3138N/CE MERGE MANUAL

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INTRODUCTION

The Label-Aire 3138 NGA Merge is a high speed label printer/applicator used to apply pressure sensitive labels, individually printed, to moving products on a production line. It has a thermal transfer, or direct thermal printer to print the data required on each label. The printer/applicator is essentially a self-contained module that may be mounted in almost any position next to the production line to apply labels to the top, the sides or the bottom of each product.

Labels are supplied on rolls that consist of a web on which the labels are maintained by their adhesive until peeled from the web just prior to application. Labels may be preprinted with the data that is unchanged for each product with the printer adding the variable data, or the printer may print the entire label.

In a typical setup, a photoelectric sensor detects the leading edge of a product and initiates the application of the label, with a placement accuracy of ± 1/32 inch.

The 3138 Merge is standard with 1500 inch/minute web speed. Slower web speeds are provided for wider label capacities. Ultimately, the number of products per minute is limited by the speed of the printer.

For safe, trouble free operation, the instructions in this manual must be carefully followed during set-up, operation, change of label rolls, change of printer ribbon, cleaning, and maintenance. Also, the specified environmental conditions must be maintained.

FOLLOW ALL SAFETY INSTRUCTIONS. The model 3138N Merge applicator has been provided with many safety features. Observe all safety warnings and under no circumstances attempt to remove or defeat safe guards or operate the machine in a manner contrary to the instructions.

ELECTRICAL/ENVIRONMENT

ELECTRICAL SUPPLY: 108-132 Volts, 5 Amps, 54-60 Hertz, Single Phase

A three meter long, three wire cable with 1.00mm² conductors rated at 10 amperes (in accordance with CENELEC HD-21) is provided for the electrical connection to the IEC 320 receptacle of the applicator. The end of the power cord is terminated with a NEMA 5-15 plug.

OR

207-253 Volts, 5 Amps, 47-53 Hertz, Single Phase

A three meter long, three wire cable with 1.00mm² conductors rated at 10 amperes (in accordance with CENELEC HD-21) is provided for the electrical connection to the IEC 320 receptacle of the applicator. The end of the power cord is unterminated and must be fitted with an appropriate plug at installation.

ENVIRONMENT: Operating temperature: 40-104 degrees F Humidity: 20-95% RH, Non condensing.

NOTE: The model 3138N is not intended to be operated in an environment where flammable or explosive gases are present. The 3138N is not to be used in direct contact with food products.

READ THE INSTRUCTIONS COMPLETELY. This manual includes all of the information that you'll need to set-up the applicator under normal operating conditions. The instructions include important safety precautions which must not be ignored.

READ THE INSTRUCTIONS IN ORDER. The instructions are written as numbered steps that will take you safely and efficiently through the set-up process. Any steps performed out of sequence may result in a hazard and the applicator may not operate properly.

UNDERSTAND THE TERMS USED. Although this manual uses few technical terms, some vocabulary may be new to you. Most of the words are defined the first time that they are used. If you don't know what a word means, check the Glossary.

WORK CAREFULLY. Although setting up the machine is not difficult, it does take time. Do not rush through the process: careful work will produce good results.

TRY AGAIN IF SOMETHING DOES NOT WORK. Although a machine malfunction is possible, most problems happen because the machine is not set-up right. If the machine doesn't operate correctly, back up and try again.

KNOW HOW TO FIND WHAT YOU NEED. This manual contains all of the information needed including a Table of Contents, Table of Figures, Glossary, and Index. Use these tools to locate information quickly.

UNDERSTAND OUR TYPOGRAPHIC CONVENTIONS. Machine keys and switches are designated by brackets: "Press [FEED]," means "Press the feed key." Messages shown on the microprocessor display are shown by type style: THIS TYPE STYLE INDICATES MICROPROCESSOR TEXT.

NOTE: Paragraphs that are in this style give information to help handle special circumstances, or re-emphasize important information.

FOLLOW ALL SAFETY INSTRUCTIONS. The model 3138N applicator has been provided with a number of safety features. Observe all safety warnings and under no circumstances attempt to remove or defeat safeguards or operate the machine in a manner contrary to the instructions.

CAUTIONARY SYMBOLS AND PICTOGRAMS

The following symbols may be encountered on or in the machine and in the Technical manuals. They serve to alert you to potential hazards that may cause serious harm to personnel.

This symbol warns you that there is a danger of being injured by the drive and/or nip rollers. Read the text and follow the instructions carefully to avoid an injury.

This symbol indicates the presence of an uninsulated dangerous voltage within the applicators enclosure.

This symbol indicates a high noise level is present. Ear protection must be worn to avoid hearing loss.

This symbol indicates that the machine should not be operated unless the covers/guards are in place.

This symbol indicates that only authorized personnel should perform the procedure.

This symbol indicates that it is important to maintain a safe air pressure.

This symbol indicates that you should read the Technical Manual before proceeding.

I This symbol on an electrical power switch indicates SWITCH ON.

O This symbol on an electrical power switch indicates SWITCH OFF.

This symbol indicates the protective EARTH connection.

INITIAL CAUTIONS

The model 3138N has been designed with the safety of the operator and service personnel in mind. Proper safety features have been incorporated and the applicator safety tested to assure safety if used as intended. Refer to the CAUTIONARY SYMBOLS AND PICTOGRAMS definitions on the preceding pages.

A risk assessment has been conducted which indicates most hazards identified by the machinery directive to be low to nil risk. Apparent moderate risks were determined to be:

The Web Drive Rollers

The potential for finger pinch exists between the drive and pinch rollers. Keep hands clear of the drive and pinch rollers whenever the machine is ONLINE.

Enclosure

A potential for electrical shock exists if the cover is removed. The cover must not be removed except by a qualified service person. The power switch is to be turned OFF (O) and the power cord removed prior to removing the cover.

Environmental Exclusions

The model 3138N is not intended to be operated in an environment where flammable or explosive gases are present. The 3138N is not to be used in direct contact with food products.

APPLICATOR POWER CABLE

Do not connect the machine to the AC power source until directed to do so in the set-up procedures.

115V applicators are shipped from the factory with a six foot three pin power cord. One end plugs into the IEC receptacle on the side of the applicator. The other end connects to the customer's properly grounded and polarized power outlet.

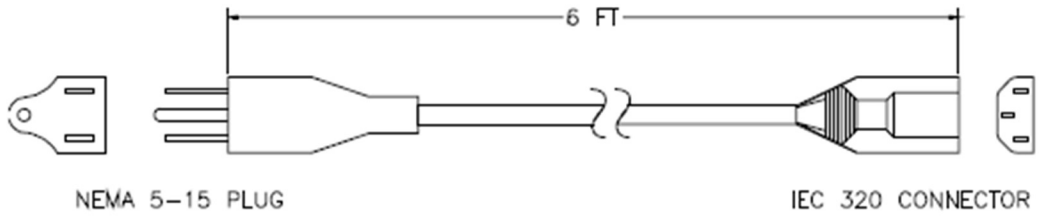

Figure 1 115V Power Cable

220V applicators are shipped from the factory with an unterminated power cord. An appropriate grounding polarized plug will need to be installed on the power cord. Use the drawing below to wire in the appropriate grounding polarized plug for use in your facility.

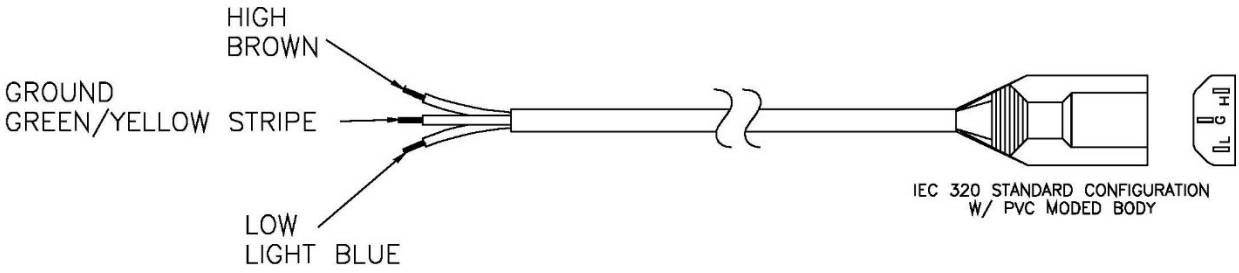

Figure 2 220V Power Cable

MECHANICAL PLACEMENT OF THE MACHINE

The model 3138N is mounted at the installation site to provide a safe, adjustable and stable alignment of the label to be applied, with the product.

The physical properties of the applicator are shown in Figure 3. The orientation of the applicator label dispenser can be upright and above, nose up, nose down, and reels up. A gimbal function is provided when the U-arm is used to support the applicator housing by its pivot attachments and by the freedom provided by rotation about the 3/4 inch mounting bolt. The structure supporting the U-arm/applicator body must be designed to safely support the 170 lbs (77 Kg) weight and in some orientations, the moment generated by the support extended out by almost 12 inches (30cm).

If the installer selects a support base that is mounted on casters, the maximum overturning moment that can be experienced when the floor is non-horizontal must be considered in the design of the support. Some safety agencies specify that for a truly portable stand that the design should consider safely supporting the applicator in its worst orientation for a 10 degree tilt. Also, the casters should have locks to prevent inadvertent motion of the support.

All portable supports should have a means to anchor the unit to the floor if the applicator need not be moved for periods between applying labels.

Place the machine so that the peeler plate tip is 1/8 inch from the product's labeling surface. Make sure that only the wiper will touch the product as it passes the machine. The position of the machine should allow the operator to easily change labels.

When you have correctly assembled and positioned the machine, tighten any adjustment locks to prevent the machine from moving.

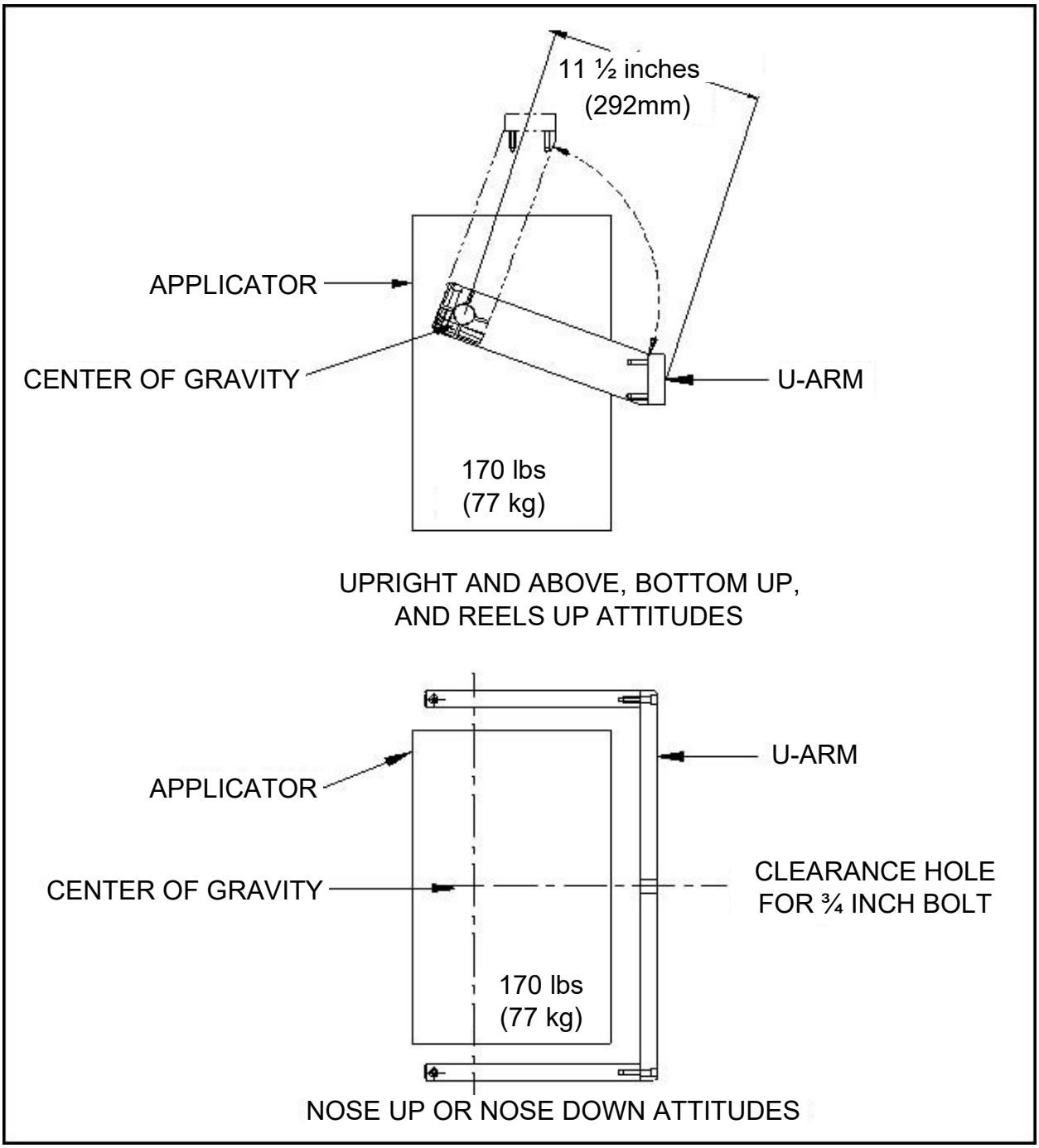

Figure 3 Applicator Support Structure

GENERAL MACHINE INFORMATION

Do not connect the machine to the AC power source or the compressed air service until directed to do so in the set-up procedures.

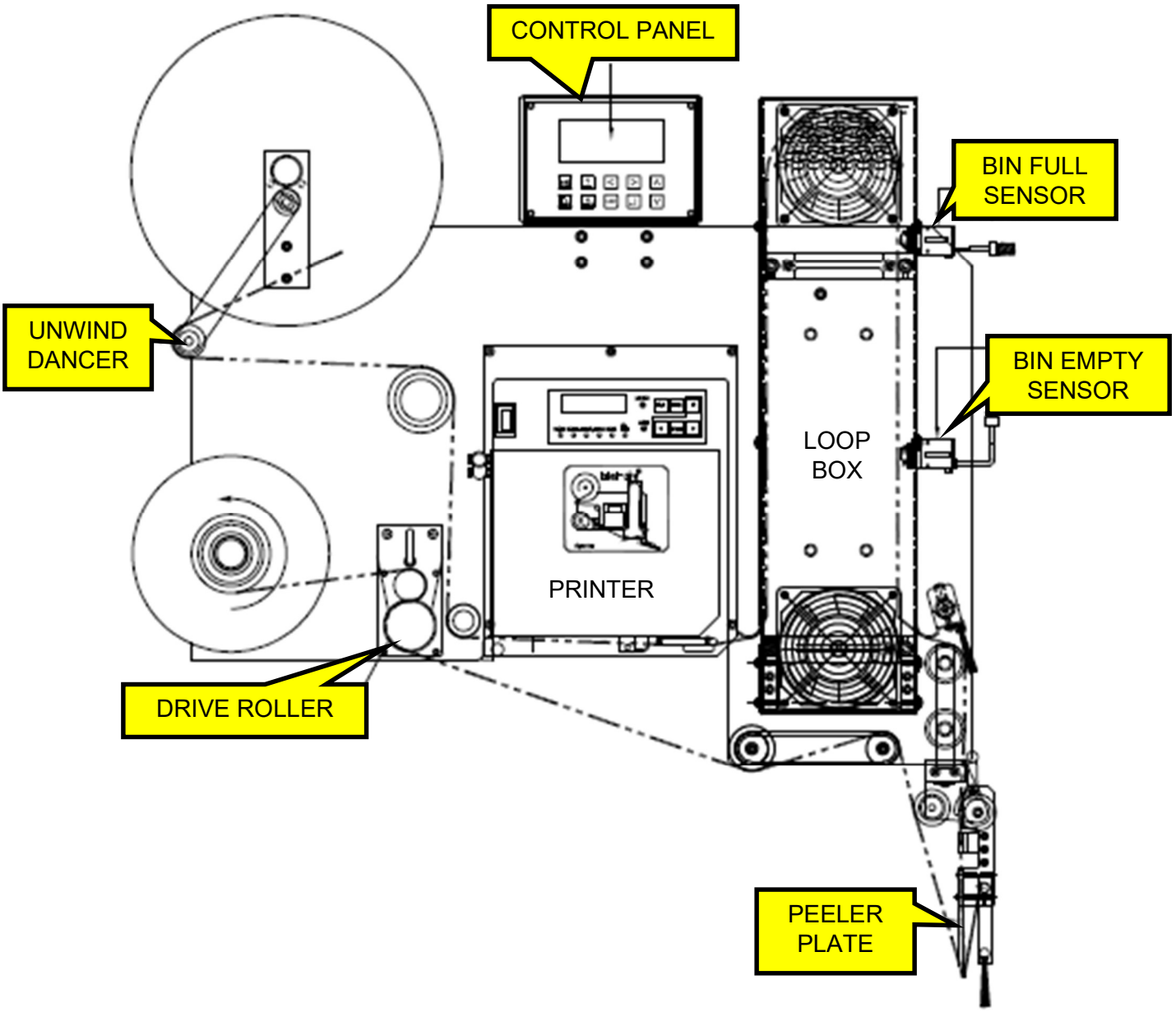

Figure 4 3138N Applicator (Right Hand)

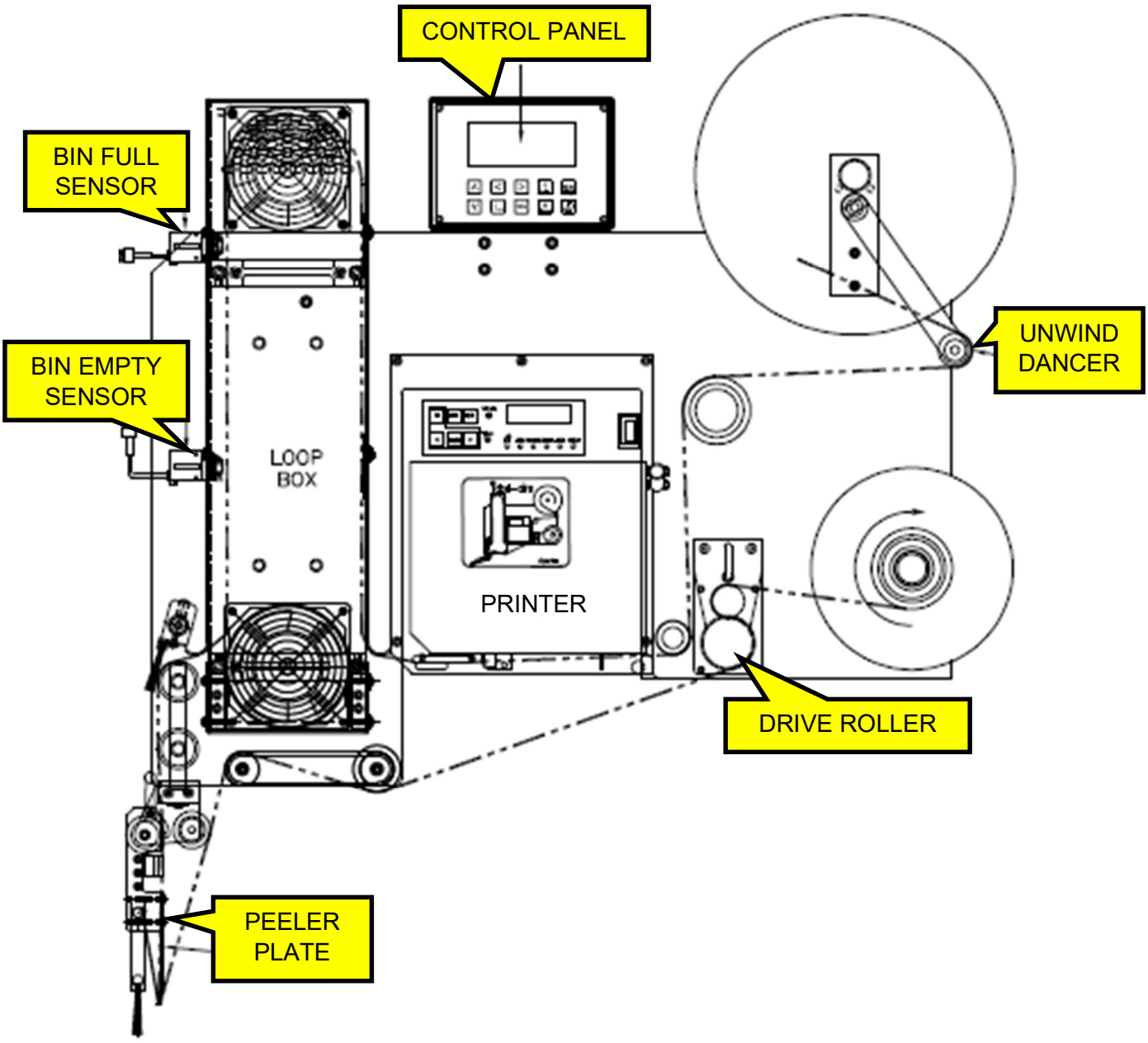

Figure 5 3138N Applicator (Left Hand)

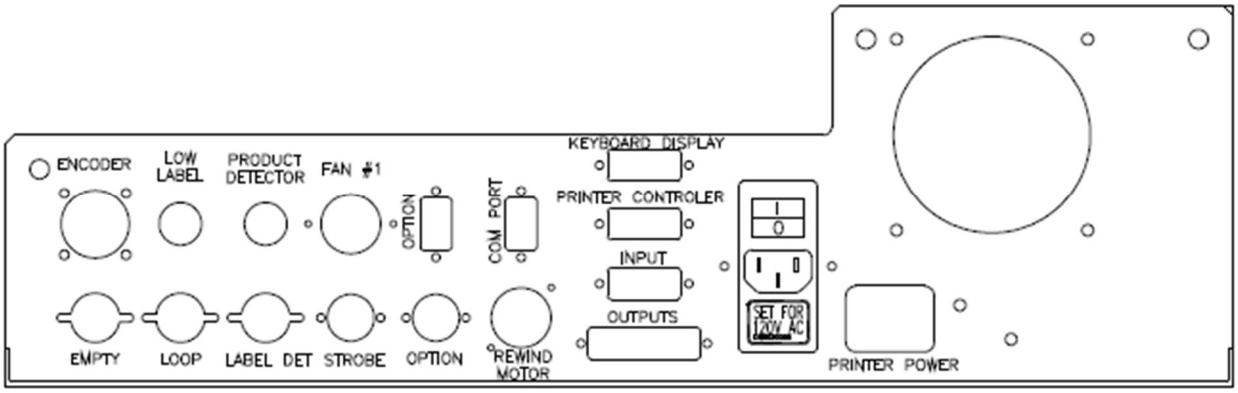

Figure 6 Electrical Panel (Rear of Machine)

TOOL LIST

NOTE:

The mounting hardware provided is USA inch size. Inch size tools are required except where indicated as follows:

HEX HEAD WRENCHES	OPEN END WRENCHES	SCREWDRIVERS
1/16 INCH	7/16 INCH	# 1 PHILLIPS
1/8 INCH		3/32 flat blade
3/16 INCH		
3/32 INCH		
5/64 INCH		
5/32 INCH		
7/64 INCH		
9/64 INCH		
3/8 INCH		

PRELIMINARY SET-UP

Disconnect the power from the machine before you perform the following procedures or you may be injured by the moving drive belts and pulleys or receive an electric shock.

