



3111TS/CE MANUAL

Rev 1.01

September 21, 2021

7408901-100



TABLE OF CONTENTS

TABLE OF FIGURES	6
INTRODUCTION	9
ELECTRICAL/ENVIRONMENT	10
CAUTIONARY SYMBOLS AND PICTOGRAMS.....	12
INITIAL CAUTIONS.....	14
APPLICATOR POWER CABLE.....	15
PHYSICAL PLACEMENT OF THE MACHINE	16
GENERAL MACHINE INFORMATION	18
TOUCH SCREEN.....	20
CHANGING VALUES.....	21
SELECTING MACHINE TYPE.....	23
LABEL CALIBRATION	27
APPLICATOR ONLINE	31
STATUS INDICATORS	32
MENU LEVELS	35
OPERATOR MENU	35
ADVANCED MENU	36
SERVICE MENU.....	39
COUNTER MENU.....	40
RESET MENU	40
SYSTEM INFO.....	41
MICROPROCESSOR MESSAGES.....	42
MACHINE SEQUENCE	44
TOOL LIST.....	45
ENERGIZING SEQUENCE	46
CONNECTION TO COMPRESSED AIR	46
CONNECTION TO A.C. POWER	46
INITIAL SET-UP.....	47

LABEL SET-UP	48
LOADING LABELS	49
LABEL SENSOR SETTING SET-UP	51
LABEL REPEAT LENGTH.....	52
LABEL STOP POSITION.....	53
PEELER BAR ALIGNMENT	55
INITIAL AIR PRESSURE SETTINGS	58
VACUUM SET-UP	59
AIR ASSIST SET-UP	61
VACUUM GRID SET-UP	62
Air Blast Tube Arrangement for Various Label Shapes.	63
AIR BLAST SET-UP	64
LABELING SPEED.....	65
PRINTER DWELL TIME	66
LABEL STACK TEST	67
Label Stack Adjustment Flow Chart	67
PRODUCT SET-UP	72
POSITIONING THE APPLICATOR	73
PRODUCT SENSOR EDGE.....	74
PRODUCT DETECTOR SET-UP	75
ALLEN BRADLEY THROUGH BEAM P/N 7600005-802	76
LABEL ON PRODUCT POSITION	77
PRODUCT DETECTOR LOCKOUT	79
TEST RUN	80
SET-UP RECORD.....	81
OPTIONS	82
ALARMS	83
LOW LABEL DETECTOR	83
LOW LABEL ALARM TRIGGER POINT	84
LOW LABEL SENSITIVITY ADJUSTMENT	85
WEB BREAK	86
OPERATION.....	87
LOW LABEL	87
WEB BREAK	87

RATE COMPENSATION	88
INDIVIDUAL PRODUCTS	88
CONTINUOUS FORMS	90
IMPRINTER.....	92
IMPRINTER DWELL TIME	92
IMPRINT POSITION ADJUSTMENT	93
LABEL REPEAT LENGTH ADJUSTMENT	95
ZERO DOWN TIME - OPTIONAL EQUIPMENT	96
ZDT SET-UP	96
LABEL LOADING - OPTIONAL EQUIPMENT	97
APPENDICES	98
APPENDIX A	99
RE-LOADING LABELS (STANDARD)	99
APPENDIX B	101
SET-UP RECORD SHEET	101
APPENDIX C	103
STATUS PORT J19	103
ALARM PORT J18	105
MAINTENANCE	106
DAILY MAINTENANCE	107
WEEKLY MAINTENANCE	108
MONTHLY MAINTENANCE	109
SEMI-ANNUAL MAINTENANCE	110
ANNUAL MAINTENANCE	111
+5.2 VOLTS DC POWER SUPPLY SETUP	112
REWIND SLIP CLUTCH ADJUSTMENT	113
PINCH ROLLER COMPRESSION ADJUSTMENT	115
BRAKE & DANCER ARM ADJUSTMENT	116
CONTROLLER SOFTWARE UPDATE	117
TOUCH SCREEN SOFTWARE UPDATE	124
RESTORE FACTORY DEFAULT SETTINGS	131
REPLACING THE CONTROLLER	134
REPLACING THE BATTERY	135
TROUBLESHOOTING	136

GLOSSARY	148
INDEX.....	151

TABLE OF FIGURES

Figure 1 115V Power Cable	15
Figure 2 220V Power Cable	15
Figure 3 Applicator Support Structure	17
Figure 4 Machine Parts (Right Hand)	18
Figure 5 Electrical Panel (Rear of Machine)	19
Figure 6 Power On Screen	20
Figure 7 Control Panel	20
Figure 8 Touch Operator Menu	21
Figure 9 Touch Value	21
Figure 10 Enter Value	22
Figure 11 Save Settings	22
Figure 12 Main Menu	22
Figure 13 Service Menu Button	23
Figure 14 Touch Password Button	23
Figure 15 Enter Password	24
Figure 16 Touch Machine Button	24
Figure 17 Touch Arrow	25
Figure 18 Touch X	25
Figure 19 Touch X	26
Figure 20 Main Menu	26
Figure 21 Touch Operator Menu	27
Figure 22 Touch Label Calibration	27
Figure 23 Press and Hold	28
Figure 24 Touch X	29
Figure 25 Touch X	29
Figure 26 Main Menu	30
Figure 27 Main Menu Offline	31
Figure 28 Main Menu Online	31
Figure 29 Status Indicators	32
Figure 30 Status Indicators	33
Figure 31 Reset	33
Figure 32 Touch X	34
Figure 33 Main Menu	34
Figure 34 Threading Diagram (Right Hand)	50
Figure 35 Threading Diagram (Left Hand)	50
Figure 36 Label Stop Position	53
Figure 37 Result of Label Dive	55
Figure 38 Peeler Bar Dive Adjustment	56
Figure 39 Peeler Bar Adjustment	57
Figure 40 Air Blast and Air Assist Air Regulators	58
Figure 41 Grid Mask	60
Figure 42 Air Assist Tube Adjustment	61

Figure 43 Air Blast Tube Arrangements	63
Figure 44 Label Stack Adjustment Flow Chart.....	67
Figure 45 Air Assist Tube Adjustment To Correct Adhesive Strings	70
Figure 46 Applicator/Product Position (Right Hand Machine Shown)	73
Figure 47 Product Detector Position.....	74
Figure 48 Wiring for PNP and NPN Detectors.....	75
Figure 49 Through Beam Product Detector	76
Figure 50 Desired Labeling Position.....	78
Figure 51 Unwind.....	84
Figure 52 Low Label Detector	86
Figure 53 Imprinter.....	93
Figure 54 Imprinter Adjustment Brackets	94
Figure 55 Threading Diagram (Right Hand)	100
Figure 56 Threading Diagram (Left Hand).....	100
Figure 57 I/O Wiring.....	104
Figure 58 DC Power Supply P/N 9000430	112
Figure 59 Rewind Slip Clutch.....	114
Figure 60 Pinch Roller Adjustment.....	115
Figure 61 Dancer Arm.....	116
Figure 62 Allen Screw.....	116
Figure 63 LH Brake	116
Figure 64 RH Brake	116
Figure 65 Unplug J3.....	117
Figure 66 Touch Large Arrow.....	117
Figure 67 Service Menu Button.....	118
Figure 68 Touch Password Button	118
Figure 69 Touch Enter	118
Figure 70 HMI/Controller Update Button	119
Figure 71 Update Controller Button.....	119
Figure 72 Yes Button	119
Figure 73 Update Button	120
Figure 74 Controller USB Port.....	120
Figure 75 Thumb Drive	121
Figure 76 No Response	121
Figure 77 Remove Thumb Drive	122
Figure 78 Reconnect J3.....	122
Figure 79 Touch Large Arrow.....	123
Figure 80 Main Menu	123
Figure 81 Service Menu Button.....	124
Figure 82 Touch Password Button	124
Figure 83 Touch Enter	124
Figure 84 HMI/Controller Update Button	125
Figure 85 Update HMI Button.....	125
Figure 86 Yes Button	125
Figure 87 Touch Screen USB Port.....	126
Figure 88 Insert Thumb Drive.....	126
Figure 89 Touch Folder USB1.....	127

Figure 90 Touch Filename PKGX.....	127
Figure 91 Touch OK.....	128
Figure 92 Screen	128
Figure 93 Thumb Drive Removed	129
Figure 94 Touch Arrow.....	129
Figure 95 Main Menu	130
Figure 96 Touch Service Menu	131
Figure 97 Touch Password Button	131
Figure 98 Touch Enter	131
Figure 99 Touch Factory Restore.....	132
Figure 100 Touch Restore	132
Figure 101 Touch X	132
Figure 102 Main Menu	133
Figure 103 Controller	134
Figure 104 Processor Battery.....	135

INTRODUCTION

The Label-Aire model 3111TS is a high speed label applicator used to apply pressure sensitive labels to moving products of the same size on a production line. It is essentially a self-contained module that may be mounted in almost any position adjacent to the production line, to apply labels to the top, sides, or bottom of products as they pass by.

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. After peel-off, the label is held on a grid by a vacuum. When the presence of a product triggers the applicator, a jet of air applies the label. In a typical set-up, a photoelectric sensor detects the leading edge of a product and initiates an air jet to apply the label, with placement accuracy typically within $\pm 1/32$ inch (0.8mm).

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

ELECTRICAL/ENVIRONMENT

ELECTRICAL SUPPLY: 108-132 Volts AC, 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 AC, 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.

AIR SUPPLY: Compressed air must be provided at pressures between 90 and 100 P.S.I. (6 and 7 bar) with a minimum flow rate of four S.C.F.M. (114 liters/min). A quick disconnect fitting is provided.

ENVIRONMENT: Operating temperature: 40-104 degrees F (5-40 degrees C). Humidity: 20-95% RH, Non condensing.

NOTE: The model 3111TS is not intended to be operated in an environment where flammable or explosive gases are present. The 3111TS 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 3111TS 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 3111TS 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 3111TS is not intended to be operated in an environment where flammable or explosive gases are present. The 3111TS 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.

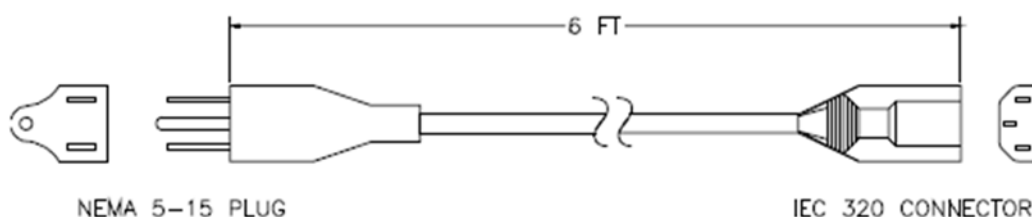


Figure 1 115V Power Cable

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.

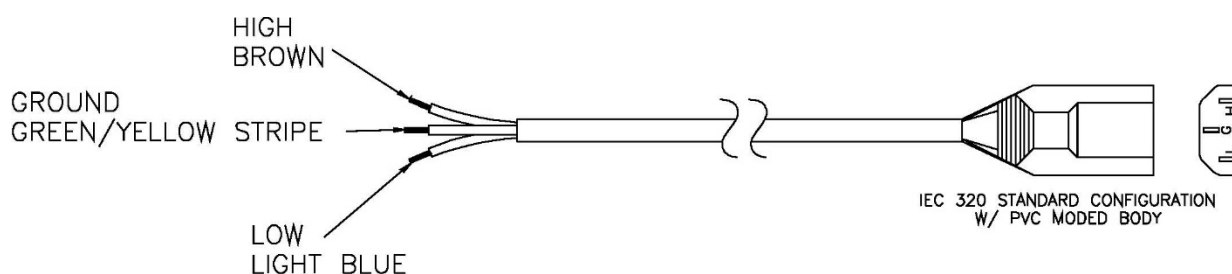


Figure 2 220V Power Cable

PHYSICAL PLACEMENT OF THE MACHINE

The model 3111TS 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 nose up, nose down, bottom up, and upright and above. 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 140 lb (63.5Kg) 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 vacuum grid is 5/8 inch (16mm) from the product's labeling surface. Make sure that no part of the applicator will touch any part of 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.

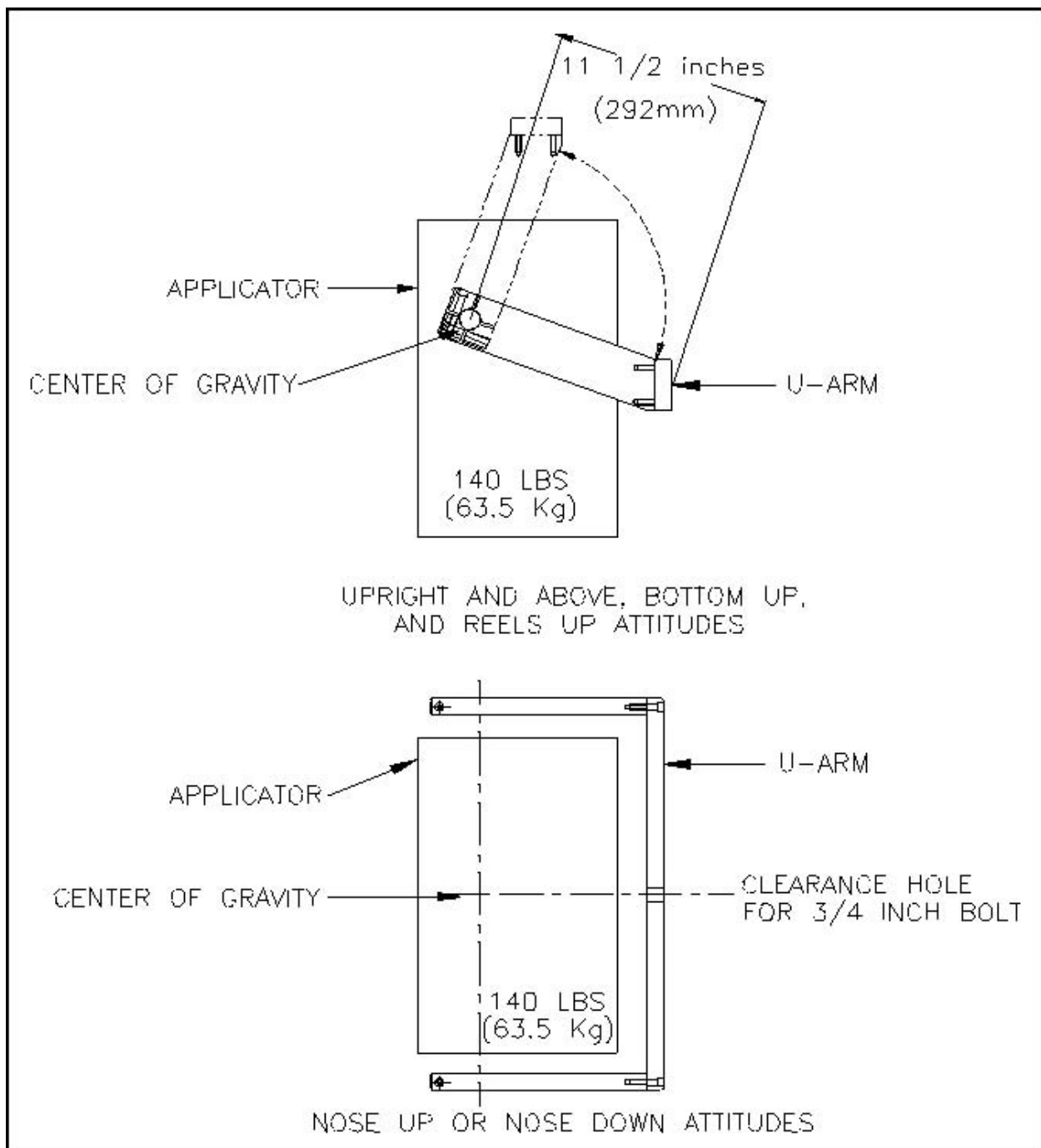


Figure 3 Applicator Support Structure

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.

