembly is activated.
- ➲ **When a blow assembly is installed, VACUUM DWELL affects how firmly the label is affixed to the product.**
- ➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
- ➲ **Default Value: 100**

```
PARAMETER - BLOW
VACUUM DELAY
+00000  [ms]

SCRUP SCRDN  +    -EXIT   ENTER
```
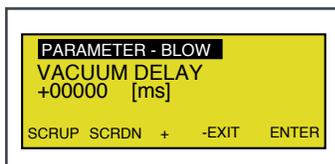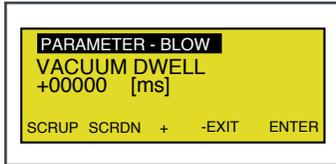
VACUUM DELAY

Delays activation of the vacuum that pulls the label onto the blow assembly.

Larger number to turn the vacuum on later.
Smaller number to turn the vacuum on earlier.
- ➲ **Delay starts when blow assembly gets to home position. If the leading edge of the label does not arrive all the way to the edge of the peeler plate, increase this setting.**
- ➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
- ➲ **Default Value: 0**

```
PARAMETER - BLOW
VACUUM DWELL
+00000   [ms]

SCRUP SCRDN  +    -EXIT    ENTER
```
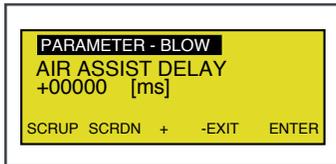
VACUUM DWELL

Sets how long vacuum stays activated as the blow assembly is applying the label.

Larger number to keep the vacuum activated for more time.
Smaller number to keep the vacuum activated for less time.
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
➲ **Default Value: 0**

```
PARAMETER - BLOW
AIR ASSIST DELAY
+00000   [ms]

SCRUP SCRDN  +    -EXIT    ENTER
```

AIR ASSIST DELAY

Used to smooth the transition of the label from the peeler tip to the blow assembly. See also VACUUM DELAY screen.

Larger number to turn the air assist valve on later.
Smaller number to turn the air assist valve on earlier.
➲ **Delays activation of the air assist valve.**
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
➲ **Default Value: 0**

```
PARAMETER - BLOW
AIR ASSIST DWELL
+00000   [ms]

SCRUP SCRDN  +    -EXIT    ENTER
```
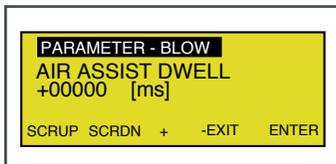
AIR ASSIST DWELL

Used to help push the label further onto the blow assembly.

Larger number to keep the air assist valve activated for more time.
Smaller number to keep the air assist valve activated for less time.
➲ **Sets how long air assist valve stays activated to blow the label up onto the blow assembly.**
➲ **Min Value: 0 (ms); Max Value: 99999 (ms)**
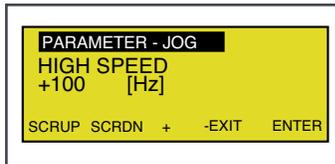➲ **Default Value: 0**

Parameter Menu - Jog

```
PARAMETER - JOG
LOW SPEED
+100    [Hz]

SCRUP SCRDN  +    -EXIT    ENTER
```
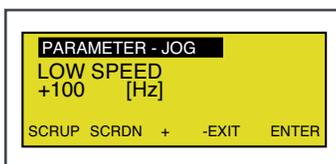
LOW SPEED

Sets the low speed in the jog mode. It also defines the speed in LABEL TEACH mode.
➲ **Min Value: 1 (Hz); Max Value: 20000 (Hz)**
➲ **Default Value: 100**

```
 PARAMETER - JOG
 HIGH SPEED
 +100     [Hz]

SCRUP SCRDN   +      -EXIT    ENTER
```

HIGH SPEED

Sets the high speed in the jog mode.
- **Min Value: 1 (Hz); Max Value: 20000 (Hz)**
- **Default Value: 1000**
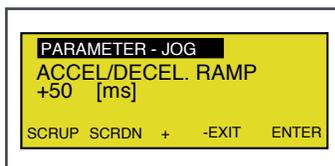
```
 PARAMETER - JOG
 ACCEL/DECEL. RAMP
 +50    [ms]

SCRUP SCRDN   +      -EXIT    ENTER
```
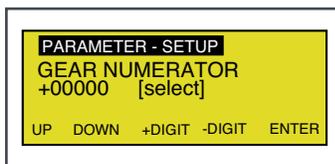
ACCEL./DECEL. SPEED

Acceleration / Deceleration speed is the time the motor takes to obtain (reach) jog speed.