RE-INSTALLATION OF PARTS

Some parts must be removed before shipment to prevent damage in transit. Follow these instructions to assemble the removed parts.

DANCER ARM

1. Use a 3/16 inch hex head wrench to remove the flat head screw from the unwind shaft.

2. Position the hole in the unwind dancer arm over the dancer arm shaft and install the flat head screw using a 3/16 inch hex head wrench. Do not fully tighten.

3. Position the dancer roller 5cm to 5.5cm (2 to 2 1/4 inches) away from the dancer arm stop. Tighten the flat head screw with the 3/16 inch hex head wrench. See Figure 7.

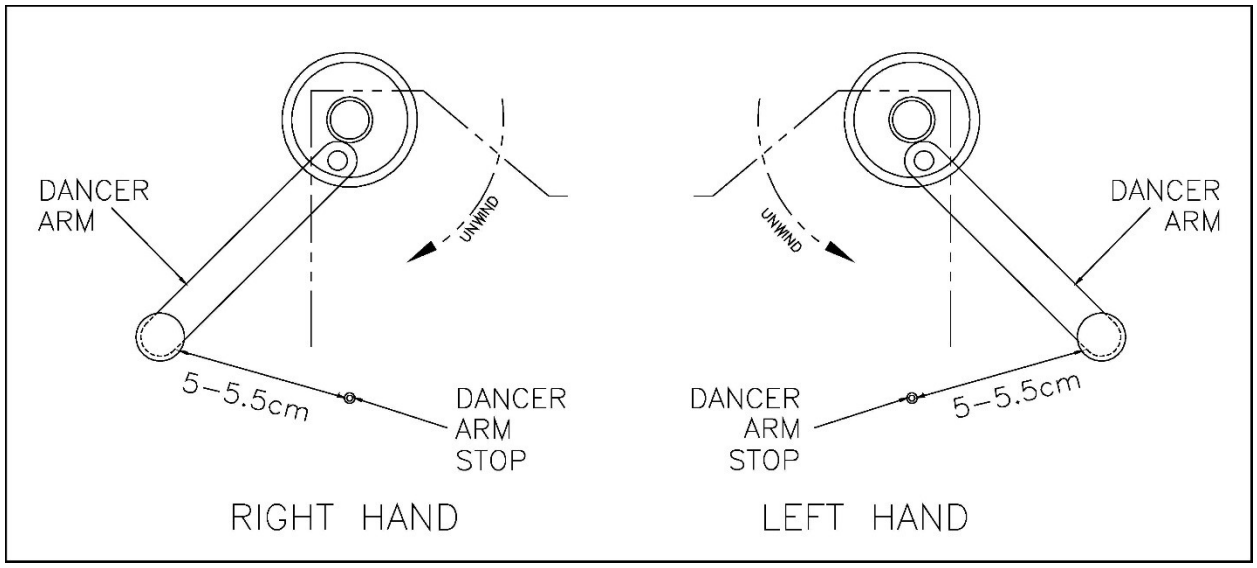

Figure 7 Dancer Arm

UNWIND DISKS

1. Remove the protective plastic film from the inner and outer unwinds disks.

2. Slide the inner unwind disk onto the unwind mandrel (hub facing out) until the disk is against the unwind disk. Refer to Figure 8.

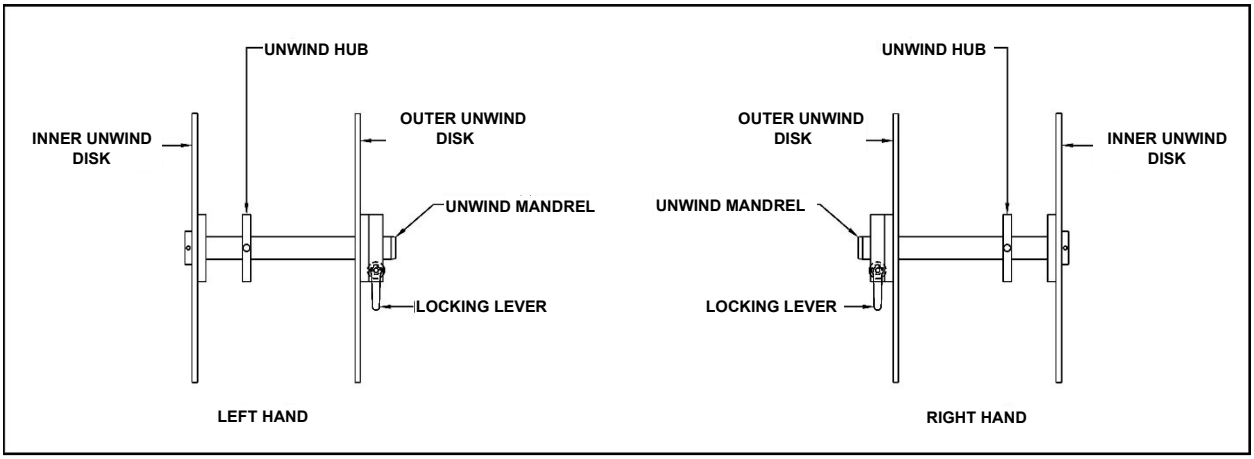

Figure 8 Unwind Disks

3. Rotate the inner unwind disk until the set screw in the hub is over the flat on the unwind mandrel. Tighten the set screw using a 3/16 inch hex head wrench.

4. Slide the loose unwind hub onto the unwind mandrel (beveled edge facing out). Position the hub so that it will be about 25mm (one inch) from the outboard end of the label core.

5. Rotate the loose hub until the set screw in the hub is over the flat on the unwind mandrel. Tighten the set screw using a 3/16 inch hex head wrench.

6. Slide the outer unwind disk onto the unwind mandrel and tighten the locking lever.

LOW LABEL BRACKET

1. Remove the two socket head cap screws from the unwind block with a 9/64 inch hex head wrench.

2. Place the low label bracket against the unwind block with the low label detector aimed at the inner unwind disk. Install the two socket head cap screws with a 9/64 inch hex head wrench. The position of the low label detector will be set during the set-up procedures.

ACCESSING THE SOFTWARE

Accessing the software is actually quite simple. There are three menus, Operator, Advanced and Service.

OPERATOR MENU

The operator menu is where everyday tasks take place such as label placement, resetting counters and recalling label pages. There is no password required for this menu.

ADVANCED MENU

The advanced menu is where you make adjustments that were set in the service menu.

This menu is password protected. To enter this menu, press the < > keys at the same time. “ENTER CODE” will now appear on the display.

Press the following keys <u>one at a time</u>: ENABLE HELP <

You will now be in the Advanced Menu.

SERVICE MENU

The service menu is where you actually configure the applicator and its options. *Use caution while in this menu as you can completely alter the way the applicator operates!!!*

This menu is also password protected. To enter this menu, press the < > keys at the same time. “ENTER CODE” will now appear on the display.

Press the following keys <u>one at a time</u>: FEED CUSTOM ESC ↵

You will now be in the Service Menu.

Note: To return to a previous menu press the ESC key.

CONTROL PANEL

This section covers the control panel menu items.

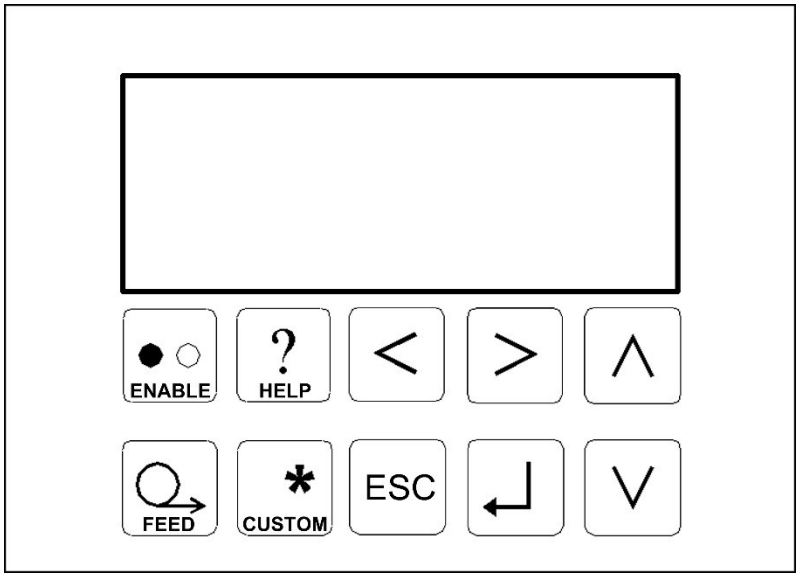

Figure 9 Control Panel

When the machine is first powered ON, the display will read:

LABEL-AIRE
3138 MERGE
0118803-2.3A

Then:

OFFLINE PRODUCTS PER MINUTE:

XXXX

The [ENABLE] button will put the machine in ONLINE mode, for normal operation, or OFFLINE mode, for set-up.

The [FEED] button will feed a label.

The [ENTER] button will select the displayed menu item.

X denotes a numeric value.

Pressing the [UP] and [DOWN] arrow buttons will cycle through the menu options, and increment and decrement the value of the selected item. When selecting menu options, holding in these buttons will move through the menu options faster.

The [LEFT] and [RIGHT] arrow buttons will move through the digits of a numeric value.

The [CUSTOM] (*) button will perform an automatic label calibration. This includes setting up the label sensing level and the LABEL REPEAT LENGTH. Press and hold while two labels dispense to perform the automatic label calibration.

The [ESC] button will move to the next lower menu level (For use when in the Advanced and Service menus only).

The [HELP] (?) button has no function at this time.

MENU LEVELS

There are three menu levels: Operator, Advanced, and Service. When first powered ON, the machine is at the Operator level. This level offers only the basic functions that may need to be changed during a product run.

To change the menu level from Operator to either Advanced or Service, simultaneously press both the [LEFT] and [RIGHT] buttons, then enter the ACCESS CODE for the desired menu level.

The Advanced level allows set-up of the machine for different label and product types.

The Service level allows configuration of machine specific items such as the type of machine, and activates any options the machine is equipped with.

The following is the list of menu items for each level and their function for the 3138N applicator.

OPERATOR MENU

PRODUCTS PER MINUTE - This is an informational display showing the product rate.

PRODUCT COUNTER - This informational display shows the number of products that have been detected since the counter has been reset. There are seven decimal places in this display.

PRODUCT COUNTER RESET - Selecting YES will reset the product counter.

LABEL COUNTER - This informational display shows the number of labels that have been detected since the counter has been reset. There are seven decimal places in this display.

LABEL COUNTER RESET - Selecting YES will reset the label counter.

BIN MANUAL FILL - When set to YES, the printer will start printing labels provided there is data in the printers buffer. The printer will continue printing labels until the top (bin full) sensor is covered or BIN LABEL LIMIT labels have been printed; whichever occurs first. Use this function to fill the bin after a new roll of labels has been loaded.

SET LINE SPEED - If SPEED FOLLOWING is set to NO in the Service Menu, this is set to match the speed of the conveyor.

RECALL PARAMETER FROM LABEL PAGE - This recalls the microprocessor settings that have been stored in the indicated label page. The label page can be set from 1 to 50. Label pages can be set-up for each label type.

LABELING SPEED - This sets the speed of the web. This value can be set from 20 to 1500 (inches per minute).

LABEL STOP POSITION - This setting determines where the next label to dispense stops. For example, if the machine is properly set-up, the leading edge of the next label to be applied will be at the peeler bar tip. This value can be set from 0.00 to 2.00 inches.

LABEL ON PRODUCT POSITION - This sets the delay between product detection and the application of the label. This value is expressed in distance. This value can be set from 00.01 to 40.00 inches.

RATE COMPENSATION - If SPEED FOLLOWING is set to YES in the Service menu, this sets the Velocity Compensation. This value can be set from 0 to 9999.

BACKLIGHT INTENSITY - This adjusts the brightness of the display backlight. This value can be set from 0 to 100.

DISPLAY CONTRAST - This adjusts the display contrast. This value can be set from 0 to 50.

CPU VERSION AND DATE - This displays the CPU version number and the date of the software. This is informational only, these items cannot be changed.

ADVANCED MENU

LABEL-SENSOR TO PEEL-TIP DISTANCE - Enter the distance between the cross-hairs on the label sensor, to the tip of the peeler bar. This value can be set from 1.0 to 40.0 inches.

LABEL REPEAT LENGTH - This value should be set to the distance between the leading edge of one label on the web to the leading edge of the next label on the web. This is the length of one label plus the gap between labels. This value is set automatically during label calibration, but can be adjusted if necessary. This value can be set from 0.20 to 20.0 inches.

LABEL-SENSOR SETTING - This value is set automatically during label calibration, but can be adjusted if necessary. This menu item controls the sensitivity of the label sensor. This value can be set from 0 to 200.

LABEL SENSOR EDGE - This can be set to LEADING or TRAILING as desired. LEADING is usually preferred.

LABEL DETECTED - This informational display indicates whether the label detector is detecting a label or not. It can be YES or NO.

LABEL STOP POSITION - This setting determines where the next label to dispense stops. For example, if the machine is properly set-up, the leading edge of the next label to be applied will be at the peeler bar tip. This value can be set from 0.00 to 2.00 inches.

LABELING SPEED - This sets the speed of the web. This value can be set from 20 to 1500 inches per minute.

SLEW SPEED - This sets the speed of web travel when advancing past missing labels. This value can be set from 20 to 2500 inches per minute.

CONSECUTIVE MISSING LABEL COUNT - This value sets the number of consecutive labels that can be missing on the web before an error occurs. This value can be set from 0 to 9.

CONSECUTIVE BROKEN WEB COUNT - This value sets the number of consecutive broken web conditions before an error occurs.

PRODUCT SENSOR EDGE - This can be set to LEADING or TRAILING as desired. LEADING is usually preferred.

PRODUCT DETECTED - This informational display indicates whether the product detector is detecting a product or not. It can be YES or NO.

LABEL ON PRODUCT POSITION - This sets the delay in distance between product detection and the application of the label. This value can be set from 1.00 to 40.00 inches.

PRODUCT DETECTOR LOCKOUT - This function allows you to set a distance during which the applicator will ignore any product inputs. Use this function when the product detector is generating false detection signals and the applicator cycles more than once per product. If not needed, set this to its minimum value. This value can be set from 0.04 to 40.0 inches.

FAST RISE LENGTH - This function is available if LABEL PROFILING is set to YES in the Service Menu.

Refer to the Label Profiling Section.

FLAT AREA LENGTH - This function is available if LABEL PROFILING is set to YES in the Service Menu.

Refer to the Label Profiling Section.

WEB RATIO - This function is available if LABEL PROFILING is set to YES in the Service Menu. Refer to the Label Profiling Section.

NUMBER OF PRODUCTS TO SKIP - If SKIP LABELING PRODUCTS is set to YES in the Service menu, this value is set to the number of products to skip between applying labels. This value can be set from 1 to 99.

NUMBER OF PRODUCTS TO LABEL - If SKIP LABELING PRODUCTS is set to YES in the Service menu, this value is set to the number of labels to be applied to a single product. This value can be set from 1 to 99.

LABELS PER PRODUCT - if MULTIPLE LABELS ON PRODUCT is set to YES in the Service menu, this value is set to the number of labels to be applied to a single product. This value can be set from 1 to 99.

LABEL SPACING - If MULTIPLE LABELS ON PRODUCT is set to YES in the Service menu and LABELS PER PRODUCT is set to two or more, then this value is set to the spacing between labels. This value can be set from 1.00 to 40.00.

ZERO DOWN TIME - If ZERO DOWN TIME is set to YES in the Service menu, this setting tells the microprocessor if this machine is the UPSTREAM or DOWNSTREAM applicator. Set as appropriate.

ZDT BYPASS PRODUCT: 00- Menu item only appears when ZDT mode is selected and only in the downstream applicator. It allows the downstream applicator to ignore products (selected value) between applicators when the downstream applicator is placed online.

RECALL PARAMETER FROM LABEL PAGE - This recalls the microprocessor settings that have been stored in the indicated label page. The label page can be set from 1 to 50. Label pages can be set-up for each label type.

SAVE PARAMETER TO LABEL PAGE - This saves the microprocessor settings to the indicated label page. The label page can be set from 1 to 50. Label pages can be set-up for each label type.

SERVICE MENU

ALARM SELECT - This can be set to STK LIGHT, 2 STROBES, 1 STROBE, or OFF.

UNITS - Set this to IMPERIAL (English), or METRIC as desired.

LANGUAGE - This can be set to ENGLISH, SPANISH, FRENCH, ITALIAN, or GERMAN. Set as desired.

SPEED FOLLOWING - Set this to YES if an encoder is being used, NO otherwise.

LABEL PROFILING - This allows label profiling adjustments in the Advanced menu. Set to YES or NO as required.

LOW LABEL INSTALLED - If set to YES, will allow the setting of the LOW LABEL STOP COUNT in the Advanced menu.

ZERO DOWN TIME INSTALLED - Set this to YES if the machine is being used in a Zero Down Time situation, or NO otherwise. When set to YES, it allows the setting of the ZERO DOWN TIME function in the Advanced menu.

SKIP LABELING PRODUCTS - Set this to YES if you do not wish to label every product, or NO otherwise. When set to YES, it allows the setting of PRODUCT SKIP in the Advanced menu.

MULTIPLE LABELS ON PRODUCT: Set this to YES if you wish more than one label to be applied to each product , or NO otherwise. When set to YES, it allows the setting of PRODUCT SKIP in the Advanced menu.

I/O DEFINE DISPLAY: See the Inputs/Outputs section.

RESTORE FACTORY DEFAULTS - Pressing [ENTER] will restore this menu level (Service) to the default values.

UPGRADE SYSTEM - Pressing [ENTER] will install new microprocessor software.

MICROPROCESSOR MESSAGES

ERROR MESSAGES

PROD OVF - This message is displayed when more than thirty (30) products are in the product queue during NON Zero Down Time operation.

UNWIND ERROR - This message occurs only when the Powered Unwind option is installed and the unwind motor is constantly on. This indicates that the unwind sensor does not see the web.

REWIND ERROR - This message occurs only when the Powered Rewind option is installed and the rewind motor is constantly on. This indicates a broken web.

CONFIGURATION ERROR - This indicates an improper setting was entered. ENTER will clear the error.

UNREGISTERED PRODUCT - This message is displayed when operating in ZDT mode and a product passes the downstream product detector without first passing the upstream product detector.

ZDT BUFFER FULL - This message is displayed during Zero Down Time operation, and more than thirty (30) products are between the two product detectors.

LOW LABEL ERROR - This error occurs when the number of labels set in LOW LABEL STOP COUNT have been applied after a low label alarm occurs.

BROKEN WEB - The web has not moved from a label to a gap in pre-determined amount of time.

LABEL POS ERROR - This message is displayed when operating in Dual Tamp mode, and a signal to apply the 2nd label occurs before the 1st label is applied.

RIBBON OUT ERROR - This message is displayed when the printer runs out of ribbon.

LABEL OUT ERROR - This message is displayed when the printer runs out of labels.

PRINTER ERROR FOUND - This messages indicated that the printer has an error.

END OF WEB - This message is displayed when the End of Web sensor becomes unblocked.