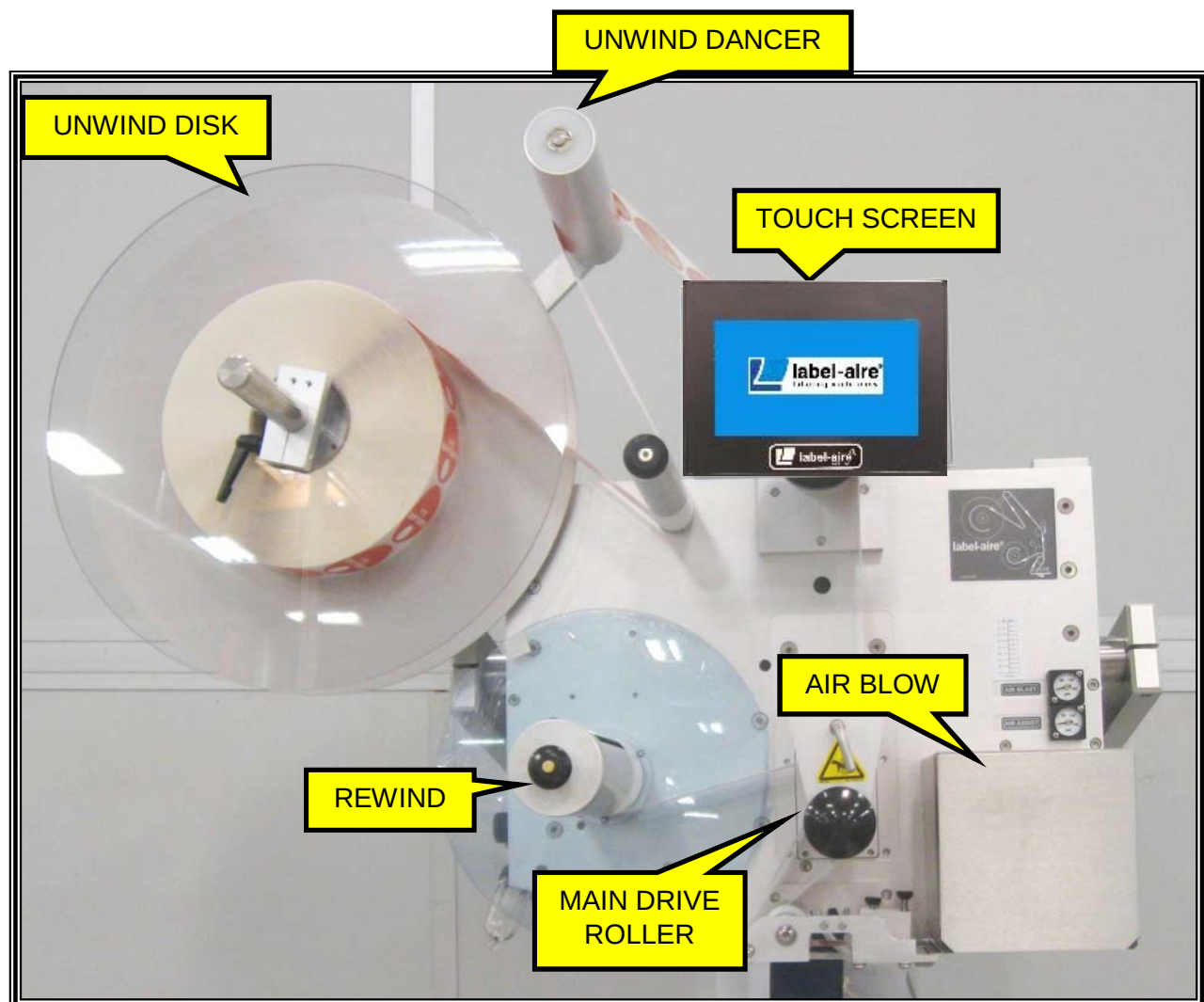


Figure 4 Machine Parts (Right Hand)

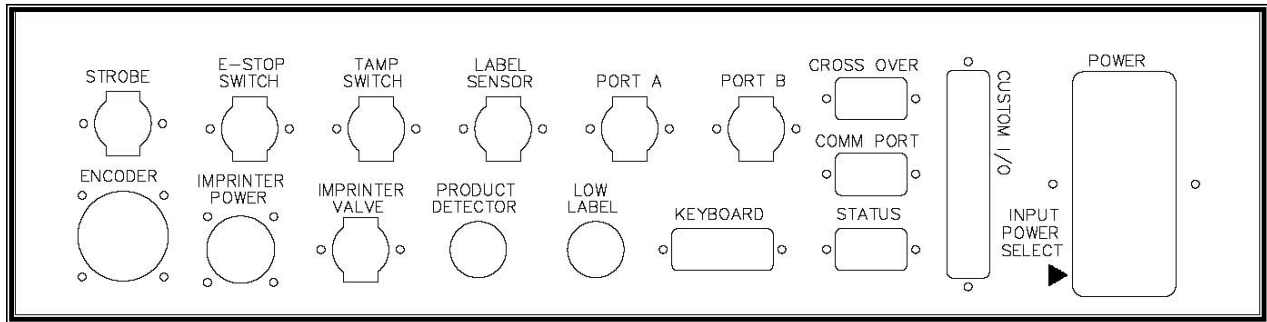


Figure 5 Electrical Panel (Rear of Machine)

TOUCH SCREEN

This section covers the Touch Screen menu items.

When the machine is first powered ON, the Touch Screen will display:

Touch the large arrow to proceed to the Main Menu.

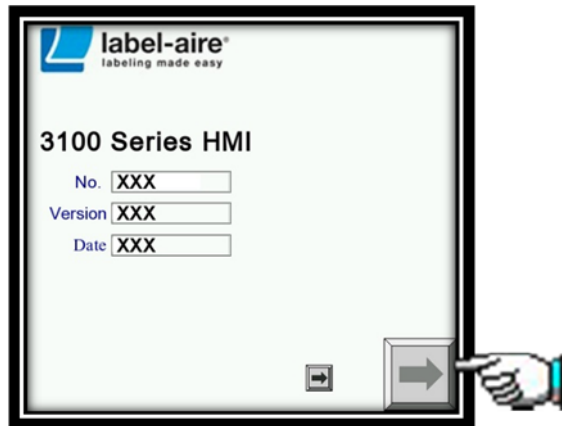


Figure 6 Power On Screen

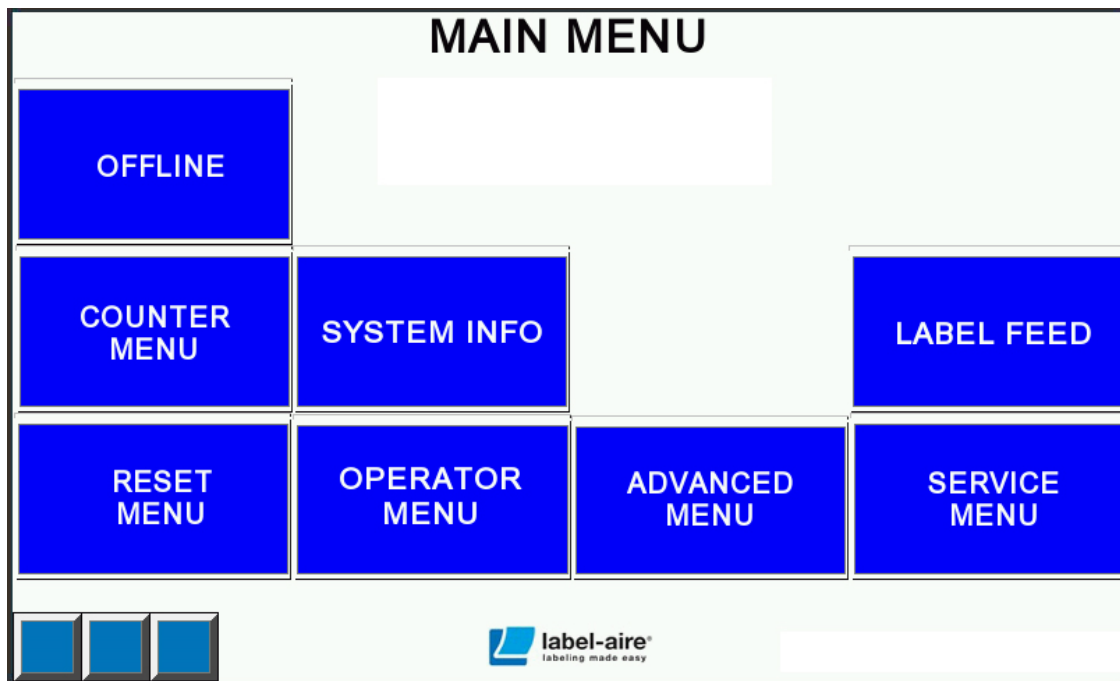


Figure 7 Control Panel

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

The [LABEL FEED] button will feed a label.

CHANGING VALUES

The following is an example of how to change values. Values can be changed in Operator, Advanced and Service Menus.

Touch Operator Menu button.

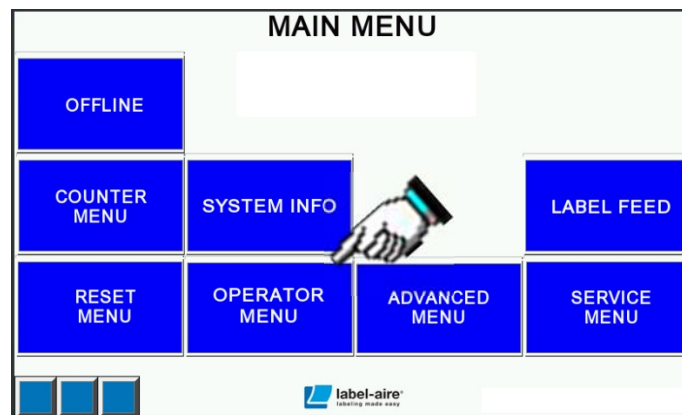


Figure 8 Touch Operator Menu

Touch the value to be changed:

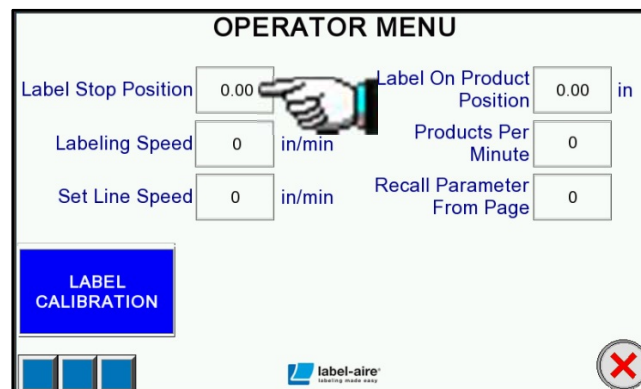


Figure 9 Touch Value

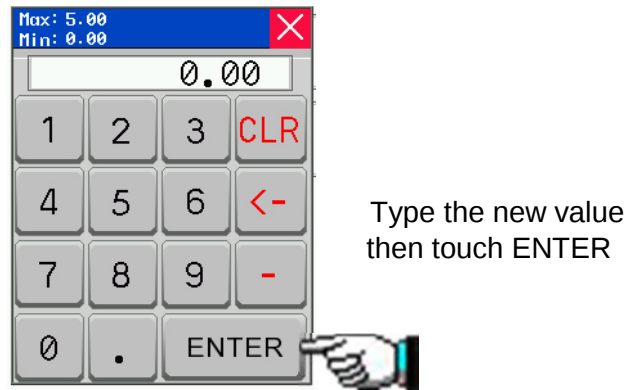


Figure 10 Enter Value

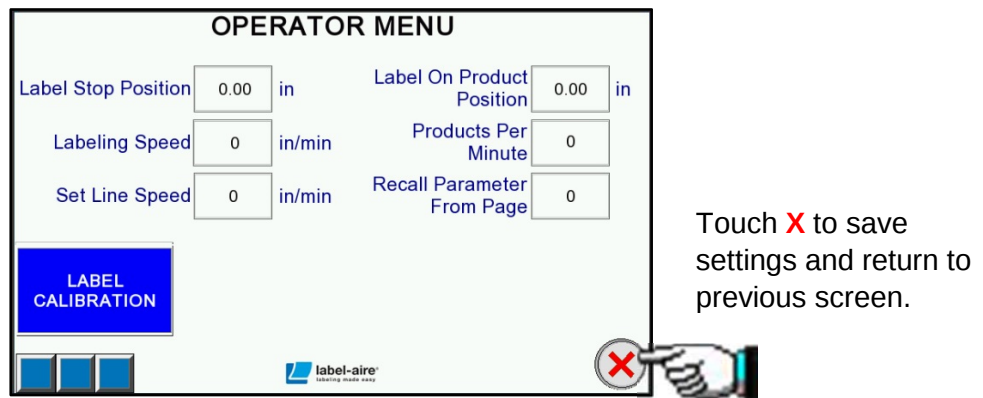


Figure 11 Save Settings

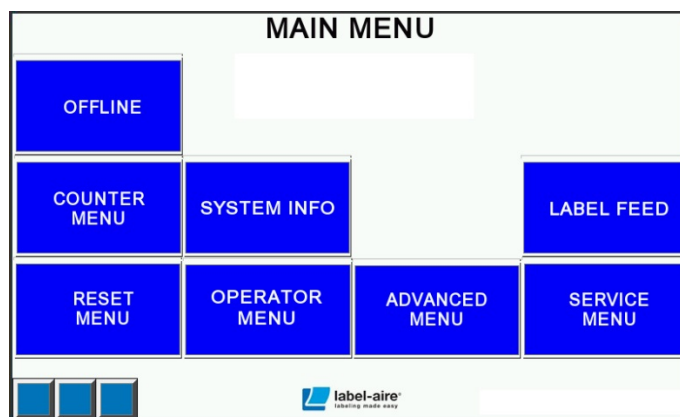


Figure 12 Main Menu

SELECTING MACHINE TYPE

Touch Service Menu button.