The smaller value = less time for the motor to reach speed.
The larger value = more time to reach maximum speed.
- **Min Value: 1 (ms); Max Value: 1000 (ms)**
- **Default Value: 50**

Parameter Menu - Setup

```
 PARAMETER - SETUP
 GEAR NUMERATOR
 +00000   [select]

UP   DOWN   +DIGIT -DIGIT   ENTER
```
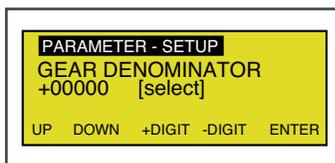
GEAR NUMERATOR

This is the factory default value established from the size of the drive roller and gearing of the labeler.
- **Min Value: 1; Max Value: 99999**
- **Default Value: 1000**

This value should not be changed unless authorized by the manufacturer.

```
 PARAMETER - SETUP
 GEAR DENOMINATOR
 +00000    [select]

UP   DOWN   +DIGIT -DIGIT   ENTER
```

GEAR DENOMINATOR

This factor defines the rate of "incoming" encoder increments to the power drive. It is part of the gear ratio between product speed and motor speed.

When using a non-manufacturer supplied encoder, refer to page 56 of this manual completing steps 1 - 6 (Step 6 equals the denominator value). **Note: Do not use step 7.**

To calculate required value for a certain dispense speed, see example below:
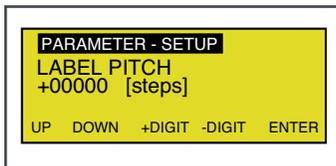
Ratios
720/100 = 7.2:1 ratio   Total Ratio =
80/20   = 4:1 ratio   28.8:1

Therefore, 20rpm Turret = 576 rpm Encoder Shaft

DP100

DP20

DP220

DP80

Encoder

Calculation

720mm ø = (720mm)*(π) = 2262mm circumfrence

$$\left(\frac{226mm}{Rev}\right)\left(\frac{Rev}{5000\ Inc}\right)\left(\frac{1}{28.8}\right)\left(\frac{1}{4}\right) = .0039\ mm/inc.$$

ENCODER RESOLUTION   ENCODER EVALUATION
(QUADRATURE ENCODER)

PARAMETER - SETUP
LABEL PITCH
+00000   [steps]

UP   DOWN   +DIGIT -DIGIT   ENTER

LABEL PITCH
The label pitch is the sum of the label length and the gap between the label and the next label. The pitch can be entered as a parameter.

This can also be done using the LABEL-TEACH programming which will determine the exact pitch length and entering the information automatically.
- **Min Value: 1 (steps); Max Value: 99999 (steps)**
- **Default Value: 1000**

PARAMETER - SETUP
CURRENT REDUCTION
+255   [Select]

SCRUP SCRDN   +   -EXIT   ENTER
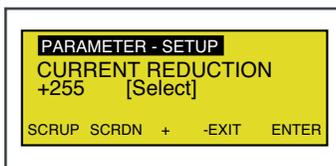
CURRENT REDUCTION
This parameter displays the current reduction setting of the power drive. Factory set is 255. It is recommended that this value not be changed.
- **Min Value: 0 (select); Max Value: 255 (select)**
- **Default Value: 255**

```
PARAMETER - SETUP
PRODUCT SENSOR EDGE
+1   [select]

UP    DOWN    +DIGIT  -DIGIT    ENTER
```
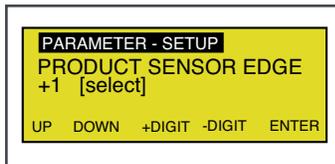
PRODUCT SENSOR EDGE

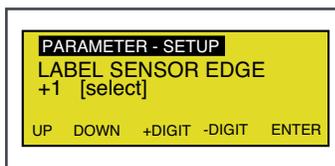Toggles between Lead and Trail detection on the product sensor.

(1) – Trail
(0) – Lead (Default)

Lead – Initiates timing on the leading edge of the product.
Trail – Initiates timing on the trailing edge of the product.

Note: Settings valid if product sensor is set to light operated mode.
➲ **Min Value: 0 (select); Max Value: 1 (select)**
➲ **Default Value: 0**

```
PARAMETER - SETUP
LABEL SENSOR EDGE
+1   [select]

UP    DOWN    +DIGIT  -DIGIT    ENTER
```
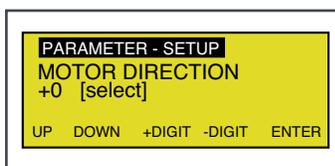
LABEL SENSOR EDGE

Toggles between Lead and Trail detection on the label sensor.

(0) – Trail
(1) – Lead (Default)

Trail – Detects trailing edge of the label.
Lead – Detects leading edge of the label.

➲ **Min Value: 0 (select); Max Value: 1 (select)**
➲ **Default Value: 1**

```
PARAMETER - SETUP
MOTOR DIRECTION
+0   [select]

UP    DOWN    +DIGIT  -DIGIT    ENTER
```
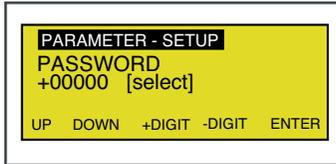
MOTOR DIRECTION

Allows the motor rotation to switch from clockwise to counterclockwise.