WARNING MESSAGES

UNLABELLED PRODUCT - This message is displayed when a product input is received before the end of air blast.

RIBBON LOW FOUND - This message is displayed when the printer is running low on ribbon.

INPUTS/OUTPUTS

The Input connector is a 15 pin male "D" style connector. The Output connector is a 25 pin male “D” style connector.

All I/O’s are via opto-isolated solid state relays rated at 65 volts AC or DC at 750mA maximum. Outputs can be used with sink or source inputs.

In the service menu of the operator control box you will find there are nineteen (19) pins available for outputs, and five (5) pins available for inputs. The operator can select four (4) of the (5) inputs and (10) of the (19) outputs and program them into the menu. Output signals can share the same pin if the output state is the same (HIGH or LOW).

CUSTOMIZABLE I/O’S

The following I/O’s are available via the Control Panel when I/O DEFINE DISPLAY is set to YES:

LOW RIBBON OUTPUT
RIBBON OUT OUTPUT
LABEL OUT OUTPUT
PRINTER OPEN SIGNAL OUTPUT
PRINTING SIGNAL OUTPUT
LOW LABEL OUTPUT
READY OUTPUT
OFFLINE OUTPUT
ERROR OUTPUT ACTIVE
WARNING OUTPUT
REWIND FAILURE
END OF WEB SIGNAL OUTPUT
UNLABLED SIGNAL OUTPUT
PRINT COMMAND INPUT
RE-PRINT COMMAND INPUT
EXT. APPLY COMMAND INPUT
INHIBIT CONTROL INPUT PORT
PRINTER POWER DOWN OUTPUT

DEFAULT CUSTOMIZABLE I/O’S

When I/O define display is set to Yes, customizable I/O’s will be defaulted to the factor defaults as shown in the table below.

SIGNAL	PORT	LEVEL
LOW RIBBON	1	LOW
RIBBON OUT	2	LOW
LABEL OUT	3	LOW
PRINTER OPEN	4	LOW
PRINTING SIGNAL	5	LOW
LOW LABEL	8	LOW
READY	9	LOW
OFFLINE	00	-
ERROR	10	LOW
WARNING	00	-
REWIND FAILURE	00	-
END OF WEB	00	-
UNLABELED	00	-
PRINT COMMAND	0	-
RE-PRINT COMMAND	0	-
EXT. APPLY COMMAND	0	-
INHIBIT CONTROL	0	-
PRINTER POWER DOWN	0	-

RIBBON AND LABEL LOADING

Set the applicator offline before you perform the following procedures or you may be injured by the moving drive roller.

RIBBON LOADING

1. Place the machine OFFLINE.

2. Open the printer cover.

3. Refer to the printer manufacturer's manual for ribbon loading instructions.

LABEL LOADING

1. Place the machine OFFLINE. Remove the outer unwind disk from the unwind mandrel.

2. Move the nip roller away from the drive roller.

3. Load a roll of labels onto the hubs on the unwind mandrel. Slide the roll of labels against the inner unwind disk. Make sure that the labels will pass through the printer right side up. Replace the outer unwind disk.

4. Remove and discard the first six feet (two meters) of labels from the label liner.

5. Remove the vacuum box cover.

6. Slide the guide roller collars to full outboard positions.

7. Loosen the nose lock lever. Tilt the nose assembly away from the peeler bar and lock in position.

8. Thread the label liner around the dancer roller and the guide rollers leading to the printer.

9. Refer to the printer manufacturer's instructions for loading labels through the printer.

10. Thread the label liner into the vacuum box and through the machine as shown in Figure 11 or Figure 12. Make sure to thread the label liner through the label sensor.

11. Lay the end of the liner over the "quick release" rewind mandrel, and turn the mandrel by hand to take up any slack.

12. Check that the inner edge of the label liner tracks in a straight line from the inner unwind disk through the printer. Adjust the inner unwind disk if necessary.

13. Slide the guide collars to within 1/64 inch (0.4mm) of the label liner.

14. Replace the vacuum box cover.

15. Re-engage the pinch roller and tilt the label tension spring back in place. Check that the label tension spring holds the label flat against the peeler bar tip.

16. When the labels are loaded, engage the print head and any other latches etc. within the printer. Close the printer cover.

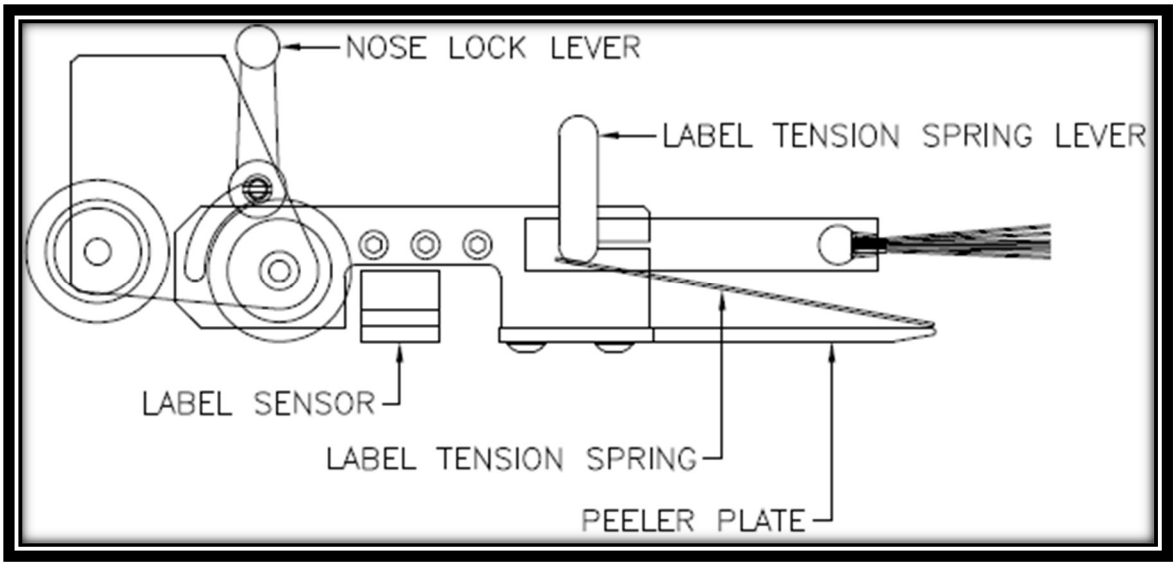

Figure 10 Peeler Plate Detail

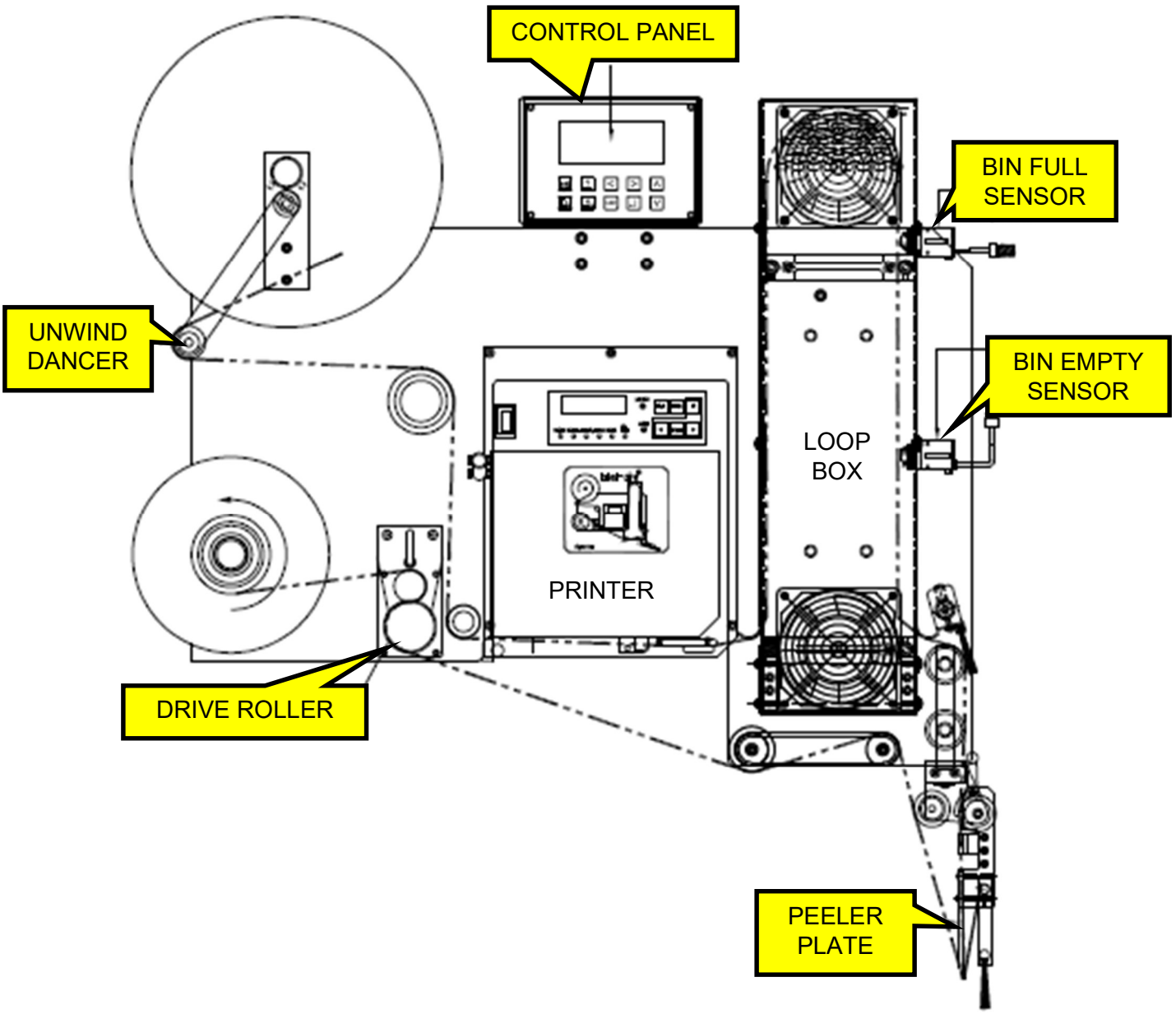

Figure 11 3138N Applicator (Right Hand)

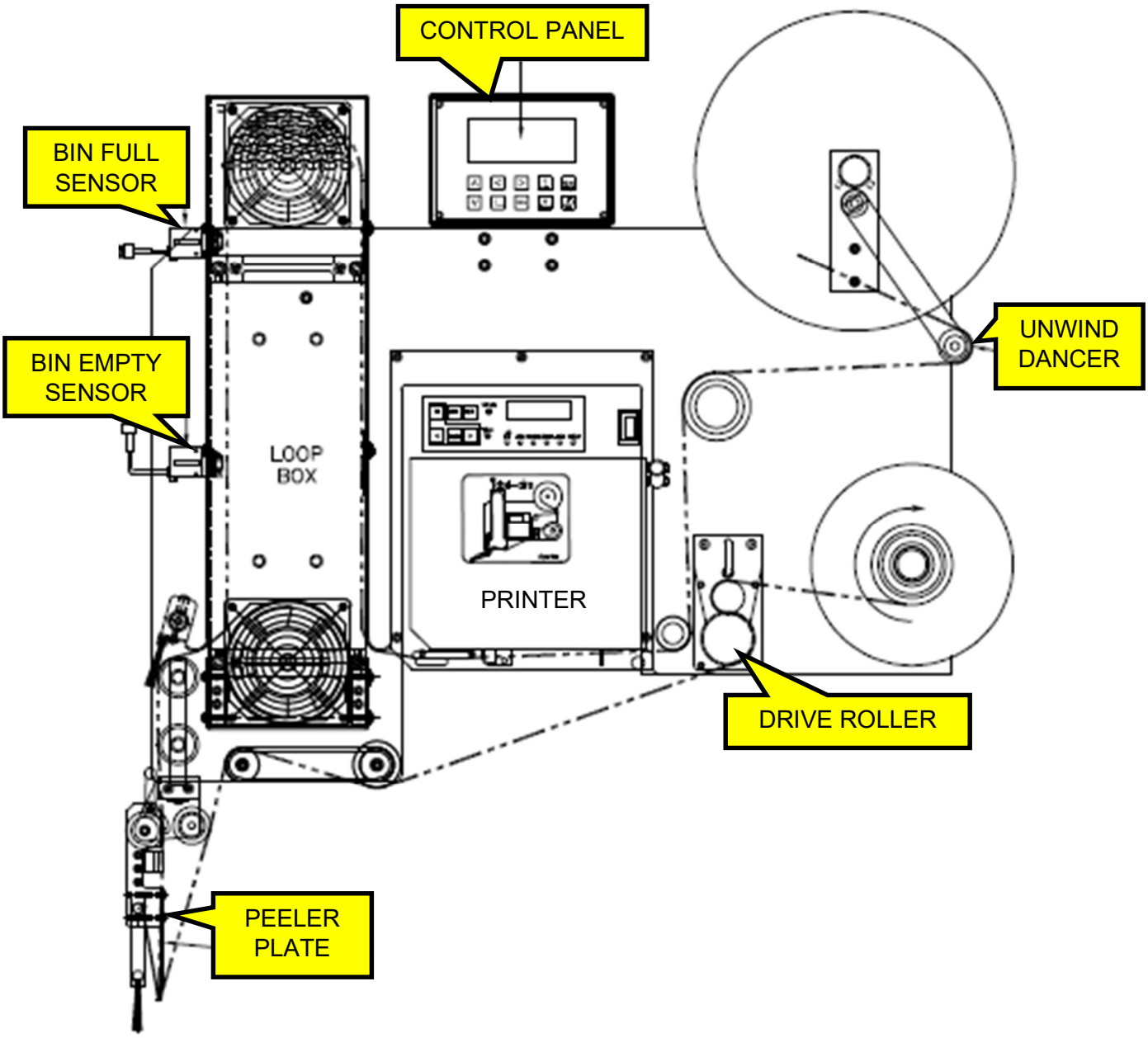

Figure 12 3138N Applicator (Left Hand)

ENERGIZING SEQUENCE

Follow this sequence whenever A.C. power and compressed air service is applied to the applicator.

NOTE: This applicator is designed to operate at 115/230VAC ±10%. The applicator is protected against over voltage situations. However, if a substantially lower voltage is supplied, the applicator will not be damaged, but may function improperly.

Exercise caution when cycling the machine or you may be injured by the moving drive roller.

CONNECTION TO A.C. POWER

1 With both ends of the A.C. power cord disconnected, connect one end of the A.C. power cord to the IEC receptacle on the applicator.

2. Connect the remaining end of the A.C. power cord to the electrical mains

3. Turn ON (I) the main applicator power switch.

4. Turn ON (I) the printer power switch located on the faceplate of the printer.

PRINTER INFORMATION

Before you can continue with the set-up of the applicator, the printer must have printing information in its buffer. Refer to the printer manual, or the label formatting software manual to learn how to write and send printing information.

Make sure to configure the printer with the required parameters. Refer to the Appendix indicated for the printer in use.

Connect the communication cable to the Printer Port on the side of the enclosure. Download a batch of labels into the printer, and continue with the Label Stop Position Section.

APPENDIX	PRINTER
B	Sato 8485Se
C	Zebra 170 PAX Series
D	Zebra ZE500
E	Datamax PE Series

LABEL STOP POSITION

Place the machine offline before you perform the following procedures or you may be injured by the moving drive roller.

In order for the applicator to function properly, the Label Stop Position of the printer must be set to dispense one complete label each cycle. The term “Label Stop Position” is referred to as “Offset,” “Top of Form,” “Present Distance,” “Pitch Offset,” and other terms dependent on the model of the printer.

1. Place the machine OFFLINE.

2. Press the [FEED] button to dispense a label.

3. If the Label Stop Position is set correctly, one label will completely dispense. If the label did not fully dispense, the Label Stop Position will need to be increased. If one label completely dispenses and the beginning of the next label is extending past the printer peeler plate, the Label Stop Position will need to be decreased.

4. If necessary, refer to the printer manual to adjust the Label Stop Position until the proper stop position is achieved.

LABEL SENSOR EDGE

1. Place the machine OFFLINE.

2. Select the LABEL SENSOR EDGE menu item. This section will be set either for LEAD or TRAIL, which designates for the leading or trailing edge of the label.

3. The display should read LEAD unless the label has an odd shaped leading edge and a straighter trailing edge. If this is the case, select TRAIL.

4. Set the LABEL SENSOR EDGE setting as required.

Go on to the Label Repeat Length Section.

LABEL REPEAT LENGTH

The label repeat length tells the microprocessor the distance from the leading edge of one label to the leading edge of the next. If the machine feeds one label repeat distance without sensing a label, the microprocessor knows that the label is missing or the label sensor isn't working properly. If CONSECUTIVE MISSING LABEL COUNT labels in a row are missing, the microprocessor will stop the machine.

This item is set-up automatically during label calibration but may be set manually if required.

1. Place the machine ONLINE.

2. Measure the label and gap between labels.

3. Set the LABEL REPEAT LENGTH to the measured value.

Go on to the Label Stop Position Section.

LABEL STOP POSITION

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

This function allows you to indicate to the microprocessor the distance between detecting a label and stopping the label advance. After the machine detects a label edge, the label should advance until it is 1/8 inch beyond the edge of the peeler plate. The label stop position is the distance between detecting a label and stopping the label advance. Use the following procedure to properly set the label stop position.

1. Place the machine ONLINE.

2. Select the LABEL STOP POSITION menu item.

3. Press and release the [FEED] key to advance a label.

NOTE: If the encoder is not turning while you're doing this step, the SPEED FOLLOWING function of the microprocessor must be OFF or the label will not feed.

4. Check the position of the label on the peeler plate. One label should be completely dispensed, and the leading edge of the next label should extend 1/16 inch beyond the peeler plate.

5. Press and release [UP] or [DOWN] to change the label stop position.

a. If more than one label is dispensed, decrease the distance.

b. If less than one label is dispensed, increase the distance.

c. If more than 1/16 inch of the label extends from the peeler plate, decrease the distance.

d. If less than 1/16 inch of the label extends from the peeler plate, increase the distance.

6. Press and release the [FEED] key until the machine advances a label. If the label isn't positioned correctly, repeat step 4.

NOTE: If the label is still flagged out too far when the display is at its minimum value move the label sensor to the other position.

Go on to the Imprinter Installed Section.

ENCODER PULSE RESOLUTION

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

If an encoder is used, set this value to number of encoder pulses per inch of conveyor (product) travel.

This value only needs to be changed if the circumference of the encoder wheel changes, or if the encoder resolution is changed.

Go on to the Speed Following Section.

SPEED FOLLOWING

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

Large variations in web speed may cause the Label on Product Position to fluctuate accordingly. This function provides compensation for wide variations in web speed so that the Label on Product Position remains constant regardless of web speed.

An encoder must be installed to use this function.

Go on to the Product Set-Up Section.

PRODUCT SET-UP

POSITIONING THE APPLICATOR

INITIAL SET-UP

This is a general outline to cover basic set-up procedures when you are using your own product handling system and applicator mounting. Make sure that the following items are correct before adjusting the position of the applicator:

a. Set the product handling system to deliver the product in a consistent position at a regular rate.

The product spacing device, (feed screw, metering wheel, etc.) should be set-up to properly space and consistently position the product. Inconsistent spacing and positioning can result in products either being mislabeled, or skipped when products are too closely spaced.

b. Adjust any guide rails to allow the product to travel smoothly.

If the railing system is too tight, products may jam or arrive at inconsistent intervals. If it is too loose, products may be inconsistently presented to the label applicator. Out-feed rails should be set to allow the products to exit smoothly and quickly with no backlog. If you're using only one applicator to label the side of a product, the rails should be positioned to move the product to the applicator. Front and back applicator systems should have the products oriented in the center of the conveyor.

c. Adjust the "Hold-Down" device (if present) to maintain the product's orientation without using too much pressure.

Too much pressure can cause mislabeling, deform certain products or put an undue load on the conveying system. The product should be captured with firm but stable pressure that should gradually increase up to the labeling area and then decrease as the product exits.

NOTE: Product consistency will also affect labeling. If the product handling system must be set-up to fit an inconsistently shaped product, it will deliver the product imprecisely.

The degree of labeling accuracy depends on how precisely and how smoothly the product handling system operates. When you have made all of the above adjustments, go on to the Applicator Nose Alignment Section.

APPLICATOR NOSE ALIGNMENT

This section explains how to prepare the applicator for set-up with labels. There are two common operation attitudes for the 3138N applicator: "Reels-Up" and "Upright-and-Above." A Reels-Up machine labels the side of a product, while an "Upright-and-Above" machine labels the top of the product.

Follow the instructions below for your machine.

NOTE: If Nose-Up or Nose-Down attitudes are used, follow the Upright and Above attitude set-up.

UPRIGHT AND ABOVE ATTITUDE

NOTE: Whenever you adjust the applicator or the applicator peeler plate position, make sure that the conveyor and the conveyor chain top never touch the peeler plate. Contact with the moving conveyor could cause serious and costly damage to the applicator.

1. Center a properly oriented product on conveyor chain in the label application area. If necessary, swing any applicator nose device (i.e., brushes, rollers etc.) out of the way so that the peeler plate is clearly visible.

2. Raise the applicator so that the peeler plate peeling edge is higher than the top of the product

3. Adjust the "side to side" angle of the applicator so that the peeling edge of the peeler plate is parallel to the surface of the product that will be labeled. Re-check the angle after you have tightened the U-arm bolts.