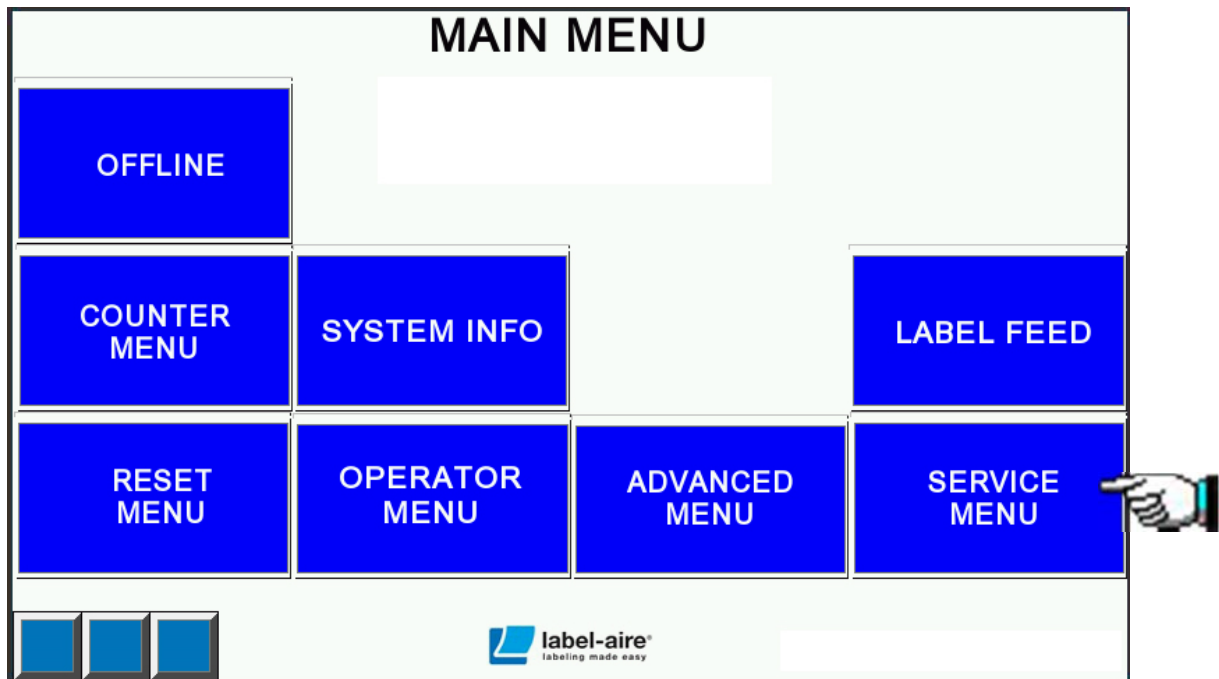


Figure 13 Service Menu Button

Touch Password Button. Note: Refer to your supervisor for the password.

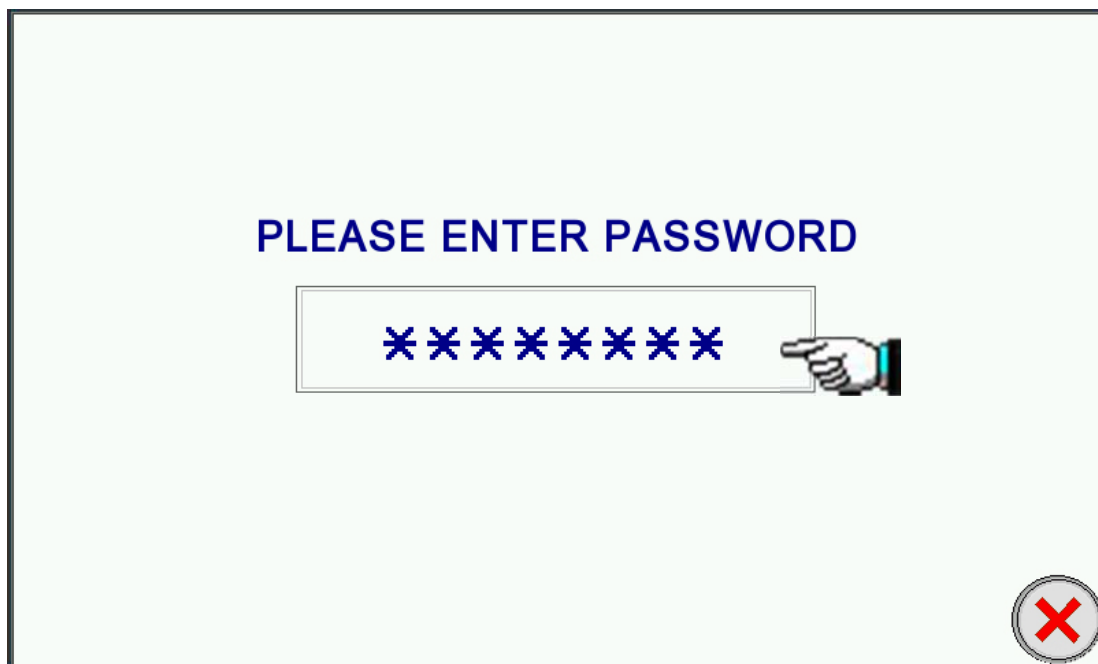


Figure 14 Touch Password Button

Type the password then touch ENTER. Note: Refer to your supervisor for the password.



Figure 15 Enter Password

Touch Machine Menu button.

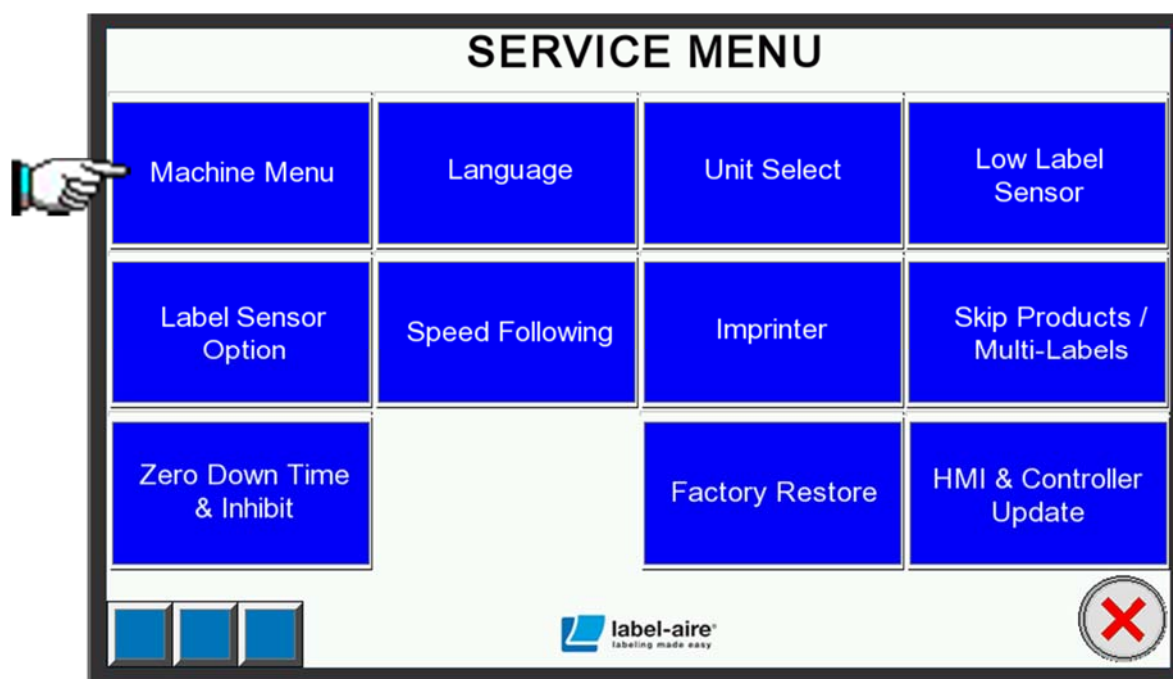


Figure 16 Touch Machine Button

Touch arrow to scroll through Machine Types.

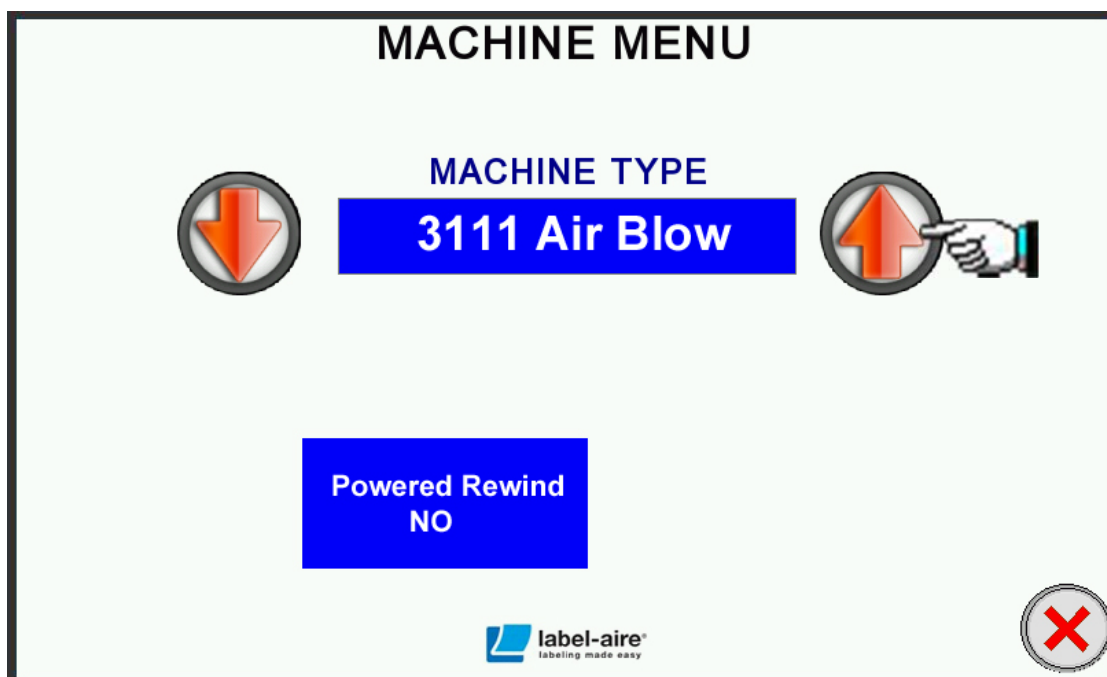


Figure 17 Touch Arrow

Touch **X** to save the Machine Type and return to the Service Menu.

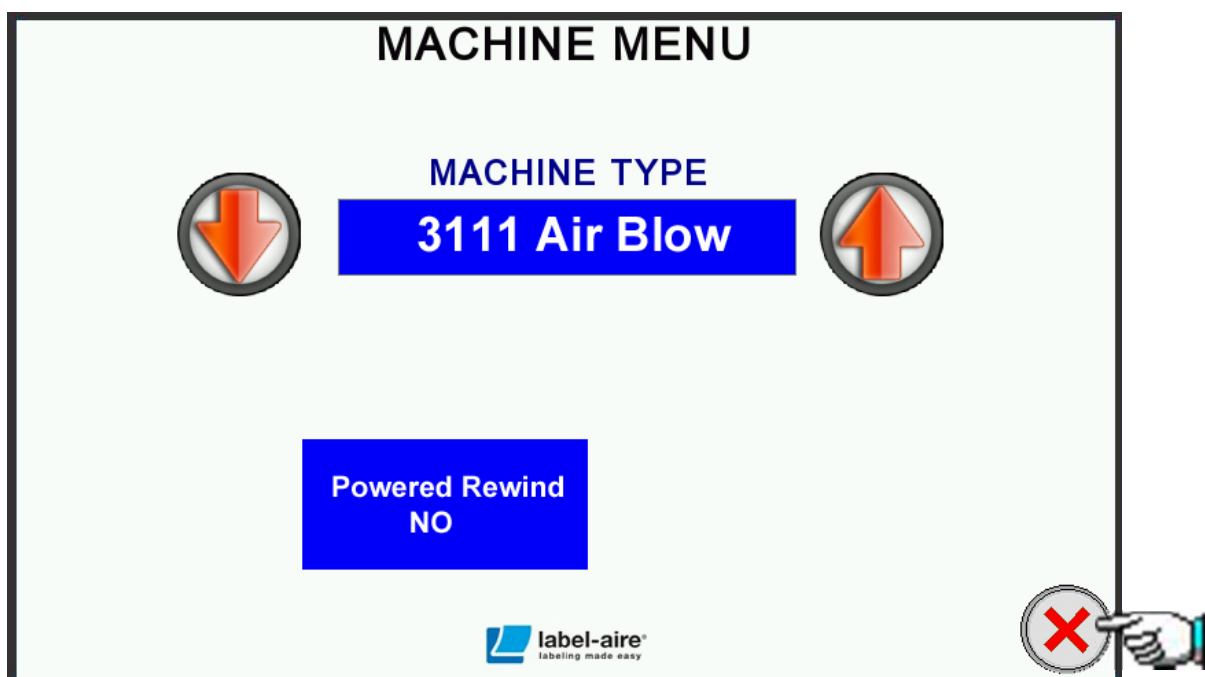


Figure 18 Touch X

Touch **X** to return to the Main Menu.