(0) – CW Rotation (positive) [Looking on top of motor shaft]
(1) – CCW Rotation (negative) [Looking on top of motor shaft]

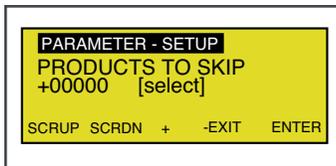➲ **Min Value: 0 (select); Max Value: 1 (select)**
➲ **Default Value: 0**

```
PARAMETER - SETUP
PASSWORD
+00000   [select]

UP   DOWN   +DIGIT  -DIGIT   ENTER
```

PASSWORD

Sets the password for the parameter menu access. Allows the operator to change the password.
➲ **Min Value: 0 (select); Max Value: 99999 (select)**
➲ **Default Value: 0**

```
PARAMETER - SETUP
PRODUCTS TO SKIP
+00000    [select]

SCRUP  SCRDN   +     -EXIT    ENTER
```

PRODUCTS TO SKIP

Allows the labeler to be programmed to "skip" or pass over a set number of products that should not be labeled.
➲ **Min Value: 0 (select); Max Value: 99999 (select)**
➲ **Default Value: 0**

```
PARAMETER - SETUP
MAX. MISSING LABELS
+00000     [select]

SCRUP  SCRDN   +     -EXIT    ENTER
```
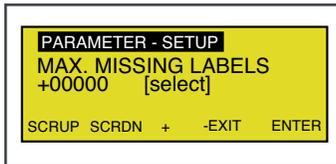
MAX. MISSING LABELS

Defines how many consecutive missing labels (on the web, or media) that can occur before the controller will show a label error situation.
➲ **Min Value: 0 (select); Max Value: 99999 (select)**
➲ **Default Value: 0**

```
PARAMETER - SETUP
AUTO WEB ADVANCE
+16      [Select]

SCRUP  SCRDN   +     -EXIT    ENTER
```
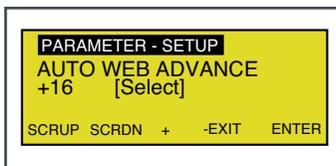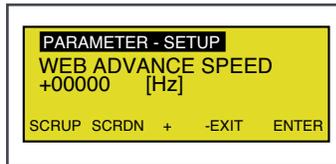
AUTO WEB ADVANCE

Sets the number of labels from the peeler plate to the sensor (not including the label sensed) so that when a missing label is detected, the web will advance the correct distance quickly and no product is skipped or missing a label.
➲ **Min Value: 0 (select); Max Value: 16 (select)**
➲ **Default Value: 0**

```
 PARAMETER - SETUP
 WEB ADVANCE SPEED
 +00000    [Hz]

 SCRUP  SCRDN  +    -EXIT    ENTER
```
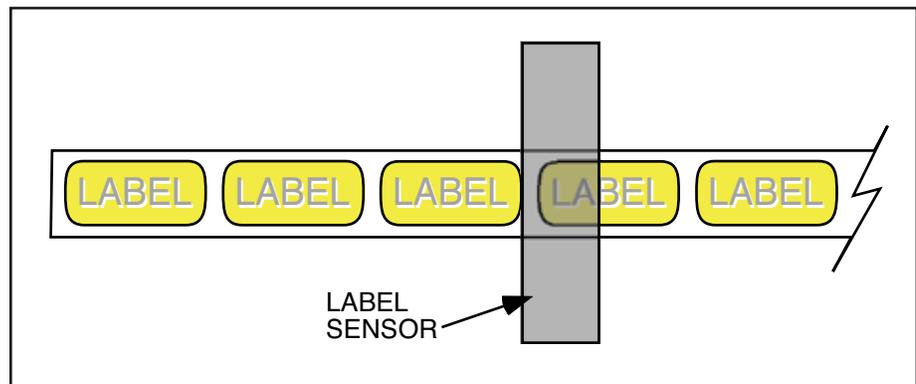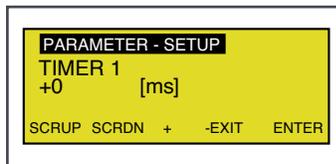
WEB ADVANCE SPEED

Works in conjunction with the AUTO WEB ADVANCE. This parameter sets the speed at which the web advances when a missing label has been detected.

➲ **Min Value: 0 (Hz); Max Value: 10000 (Hz)**
➲ **Default Value: 2000**

```
 PARAMETER - SETUP
 TIMER 1
 +0        [ms]

 SCRUP  SCRDN  +    -EXIT    ENTER
```

TIMER 1

This parameter helps to solve the problem of over-torquing the motor. Set the value to allow the motor to come to rest before "ramping up" to advance web if there is more than one consecutive missing label.

➲ **Min Value: 0 (ms); Max Value: 10000 (Hz)**
➲ **Default Value: 0**

```
 PARAMETER - SETUP
 TIMER 2
 +0        [ms]

 SCRUP  SCRDN  +    -EXIT    ENTER
```
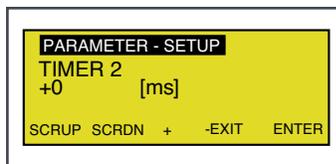
TIMER 2 - Auxillary Timer

This parameter helps to solve the problem of over-torquing the motor. Set the value to allow the motor to come to rest before "ramping up" to advance web if there is more than one consecutive missing label.