4. Position the applicator so that labels will be dispensed in same direction that the product is traveling (the center line of the label should be parallel to the center line of the product's label panel area).

5. Loosen the nose assembly height adjustment screws and move the nose assembly up or down to position the peeler plate about 1/8 inch away from the highest point of the product labeling surface. Tighten the nose assembly height adjustment screws. If necessary, use the U-arm to reposition the entire applicator. See *Figure 14*.

NOTE: It is important that the peeler plate be at a 15-25 degree angle to the top of the product, and that the peeling edge of the peeler plate be 1/8 inch from the tallest point of the product. If this angle and distance are not correct, the label's placement on the product may vary.

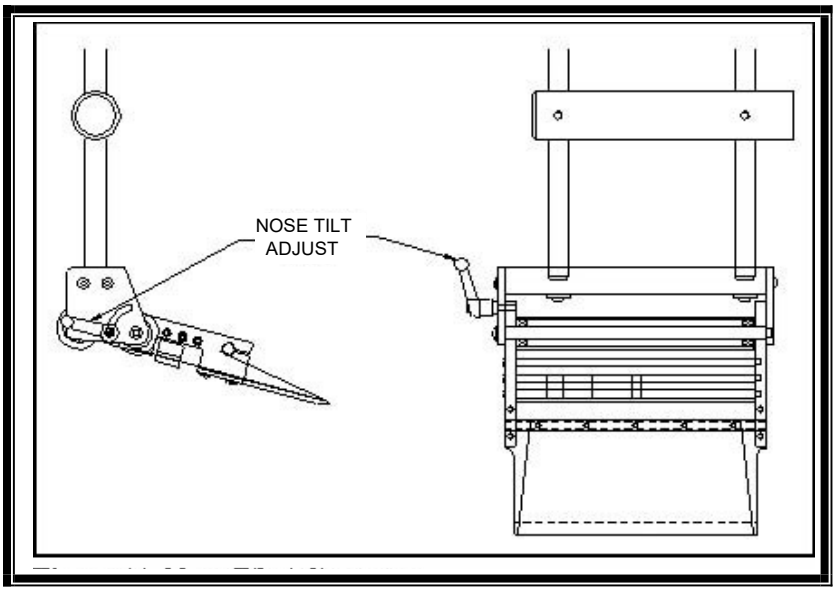

Figure 13 Nose Tilt Adjustment

When the applicator's angles and distances are correct and secure, go on the Product Sensor Section.

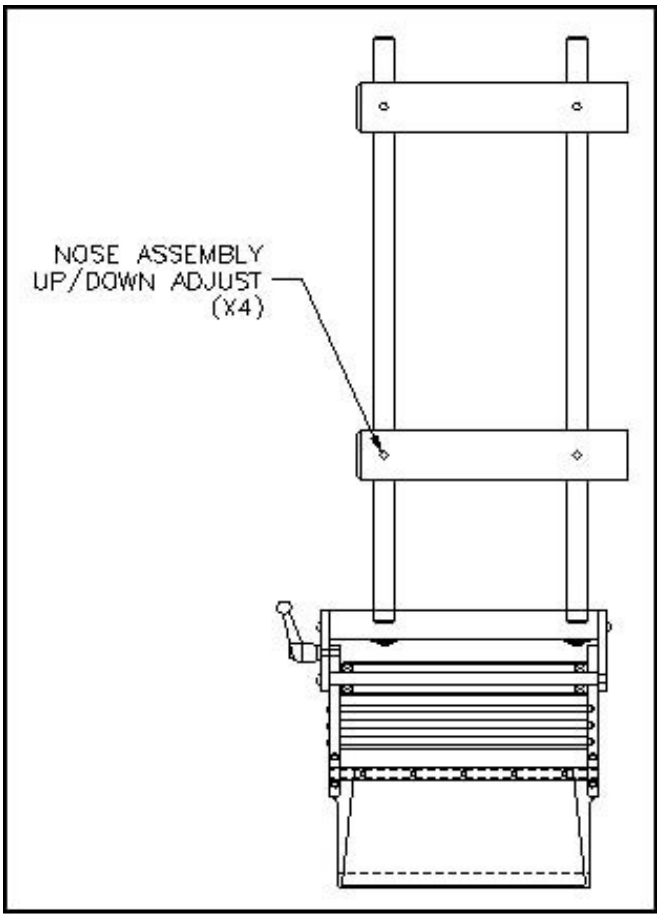

Figure 14 Nose Height Adjustment

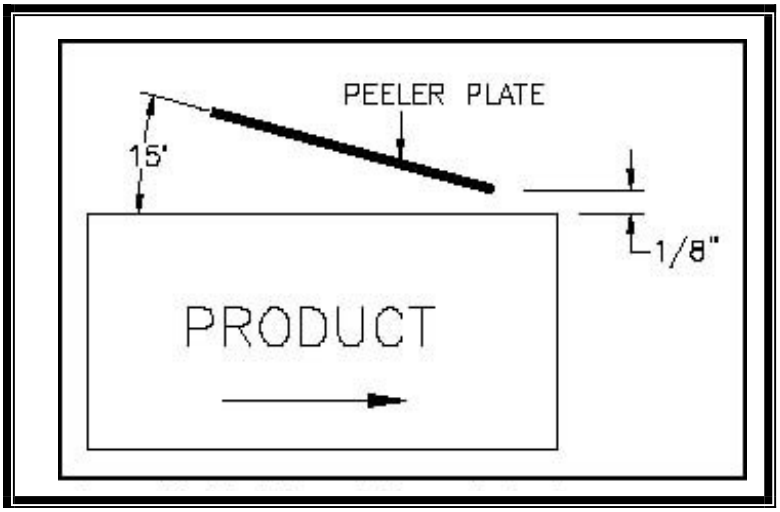

Figure 15 Upright and Above Attitude

REELS-UP ATTITUDE

1. Place a properly oriented product on the conveyor in the label application area. If necessary, swing any applicator nose device (i.e., brushes, rollers etc.) out of the way so that the peeler plate is clearly visible.

NOTE: Whenever you adjust the applicator or the applicator peeler plate position, make sure that the conveyor and the conveyor chain top never touch the peeler plate. Contact with the moving conveyor could cause serious and costly damage to the applicator.

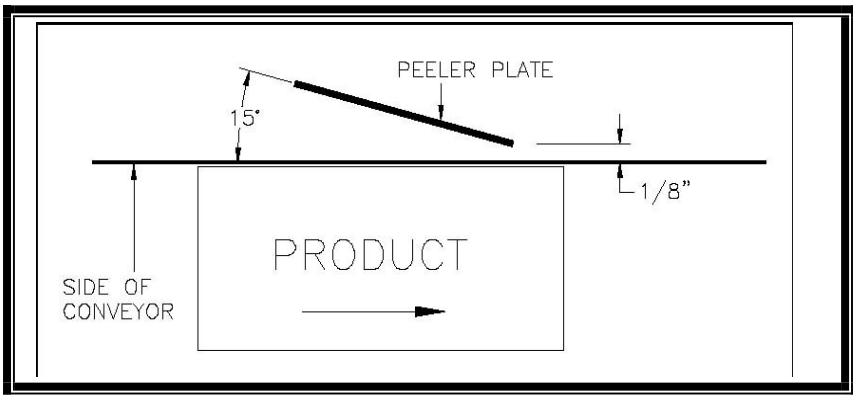

Figure 16 Peeler Bar Adjustment

2. Adjust the applicator height to position the peeler plate at the approximate height that you want labels applied.

3. Position the applicator nose at a 15-25° angle to the side of the conveyor. Adjust the angle by loosening the kip lever shown in *Figure 13*, moving the peeler plate to the proper angle, and then tighten the kip lever.

4. Adjust the applicator so that the peeler plate edge is parallel to the side wall of the product. Loosen the mounting bolts for the applicator U-Arm and pivot the entire machine to the correct angle. Recheck after tightening.

5. Adjust the entire applicator in or out until the tip of the peeler plate is 1/8 inch from the widest point of the side wall of the product.

NOTE: It is important that the peeler plate be at a 15-25° angle to the side of the conveyor, and that the peeling edge of the peeler plate be 1/8 inch from the widest point of the product. If this angle and distance are not correct, the label's placement on the product may vary.

Repeat this procedure if two applicators are being used. When the procedure is complete check to see that both peeler plate tips are even and in line with each other. If they're not, choose either the right or left-hand applicator, loosen the kip lever and move the peeler plate to the correct position. The angles on both nose assemblies should still be at the initial 15-25° set-up. If they are not, both applicator noses must be re-set until they have the correct angle, are even and in line with each other and follow all other parameters previously outlined for preliminary set-up.

Go on to the Product Detector Set-Up Section.

PRODUCT DETECTOR SET-UP

Set the applicator offline before you perform the following procedures, or you may be injured by the moving drive roller.

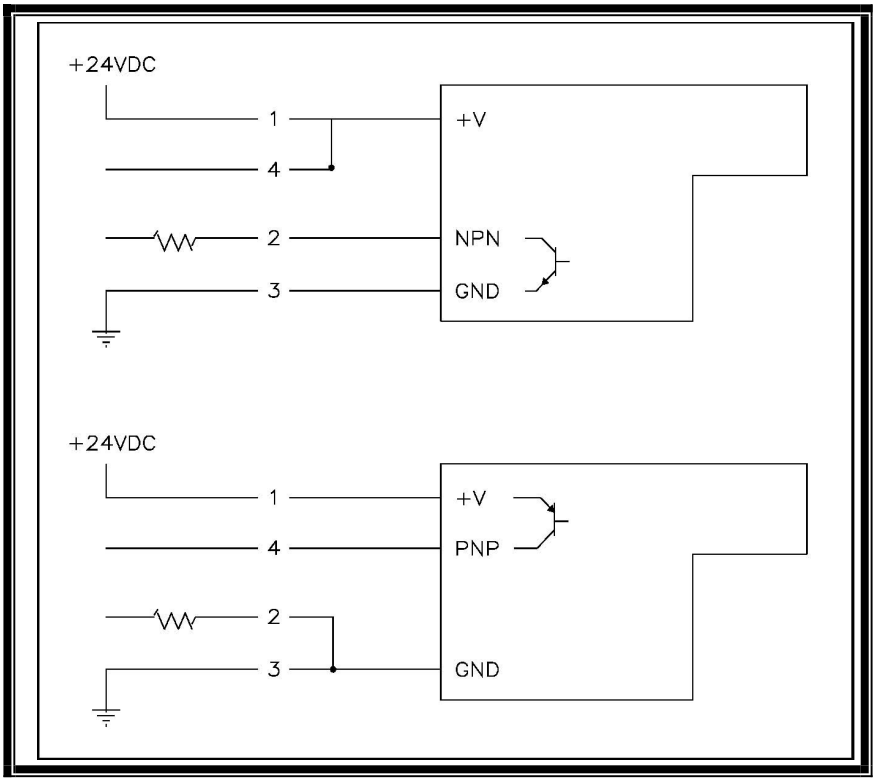

Figure 17 Wiring for PNP and NPN Detectors

The following instructions are for the Label-Aire standard product detector P/N: 7600005-802. Follow the manufacturer's instructions for set-up if another model product detector is used.

ALLEN BRADLEY THROUGH BEAM P/N 7600005-802

1. Place the machine OFFLINE.

2. Connect the product detector to the Product Detector connector.

3. The rear cover window on the detector must be opened before any adjustments can be made. See *Figure 18*. Press the flexible retaining clip against the cable to open the window.

4. Gently slide the L/D Operate switch on the back of the detector to L (towards the retaining clip) for Light Operation.

5. Align the product detector with the reflector. The yellow light on the rear of the detector will indicate that the detector and reflector are in alignment. Secure in position.

6. If the orange indicator is also lit, use a 1/16 inch flat blade screwdriver to turn the sensitivity adjustment screw counterclockwise until the orange indicator goes out.

7. Use the screwdriver to turn the sensitivity adjustment screw clockwise until the orange indicator just goes on.

8. Place a product between the product detector and the reflector. The orange indicator and the yellow light will go out, and the green indicator will light. Remove the product.

9. Snap the window cover closed on the product detector.

Go on to the Product Detector Lockout Section.

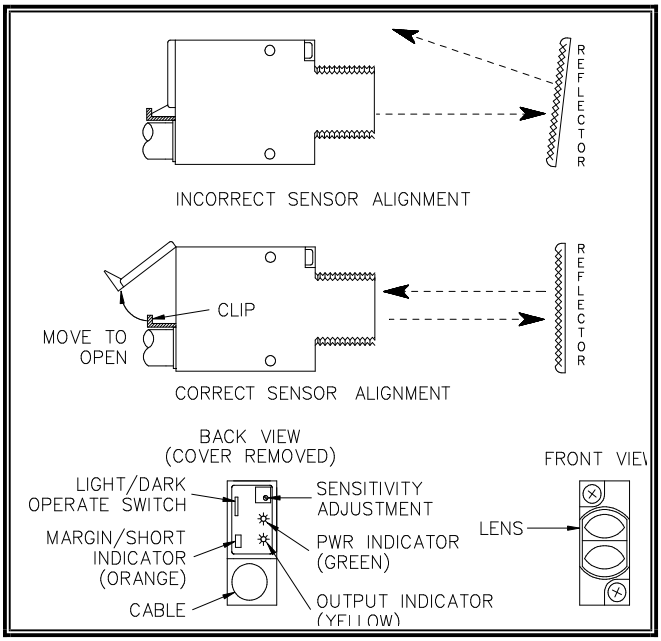

Figure 18 Allen Bradley

PRODUCT DETECTOR LOCKOUT

This function allows you to set a time or distance during which the microprocessor will ignore any detection signals from the product detector. Use this function when the product detector is generating false detection signals and the applicator cycles more than once per product. This may happen if a shiny product is reflecting light back to the detector. Use this function only when detecting the leading edge of the product. Set this value to minimum if you are not using it.

1. In the Advanced Menu select Product Sensor Setup then PRODUCT DETECTOR LOCKOUT menu item.

2. Enter a low value (i.e., 0.4) for PRODUCT DETECTOR LOCKOUT.

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

4. Try running products at this low value. If the false detections are not eliminated, increase the value for PRODUCT DETECTOR LOCKOUT and try again. Continue to slowly increase the setting until the false detections are eliminated.

NOTE: If the value for PRODUCT DETECTOR LOCKOUT is too short, it may cause two detections from the same product. If the value for PRODUCT DETECTOR LOCKOUT is too long, it may cause inaccurate applications or unlabeled products. Remember that any change in conveyor speed may require a corresponding change in PRODUCT DETECTOR LOCKOUT.

The Product Detector functions have now been set.

ALARMS

The 3138N can be equipped with either the standard one light, two light, or the three light “stack light” alarm output configuration. The standard alarm strobe light will flash quickly or slowly if one of five alarm conditions occur. If a condition that causes a slow flash and a condition that causes a fast flash occur simultaneously, the strobe will flash quickly.

In a three-stack light system, the green light will be on constantly with no error condition. The green light will go out altogether during a fault condition.

3138N ALARM CONDITIONS AND RESPONSES				
ALARM CONDITION	ONE LIGHT (YELLOW)	TWO LIGHT CE	TWO LIGHT U.S.	THREE LIGHT CE
Low Label	Slow Flash	Yellow	Yellow	Yellow/Slow Green
Out of Label	Fast Flash	Blue/Yellow	Red/Yellow	Blue
Low Ribbon	Slow Flash	Yellow	Yellow	Yellow/Slow Green
Out of Ribbon	Fast Flash	Blue/Yellow	Red/Yellow	Blue
End of Web or Web Break	Fast Flash	Blue/Yellow	Red/Yellow	Blue

The Low Label alarm monitors the supply of labels on the applicator unwind. The alarm trip point is adjustable and may require adjustment. Refer to the Low Label Detector Section for adjustment instructions.

The Out of Label, Low Ribbon, and the Out of Ribbon alarms monitor the printer alarm status. Refer to the printer manual if these alarms need adjustment.

The Low Label, Out of Label, Low Ribbon, and Out of Ribbon are grouped together as a standard.

As an option, the applicator can be equipped to either monitor the End of Web, or Web Break, but not both. This detector requires no set-up and is mounted adjacent to the web path. When the detector detects the absence of the web, the alarm occurs.

The single standard alarm light will also blink slowly if the printer power switch is OFF (O) whenever the main power switch is ON (I), and the machine is ONLINE. The single standard alarm light will stop blinking when the printer power switch is turned ON and then the machine is placed OFFLINE and then back ONLINE.

The [ESC] button serves as the reset switch for the Low Label, Low Ribbon, End of Web, and Web Break alarms.

LOW LABEL DETECTOR

The low label detector is a photoelectric sensor which triggers the alarm light when the supply of labels is almost exhausted. Use the following procedure to check the function of the Low Label Detector.

Exercise caution when cycling the machine. Keep hands away from the tamp.

1. Place the machine ONLINE.

NOTE: The alarm light will not function with the machine OFFLINE.

2. Push the dancer arm toward the printer and rotate the unwind roll of labels until the slot in the inner unwind disk is directly in front of the low label detector.

3. Remove the outer unwind disk and slide the full roll of labels away from the inner unwind disk.

4. If the low label alarm detector sensitivity is properly set, the alarm light will activate.

5. If the alarm light is functioning, replace the labels on the unwind and go on to the Low Label Alarm Trigger Point.

If the alarm light is not functioning properly, go on to the Low Label Sensitivity Adjustment Section.

LOW LABEL ALARM TRIGGER POINT

Set the applicator offline before you perform the following procedures or you may be injured by the moving drive roller.

Use the following procedure to adjust the amount of label supply remaining on the unwind roll when the alarm light activates.

1. Place the machine OFFLINE.

2. Push the dancer arm toward the printer and rotate the unwind roll of labels until the slot in the inner unwind disk is directly in front of the low label detector. Notice the red spot on the label supply. The red spot is generated by the detector and is the alarm trigger point.

3. Use a 9/64 inch hex head wrench to loosen the low label detector's adjustment screws. See *Figure 19*.

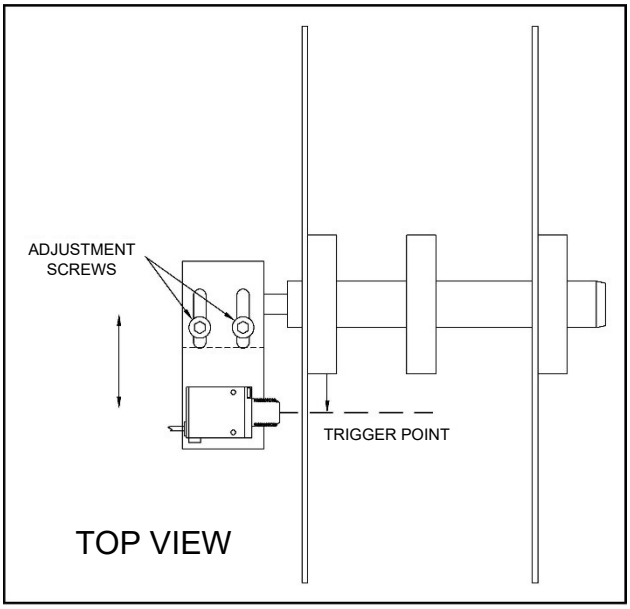

Figure 19 Low Label Alarm Adjustment

4. Decide how much label supply should remain when the low label alarm is triggered. Slide the detector to put the red spot at the desired trigger point. Tighten the adjustment screws.

ALLEN BRADLEY LOW LABEL DETECTOR P/N 9009219

The low label detector's sensitivity must be set so that:

The green LED on the back of the detector lights when the detector is blocked by the label roll or by the unwind disk, and

The yellow LED on the back of the detector lights when it is not blocked by the label roll, or by the unwind disk.

Exercise caution when cycling the machine. Keep hands away from the tamp.

1. Place the machine ONLINE.

2. Push the dancer arm toward the printer and rotate the unwind roll of labels until the slot in the inner unwind disk is directly in front of the low label detector.

3. The rear cover window on the detector must be opened before any adjustments can be made. See *Figure 20*. Press the flexible retaining clip against the cable to open the window.

4. Gently slide the L/D Operate switch on the back of the detector to D (away from the retaining clip) for Dark Operation.

5. Use a 3/32 inch hex head wrench to loosen the detector. Slide the detector in or out until the red spot is sharply focused on the label stock. Secure in position. The green light on the rear of the detector will light.

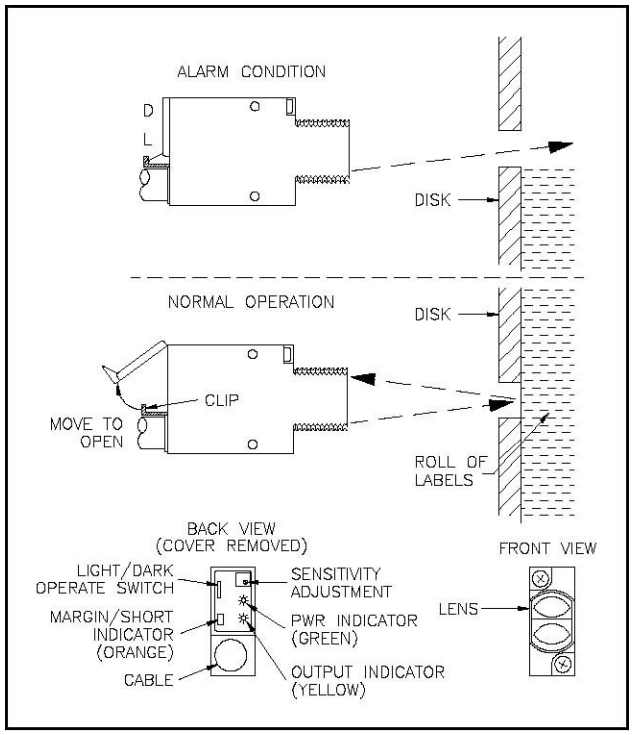

Figure 20 Low Label Detector

6. If the orange indicator is also lit, use a 1/16 inch flat blade screwdriver to turn the sensitivity adjustment screw counterclockwise until the orange indicator goes out.