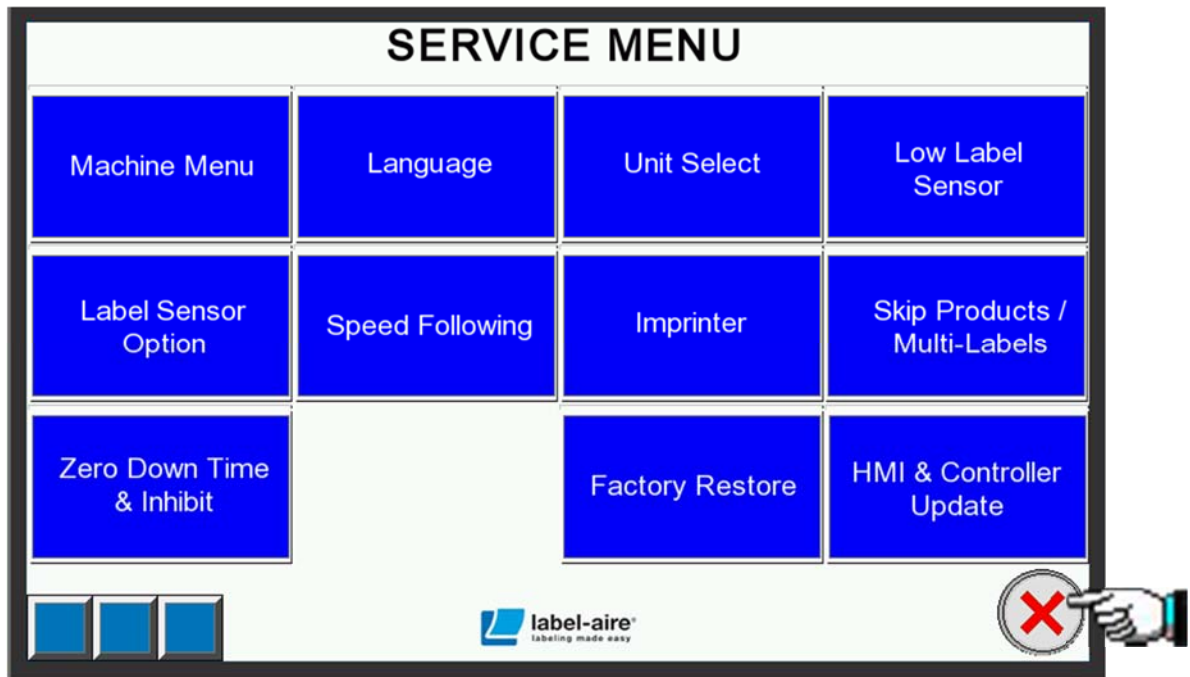


Figure 19 Touch X

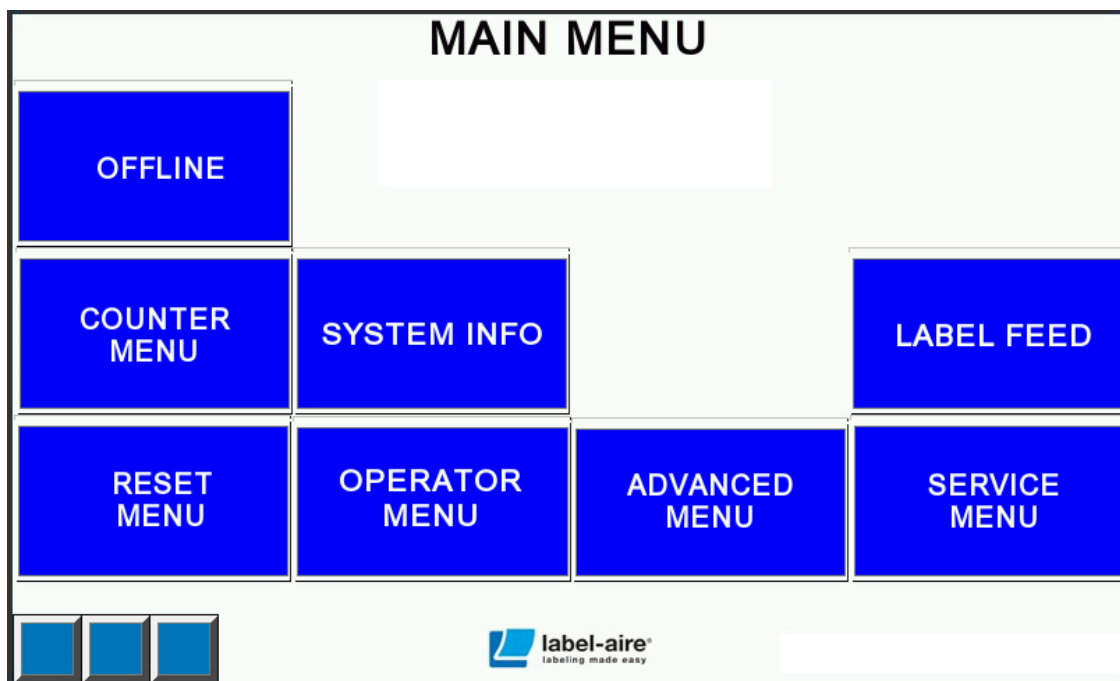


Figure 20 Main Menu

LABEL CALIBRATION

Touch Operator Menu button.

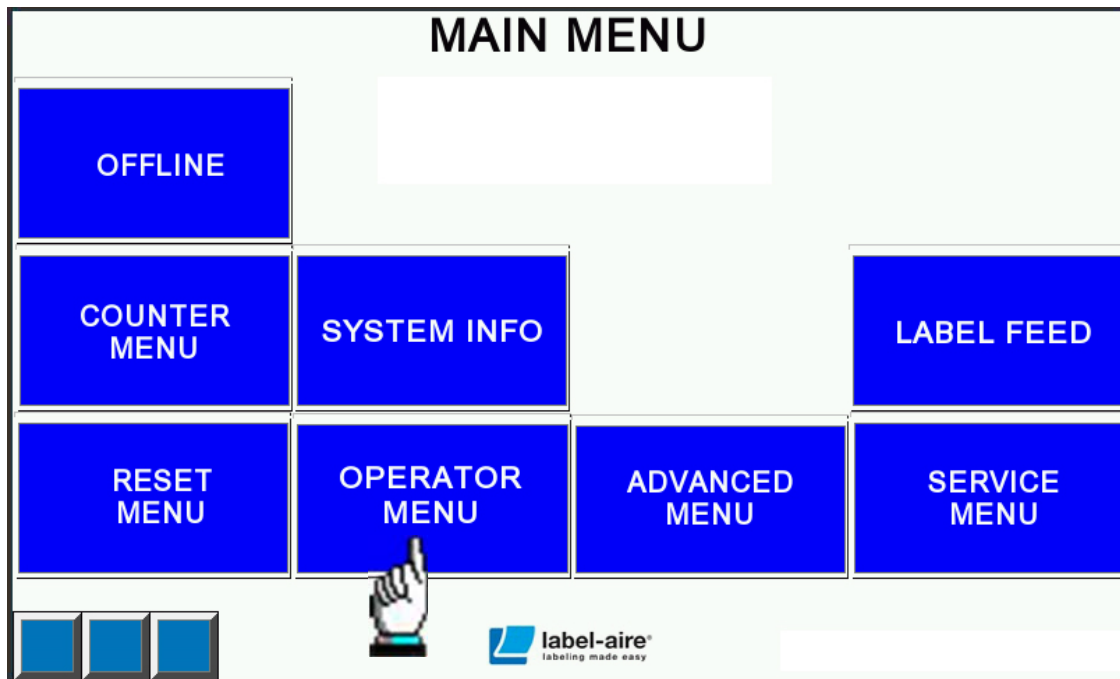


Figure 21 Touch Operator Menu

Touch Label Calibration button.

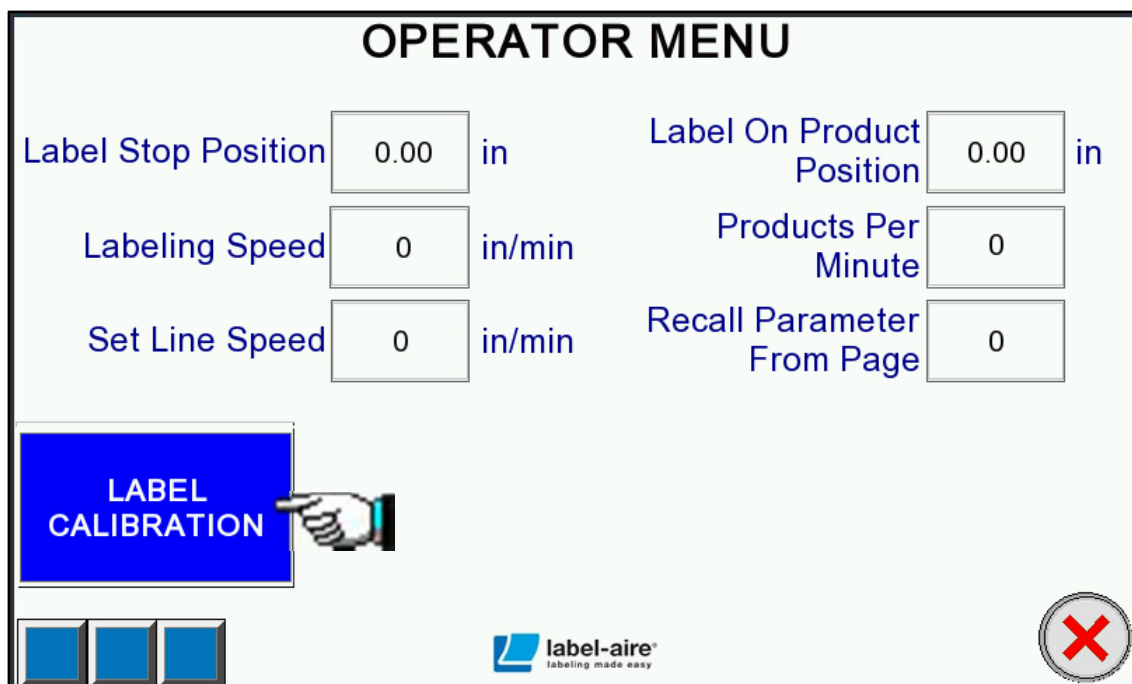


Figure 22 Touch Label Calibration

Press and hold until two label gaps has passed under label sensor.