➲ **Min Value: 0 (ms); Max Value: 10000 (Hz)**
➲ **Default Value: 0**

Diagnostics

Diagnostics The diagnostics function can be used to check the function of all the sensors in the labeling system (label sensor, product sensor, incremental encoder) in addition to displaying the label cycle count (see Figure 5-9).
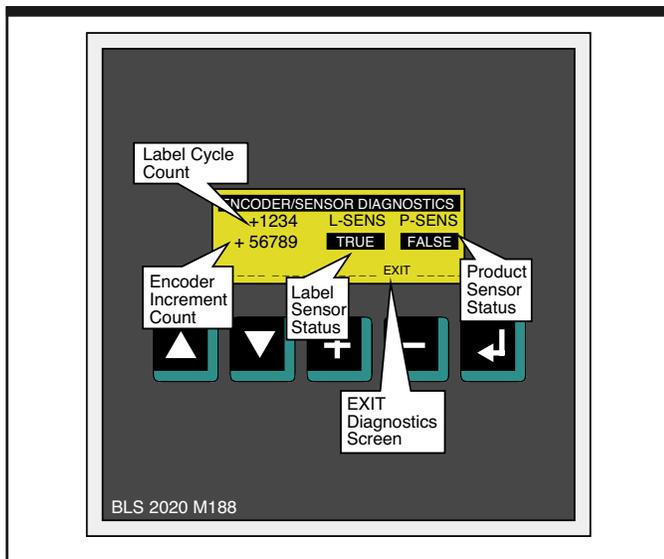
To activate the diagnostics mode, switch to the Parameter menu, then select DIAGNOSTICS and press enter.

Figure 5-9. Diagnostics Screen

Sensor Test In the DIAGNOSTICS screen the condition of the label and product sensor can be monitored. The DIAGNOSTICS screen displays TRUE if 24 VDC is active at the product or label sensor input and FALSE if the input is at 0 VDC level.

**Encoder Test** The DIAGNOSTICS screen shows the current encoder position in increments.

If no change of position is recognized while the encoder wheel is turning, the wiring and the encoder output circuit must be checked. See the encoder connection diagram for this. The output circuit must be according the RS422- norm (= 5V - twisted pair line driver output signal) .

Label Cycle Count The controller counts all labeling cycles and writes the number to a retain memory location. This information can be helpful to determine the use of the labeling machine (e.g. for warranty or maintenance information). **The user cannot reset the label cycle count - only by reloading the labeling software program the counter can be reset.**

Program Number

```
 PROGRAM NUMBER
 PROGRAM NUMBER
 +00  [select]
 SCRUP  SCRDN   +    -EXIT   ENTER
```
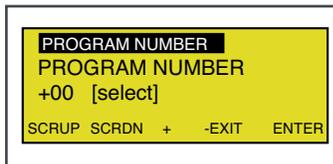
PROGRAM NUMBER
The C229 controller can store up to 20 different labeling programs. The program selection is from 0 to 19. You select the program number you want, then set up your parameters for that particular program. The parameters will be saved even if the unit loses power or is shut down. The only way the programs can be erased is if the software program resets it.

Note: This is shown on the Wipe-On Mode screen.

Notes

Preventive Maintenance

6

Preventive Maintenance

The following are guidelines for preventative maintenance on the applicator. This information can be used for producing a maintenance schedule, which should be performed routinely. Once familiar with the unit, operators or technicians may add additional items to the list. If there are any service questions, please contact your distributor.

- ➲ Examine the drive roller, idler rollers and peeler tip for excessive adhesive buildup or dust collection. Rubbing alcohol may be used to clean problem areas. Do not use compressed air to blow dust from the labeler.
- ➲ Examine the nip rollers for excessive adhesive buildup or dust collection. A mild detergent solution may be used to clean problem areas. Do not use compressed air to blow dust from the labeler.
- ➲ Inspect all electrical plugs for secure connections.
- ➲ Verify that all components and modules are securely fastened.
- ➲ Inspect the unit for loose screws, guides, or covers and tighten as necessary.
- ➲ Gently clean dust from the lens of the product sensor.
- ➲ Inspect the drive belt for proper tension. Adjust idler if additional tension is needed.

Controller Maintenance

⚠️ **Disconnect power supply before performing any maintenance.**

⚠️ **Controller components are very sensitive to touch. Do not touch the components of the controller except in an electrostatically protected environment.**

Troubleshooting

Drive Errors   Drive errors, or "fatal errors" that stop each action immediately and involve the stepper motor. If a "fatal error" occurs, your current label may not be applied properly.