7. Use the screwdriver to turn the sensitivity adjustment screw clockwise until the orange indicator just goes on.

8. Rotate the unwind disk slightly so that the red spot is directed onto the unwind disk. The detector's green LED must remain ON. Adjust the sensitivity if necessary so that the green LED on the rear of the detector remains ON when the unwind disk or the label roll is in front of the detector.

9. Rotate the unwind disk slightly so that the red spot is directed onto the label roll. Remove the outer unwind disk and move the label roll away from the low label detector. The green LED on the rear of the detector must go out and the yellow LED will light. Adjust the gain adjustment if necessary and repeat this procedure.

10. Snap the window cover closed on the detector.

11. Perform the Low Label Alarm Trigger Point procedure.

TEST RUN

After all adjustments have been made, a test run should be performed to test the set-up in a dynamic mode.

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

1. Place the machine ONLINE.

2. Turn the conveyor ON and apply labels to products.

3. Observe the label registration on the products. Make any adjustments required.

4. After the machine set-up is verified, place the machine OFFLINE. Go on to the Set-Up Record Section.

SET-UP RECORD

NOTE: If this machine is supplied with any optional equipment, refer to the Options section of the manual before proceeding with documentation.

Documentation is an important step that many people overlook. Complete documentation will help you to make rapid and accurate change-over. This manual provides a form that allows you to record all of the machine settings for each label. Although the microprocessor will keep the settings in its memory, it is a good idea to have a written record of all the settings. This will enable you to quickly reset a label page and will provide a back-up if a label page is accidentally altered.

Set the applicator offline before you perform the following procedures, or you may be injured by the moving drive roller.

1. Make sure that the current microprocessor settings consistently apply the label accurately on the product.

2. Place one label in the space provided.

3. Fill in the date, name of the person who set up the applicator and the product to be labeled.

4. Measure and record the distance from the peeler bar tip to the product, the peeler bar tip to product detector, the conveyor speed and products per minute.

5. Place the machine OFFLINE.

6. Cycle through the menu items in the Operator menu and the Advanced menu and write the information on the form.

7. Include any comments or observations that might help you or someone else set up the machine (i.e., product orientation instructions, peeler bar alignment, etcetera). The applicator is now completely set up, documented and ready for use.

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APPENDICES

The following appendices contain supplemental information that may be helpful for day-to-day operation of the machine.

APPENDIX A

3138N SET-UP RECORD SHEET

DATE:	CONTROL #:	SALES ORDER:
PRODUCT:	APPLICATOR #:	S/N:

OPERATOR MENU	
PRODUCTS PER MINUTE:	LABEL STOP POSITION:
BIN MANUAL FILL:	LABEL ON PRODUCT POSITION:
SET LINE SPEED:	SOFTWARE REV:
LABELING SPEED:	
ADVANCED MENU	
LABEL SENSOR TO PEEL-TIP DISTANCE:	PRODUCT SENSOR EDGE:
LABEL REPEAT LENGTH:	PRODUCT DETECTED:
LABEL SENSOR SETTING:	LABEL ON PRODUCT POSITION:
LABEL SENSOR EDGE:	PRODUCT DETECTOR LOCKOUT:
LABEL DETECTED:	LOW LABEL STOP COUNT:
LABEL STOP POSITION:	ZDT:
LABELING SPEED:	NUMBER OF PRODUCTS TO SKIP:
SLEW SPEED:	NUMBER OF PRODUCTS TO LABEL:
CONSECUTIVE MISSING LABEL COUNT:	LABELS PER PRODUCT:
CONSECUTIVE BROCKEN WEB COUNT:	RECALL PARAMETER FROM LABEL PAGE:
	SAVE PARAMETERS TO LABEL PAGE:
SERVICE MENU	
ALARM SELECT:	BIN EMPTY EVENT:
SPEED FOLLOWING:	BIN LABEL LIMIT:
SATO PRINTER ?:	ZDT INSTALLED:
LABEL PROFILING:	SKIP LABELING PRODUCTS:
LABEL SENSING NORMAL:	MULTIPLE LABELS ON PRODUCT:
LABEL SENSOR INVERT:	I/O DEFINE DISPLAY:
LOW LABEL INSTALLED:	

SIGNAL	PORT	LEVEL
LOW RIBBON	1	
RIBBON OUT	2	
LABEL OUT	3	
PRINTER OPEN	4	
PRINTING	5	
LABEL FEEDING	6	
BIN EMPTY	7	
LOW LABEL	8	
READY	9	
ERROR	10	
OFFLINE	00	
WARNING	00	
UNLABLED	00	
PRINTER POWER DOWN	00	
EXT. APPLY COMMAND	00	
INHIBIT CONTROL	00	

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PRINTER SETTINGS

Print the "configuration" of the printer on a label and affix the label to the back of the page or record the printer settings in the table below.

PRINTER PARAMETER	SETTING

APPENDIX B

DIP SWITCH SETTINGS FOR THE SATO 8485Se PRINTER

The Sato 8485Se is an enhanced version of the Sato 8485S. Some of the dip switch settings have been changed to permit the use of some of the added features.

This printer uses dip switches to set the operating parameters of the printer. The dip switch settings are only read by the printer's electronics during the power-up sequence. Therefore, if a dip switch setting change is required, the setting will take effect the next time the printer is powered on.

Dip switch DSW1 is located on the RS232 serial adapter plug-in card located inside the printer back cover.

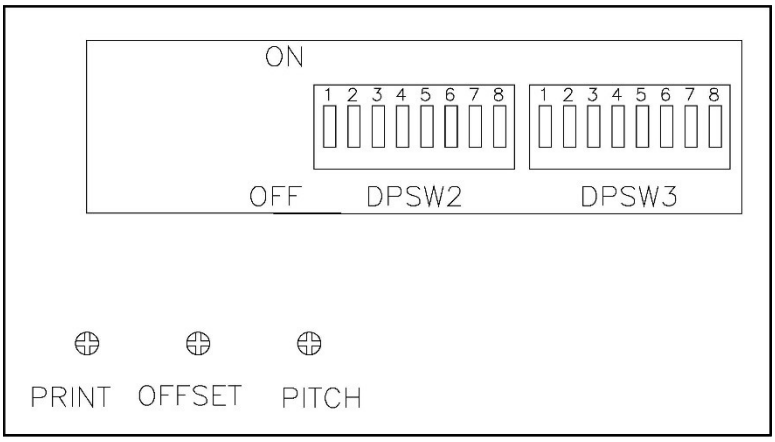


Figure 21 Sato 8485Se Dip Switches

The Sato dip switches DSW2 and DSW3 are located on the printer faceplate below the printer cover hinges. (Same as the 8485S).

The Sato dip switch banks are numbered 2 and 3, left to right.

The individual Sato dip switches are numbered 1 through 8, left to right, on each dip switch bank.

The individual dip switches are OFF when flipped down, and ON when flipped up.

All switches are placed in the OFF position when the applicator is shipped from the factory.

There are no dip switch settings required for Centronics communication.

Some Sato dip switch settings are REQUIRED to properly interface with the applicator. Those settings are noted by "**" in the following table.

Some Sato dip switch settings are recommended for operation with the applicator. Those settings are noted by "*" in the following table.

Some Sato dip switch settings are not applicable to the 8459S direct thermal printer. Those settings are noted by "***" in the following table.

Set the Sato dip switches according to your communications requirements. Refer to the Sato printer manual for details regarding the dip switch selections.

FUNCTION	DIP SWITCH AND SETTING		RESULT
Data Bit Selection	DSW1-1	OFF	8 Data Bits
		ON	7 Data Bits
Parity Selection	DSW1-2	DSW1-3	
	OFF	OFF	Disabled
	OFF	ON	Even
	ON	OFF	Odd
	ON	ON	None
Stop Bit Selection	DSW1-4	OFF	One Stop Bit
		ON	Two Stop Bits
Baud Rate Selection	DSW1-5	DSW1-6	
	OFF	OFF	9600
	OFF	ON	19200
	ON	OFF	38400
	ON	ON	57600
Protocol Selection	DSW1-7	DSW1-8	
	OFF	OFF	Ready/Busy
	OFF	ON	XON/XOFF
	ON	OFF	Bi-Com 3
	ON	ON	Bi-Com 4
Print Mode Selection	DSW2-1 ***	OFF	Thermal Transfer*
		ON	Direct Thermal
Sensor Selection	DSW2-2	OFF	Gap **
		ON	Eye-Mark
Head Check Mode Selection	DSW2-3	OFF	Disabled
		ON	Enabled

FUNCTION	DIP SWITCH AND SETTING		RESULT
Hex Dump Mode Selection	DSW2-4	OFF	Disabled
		ON	Enabled
Receive Buffer Size Selection	DSW2-5	OFF	Single Job
		ON	Multiple Job
Firmware Download	DSW2-6	OFF	Disabled
		ON	Enabled
Protocol Selection	DSW2-7	OFF	Standard
		ON	Non-Standard
8400S Emulation Mode	DSW2-8	OFF	Disabled
		ON	Enabled
Back-Feed Before/After	DSW3-1	OFF	Before Print*
		ON	After Print
	DSW3-2		Reserved
Pitch Sensor Selection	DSW3-3	OFF	Enabled**
		ON	Disabled
Back-Feed Selection	DSW3-4	OFF	Enabled
		ON	Disabled
Ext Print Start Signal Selection	DSW3-5	OFF	Enabled**
		ON	Disabled
External Signal Type Section	DSW3-6	DSW3-7	
	OFF	OFF	Type 4**
	OFF	ON	Type 3
	ON	OFF	Type 2
	ON	ON	Type 1
Reprint Mode Selection	DSW3-8	OFF	Disabled
		ON	Enabled

SATO 8485S/8490S/8459S/8460S PRINTER SETTINGS

These printers use dip switches to set the operating parameters of the printer. The dip switch settings are only read by the printer's electronics during the power-up sequence. Therefore, if a dip switch setting change is required, the setting will take effect the next time the printer is power on.

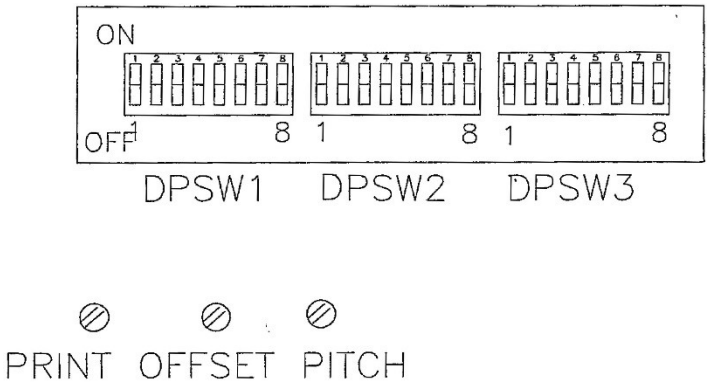


Figure 22 Sato Dip Switches

The Sato dip switches are located on the printer faceplate below the printer cover hinges. See *Figure 22*.

The Sato dip switch banks are numbered 1 through 3, left to right.

The individual Sato dip switches are numbered 1 through 8, left to right, on each dip switch bank.

The individual dip switches are OFF when flipped down, and ON when flipped up.

All switches are placed in the OFF position when the applicator is shipped from the factory.

The individual dip switches are OFF when flipped down, and ON when flipped up.

All switches are placed in the OFF position when the applicator is shipped from the factory.

There are no dip switch settings required for Centronics communication.

Some Sato dip switch settings are REQUIRED to properly interface with the applicator. Those settings are noted by "**" in the following table.

Some Sato dip switch settings are recommended for operation with the applicator. Those settings are noted by "*" in the following table.

Some Sato dip switch settings are not applicable to the 8459S direct thermal printer. Those settings are noted by "***" in the following table.

Set the Sato dip switches according to your communications requirements. Refer to the Sato printer manual for details regarding the dip switch selections.

SATO DIP SWITCH SETTINGS

FUNCTION	DIP SWITCH AND SETTING		RESULT
Data Bit Selection	DSW1-1	OFF	8 Data Bits
		ON	7 Data Bits
Parity Selection	DSW1-2	DSW1-3	
	OFF	OFF	None
	OFF	ON	Even
	ON	OFF	Odd
	ON	ON	Reserved
Stop Bit Selection	DSW1-4	OFF	One Stop Bit
		ON	Two Stop Bits
Baud Rate Selection	DSW1-5	DSW1-6	
	OFF	OFF	9600
	OFF	ON	19200
	ON	OFF	4800
	ON	ON	2400
Protocol Selection	DSW1-7	DSW1-8	
	OFF	OFF	Ready/Busy
	OFF	ON	XON/XOFF
	ON	OFF	Bi-Com
	ON	ON	Reserved
Print Mode Selection	DSW2-1 ***	OFF	Thermal Transfer*
		ON	Direct Thermal
Sensor Selection	DSW2-2	OFF	Gap **
		ON	Eye-Mark
Head Check Mode Selection	DSW2-3	OFF	Disabled
		ON	Enabled

FUNCTION	DIP SWITCH AND SETTING		RESULT
Hex Dump Mode Selection	DSW2-4	OFF	Disabled
		ON	Enabled
Receive Buffer Size Selection	DSW2-5	OFF	Single Job
		ON	Multiple Job
	DSW2-6		Reserved
Protocol Selection	DSW2-7	OFF	Standard
		ON	Non-Standard
Carriage Return Suppress	DSW2-8	OFF	OFF
		ON	Suppress
Back-Feed Before/After	DSW3-1	OFF	Before Print*
		ON	After Print
	DSW3-2		Reserved
Pitch Sensor Selection	DSW3-3	OFF	Enabled**
		ON	Disabled
Back-Feed Selection	DSW3-4	OFF	Enabled
		ON	Disabled
External Signal Mode Selection	DSW3-5	OFF	Enabled**
		ON	Disabled
External Signal Type Section	DSW3-6	DSW3-7	
	OFF	OFF	Type 4**
	OFF	ON	Type 3
	ON	OFF	Type 2
	ON	ON	Type 1
Reprint Mode Selection	DSW3-8	OFF	Disabled
		ON	Enabled

APPENDIX C

ZEBRA 110, 170 PAX SERIES PRINTER SETTINGS

Certain printer parameters must be set to operate the printer with the applicator. Other printer parameters are recommended for convenience of set-up or operation.

Use the chart below to set the required printer parameters. All other printer parameters do not affect the printer/applicator interface.

PARAMETER 110-170 PAX	SETTING
Applicator port	Mode 2*
Print mode	Applicator*
Media type	Non-continuous*
Sensor type	Web*
Print method	Thermal transfer**
Ribbon tension	High**
Media power-up	No motion**
Head close	Feed**
Back feed	Default**
Head test count	0**
Verifier port	Off**

APPENDIX D

ZEBRA ZE500 SERIES PRINTER SETTINGS

PARAMETER ZE500	SETTING
PRINT SPEED	-6 IPS
SLEW SPEED	-6 IPS
BACKFEED SPEED	-4 IPS
TEAR OFF	-012
PRINT MODE	-TEAR OFF
APPLICATOR PORT	-MODE 2
START PRINT SIG	-PULSE MODE
MEDIA TYPE	-NON-CONTINUOUS
SENSOR TYPE	-WEB
PRINT METHOD	-THERMAL-TRANS.
PARALLEL COMM.	-BIDIRECTIONAL
SERIAL COMM.	-RS232
BAUD	-9600
DATA BITS	-8 BITS
PARITY	-NONE
HOST HANDSHAKE	-XON/XOFF
RIBBON TENSION	-HIGH
MEDIA POWER UP	-NO MOTION
HEAD CLOSE	-NO MOTION
BACKFEED	-DEFAULT

APPENDIX E

DATAMAX A-CLASS STANDARD

Before you can continue with the set-up of the applicator, the printer must have printing information in its buffer. Refer to the Datamax manual to learn how to write and send printing information. Make sure to configure the printer with the required parameters. When you have downloaded a batch of labels into the printer, continue with the Label Stop Position Section.

Use the chart below to set the required printer parameters. All other printer parameters do not affect the printer/applicat7or interface.

Turn on the advanced menu of the printer functions.

Printer options – GPIO Port.

PARAMETER	SETTING
GPIO DEVICE	APPLICATOR
START OF PRINT	ACTIVE LOW
END OF PRINT	ACTIVE LOW
RIBBON LOW	ACTIVE HIGH
BACKFEED ON CLEAR	DISABLED
ERROR ON PAUSE (APP2)	ENABLED

Set media type to direct thermal when there is no ribbon used.

Offline always until labels are sent to printers buffer applicator goes online.

AVERY DPM – ALX 92x – Nove PA-1x6

Refer to the AVERY manual to learn how to write and send printing information. Make sure to configure the printer with the required parameters. When you have downloaded a batch of labels into the printer, continue with the Label Stop Position Section

APPENDIX F

PRINTER PORT

The Printer Port is a 25 pin female "D" style connector. The printer port is connected to the RS-232 connector on the rear of the printer via a "straight through" cable. Any wiring changes to accommodate hand shaking conventions must be done by the cable connecting the host computer to the applicator data port. Refer to the Printer Manual for connection details.

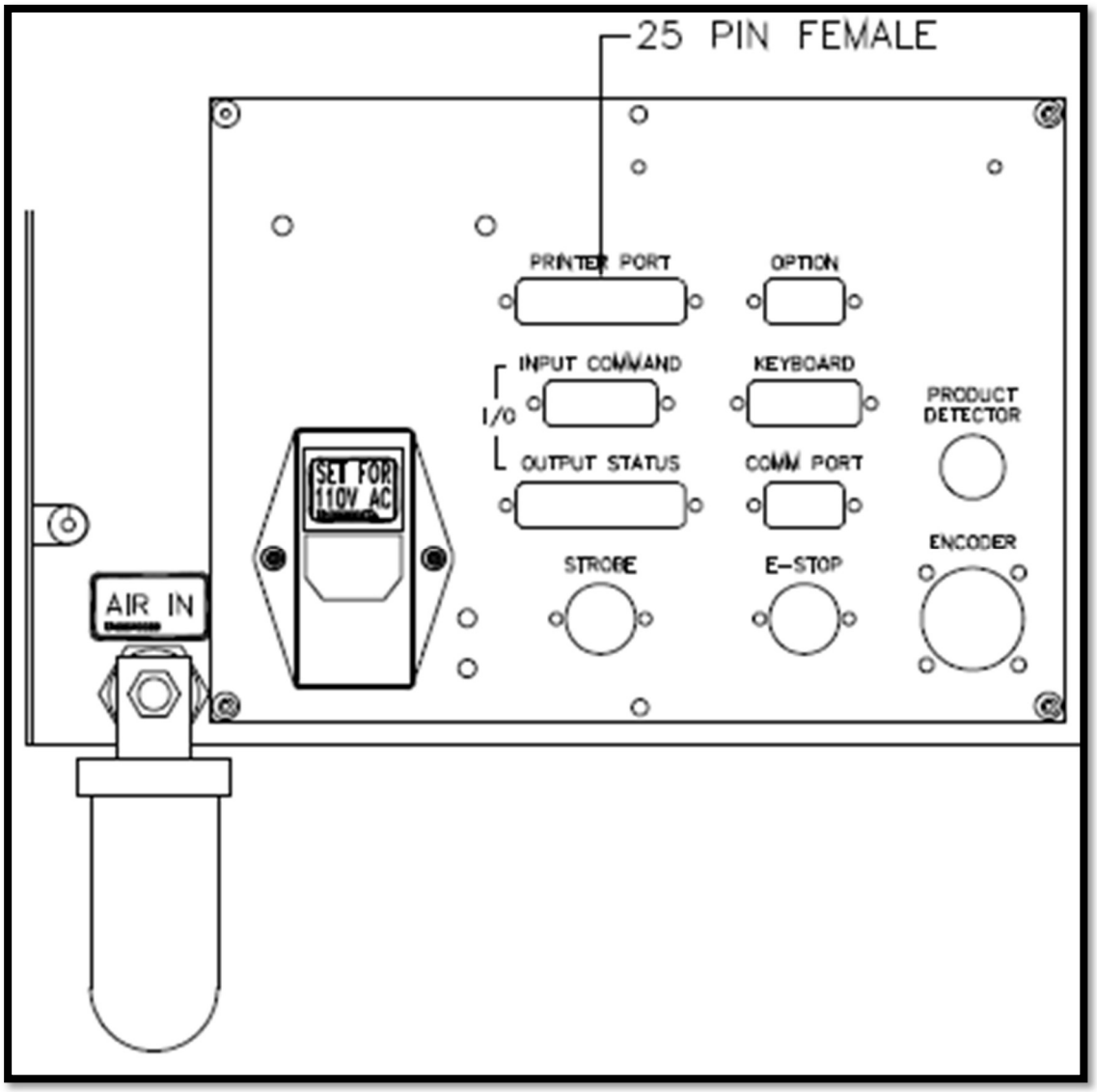


Figure 23 Printer Port

APPENDIX G

LABEL PROFILING

The applicator can be used to apply labels onto curved surfaces. It is recommended that the optional squeegee wipers be used whenever applying film labels to curved surfaces. The label must transfer from the peeler bar to the squeegee wiper and then onto the product.