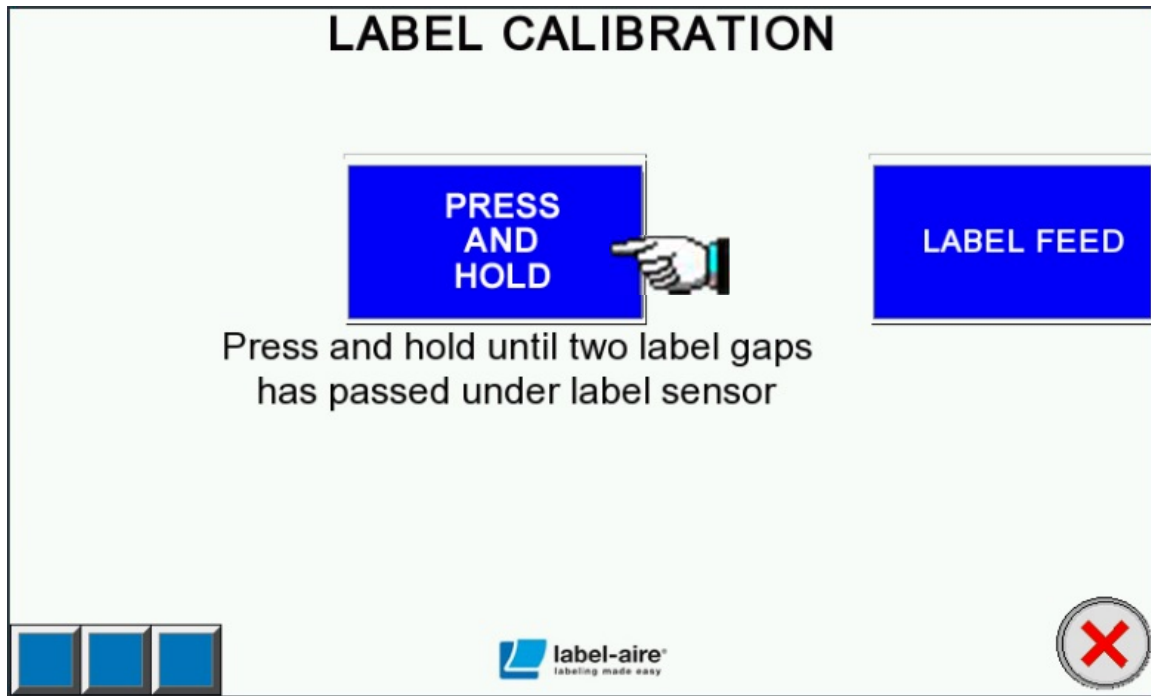


Figure 23 Press and Hold

Touch **X** to return to the Operator Menu

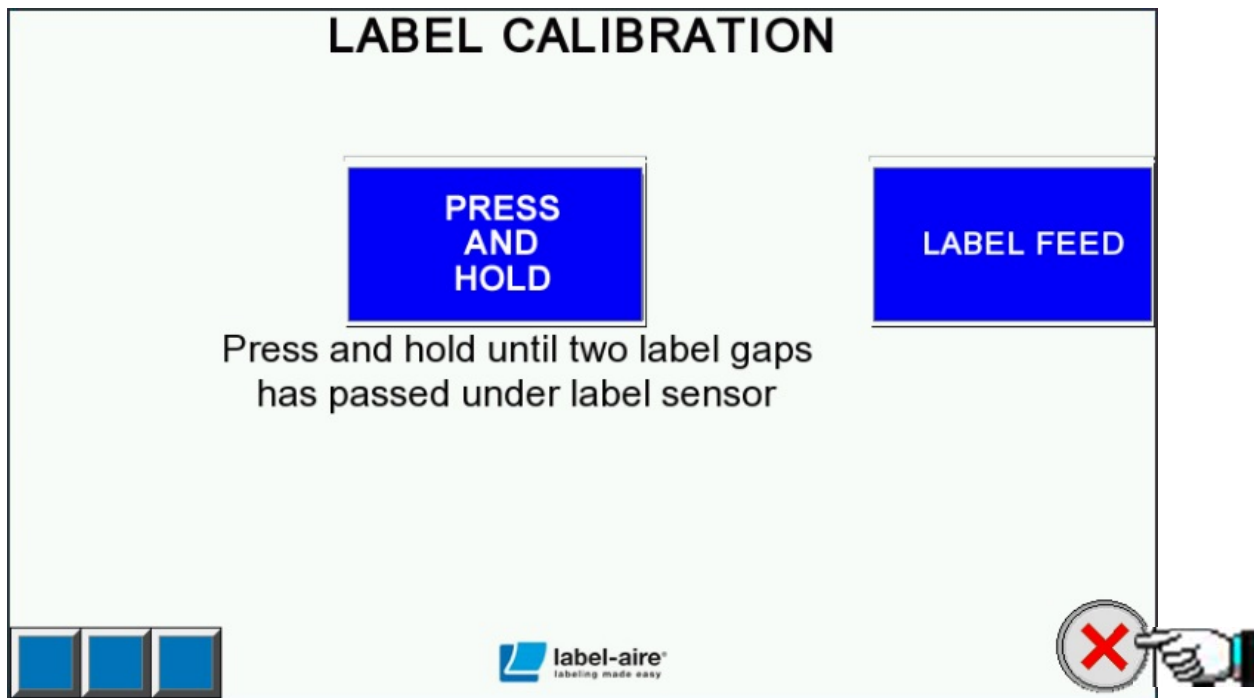


Figure 24 Touch X

Touch **X** to return to the Main Menu

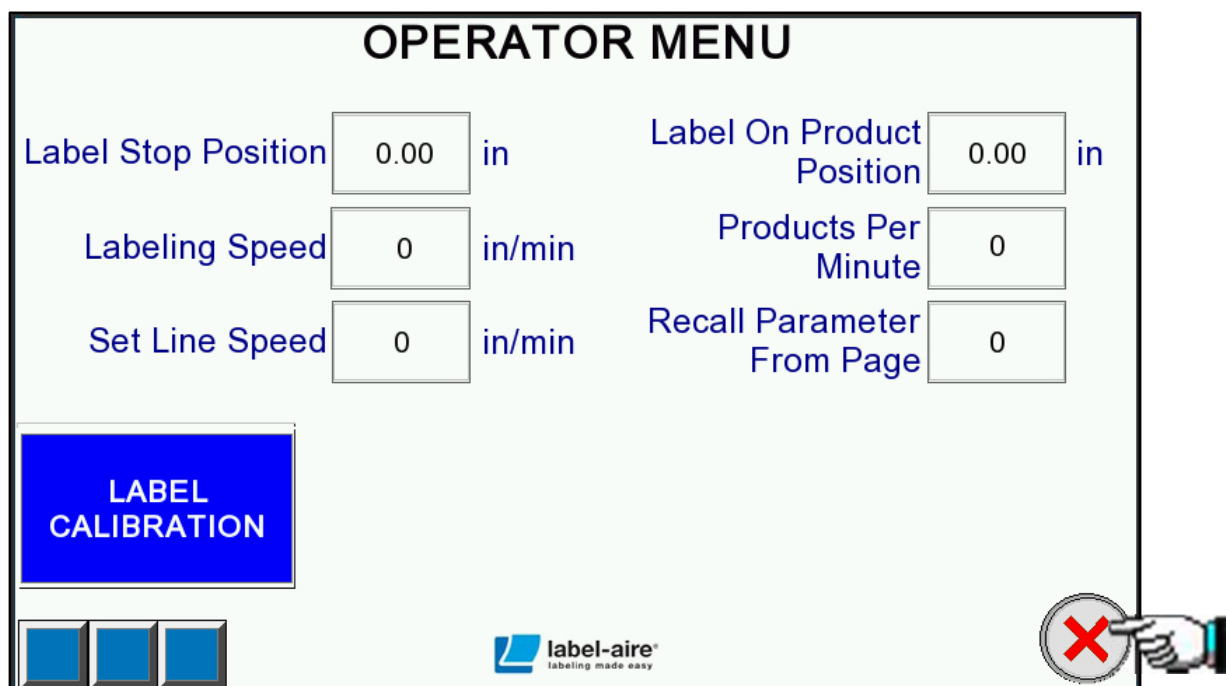


Figure 25 Touch X

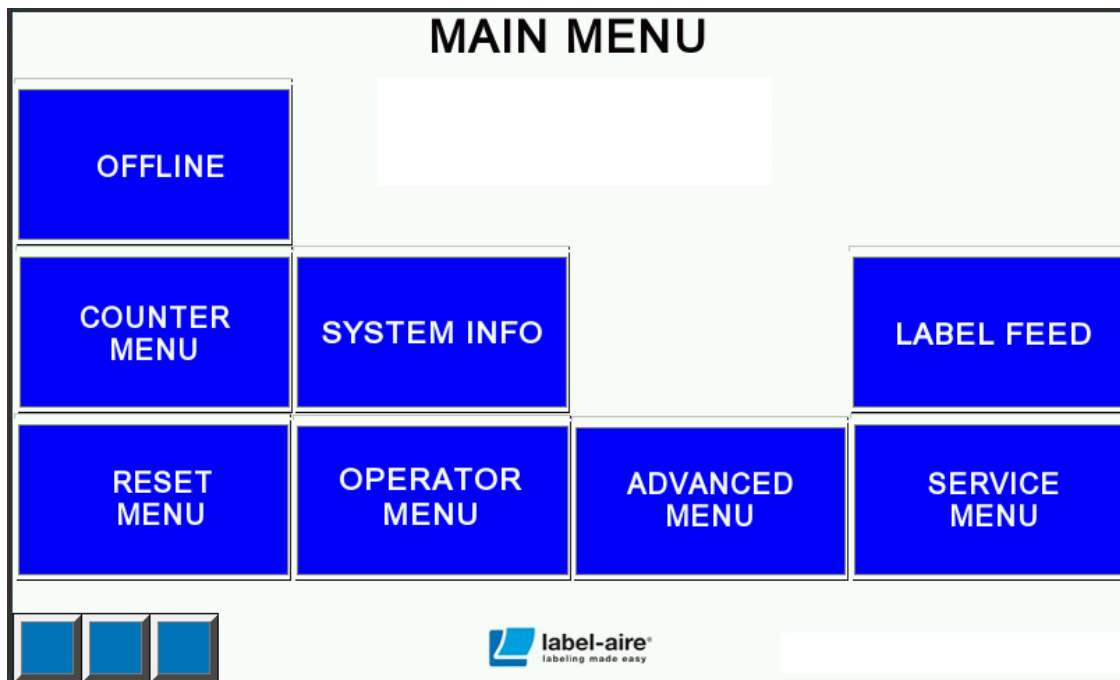


Figure 26 Main Menu

APPLICATOR ONLINE

Touch OFFLINE button to put applicator Online.

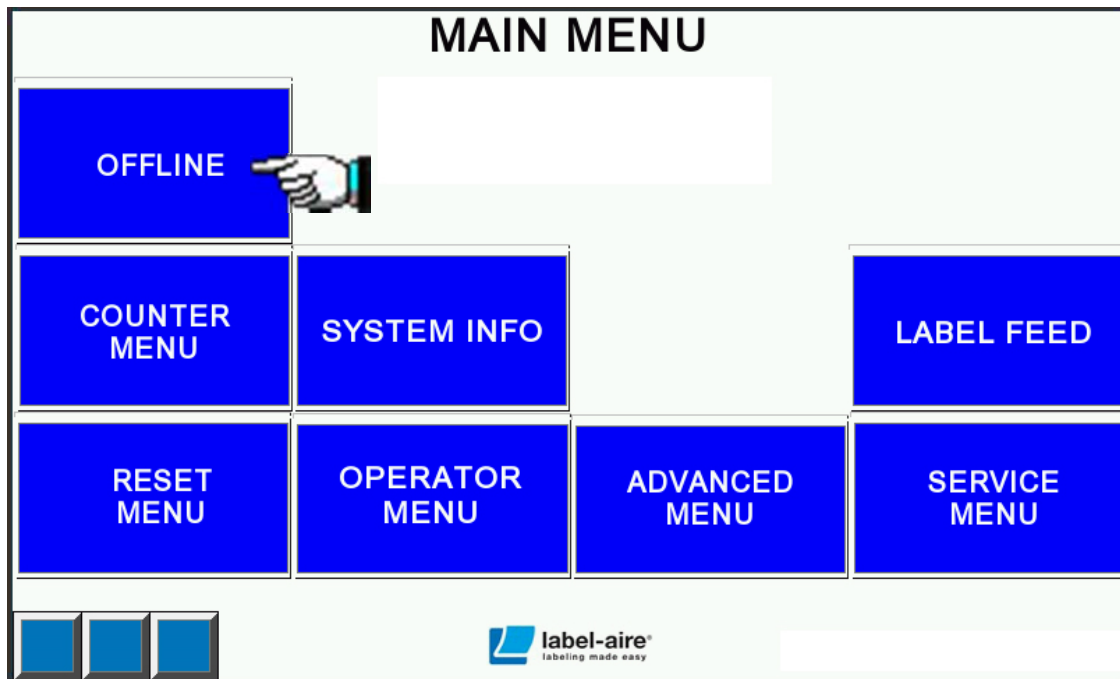


Figure 27 Main Menu Offline

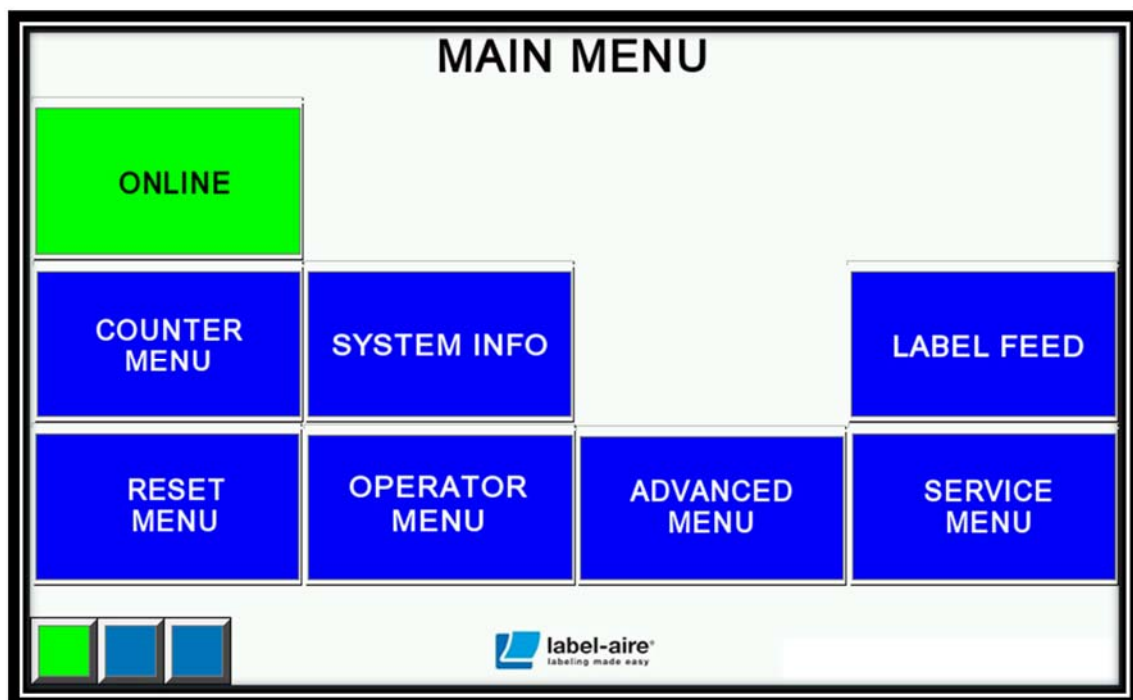
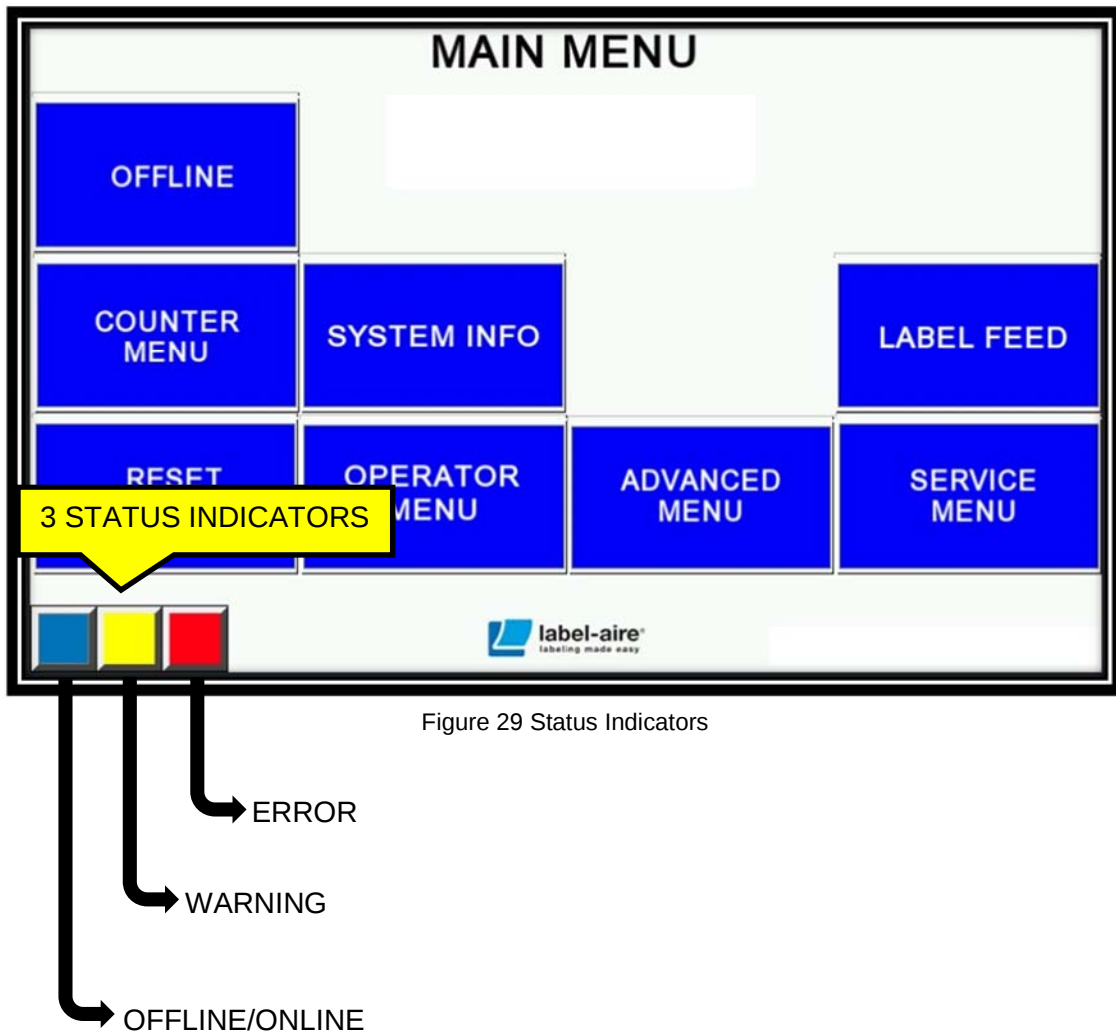


Figure 28 Main Menu Online

STATUS INDICATORS



Touch the Yellow or Red Status Indicator.

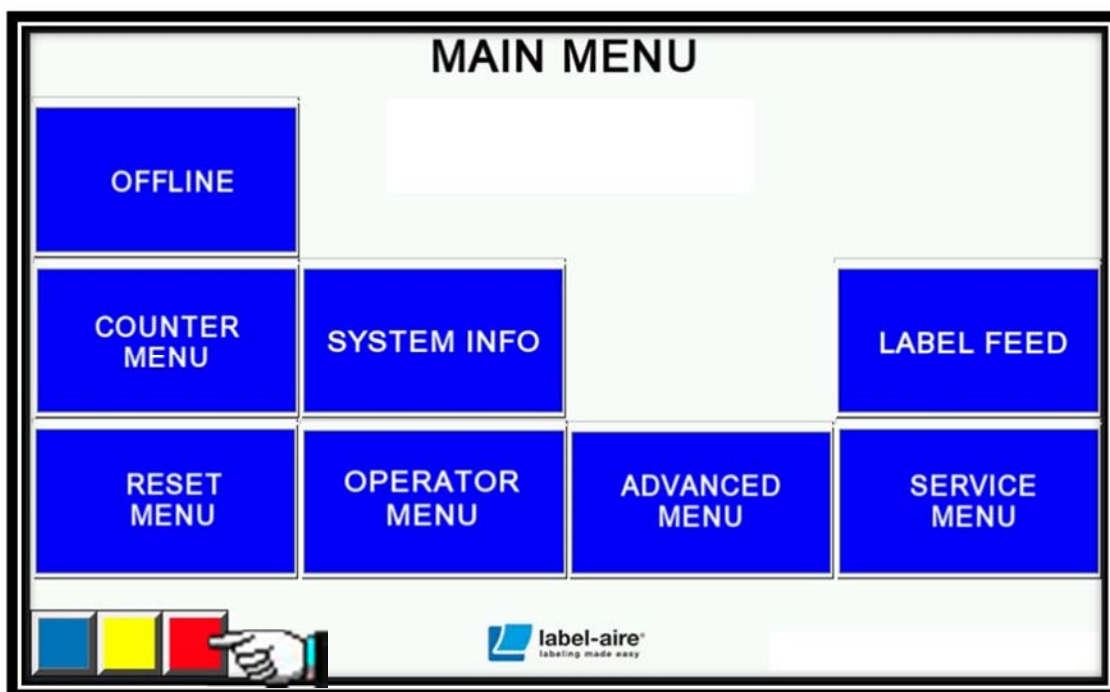


Figure 30 Status Indicators

Touch Reset.