Stepper driver errors can be: over-temperatures (of motor or power amplifier), short circuit (between two motor phases or between motor phase against PE), over-voltage, low-voltage, rotation monitoring (RM) fault, power amplifier deactivation, or motor current free. Refer to the LED status display of the stepper motor drive inside the electrical cabinet (see Figure 6-1).
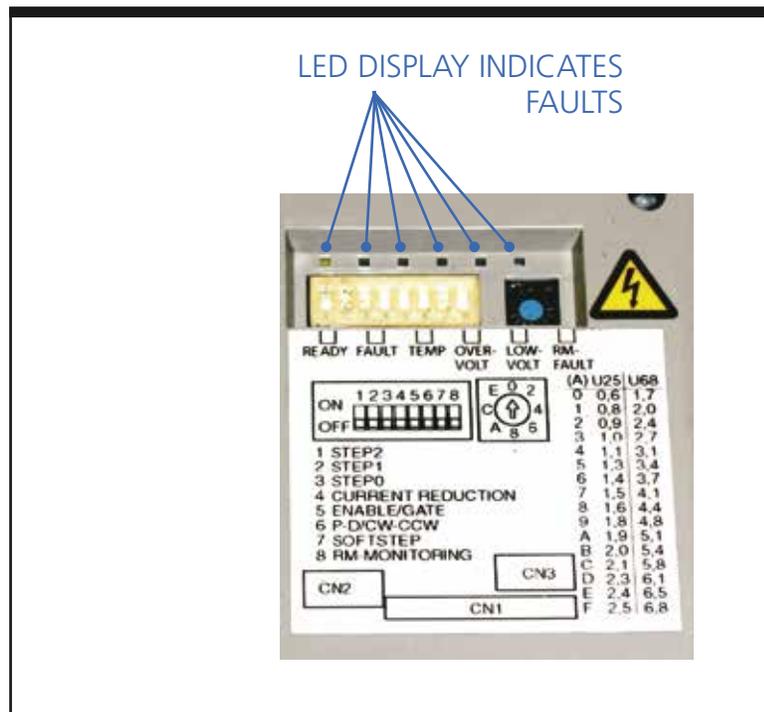

Figure 6-1. Stepper Drive Motor Fault Display

Labeling Errors   Labeling errors can be caused by missing labels on the label web, label paper in the gaps, wrongly adjusted or defective label sensor or an empty supply roll.

Motor Rotation   Positive motor direction is defined as the direction on which the label web is moved forward towards the peeler plate.

How to Check the Motor Rotation:

Step 1.   Make sure adequate jog speeds are set in the parameters. Recommended are 100 Hz for the slow speed and 1000 Hz for the high speed.

Step 2.   Press the JOG button to start movement in positive direction.

Step 3.   Check if the web is moving forward towards the peeler plate.

Step 4.   Release JOG button to stop web at desired position.

If the motor is rotating in the wrong direction, you will need to follow the steps below to correct:

Solution 1:   The hardware solution: If using a 3 phase BERGER LAHR stepping motor system interchange two motor wires (only at shut down system with no mains power connected). For other systems refer to the manual. Some of the drives (e.g. BERGER LAHR 5 phase stepper systems have a direction switch).

Solution 2:   The software solution: Change the corresponding parameter with the terminal. See chapter parameter setup for this.
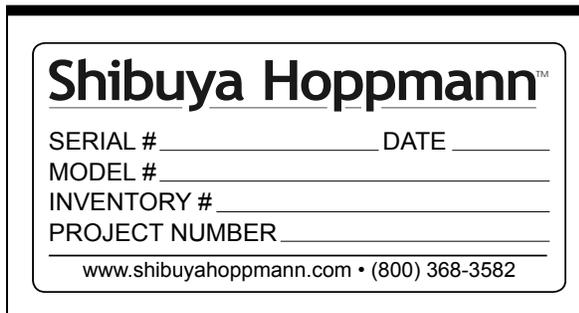
Notes

Replacement Parts

7

Replacement Parts

Replacement parts lists for the Shibuya Hoppmann L510A Labeler are listed on the following pages. When ordering replacement parts, please reference the model name and number of your labeler located on the serial plate (see Figure 6-1). This helps in making sure you receive the correct replacement parts.

Having the serial number in addition to the part number you wish to order will help us to accurately assist you in getting the correct parts. You may order your labeler's spare parts directly from Shibuya Hoppmann by e-mail, phone or fax (see the contact information listed below).