In order for the machine to properly apply a label around a curved product, the speed at which the machine feeds the label must be changed to compensate for the curvature of the product. To do this, the machine employs two speeds and two distances for which these speeds are used. The distance that the label stock must travel at the line speed is the fast rise length. Flat area length is the distance for which the label stock needs to travel at a slower speed. Web ratio (a percentage of the line speed) is the speed at which the label will travel during flat area steps length.

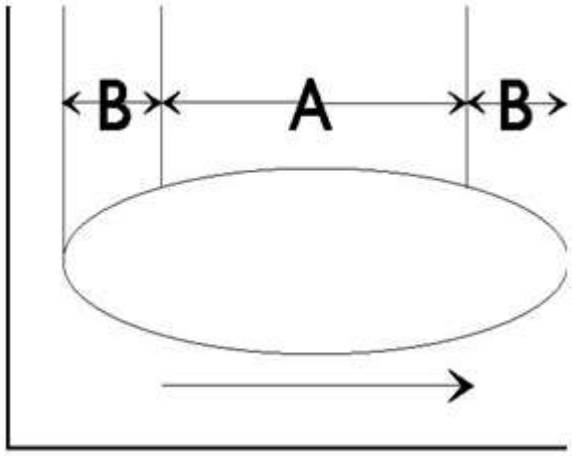


Figure 24 Curve Variations on Elliptical Product

Consider the elliptical product in *Figure 24*. Notice that the parts of the ellipse labeled "B" are more steeply curved. This part of the curve is farther from the peeler plate than the part of the ellipse labeled "A." This change in distance and curvature means that the label must be applied slower over area "A" than over area "B."

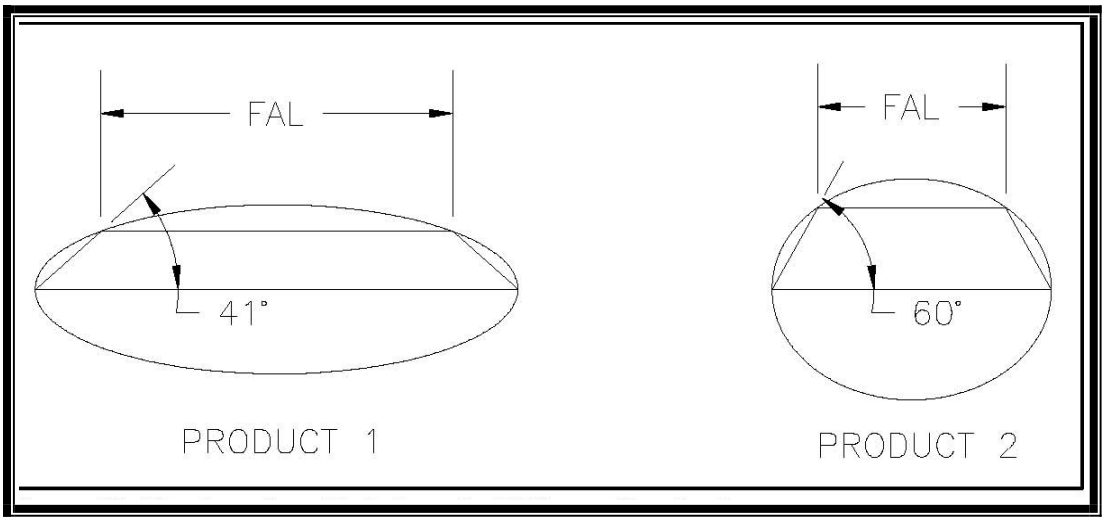


Figure 25 FLAT Area Step Variations for Different Size Products

Web Ratio and Flat Area Length probably will be different for each product that you label. Look at the product cross sections in *Figure 25*. Product #1 is relatively flat, while product #2 is more steeply curved. This means that product #1 will need a longer Flat Area Length and a shorter Fast Rise Length compared with product #2. Web Ratio will be different for these products. The slight curvature of product #1 means that the Web Ratio speed needed to dispense the label correctly will be only slightly lower than the line speed. The Web Ratio speed for product #2 must be lower to produce a speed decrease that is large enough to compensate for the greater curvature of the product.

The value for Fast Rise Length will depend upon the length of the label applied to the curvature of the product. *Figure 26* shows two identical products with two different length labels. Product #1 has a short label. This means that very little of the label will be applied over the steeply curved portion of the product, and that the point of application is closer to the peeler plate. Product #1 will need only a short Fast Rise Length. Product #2 has a very long label. This means that a greater percentage of the label will be applied over the steeply curved portion of the product, and that the point of application is farther from the peeler plate. Product #2 will need a longer Fast Rise Length.

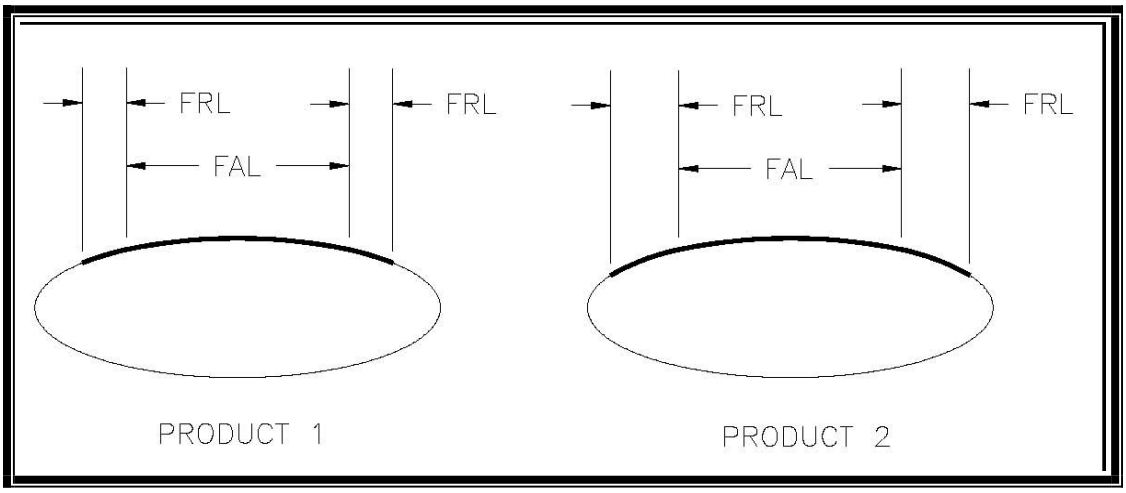


Figure 26 Fast Rise Length Variations for Different Size Labels

Because of the many variables involved, you will need to experiment to find the best values for Web Ratio, Fast Rise Length and Flat Area Length.

WEB RATIO

Web Ratio determines the speed of the label stock during the Flat Area Length. The value entered for Web Ratio represents a percentage of the conveyor speed. If, for example, the value for WEB RATIO is 95, then the label stock will advance at 95% of the conveyor speed during the Flat Area Length.

Set the applicator offline before you perform the following procedures or you may be injured by the moving drive roller.

1. Select the WEB RATIO menu item.

2. To begin, set the WEB RATIO to 85. Remember that this value is only an estimate and may be changed later.

FAST RISE LENGTH - FLAT AREA LENGTH ESTIMATION

The FAST RISE LENGTH and FLAT AREA LENGTH are the values that the microprocessor uses to adjust the speed of the labels to compensate for the curvature of the product. Some experimentation is necessary to find the best values for these functions.

1. Apply a label to the product by hand. Consider the profile of the product and estimate the distance from the beginning of the label (start of Fast Rise Length) to the start of the Flat Area Length (end of Fast Rise Length). Refer to *Figure 27*.

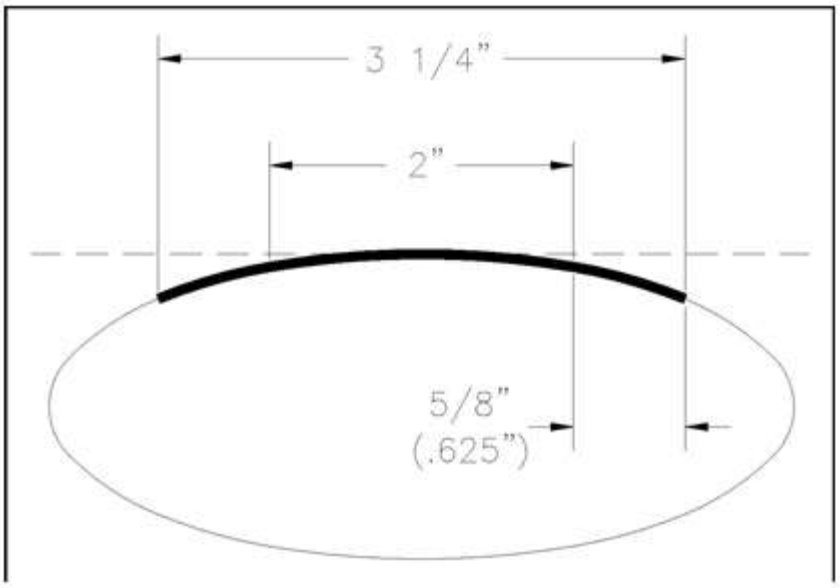


Figure 27 Fast Rise/Flat Area Estimation

2. Measure (in inches) the estimated Fast Rise Length.

3. Multiply the estimated Fast Rise Length by 100 to convert the measurement to hundredths of inches. Example: If the estimated Fast Rise Length measured 5/8 inch (.625), then the estimated Fast Rise Length setting should be:
.625 x 100 = 62.5 Round 62.5 up to 63.

4. Make sure that the machine is OFFLINE.

5. Select the FAST RISE LENGTH menu item.

6. Enter the calculated valued for the FAST RISE LENGTH in hundredths of inches.

7. The estimated Flat Area Length is the label length less two times the estimated Fast Rise Length. See *Figure 27*.

Example: If the label length is 3 1/4 inches and the estimated Fast Rise Length is 5/8 inch (.625), then the estimated Flat Area Length is:

3.25 - 2(.625) = 2

8. Multiply the estimated Flat Area Length by 100 to convert the measurement to hundredths of inches.

Example: 2 x 100 = 200

9. Select the FLAT AREA LENGTH menu item.

10. Enter the calculated value for the FLAT AREA LENGTH in hundredths of inches.

This provides a rough estimate for the Fast Rise Length and the Flat Area Length. These values will be adjusted in the next section.

FAST RISE AND FLAT AREA ADJUSTMENTS

The system will work best with the smallest fast rise length value and the largest flat area length value that properly applies the label. Use the instructions below to find these values.

Exercise caution when cycling the machine. Keep hands away from the drive rollers.

1. With the machine ONLINE, send several products down the conveyor and observe the labels that are applied.

2. If the leading edges of the labels were all applied at the same position on the products, go on to step #3.

If the leading edges of the labels were placed at various positions on the products, the Fast Rise Length is too short.

Slightly increase the Fast Rise Length and run some more products. Repeat until the leading edge label placement is consistent.

3. If the leading edges of the label were applied at the required position on the product, go on to step #4.

If the leading edge of the label is applied at the incorrect position, adjust the LABEL ON PRODUCT POSITION setting, or re-position the product detector. Run some more products. Repeat until the leading edge of the label is applied at the required position on the product.

4. If there are no wrinkles or bubbles in the first half of the applied labels, go on to step #5.

If a wrinkle or bubbles appear from the top to the bottom of the first half of the label, the Fast Rise Length is too long.

Slightly decrease the Fast Rise Length and run some more products. Repeat until the wrinkle in the first half of the label is removed.

5. If there is no wrinkle in the center of the label, go on to step #7.

If a wrinkle appears from the top to the bottom at the center of the label, either the Web Ratio is too high, or the Flat Area Length is too short.

The Web Ratio will be adjusted first. Before adjusting, note the Web Ratio setting. Slightly decrease the Web Ratio and run some more products. Repeat until the wrinkle is removed. Go on to step #7.

If the wrinkle cannot be eliminated by adjusting the Web Ratio, set the Web Ratio to the value noted above. Go on to step #6.

6. Increase the Flat Area Length slightly and run some more products. Repeat until the wrinkle is removed.

7. If the labels are applied wrinkle free from lead edge to trail edge, go on to step #8. If small horizontal wrinkles appear on the trailing edge of the label, the Flat Area Length is too long. Slightly decrease the Flat Area Length and run some more products. Repeat until wrinkles are eliminated.

8. When the Web Ratio, Fast Rise Length, and the Flat Area Length are established, the set-up is complete. Make sure to record the settings on a Set-Up Record Sheet.

OPTIONS

If your machine is equipped with any optional equipment or additional functions, you will find additional information on the following pages.

ENCODER

The encoder reports distance traveled and direction information to the microprocessor. The microprocessor derives the speed of the product from the number and rate of the encoder pulses received.

Each encoder pulse is equivalent to 1/100th of an inch. The encoder is equipped with a five inch circumference rubber encoder wheel. Each revolution of the encoder shaft is equivalent to five inches of product travel (500 encoder pulses). All speed matching calculations are based on this relationship.

When mounting the encoder, it is imperative to maintain this relationship: Five inches of product travel equals one revolution of the encoder shaft (wheel). In installations where the Label-Aire encoder wheel cannot be used, another drive arrangement is useable only if the five inch of product travel per encoder shaft revolution is maintained.

NOTE: The encoder wheel must not ride on a chain top conveyor. An unacceptable error is produced as the encoder wheel runs over the gaps between the chain links.

WRAP UNIT

The 3138N can be used with a wrap unit to apply labels to cylindrical products.

When the wrap unit encoder option is used, the encoder monitors the speed of the wrap belt. Therefore, the web dispense speed will match the surface speed of the product.

If the wrap unit is not equipped with the encoder option, the LABEL WEB SPEED must be set to match the wrap belt speed, not the conveyor speed.

WRAP UNIT ALIGNMENT

The wrap unit must be positioned so that the wrap belt is parallel to the product. See *Figure 28*.

Place a product on the conveyor next to the wrap belt. If necessary, loosen the mounting screws. Adjust the jack screws to position the wrap belt parallel to the side of the product. Tighten the mounting screws.

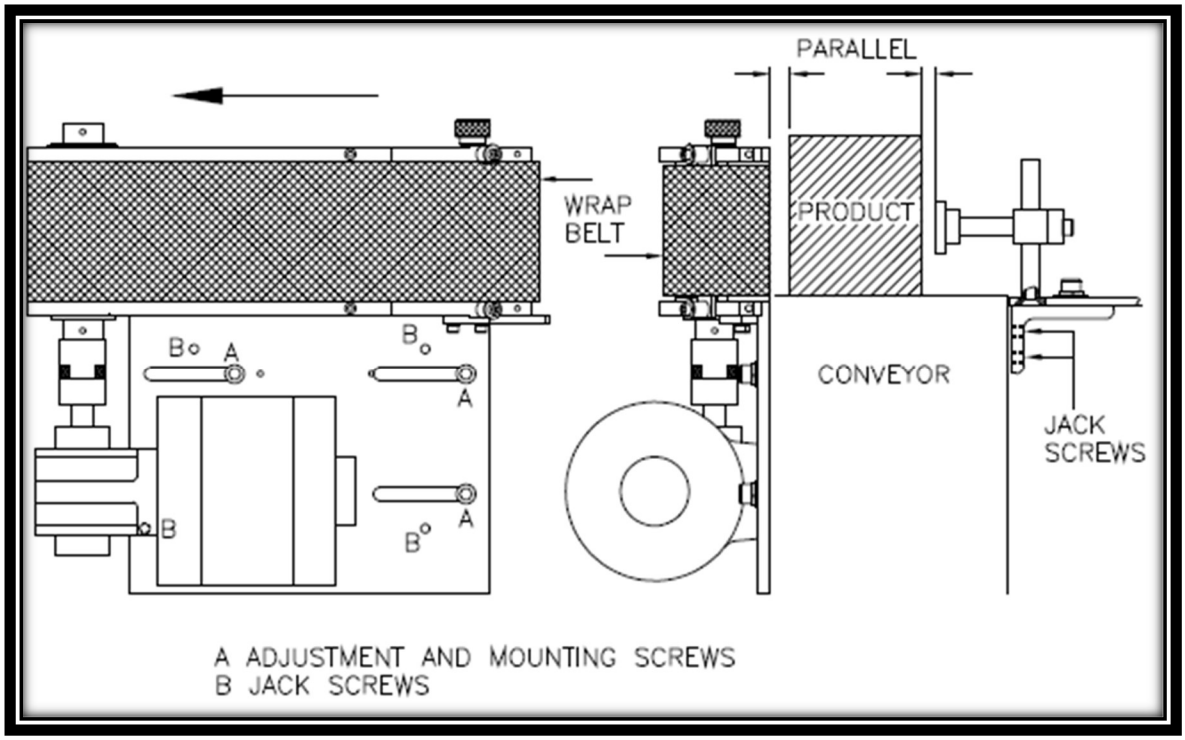


Figure 28 Wrap Unit Adjustments

PRESSURE BAR SET-UP

The pressure bar holds the product against the wrap belt as the label is applied.

The in feed side of the spring-loaded pressure bar has a bend that provides proper product guidance into the wrap unit. The point where the bend begins should be directly across or slightly before the in feed radius of the wrap belt. See *Figure 29*. The proper positioning of the pressure bar will ensure stable product position at the entrance of the wrap unit.

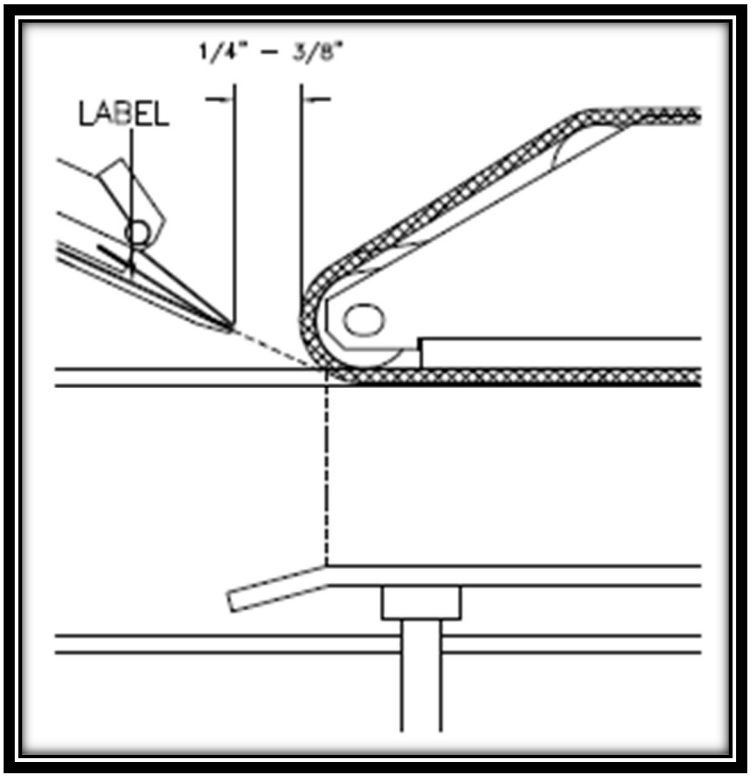


Figure 29 Pressure Bar Position

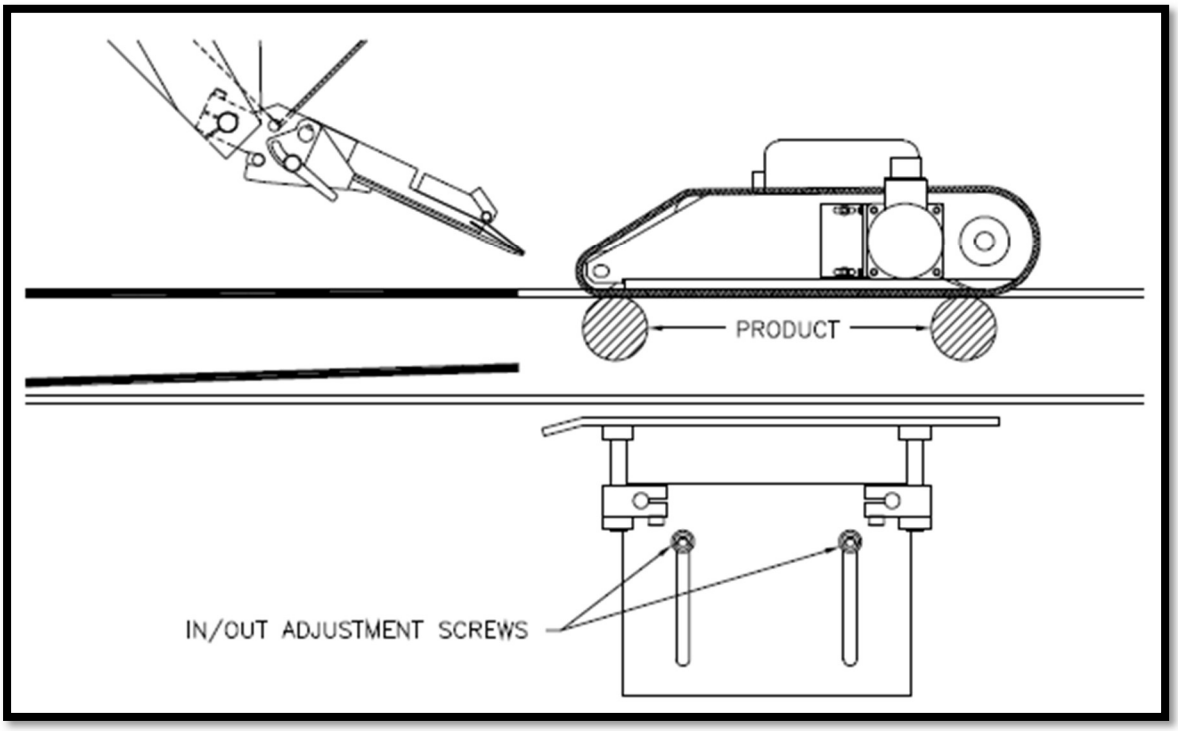


Figure 30 Pressure Bar In/Out Position

1. If necessary, loosen the mounting screws to position the pressure bar as shown in Figure 30. Do not fully tighten the screws at this time.