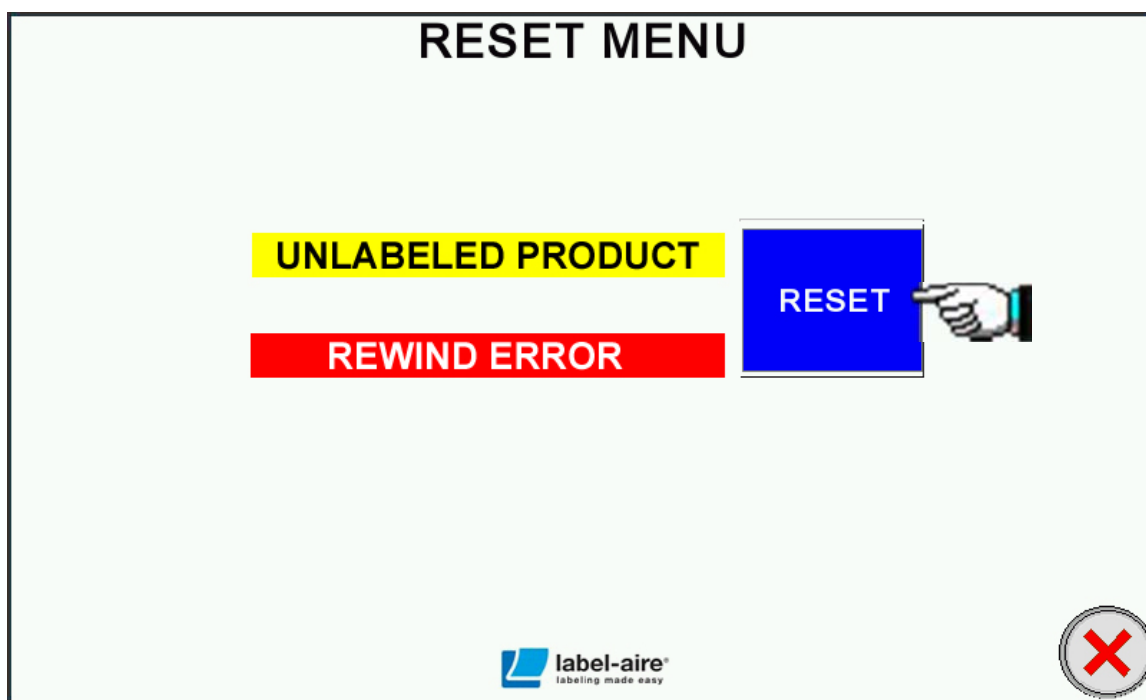


Figure 31 Reset

Touch **X** to return to the Main Menu

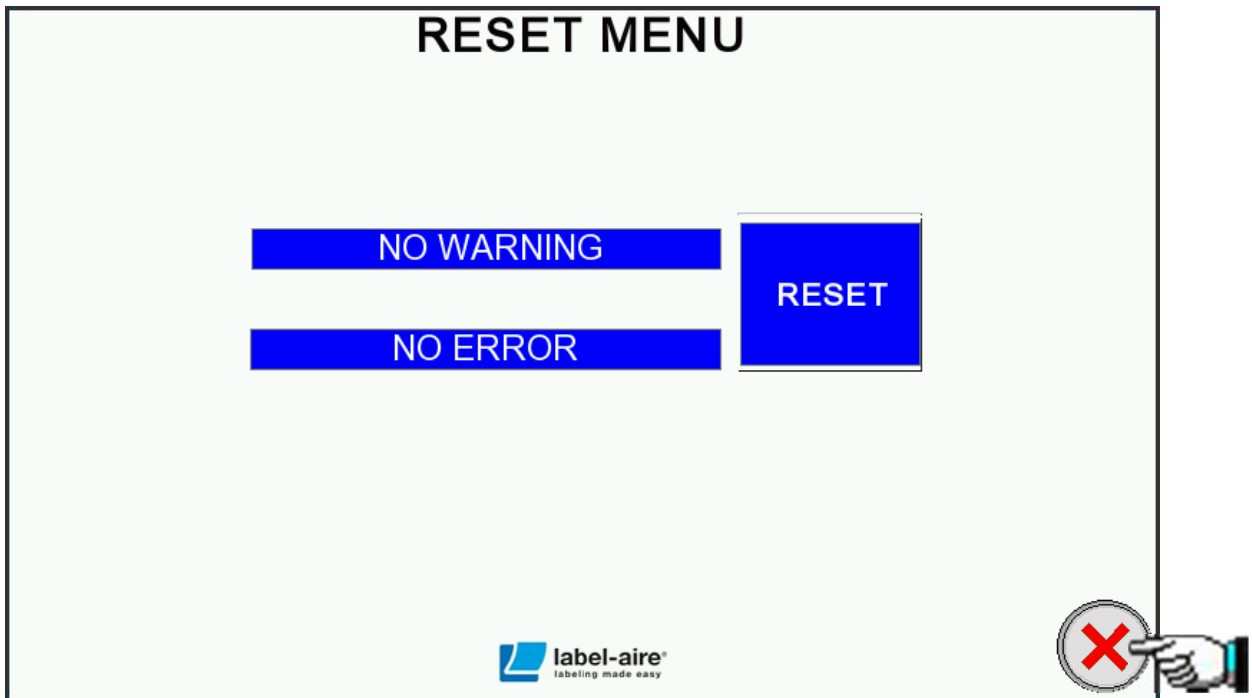


Figure 32 Touch X

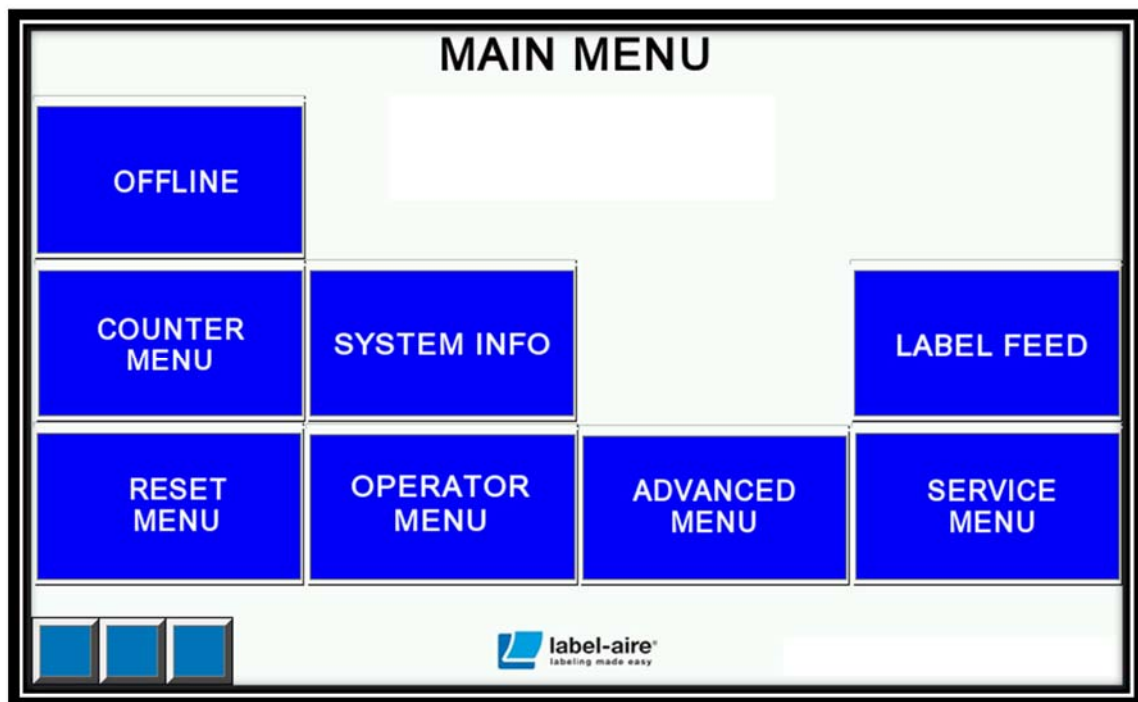


Figure 33 Main Menu

MENU LEVELS

Operator, Advanced, Service, Counter, Reset.

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 3111TS applicator.

OPERATOR MENU

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

LABEL STOP POSITION: This setting determines where the next label to dispense stops on the peel tip. 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).

Note that if you have the powered rewind option, it can be set as high as 2000 inches per minute.

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 50.00 inches.

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.

LINE SPEED: This information display shows the conveyor speed. This display is only shown if **SPEED FOLLOWING** is set to YES in the Service menu.

LABEL CALIBRATION: Press and hold until two labels gaps has passed under label sensor.

ADVANCED MENU

Password: Refer to your supervisor for the password.

LABEL SENSOR SETUP

SENSING EDGE: This can be set to LEADING or TRAILING as desired. LEADING is usually preferred.

SENSOR SENSITIVITY: 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 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 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.

SENSOR DETECTED: This informational display indicates whether the label detector is detecting a label or not.

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 0.10 to 40.0 inches.

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.

PRODUCT SENSOR SETUP

SENSING EDGE: This can be set to LEADING or TRAILING as desired. LEADING is usually preferred.

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 50 inches.

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 0.1 to 50.00 inches.

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

ZERO DOWN TIME SETUP

ZERO DOWN TIME: If ZERO DOWN TIME is set to ON in the Service menu; this setting tells the microprocessor if this machine is the UP STREAM or DOWN STREAM applicator. Set as appropriate.

LOW LABEL SETUP

LOW LABEL STOP COUNT: If LOW LABEL INSTALLED is set to YES in the Service menu, this value is the number of labels that will be applied between the triggering of the low label sensor, and a WEB FAULT error condition. This value can be set from 0 to 999.

LABEL SPEED/SLEW SPEED

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

Note that if you have the powered rewind option, it can be set as high as 2000 inches per minute.

SLEW SPEED: This sets the speed of web travel when advancing past missing labels. This value can be set from 600 to 1500 inches per minute.

WEB BRAKE/MISSING LABEL

CONSECUTIVE BROKEN WEB COUNT: This value sets the number of broken web counts before an error occurs. This value can be set from 1 to 3.

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.

AIR ASSIST /BLAST SETUP

EXTEND AIR ASSIST - This setting determines the amount of time that air assist remains on after the end of label feed. This value can be set from 1 to 999 milliseconds.

AIR BLAST DWELL - This sets the duration of the air blast. This value can be set from 1 to 999 milliseconds.

LABEL PROFILING SETUP

WEB RATIO: This value can be set from 65 to 135. Refer to the Label Profiling Section in the appendix.

FAST RISE LENGTH: This value can be set from 0 to 40.00. Refer to the Label Profiling Section in the appendix.

FLAT AREA LENGTH: This value can be set from 0 to 40.00. Refer to the Label Profiling Section in the appendix.

SKIP / MULTI-LABELS

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.

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.

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.

IMPRINTER DWELL

IMPRINTER DWELL TIME: If IMPRINTER INSTALLED is set to YES in the Service menu, this sets the dwell of the imprinter. This value can be set from 1 to 1000 milliseconds.

SAVE/RECALL PAGE

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

RECALL PARAMETER FROM PAGE: This recalls the microprocessor settings that have been stored in the indicated label page.

SERVICE MENU

Password: Refer to your supervisor for the password.

MACHINE MENU

MACHINE TYPE: This can be set to 3111TS, 3114TS, 3115TS, 3125TS, 3135TS, or 3155TS. This manual covers the 3111TS machine type.

POWERED REWIND: Select ON if equipped with the optional Powered Rewind.

POWERED UNWIND: Select ON if equipped with the optional Powered Unwind.

LABEL SENSING NORMAL: This value can be set to YES or NO. When set to NO, allows manual setting of the label sensitivity via the LABEL SENSING RATIO.

LABEL SENSING RATIO: Sets label sensing sensitivity when LABEL SENSING NORMAL is set to NO. This value can be set from 0 to 9.

LABEL SENSOR OPTION

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

LABEL SENSOR INVERT: This value can be set to YES or NO. When set to Yes the label sensor output is inverted. When set to NO the label sensor output is whatever polarity the sensor sends.

LABEL SENSING NORMAL: This value can be set to YES or NO. When set to NO, allows manual setting of the label sensitivity via the LABEL SENSING RATIO.

ZDT & INHIBIT SETTING

ZERO DOWN TIME INSTALLED: Set this to ON if the machine is being used in a Zero Down Time situation, or OFF otherwise. When set to ON, it allows the setting of the ZERO DOWN TIME function in the Advanced menu.

REMOTE INHIBIT? This function is available when ZDT Installed is set to OFF. This value can be set to ON or OFF.

LANGUAGE

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

SPEED FOLLOWING

SPEED FOLLOWING: Set this to ON if an encoder is being used, OFF otherwise.

ENCODER PULSE RESOLUTION: If SPEED FOLLOWING is set to YES, this sets the number of encoder pulses per inch of conveyor (product) travel if an encoder is used. This value can be set from 25.0 to 250.0 pulses per inch. When using an encoder wheel with a five inch circumference, this value will be 100.

UNIT SELECT

UNIT: Set this to IMPERIAL (English), or METRIC as desired.

IMPRINTER

IMPRINTER INSTALLED: If an imprinter is installed, set this to YES, or NO otherwise. When set to YES, it allows the setting of the IMPRINTER DWELL value in the Advanced menu.

FACTORY RESTORE

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

LOW LABEL SETUP

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

SKIP / MULTI-LABELS

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 LABELS PER PRODUCT 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.

HMI / CONTROLLER UPDATE

COUNTER MENU

PRODUCT COUNTER: This informational display shows the number of products that have been detected since the counter has been reset.

PRODUCT COUNTER RESET: Selecting RESET 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.

LABEL COUNTER RESET: Selecting RESET will reset the label counter.

RESET MENU

Touching the RESET button will clear the messages.

SYSTEM INFO

SYSTEM INFO: This displays the Applicator and HMI software versions and dates. This is informational only, these items cannot be changed.

SYSTEM MENU

SYSTEM MENU:

Set the date/time.

Brightness of the HMI display.

Screen saver (0-60 minutes). Set to "0" the display always on.

Restart button will restart the HMI.

MICROPROCESSOR MESSAGES

OFFLINE/ONLINE: This indicates whether the machine is ready to apply labels (ONLINE), or in set-up mode (OFFLINE).

ENTER CODE: This message informs you that you must enter the access code for the menu level (Advanced or Service) in order to proceed to the next microprocessor level.

CONFIGURATION ERROR: This indicates an improper value has been entered. ENTER will clear the error.

BROKEN WEB: The web has not moved from a label to a gap in one LABEL REPEAT LENGTH.

ZDT BUFFER EMPTY: ZERO DOWN TIME is set to YES in the Advanced menu, but both applicators are set as the DOWNSTREAM applicator.

ZDT BUFFER OVERFLOW: This message is displayed when more than 30 products have been labeled by the upstream applicator before the product detector of the downstream applicator sees the first product.

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.

MISSING LABELS: This message is displayed when the number of CONSECUTIVE MISSING LABEL COUNT labels have not been detected by the label sensor.

LOW LABEL: This indicates a low label condition exists. This message will be displayed if LOW LABEL INSTALLED is set to YES, and the low label sensor does not see the label stock.

LOW LABEL ERROR: This message is displayed when LOW LABEL INSTALLED is set to YES, and LOW LABEL STOP COUNT has been exceeded. The machine will stop.

SPEED TOO HIGH: This message is displayed when the encoder is turning faster than the machine can handle. This is usually caused by the ENCODER PULSE RESOLUTION parameter being set incorrectly.

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

PRODUCT OVERFLOW: This message is displayed when more than 30 products are between the peeler bar tip and the product detector.

LABEL OVERFLOW: This message is displayed when more than 30 labels are between the label peeler bar tip and the label sensor. **IR FAIL:** This message is displayed when no label gap is detected during label calibration. **SEARCH FAIL:** This message is displayed if the automatic label calibration fails.