Shibuya Hoppmann™

SERIAL # _____ DATE _____
MODEL # _____
INVENTORY # _____
PROJECT NUMBER _____

www.shibuyahoppmann.com • (800) 368-3582

Figure 7-1. Sample Serial Plate

Shibuya Hoppmann Spares and Service Department
 ➲ **E-mail**:   Spares@Hoppmann.com
 ➲ **Phone**:   434.929.4746 ext. 2225 (1.800.368.3582)
 ➲ **Fax**:   434.929.4959
 ➲ **Mail**:   Shibuya Hoppmann Corporation
                 Attn: Spares Department
                 291 Dillard Road
                 Madison Heights, VA 24572
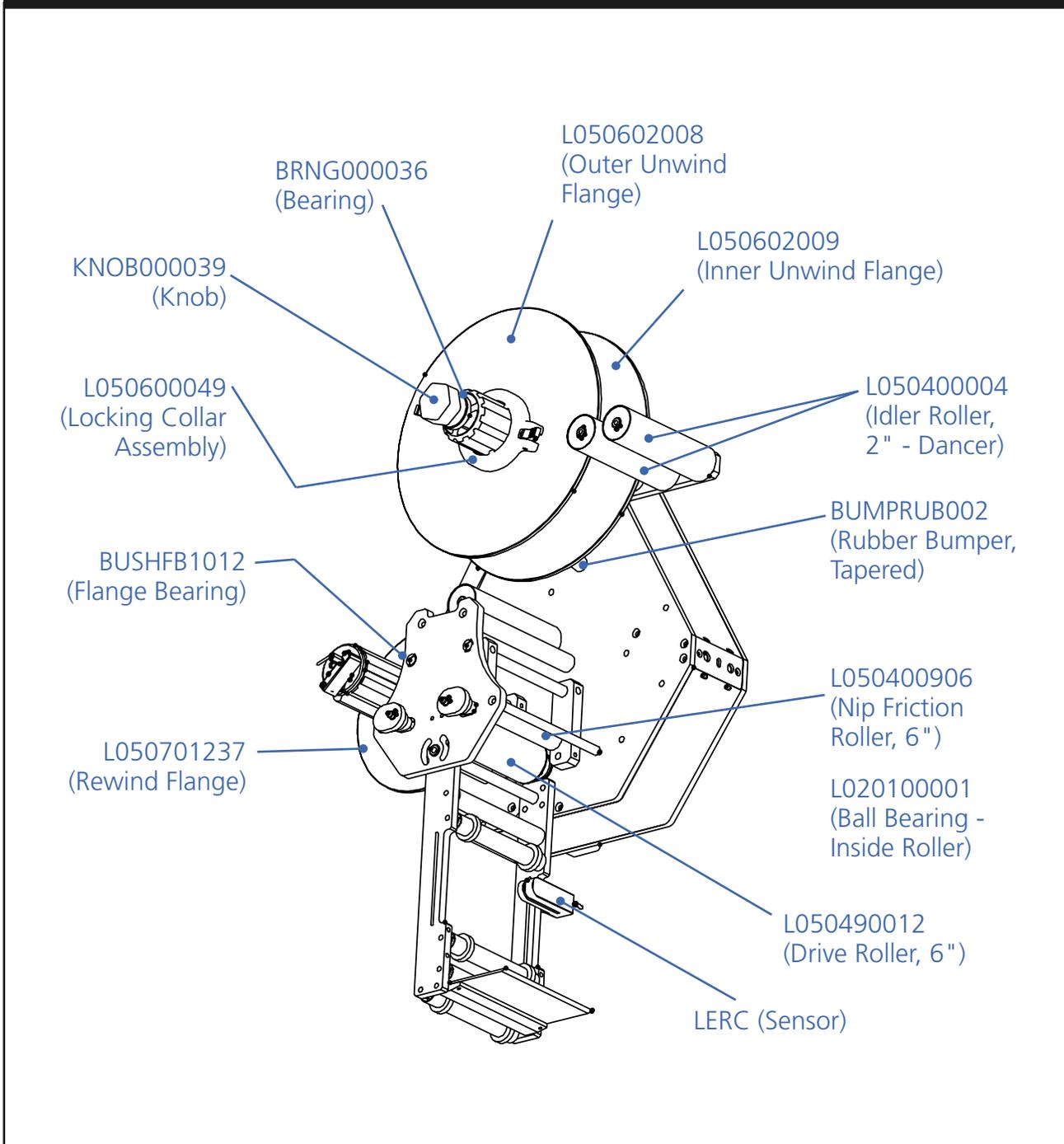   www.ShibuyaHoppmann.com

L510A Labeler - Callouts

KNOB000039
(Knob)

BRNG000036
(Bearing)

L050602008
(Outer Unwind
Flange)

L050602009
(Inner Unwind Flange)

L050600049
(Locking Collar
Assembly)

L050400004
(Idler Roller,
2" - Dancer)

BUMPRUB002
(Rubber Bumper,
Tapered)

BUSHFB1012
(Flange Bearing)

L050400906
(Nip Friction
Roller, 6")

L050701237
(Rewind Flange)

L020100001
(Ball Bearing -
Inside Roller)

L050490012
(Drive Roller, 6")

LERC (Sensor)