2. Loosen the pressure bar in/out adjustment screws and slide the pressure bar away from the wrap unit.

(Refer to Figure 30).

3. Place a product at each end of the wrap belt. Refer to Figure 30.

4. Refer to *Figure 31* and check that the pressure bar is parallel to the product.

5. If necessary, loosen the mounting screws and adjust the jack screws so that the pressure bar is parallel to the side of the product. Tighten the mounting screws.

6. Position the pressure bar 1/3 to 1/2 the height of the product. (See *Figure 32*).

7. Make sure that the pressure bar is parallel with the conveyor chain top from in feed to out feed. See *Figure 32*.

8. Position the pressure bar against the two products (See *Figure 32*). Push the pressure bar against the products to collapse the pressure springs slightly and evenly. Tighten the pressure bar assembly in place. Remove the products.

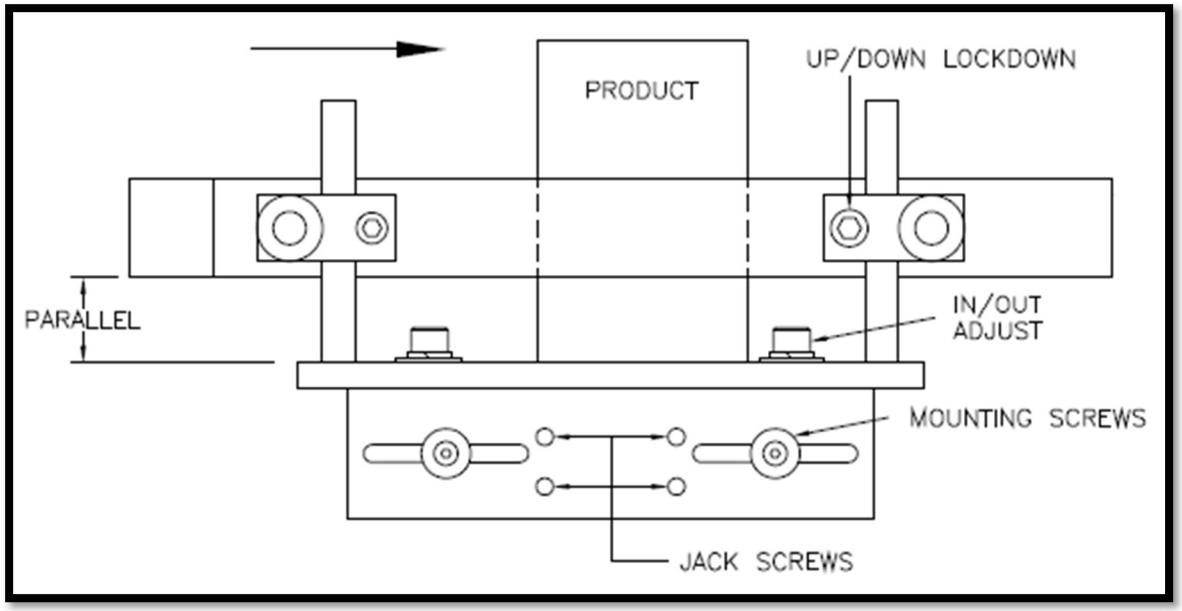


Figure 31 Pressure Bar Adjustments

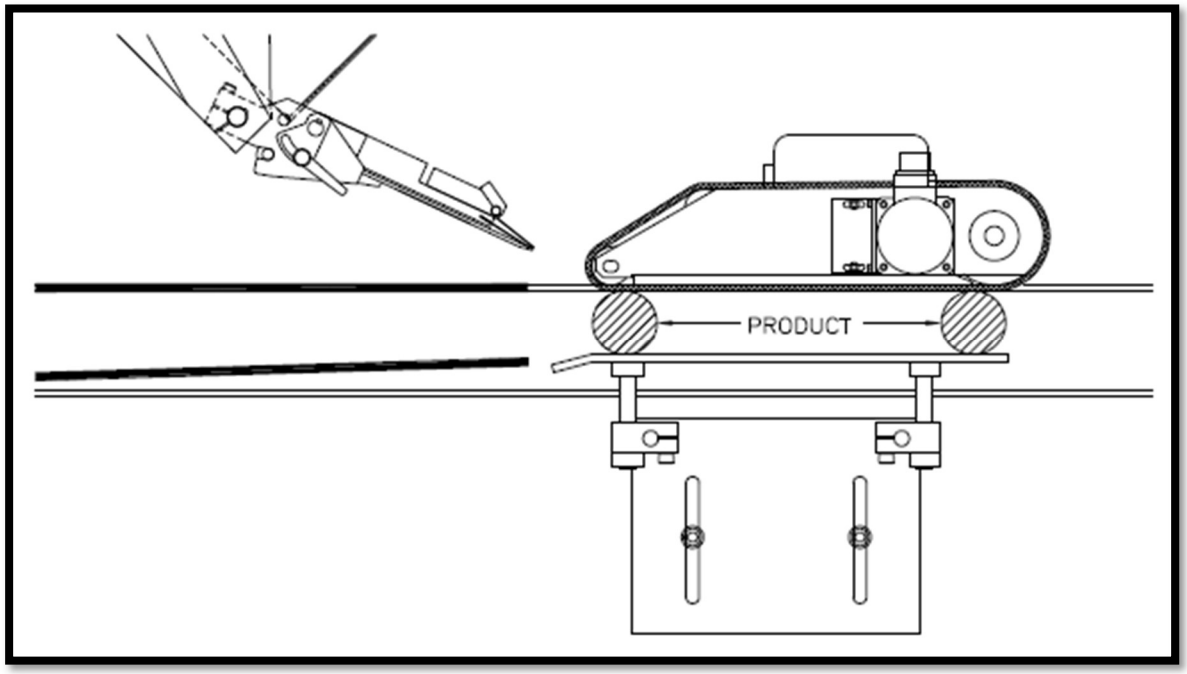


Figure 32 Pressure Bar Position

GUIDE RAIL SET-UP

Normally, the guide rail on the wrap unit side (inboard) of the conveyor is adjusted to guide the product to the wrap belt. The opposite guide rail is usually skewed to guide the product toward the inboard guide rail. Refer to Figure 33 and adjust as needed.

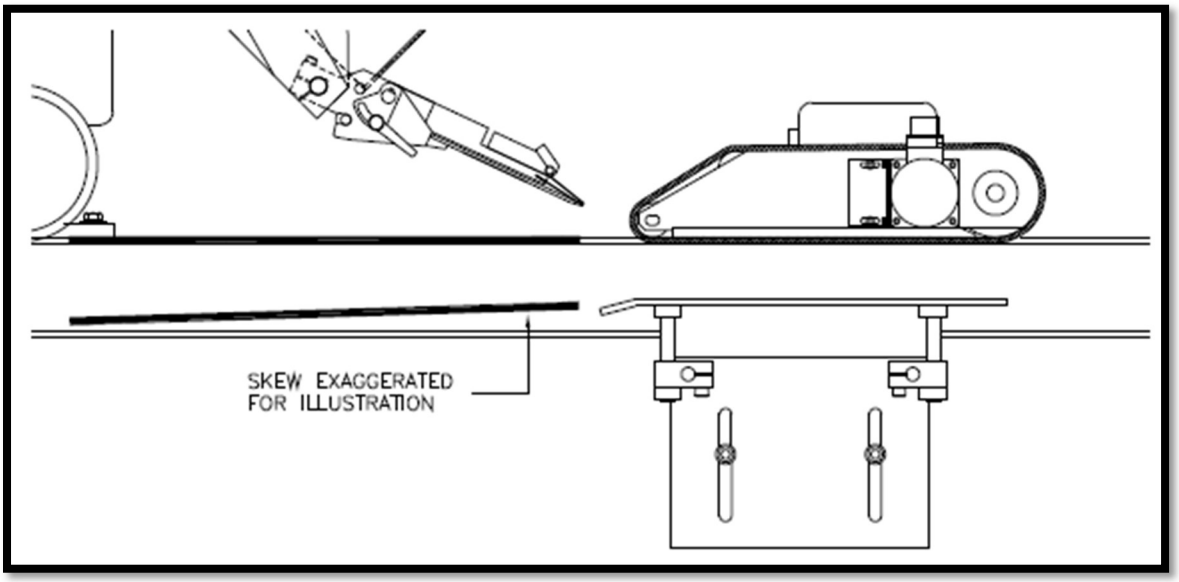


Figure 33 Guide Rail Skew

APPLICATOR ADJUSTMENTS

1. Remove the peeler plate brush.

2. Position the applicator so that the peeler plate tip is 1/4 to 3/8 inch from the tangent of the wrap belt. (See *Figure 29*).

NOTE: If necessary, re-locate and re-align the wrap unit.

3. Adjust the tilt of the applicator so that the peeler tip is parallel to the wrap belt. (See Figure 34). Lock in position.

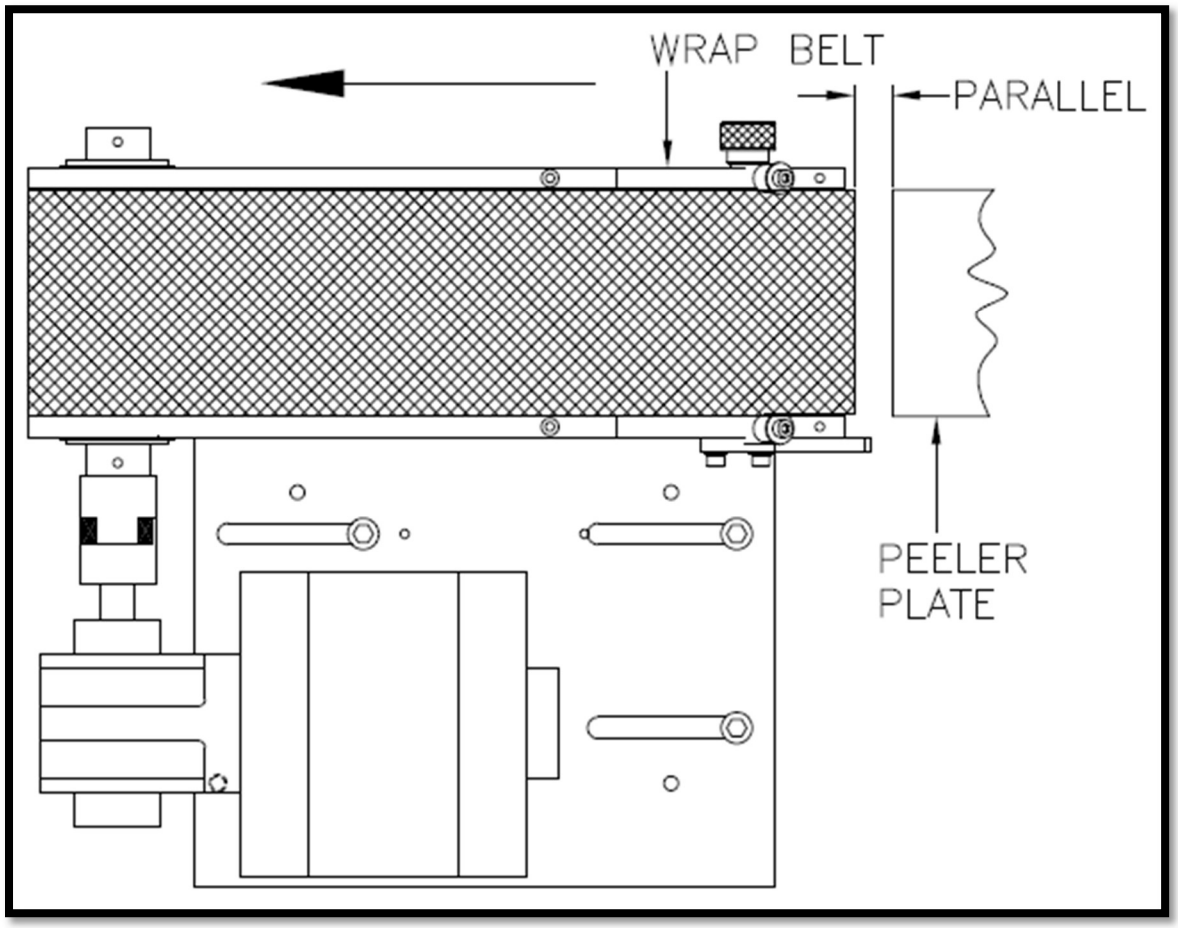


Figure 34 Peeler Plate Alignment

4. Adjust the LABEL STOP POSITION so that the label stops at the end of the peeler plate tip.

5. Adjust the position of the product detector so that the label contacts the wrap belt at the same moment that the product contacts the wrap belt.

MAINTENANCE

This section gives instructions for performing ordinary maintenance and adjustments on the 3138N applicator. The procedures recommended in the periodic maintenance sections are detailed in the Adjustments Section.

DAILY MAINTENANCE

(EVERY 8 HOURS)

Set the applicator offline before you perform the following procedures or you may be injured by the moving drive roller.

1. Clean the printer printhead and platen roller each time you change the ribbon. Refer to the printer manual for detailed instructions.

2. Examine peeler bar and rollers for excessive adhesive build up. Clean if necessary, using alcohol or other similar solvent.

3. Wipe down the exterior surface of the machine.

4. Check the machine for any evidence of loose screws, rollers, fixtures, etc.

WEEKLY MAINTENANCE

(EVERY 40 HOURS)

Disconnect the power from the machine before you perform the following procedures or you may be injured by the moving drive belts and pulleys, or receive an electric shock.

1. Clean dust from the product detector lens.

2. Clean peeler bar.

3. Wipe down the exterior surface of the machine.

4. Examine all roller assemblies for free rotation, excessive play, etc., and correct, as necessary.

MONTHLY MAINTENANCE

(EVERY 150 HOURS)

The following procedure should only be performed by a Qualified Service Technician.

Disconnect the power from the machine before you perform the following procedures or you may be injured by the moving drive belts and pulleys, or receive an electric shock.

1. Examine dancer arm tension, adjust if necessary.

2. Check the Nolu tape on the peeler bar for wear, cuts, or other damage. Replace if necessary.

3. Examine the rewind slip clutch disk and o-ring and clean or replace, as necessary.

4. Examine all roller assemblies for free rotation, excessive play, etc. and correct, as necessary.

5. Check the motor drive shaft belt tension.

SEMI-ANNUAL MAINTENANCE

(EVERY 1000 HOURS)

The following procedure should only be performed by a Qualified Service Technician.

Disconnect the power from the machine before you perform the following procedures or you may be injured by the moving drive belts and pulleys, or receive an electric shock.

1. Clean the inside and outside the machine enclosure using an industrial vacuum cleaner.

NOTE: Do not use air pressure from the shop air supply to blow dust from the machine. There is a good possibility that this air will contain water and emulsified oil, which could damage the electrical components in your machine.

2. Examine dancer arm tension, adjust if necessary.

3. Check the Nolu tape on the peeler bar for wear, cuts, or other damage. Replace if necessary.

4. Examine all roller assemblies for free rotation, excessive play, etc. and correct, as necessary.

5. Check the motor drive shaft belt tension.

6. Perform the Daily and Weekly maintenance.

ANNUAL MAINTENANCE

(EVERY 2000 HOURS)

The following procedure should only be performed by a Qualified Service Technician.

Disconnect the power from the machine before you perform the following procedures or you may be injured by the moving drive belts and pulleys or receive an electric shock.

1. Check all the items in the weekly and semi-annual maintenance sections.
2. Check the rewind drive belt for wear. Replace if necessary.
3. Examine moving parts for excessive wear. Replace any worn parts.

+5.2 VOLTS DC POWER SUPPLY SETUP

1. Turn applicator AC power off.

2. Remove top cover.

3. Set volt meter to 20 Volts DC. Put the Black Lead to J2-pin 5 and the Red Lead to J2-pin 3 on power supply.

4. Turn AC power on.

5. Check voltage on voltmeter it should be 5.2 Volts DC.

6. If it doesn't read 5.2 Volts DC turn potentiometer with a small screwdriver Clockwise for higher voltage setting and Counter Clockwise for lower voltage setting. Set to 5.2 Volts DC.

7. Turn AC power off.

8. Replace top cover.

Figure 35 DC Power Supply P/N 9000430

UNWIND BRAKE ADJUSTMENT

The following procedure should only be performed by a Qualified Service Technician.

Set the applicator offline before you perform the following procedures or you may be injured by the moving drive roller or dancer arm.

Figure 36 shows the standard spring and strap arrangement. If the strap is too loose, the brake will not stop the unwind mandrel. If the strap is too tight, the printer's stepper motor must pull against the unwind brake especially near the end of a roll of labels. Use the instructions below to adjust the tension of the strap.

NOTE: The dancer arm and unwind brake are of little use if the label core spins on the unwind hubs. If the label core slips on the unwind hubs, apply several labels to the inside of the label core to decrease the inside diameter of the label core. Apply as many labels to the inside of the label core as needed to provide a snug, non-slipping fit onto the unwind hubs.

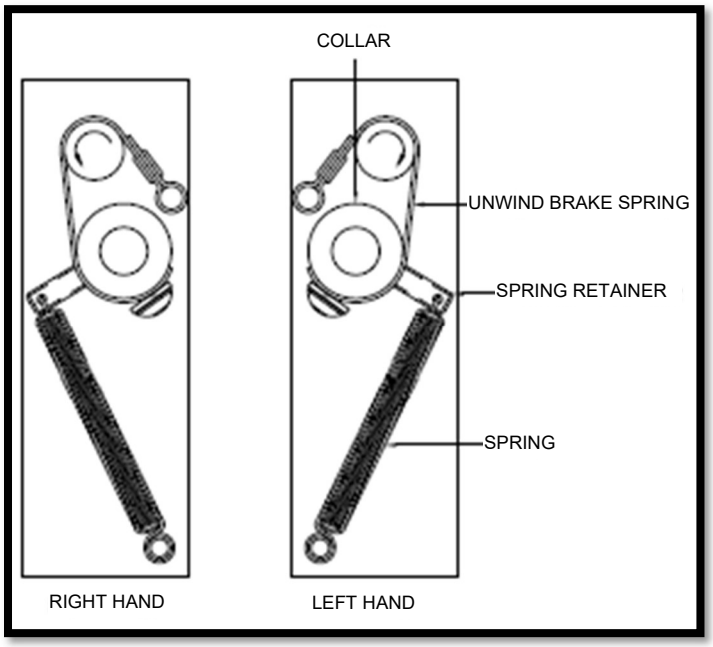


Figure 36 Unwind Brake Configuration

PROGRAMMING THE PROCESSOR

To install Flash Simple on your computer, create a directory named Flash Simple. Run the Flash Simple installation program. The program will guide you through the installation process. Choose the Flash Simple directory when prompted.

DOWNLOADING

1. Remove power from the applicator.

2. Remove the back cover.

3. Locate the Processor circuit board.

4. Refer to Figure 37 Processor Battery. Locate jumpers H2 and H3. Place jumpers on both pins. Jumpers must cover both pins prior to programming the processor board.

5. Connect a nine pin female to nine pin female straight through serial cable from the serial port on the computer to the comm. port on the applicator.

6. Start the Flash Simple program on the computer.

The first time you use Flash Simple, you must set it up;

Device Name: H8S/2357F (20 MHz)
Interface Name: Direct Connection
Port Name: COM1 (or COM2)
Baud Rate: 9600
Mode: Boot

7. Select C:\xxxxxxx.mot

8. Apply power to the applicator. The display should be blank except for a blinking square in the upper left-hand corner.

9. Choose Flash Program on the computer. This will start the download. At the end of the download, you will see a completion message.

10. Remove power from the applicator.

11. Disconnect the nine pin serial cable.

12. Remove the two jumpers from H2 and H3. After programming remove and cover one of the pins after completing the program (THIS WILL ALLOW YOU TO RE-USE JUMPERS AT A LATER DATE TO REPROGRAM IF NECESSARY)

13. Replace the back cover.

14. Apply power to the applicator.

REPLACING THE BATTERY

Follow this procedure when changing the battery on the control card. Install battery with + side up.