LABEL PAGE = X: This message indicates the label page that the machine is set to use or change. NO LABELS FOUND: This message indicates that the label sensor isn't sensing labels. This may be due to a break in the label stock, label repeat set-up wrong, a malfunctioning sensor, or a label detection malfunction.

LABEL PAGE NUMBER: The machine displays this message when the label page is being changed, and displays the page that may be either used or altered.

IR FAILURE: IR Failure is caused by the issue that the software did not see the gap between each label during the calibration process. See Troubleshooting section.

MACHINE SEQUENCE

1. Power ON.
2. Machine placed ONLINE.
3. Product detector detects the edge of the product.
4. LABEL ON PRODUCT POSITION distance elapses.
5. Air Blast applies the label.
6. Label feed begins - Air Assist begins.
7. Label sensor detects the edge of the label.
8. Label feed ends. (LABEL STOP POSITION) - Air Assist ends.
9. Return to item 3.

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	3/8 inch	# 1 PHILLIPS
1/8 INCH	1/2 inch	3/32 flat blade
3/16 INCH	5/8 inch	
3/32 INCH	7/16 inch	
5/64 INCH	9/16 inch	
5/32 INCH	1 1/16	
7/64 INCH		
9/64 INCH		
11/16 INCH		

ENERGIZING SEQUENCE

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

NOTE: Make sure that the applicator is set to the proper voltage before applying power, or damage to the equipment may result.

CONNECTION TO COMPRESSED AIR

As a matter of convenience, the applicator should be connected to the compressed air service before electrical power is connected to the applicator.

Connect the compressed air service to the 1/4 inch NPT CPC nose insert fitting.

CONNECTION TO A.C. POWER

NOTE: For convenience, connect the applicator to the compressed air service before the applicator is connected to the A.C. power.

1. Turn OFF (O) the applicator [POWER] switch located on the IEC receptacle.
2. 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 side of the applicator.
3. Connect the remaining end of the A.C. power cord to the electrical mains. Go on to the Loading Labels Section.

INITIAL SET-UP

When setting the machine up for the first time or when changing over to a different size, type, or shape label for the first time, begin by setting these values into the microprocessor. Set the LANGUAGE and UNITS to their desired values.

Set SPEED FOLLOWING to YES only if an encoder is being used. Set to NO otherwise. Measure the distance between the cross-hairs on the label sensor and the peeler bar tip. Enter this value into LABEL-SENSOR TO PEEL-TIP DISTANCE.

Set LABEL STOP POSITION to 0. Set LABEL ON PRODUCT POSITION to 0. Set LABELING SPEED to 1000. In the Operator Menu perform the Label Calibration.

LABEL SET-UP

This section of the manual explains how to adjust the machine for each type of label that you want to apply. The microprocessor will remember the instructions for applying 50 different labels. Each set of instructions is a "Label Page."

Because all of the adjustments affect each other, it is very important that you do the steps listed in this section in the order that they are given.



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

LOADING LABELS

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

NOTE: See Appendix A for re-loading labels.

This section of the manual explains how to thread labels through the machine. If the applicator is equipped with an imprinter or some other option that requires a different label loading sequence, refer to the Options Section of the manual.

1. Turn the [POWER] switch OFF (O). Remove the outer unwind disk. See Figure 34 and Figure 35.
2. Slide a roll of labels onto the hub of the inner unwind disk. Make sure that the labels will be face up as they slide over the peeler bar. Replace the outer disk.
3. Remove all the labels from the first four feet (one meter) of liner.
4. Turn the pinch roller cam lever to separate the pinch and drive rollers.
5. Loosen the label tension spring thumbscrew on the label tension spring.
6. Thread the web through the machine as shown in Figure 34 and Figure 35.
Make sure to thread the label liner through the label sensor, and between the air assist tube and the peeler bar.
7. Lay the end of the liner over the “quick release” rewind mandrel, and turn the mandrel by hand to take up any slack.
8. Turn the rewind mandrel by hand. Check that the inner edge of the label aligns with the inner row of holes on the vacuum grid. Adjust the positions of the inner unwind disk.
9. Re-tighten the label tension.
10. Slide the guide collars to within 1/64 inch (1.6mm) of the label liner.
11. Re-engage the pinch and drive rollers.
12. Place the machine ONLINE.
13. In the Operator Menu perform the Label Calibration. Go on to the Label Sensor Setting Set-up Section.

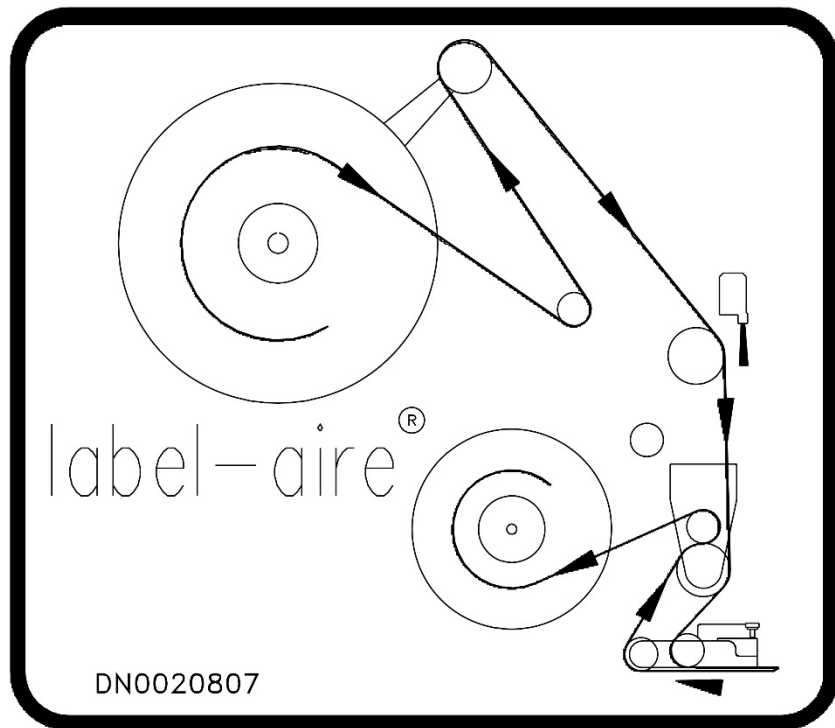


Figure 34 Threading Diagram (Right Hand)

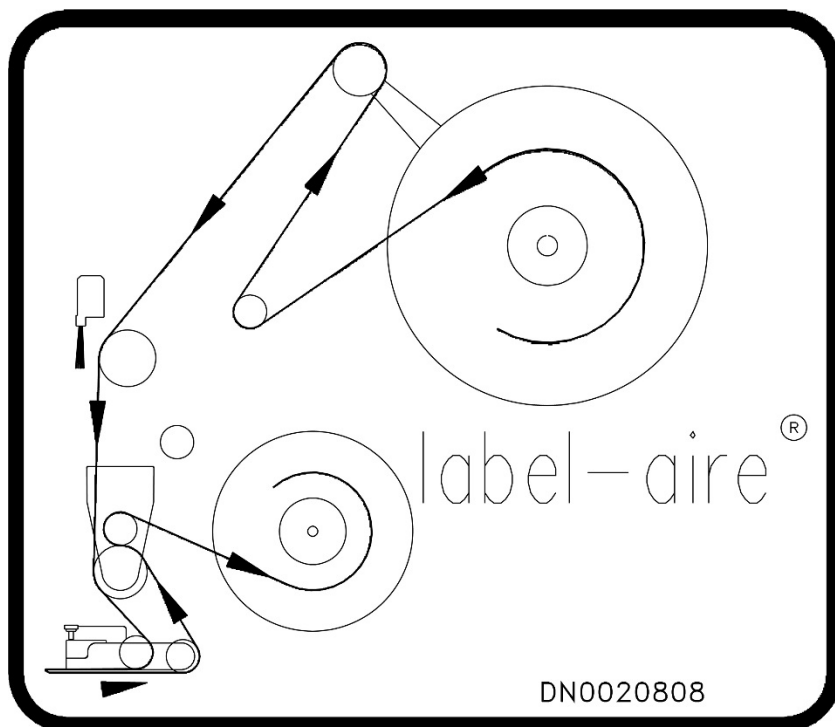


Figure 35 Threading Diagram (Left Hand)

LABEL SENSOR SETTING SET-UP

The label sensor sensitivity is set-up automatically during Auto-Calibrate; however this may not work well with some types of labels. To set-up the label sensor sensitivity manually, follow this procedure.

1. Set the LABEL SENSOR SETTING to 000.
2. Place the label liner under the label sensor.
3. Increase the LABEL SENSOR SETTING until the LED on the label sensor goes OFF. Make a note of the LABEL SENSOR SETTING value.
4. Place the lightest part of the label under the label sensor. The LED on the label sensor should go ON.
5. Increase the LABEL SENSOR SETTING until the LED on the label sensor goes OFF again. Make a note of this new LABEL SENSOR SETTING value.
6. Take this new value, and subtract from it the first value you obtained. Add four (4) to the result.
7. Set the LABEL SENSOR SETTING to the value you obtained in step 6.

The label sensitivity is now set. Check setting by feeding several labels and watching the stop position of the label. If the label is still not being sensed properly go to the service menu and select LABEL SENSING NORMAL and set to NO. Follow by selecting LABEL SENSING RATIO and set to 3 and check label sensing. If the sensing is still erratic try 2 etc. and repeat until a stable sensing level is found. Go on to the Label Repeat Length Section.

LABEL REPEAT LENGTH



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

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 LENGTH 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.

LABEL REPEAT LENGTH is set-up automatically during label calibration; however it can also be set-up manually if required.

1. Turn 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

After the machine detects a label edge, a label should advance until it completely dispenses off the peeler bar. The LABEL STOP POSITION controls the distance that the label moves after the label sensor detects the label edge. Use the following procedure to properly set the LABEL STOP POSITION.



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

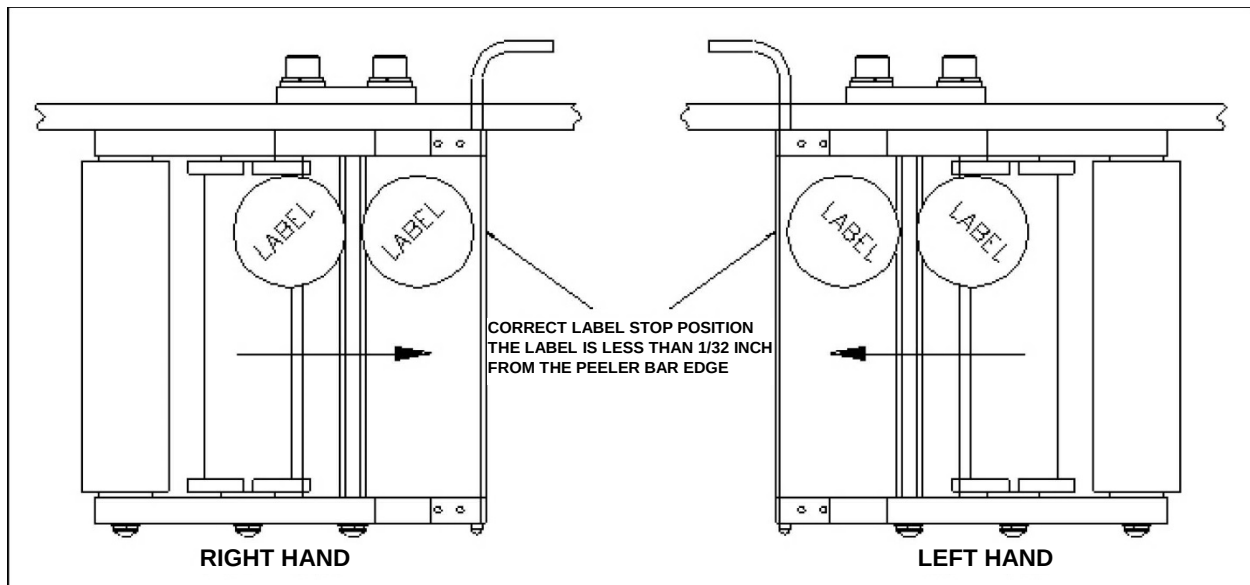


Figure 36 Label Stop Position

1. Place the machine ONLINE.
2. Touch the [LABEL FEED] button to advance a label off of the peeler bar.
3. Check the position of the next label on the peeler bar. The leading edge of the next label should be 1/32 inch (0.8mm) from the end of the peeler bar, and one label should have completely dispensed off of the peeler bar. See Figure 36.
4. The LABEL STOP POSITION may be adjusted in the Operator Menu.
 - a. If the label extends too far from the peeler bar, decrease the distance.
 - b. If the previous label doesn't completely dispense from the peeler bar, increase the distance.

6. Touch the [LABEL FEED] button until the machine advances the labels.

If the label isn't positioned correctly, repeat step 4.

Go on to the Peeler Bar Alignment Section.

PEELER BAR ALIGNMENT

Although the peeler bar was set at the factory to apply a test label, it may need to be changed for the particular label that you are applying. Use the following procedure to check the alignment and dive angle. The dive is used to insure that the trail edge of the label separates from the label liner. See Figure 37.



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

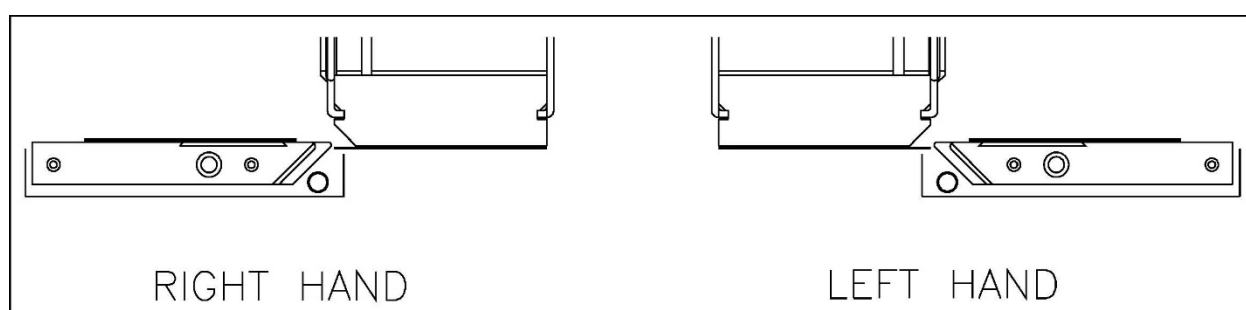


Figure 37 Result of Label Dive

1. Make sure that the machine is OFFLINE.
2. Rotate the rewind mandrel to dispense a label halfway onto the vacuum grid. A typical paper label should be at a 5 to 10 degree dive angle to the vacuum grid (Figure 39 A); a stiff or metallic label should be flat against the vacuum grid. (Figure 39 B).

Insufficient dive will cause the label to become air borne as it dispenses which results in inaccurate placement on the vacuum grid and/or label on the air assist tube. (Figure 39 D).

Excessive dive will also cause inaccurate placement of the label on the vacuum grid. (Figure 39 C). If the label is at the correct dive angle, skip this step and go on to the Initial Air Pressure Settings Section. If the dive angle needs correcting, go on to step 3.