Figure 7-2. L510A Labeler with 6" Head with Callouts

L510A Labeler Spares		
Part Number	**Description**	**Qty.**
L030120106	Stepper Motor	1
L020100001	Bearing Ball, 3/8" ID x 7/8" OD x 9/32"	1
BELTV1UK50	Timing Belt, Kevlar, 1/2" Wide	1
L030340102	Brake Armature	1
BUMPRUB002	Rubber Bumper, Tapered	1
BUSHFB1012	Flange Bearing	1
BRNGBALL18	Ball Bearing, 5/8" Bore	1
L020670202	Brake Rotor, 24V	1
L030400101	Micro Switch	1
LERC	Sensor, Label Eye	1
L050601334	Brake Belt, High Speed, 19"	1
9540K16	Rubber Bumper, 21/32" Diameter x 1/2" Tall	1
80688	Spring, 1/2 OD x 1.75" Long, .049" Wire Diameter	1
L050602008	Inner Unwind Flange	1
L050602009	Outer Unwind Flange	1
BRNG000036	Bearing, 3/8" ID x 1 1/8" OD	1
KNOB000039	Knob	1
L050600049	Locking Collar Assembly	1
LDS180-3913	C229 Stepper Controller	1
SD326DU25S2	SD3 Stepper Drive, 2.6A	1
L030300100	Power Supply, 24VDC, 2.4A	1
PLUG040410	Panel Mount	1
RELAIDEC03	Relay, Mini 24VDC	1
L100LTB004	Low Label, Rotary System	1
7000612-N	Herma Rewinder, Servo Control	1
OPENDATE100-S	Print Mater 1000 "S" Hot Stamper	1
L050400906	Nip Friction Roller, 6"	1
L050490012	Drive Roller, 6"	1
L050601704	Standoff Sleeve, 6"	1
L050400004	Idler Roller, 2"	1

Notes

Warranty

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Warranty

Shibuya Hoppmann Corporation warrants that each item of its own manufacture delivered hereunder shall, at the time of delivery and for a period of twelve (12) months thereafter, be free from defects in materials or workmanship; and if any such item shall prove to be defective in material or workmanship under normal intended usage and maintenance during the warranty period, upon examination by Shibuya Hoppmann Corporation, then Shibuya Hoppmann Corporation shall repair or replace, at its sole option, such defective item at its own expense; provided, however, that the owner shall be required to ship such defective item, freight prepaid, to Shibuya Hoppmann Corporation's plant in Virginia. The warranty on components not manufactured by Shibuya Hoppmann Corporation, but a part of the system, is limited to the warranty provided by the original manufacturer of said components to the extent, and only to the extent, that such original manufacturer actually honors such warranty.

ALL WARRANTIES HEREUNDER ARE EXPRESSLY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE ITEMS AS SET FORTH HEREIN, AND IN NO EVENT SHALL SHIBUYA HOPPMANN CORPORATION BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES BY REASON OF ANY BREACH OF WARRANTY OR DEFECT IN MATERIAL OR WORKMANSHIP. SHIBUYA HOPPMANN CORPORATION SHALL NOT BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ITEMS WHICH HAVE BEEN SUBJECTED TO NEGLECT, ACCIDENT OR IMPROPER USE, OR WHICH HAVE BEEN ALTERED BY OTHER THAN AUTHORIZED SHIBUYA HOPPMANN CORPORATION PERSONNEL.

THIS WARRANTY IS IN LIEU OF OTHER WARRANTIES, EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXCLUDED.