Slightly lift clip up and slide battery out and slightly lift clip up and slide new battery back in with + side up.

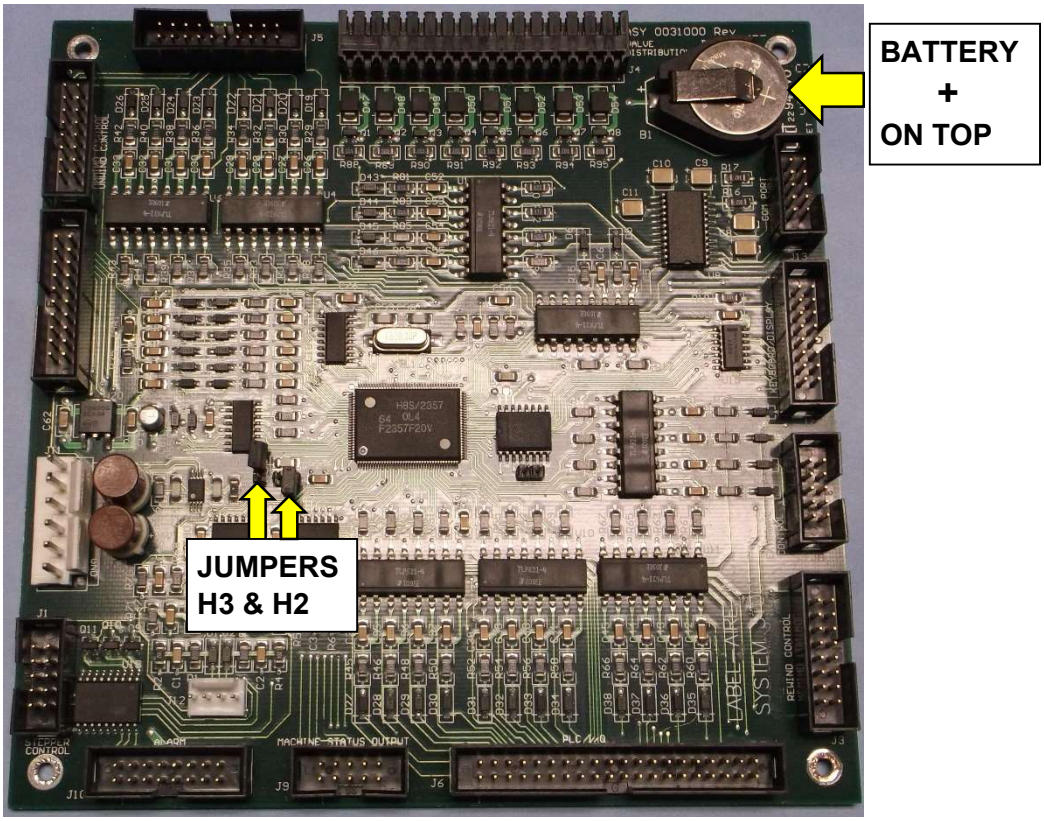


Figure 37 Processor Battery

Note: You may lose the program software if the battery fails or is replaced. Follow the procedure Programming the Processor.

DESCRIPTION	PART NUMBER
LITHIUM BATTERY 3V	9000109

REPLACING THE PEELER BAR BRUSH

1. Loosen the bracket screw to release the shaft.

Figure 38 Bracket Screw

2. Remove the screws securing the brush to the shaft.

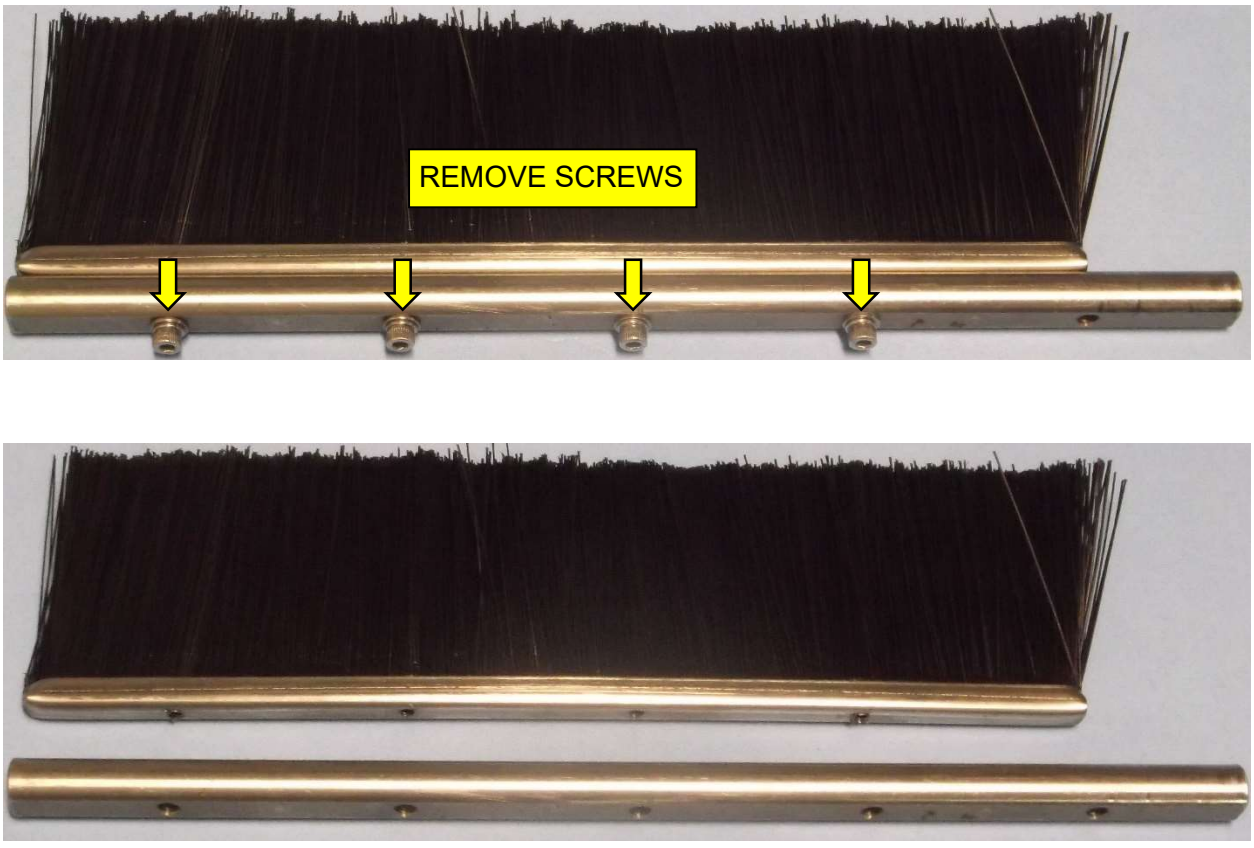


Figure 39 Brush Screws

3. Reassemble in reverse order.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
No power.	Power cord loose, defective, or not plugged in.	Inspect the cord to find the problem and correct as necessary.
	A.C. line fuse blown.	Find the cause-- short circuited wire or terminal connection-- correct the problem and replace the fuse.
	Main supply line circuit breaker tripped.	Reset the circuit breaker. Remove other equipment from the same supply if the problem persists.
	Loose connectors.	Examine and correct.
	Power switch defective.	Examine and correct.
Display board does not light.	Cable from the display not plugged into the microprocessor on back of the unit.	Inspect and reconnect.
	Defective display.	Replace the display or request qualified assistance.
Label advance does not occur.	Control motor defective.	Replace the control card or motor. NOTE: It may be expedient to request qualified assistance.
	Stepper module defective.	Replace motor. NOTE: It may be expedient to request qualified assistance.
	Loose drive roller.	Check the set screws and make secure.
	Pinch roller arm not engaged.	Make sure the detent arm is disengaged, (pinch roller engaged).
	No input from encoder.	Turn conveyor ON, check encoder, and set ENCODER INSTALLED to YES.
	Encoder rotating in wrong direction.	Switch SW1 on encoder interface card to operate setting to change the encoder rotation.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
	Unit is offline.	Place the unit online.
Label advance occurs but fails to stop or is erratic.	Label sensor set incorrectly.	Refer to the set-up procedures for instruction.
	Label sensor out of alignment.	Refer to the set-up procedures for instruction.
	Label sensor lens blocked or contaminated.	Clean using lens brush.
	Marginal label detection point.	Move label sensor to alternate mounting hole.
	Label sensor assembly loose. Connecting wires to the label sensor loose or damaged.	Tighten to eliminate movement. Check for damage and repair or replace.
	Label sensor defective.	Replace as necessary.
	Drive roller assembly loose or pinch roller spring tension is poor.	Investigate and correct. Adjust the pinch roller spring tension if necessary.
	Label Stop Position is set too long.	Re-adjust.
	Defective control module.	Replace the control module or request qualified assistance.
	Incorrect Label Repeat Distance.	Refer to the set-up procedure and correct.
Label placement on the product is consistently poor.	Adhesive strings on the label and liner usually caused by die cuts on the label liner.	Replace the damaged roll of labels.
	Label Stop Position is out of adjustment.	Investigate and correct.
	Peeler bar angle is incorrectly positioned.	Refer to the set-up procedures for alignment instructions.
	Label sensor incorrectly positioned (odd shaped labels).	Refer to the Label Sensor Detection Point Section.
	Label sensitivity incorrectly adjusted.	Refer to the set-up procedures for instruction.
	Label detection edge setting incorrect.	Refer to the Label Sensor Detection Point

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Label placement on the product is consistently poor.	Set lead or trail (odd shaped labels).	Section.
	Loose drive belt.	Investigate and correct.
	Pinch roller not engaged.	Engage the pinch roller.
	Product inconsistently presented to the applicator.	Check to make sure that the conveyor speed is constant. Adjust rails and/or other product control devices to present the product to the applicator in a consistent manner.
	Product detector sensitivity out of adjustment.	Refer to the set-up adjustment instructions.
	Product detector reflector loose or vibrating.	Investigate and correct.
	Incorrect or eratic Label on Product Position setting (delay).	Refer to the set-up instructions.
	Unsuitably positioned product detector.	Refer to the set-up instructions.
	Fluctuation of product conveyor speed.	Investigate and correct.
	Inadequate product guidance.	Adjust product guides as necessary.
	Mold release agent on products.	Check manufacturer for recommendations for mold release agent removal.
	Shape variations from product to product.	Check with product manufacturer. Check product handling and storage methods prior to label application.
	Product too far away from the peeler bar.	Re-adjust the label applicator position relative to the product conveyor.
	Poor adhesive quality on the label.	Check with the label manufacturer.
Machine will not cycle. Message reads: BROKEN WEB.	Label sensor has not found CONSECUTIVE MISSING LABEL COUNT labels.	Place the machine OFFLINE momentarily.
	Web break.	Investigate cause, correct and re-thread the labels on the applicator.
	Applicator has not been re-set from error.	Place the machine ONLINE.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
	Pinch roller not engaged.	Engage the pinch roller.
Applicator runs after missing CONSECUTIVE MISSING LABEL COUNT or more labels.	Incorrect Label Repeat Length.	Refer to the Label Repeat Length Set-Up.
Machine functions at random without being initiated.	Product detector loose or vibrating.	Investigate and repair as necessary.
	Product detector alignment or adjustment marginal.	Refer to the set-up procedures.
	Loose wiring connections.	Check all wiring connections. If necessary, request qualified assistance.
Label application rate unable to keep up with the rate at which the product is being conveyed.	Product conveyor running too quickly for the products.	Check machine specifications for rate versus size of label being applied. Slow down conveyor if necessary.
	Set-up adjustments incorrectly made.	Refer to the set-up instructions for Air Blast Dwell and Tamp Dwell.
Label liner not rewinding correctly.	Rewind slip clutch malfunctioning.	Slip clutch too loose, worn or contaminated. Examine and repair. Refer to General Maintenance for information.
	One way rewind clutch not operating.	Replace rewind shaft assembly.
	Broken drive belt.	Replace as necessary.
	On Powered Rewind version: Potentiometer not set-up, or damaged	Investigate and correct.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
	Encoder sensor blocked by contamination.	Investigate and correct.
Label liner breaking.	Incorrectly threaded labels.	Thread the labels correctly.
	Damaged roll of labels. Nicks or label cutter die damage on the liner. Bruise on the side of the label roll. Liner width varying significantly.	Replace the label roll.
	Dancer arm/unwind roll tension incorrect.	Investigate and correct operation of unwind brake dancer arm. Adjust dancer arm spring or adjust tension if necessary.
	Improper web tracking due to worn guide rollers or worn dancer arm bearings.	Replace worn parts.
	Unwind disks, rewind disk, or guide collars not aligned. Label stock path not aligned.	Adjust disks and collars to guide the label stock straight through the machine.
	Peeler bar label tension spring too tight.	Adjust with knob. Examine spring and replace if damaged.
	Adhesive build-up on the peeler bar or label tension spring.	Clean as necessary and examine the label roll for damage. A damaged roll can cause excessive adhesive build-up. Replace label roll if necessary.
Machine will not cycle.	Printer jam.	Clear obstruction and re-thread labels.
	No product detection.	Readjust the product detector or replace if defective.
	Incorrect values for printer parameters.	Refer to the printer manual for instructions.
	No labels to print.	Send label printing information to the printer's buffer.
	No external apply command.	Investigate and correct.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Machine will not cycle.	Input Command and/or Output Status cables disconnected.	Re-connect the cables.
No label feed.	No labels to print.	Load printer information into the buffer.
	Printer configuration incorrect.	Refer to the printer manual for instructions.
Compressed print on labels in the feed direction.	Applicator unwind brake preventing labels from unwinding properly.	Reduce the tension of the dancer arm brake.
Printing on labels is off registration (early).	Applicator unwind brake preventing complete label feed.	Reduce the tension of the dancer arm brake.
Poor print quality.	Various.	Refer to the printer manual.
Labels print continuously without being applied.	Printer configuration incorrect.	Refer to the printer manual for instructions.
	End of print signal not received by applicator control board.	Request qualified assistance to check wiring.

IR FAILURE

IR Failure is caused by the issue that the software did not see the gap between each label during the calibration process. This can be caused by:

1. The CUSTOM [*] button was not pressed long enough to see both the label and the gap between each label.
    a. Press the CUSTOM [*] button until two (2) labels dispense from the peel tip assembly before releasing the CUSTOM [*] button. The applicator should dispense one (1) to two (2) additional labels after you release the CUSTOM [*] button.

2. The label sensor is bad or damaged.
    a. Replace the label sensor to see if this resolves the issue.
    b. Check the gap of the label sensor to see if the is any labels or label debris inside the label sensor.

3. The main logic board is damaged/defective.
    a. ⚠: The label sensor must be on the label and not on a gap between the labels when you perform these tests.
        - Go into the advanced menu of the software and set the LABEL SENSOR SETTING to 005. Now press the CUSTOM [*] button until two (2) labels dispense from the peel tip. If the label sensor setting changes then the main board is functioning properly. If the label sensor setting does not change you will need to replace the main logic board.
        - When you press the CUSTOM[*] button and if you hear a high pitched sound and the labels do not move you will need to replace the main logic board.

4. The CUSTOM [*] button on the main control panel may be damaged causing an intermittent issue.
    a. Replace the main control panel.

5. Defective stepper motor driver.
    a. Check to see if the main drive turns when the CUSTOM (*) button is pressed.

6. Bad stepper motor.

7. Nip roller open.
    a. Check that the nip roller is closed properly.

8. The difference between the label/liner and the liner is not sufficient (not enough contrast) to do a label calibration.

9. Issues with static.

10. Issues with the AC power supplied to the applicator.

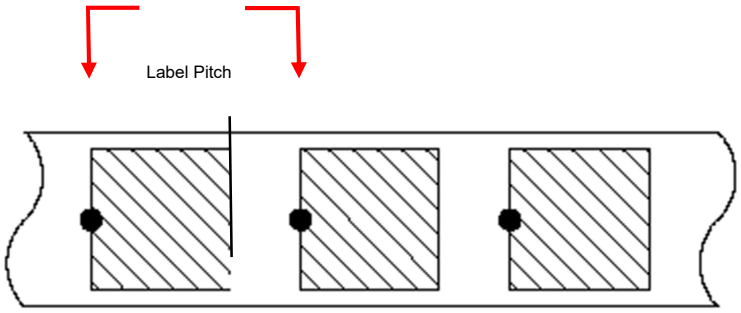
11. Damaged, worn or dirty main drive roller.
    a. Inspect the main drive roller for wear or damage.
    b. Clean dirty drive roller. This should be done at minimum once a day.

Broken Web vs Missing Label

You may see one of these error messages on the display and wonder what they really mean.

After you calibrate the label sensor the applicator keeps track of the labels on the liner to ensure that a label is always available to be applied to the product. It does this with three pieces of information:

1. The pitch (or repeat) of the label.
    a. The pitch is defined as the leading edge of one label to the leading edge of the following label including the gap between each label.



2. Next is the LABEL SENSOR TO PEEL TIP DISTANCE. This is a physical measurement and should be performed using a 6" steel rule or tape measure. Place one end or your ruler on the '+' on the label sensor and the other at the end of the peel tip assembly and place that information into the LABEL SENSOR TO PEEL TIP. This information helps the applicator keep track of the labels between the sensor and the peel tip.
3. Lastly, the velocity (dispense speed) of the label.

* IMPORTANT NOTE *

To fully understand Missing Label vs Web Break you must understand the way the software and the label sensor work. The software in the applicator does not start looking for the trail edge of the label until 1/4" **before** the trail edge of the label. This is why these settings are very important.

MISSING LABEL will be displayed when the label sensor sees the trail edge of one label, but not the lead edge of the label that follows on the liner.

WEB BREAK will be displayed when the label sensor sees the lead edge of one label but does not see the trail edge of the same label when it expects to see it.

If you see WEB BREAK or MISSING LABEL a lot:

- Check the WEB BREAK count in the ADVANCED MENU.
- Check the tension of the NIP TENSION/MAIN DRIVE roller.
- Check the MAIN DRIVE roller for wear.
- Inspect the system for excessive wear or damage.
- Inspect the label sensor for debris or damage.

*** OTHER INFORMATION ***

When setting up the applicator, set the MISSING LABEL COUNT to the number that is acceptable to your customer. 3 is the default set from the factory but you can choose any number between 0 and 9.

The next item you want to set-up properly is WEB BREAK COUNT. Set this to 3 as this setting determines how many times the software will perform the WEB BREAK function before generating a fault message.

GLOSSARY

Access Code: The key-sequence that must be entered into the microprocessor before modifying the values for a label page.

Adhesive Strings: Label adhesive which adheres to the label liner and label while the label is dispensing. They can cause the label to be improperly positioned on the peeler bar.

Beam Sensor: A sensor that triggers a signal when an object breaks a light beam.

Conveyor: The device (chain, rollers, hugger belts etc.) which moves the product.

Cycle Time: The amount of time that it takes for the applicator to complete a labeling cycle.

Dancer Arm: The spring loaded arm that moves to maintain correct tension on the label stock as it moves through the machine.

Detection Points: The point of the label or product that causes the label or product sensor to signal the machine.

Disk: The flat, plastic circle which holds the roll of labels on the supply mandrel.

Display Board: The LED display above the keypad.

Display: The portion of faceplate that shows the microprocessor messages.

Encoder Pulses: The measurement of conveyor travel: the number of pulses per inch is usually 100. Encoder: A device mounted to the conveyor chassis. It reports Distance Traveled information to the microprocessor.

Label Liner Guide Collar: The rings that keep the label stock in the proper lateral position as it feeds through the machine.

Label Liner: The paper to which labels are affixed prior being to being dispensed.

Label Sensor: A photoelectric or mechanical device that sends a signal to the microprocessor when it detects the presence of a label edge

Label Stock: The label liner with labels still attached.

Leading Edge: The first edge of the product or label enters the sensor's detection beam.

Machine Sequence: The order in which the machine executes the steps necessary for a complete cycle. Mandrel: A shaft that can spin on its axis, on which another device is mounted

Menu: The list of microprocessor functions that are available for use.

Microprocessor Board: The circuit board that contains the central processing unit (C.P.U.).

Microprocessor Menu: The microprocessor functions and the way that they are arranged and accessed. Nip Roller: See pinch roller.

Optional Equipment: Standard equipment that is not required to operate the machine, but can be purchased and employed with the machine to accomplish some additional task (e.g., imprinter).

P.S.I.G.: Pounds per square inch gauge. (BAR = PSIG ÷ 14.4)

Peeler Bar: The flat bar that the separates the label from the label liner as the label stock slides around it.

Pinch Roller: The cylinder that presses the label liner to the drive roller so that the label stock can be pulled through the machine.

Product Detector: A device, usually photoelectric, which detects the presence of a product edge and sends a signal to the microprocessor.

Product Distance: The function that allows you to instruct the machine to provide a delay between the moment of product detection and the actual time at which the label is applied.

Repeat Length: The distance from the leading edge of one label (or product) to the leading edge of the next.

Rewind Station: A motor driven mandrel that stores the label liner from which labels have been removed. S.C.F.M.: Standard Cubic Feet per Minute

Thread Sequence: The manner in which the label stock is threaded through the machine rollers.

Trailing Edge: The last edge of the product or label to leave the detection beam.

VAC: Volts A.C. (Alternating Current). Web: See Label Stock.

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