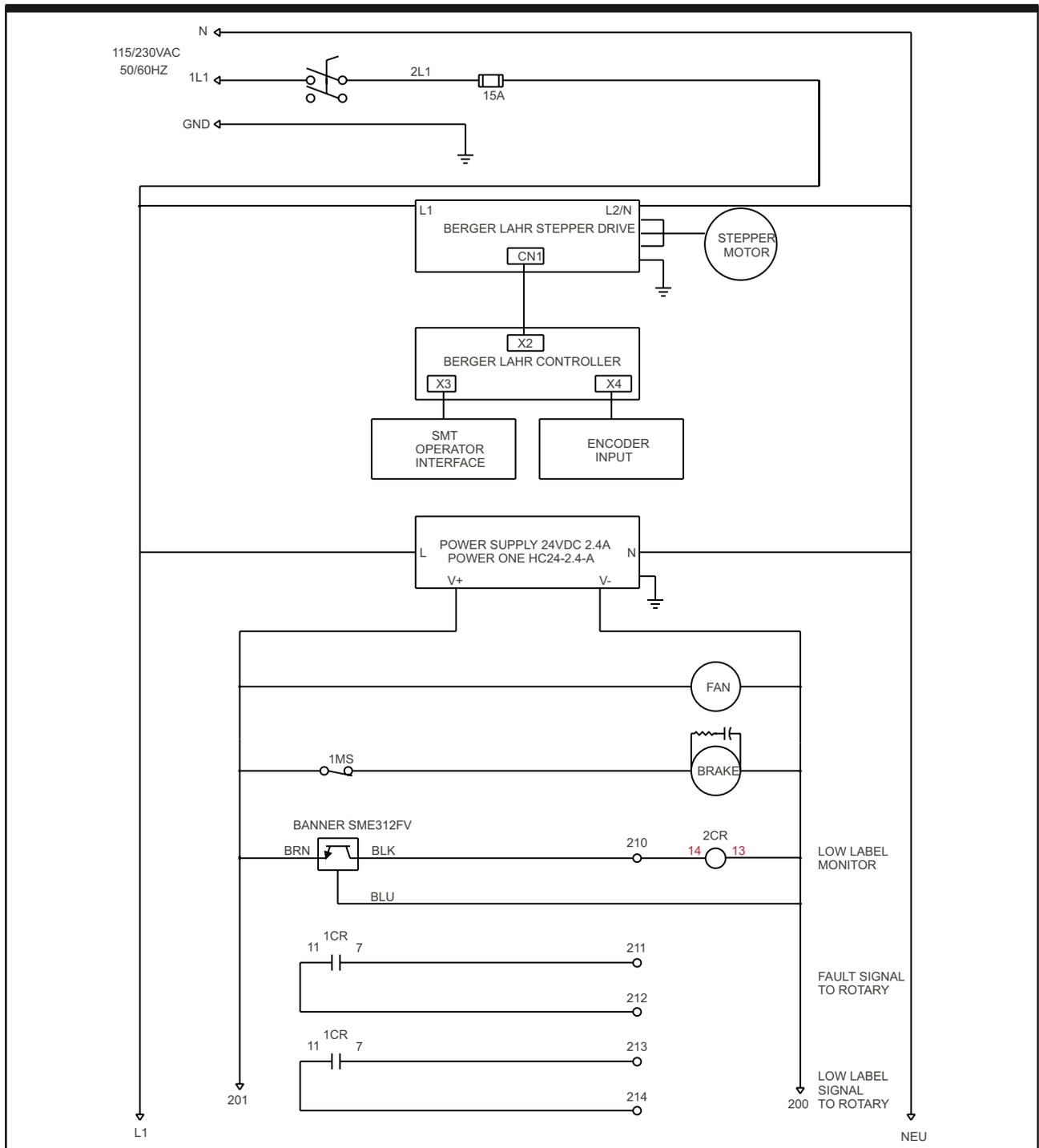# Appendix

9

Wiring Schematic

Figure 9-1. Wiring Diagram
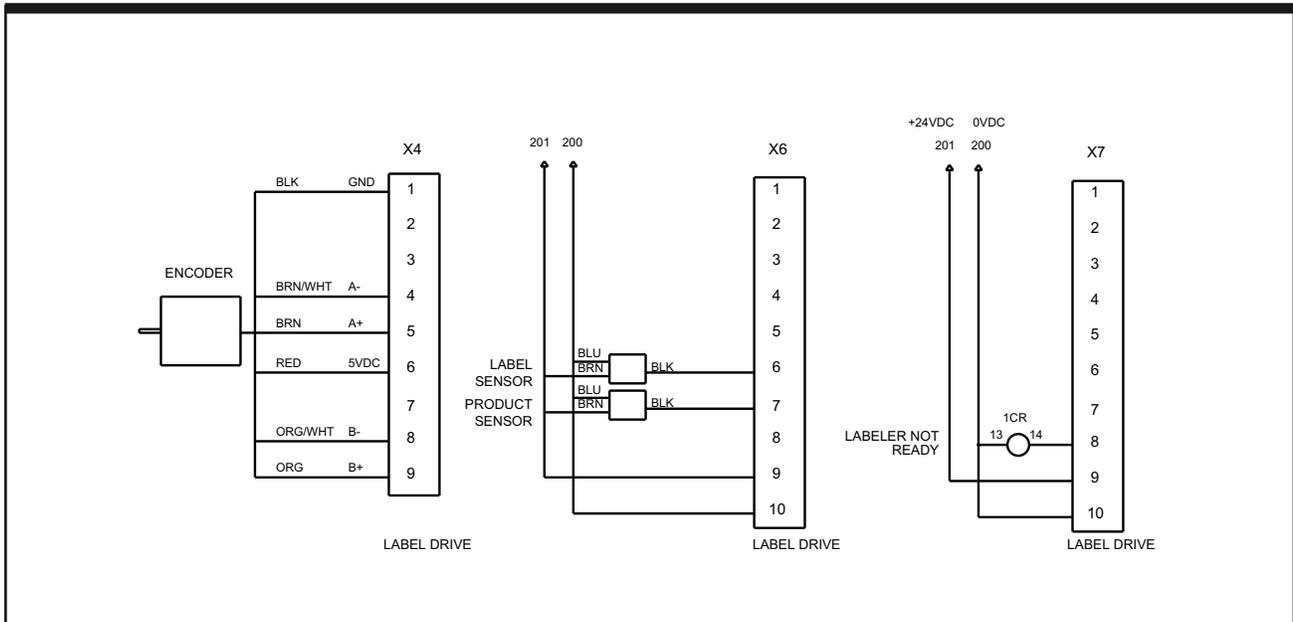
Wiring Schematic

Figure 9-2. Wiring Diagram

Notes

Shibuya Hoppmann™

Shibuya Hoppmann offers a wide selection of products:

- Prefeeders/Centrifugal Parts Feeders/Unscramblers
- Filler/Plugger/Capper Systems (CIP/SIP)
- Pharmaceutical/Beverage Filling Systems for:
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  - Powder
  - Aseptic
  - Non-Aseptic
- Multi Part Assembly Systems
  - Continuous Motion
  - Indexing/Intermittent
- Capping Systems – Servo or Mechanical

- Placement Systems
- Rotary/Inline Pressure Sensitive Labelers
- Print and Apply Labelers
- I.V. Bag Form/Fill/Seal Systems
- Pouch Fill/Cap/Seal Systems
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