3. Loosen the socket head cap screws that secure the peeler bar bracket to the front of the machine faceplate. The socket head cap screws are located behind the peeler bar bracket on the back side of the machine faceplate.
 - a. Position the peeler bar so that it is as close to the vacuum grid as possible, while still allowing adequate clearance for the label and liner.
 - b. Raise the tip of the peeler bar so that it is approximately one label thickness above the bottom surface of the vacuum grid.

c. While maintaining the height of the peeler bar tip relative to the vacuum grid surface, raise the tail end of the peeler bar to increase the dive angle, or lower it to reduce the dive angle. Tighten the socket head cap screws.

4. Repeat the test in step 2 to check the dive angle of the label. If it is incorrect, re-adjust using step 3.

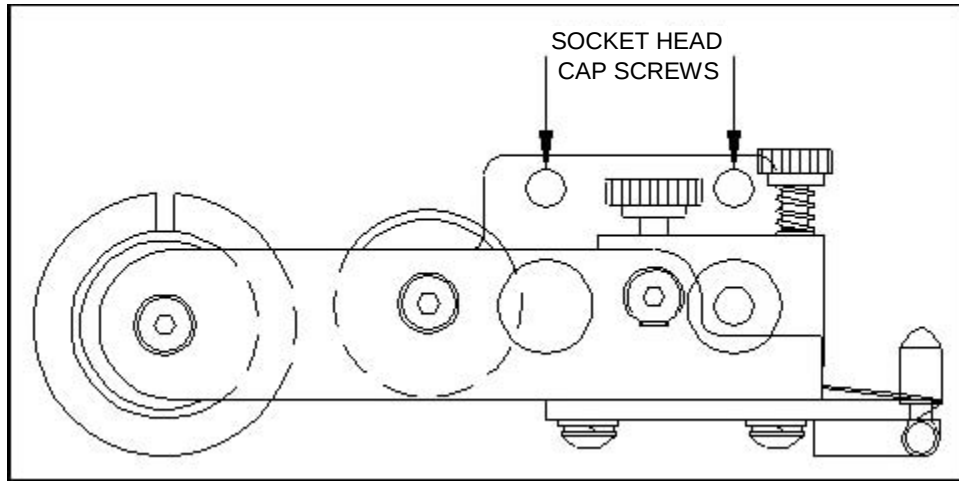


Figure 38 Peeler Bar Dive Adjustment

Refer to Figure 39 Peeler Bar Adjustment.

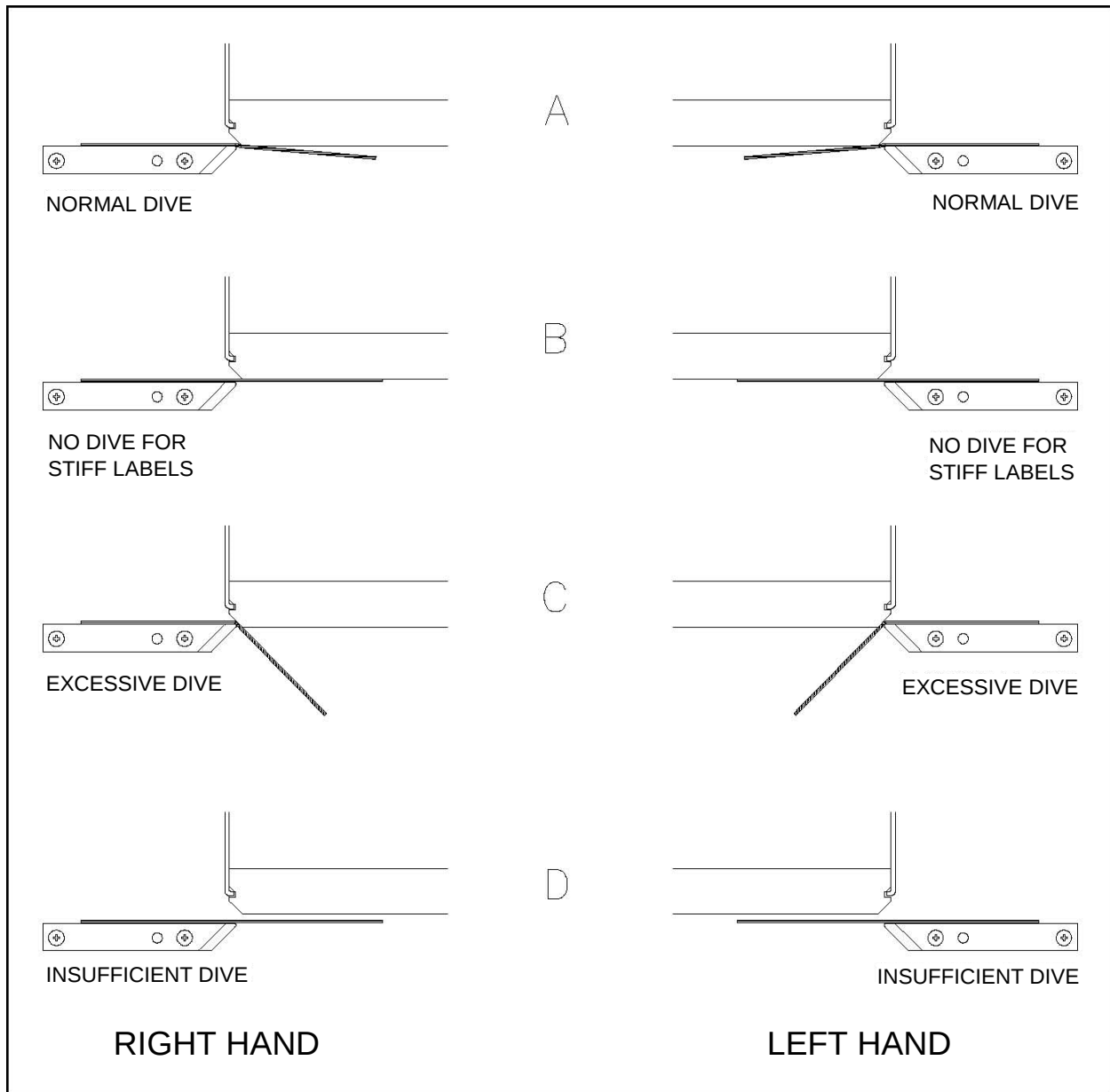


Figure 39 Peeler Bar Adjustment

When the label dive angle is correct go on to the Initial Air Pressure Settings.

INITIAL AIR PRESSURE SETTINGS



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

Use the air regulators to set the following air pressures before continuing with the set-up procedures. Refer to Figure 40.

1. Set the air blast air regulator to 40 P.S.I. (4.0 bar).
2. Set the air assist air regulator to 10 P.S.I. (1.0 bar). Go on to the Vacuum Set-Up Section.

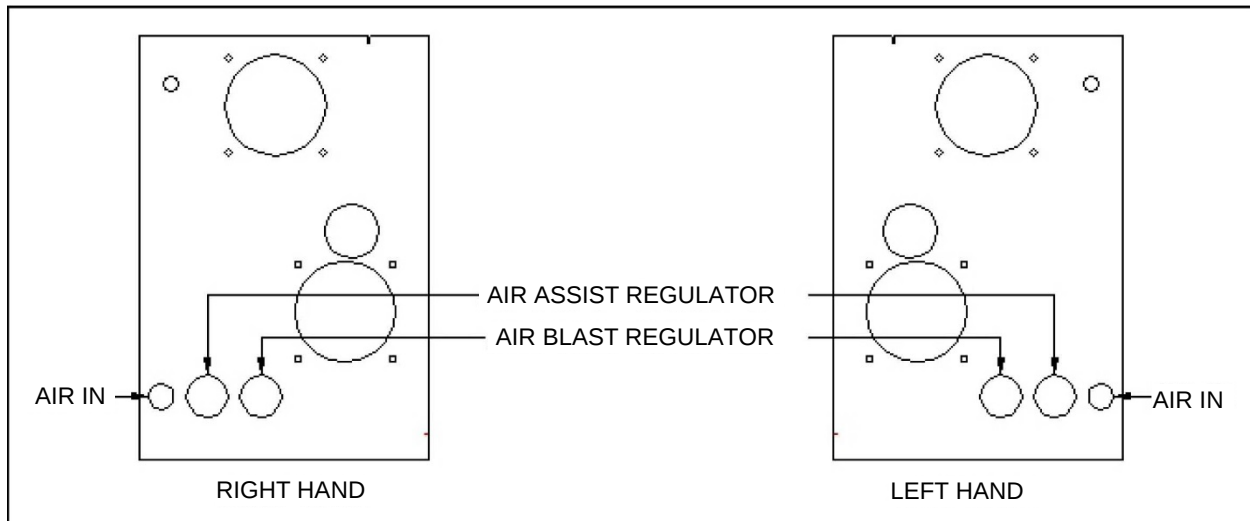


Figure 40 Air Blast and Air Assist Air Regulators

VACUUM SET-UP

The vacuum is necessary to hold the label in position on the vacuum grid until the air blast transfers the label to the product.

The vacuum is generated by two fans in the enclosure. The vacuum is adjustable by the [HIGH/LOW] fan switch located on the side of the enclosure. When the [HIGH/LOW] fan switch is set in the LOW position, only one fan operates, whereas both fans operate when the fan switch is set to the HIGH position.

The vacuum may be insufficient to reliably hold small labels on the vacuum grid even with the fan switch set to HIGH. The vacuum can be concentrated around a small label with a grid mask. The grid mask material is soft plastic that is easily cut by scissors. The grid mask slides into the slot on the top side of the vacuum grid. See Figure 41.



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

1. Place the machine ONLINE.
2. Flip the fan [HIGH/LOW] switch to the LOW position.
3. Touch [LABEL FEED] to dispense a label and hold the label on the vacuum grid with your finger.
4. Press your finger against the adhesive of the label on the vacuum grid and pull your finger away. If the label didn't resist the pull of your finger, the vacuum is insufficient.
5. If the vacuum is sufficient, continue with the Air Assist Set-Up Section. If the vacuum is not sufficient, mask-off the vacuum grid with the grid insert. Repeat step 4.

Cut the grid mask to the shape of your label (See Figure 41), and insert it into the grid slot.

6. If the vacuum is still insufficient switch the fan into the HIGH position.

After sufficient vacuum is generated, go on to the Air Assist Set-Up Section.

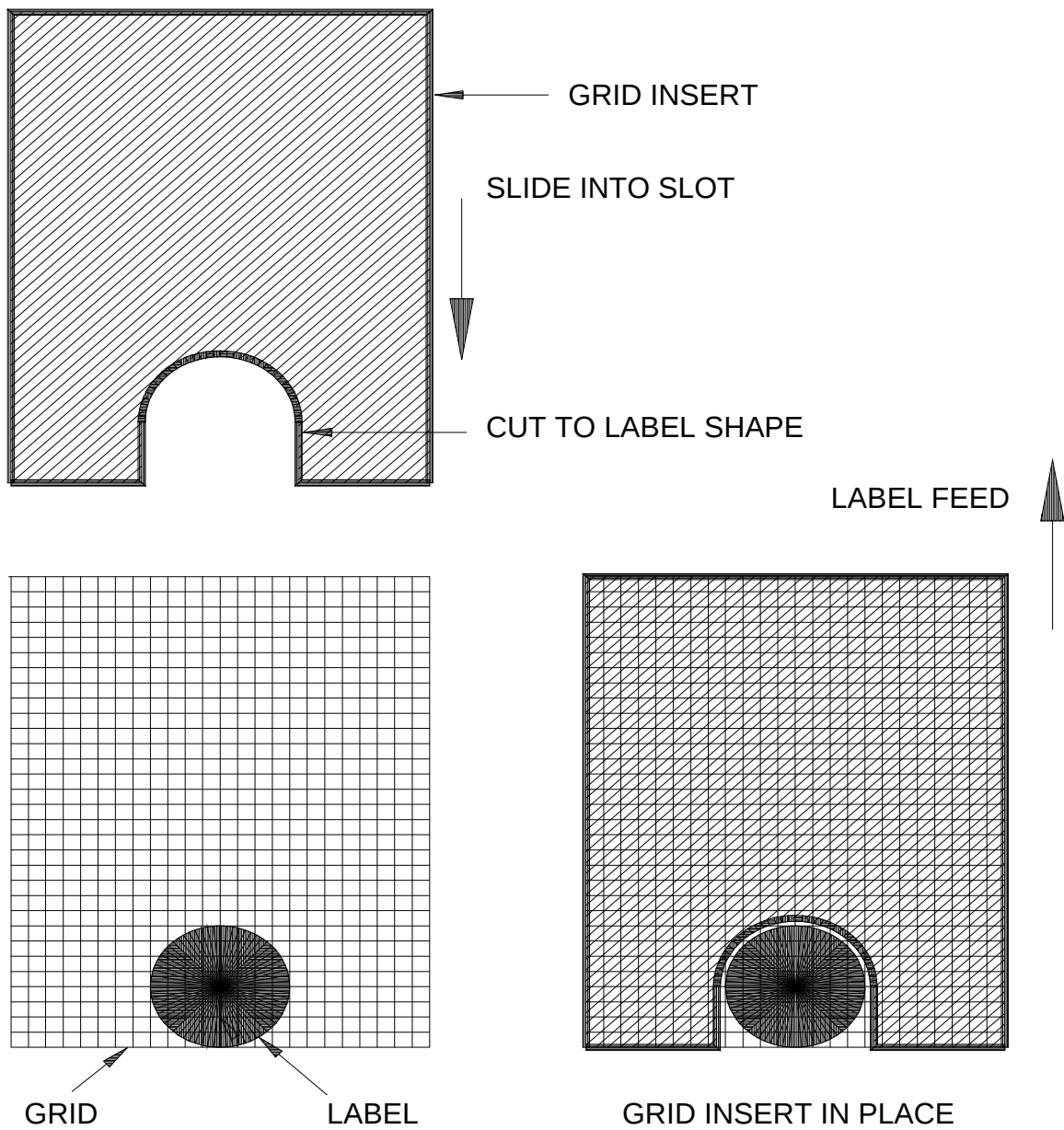


Figure 41 Grid Mask

AIR ASSIST SET-UP

The air assist tube directs a stream of air at the label as it leaves the peeler bar to make sure that the label is captured by the vacuum. The air assist begins to blow when the label stock begins to advance, and continues to blow until the label is dispensed. The EXTEND AIR ASSIST setting allows you to control the amount of time (in milliseconds) that the air assist tube continues to blow air after the label has been dispensed.



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

1. Use the air assist pressure regulator (See Figure 40) to adjust the air assist pressure gauge to read to between 5 and 10 P.S.I. (.3 and .7 bar). This is a typical pressure setting, but it may be changed later if more pressure is needed.
2. Make sure that the air hole in the air assist tube is pointing at the beginning of the vacuum grid parallel to the peeler bar tip at the center of the label. See Figure 42 If the air assist tube has several holes; adjust the tube so that the holes are evenly spaced across the label.

Readjust the air assist tube by turning it by hand if necessary.

Touch the [LABEL FEED] button to dispense a label. If the vacuum doesn't capture the label, increase the air assist pressure and feed another label. Continue until the vacuum captures the label.

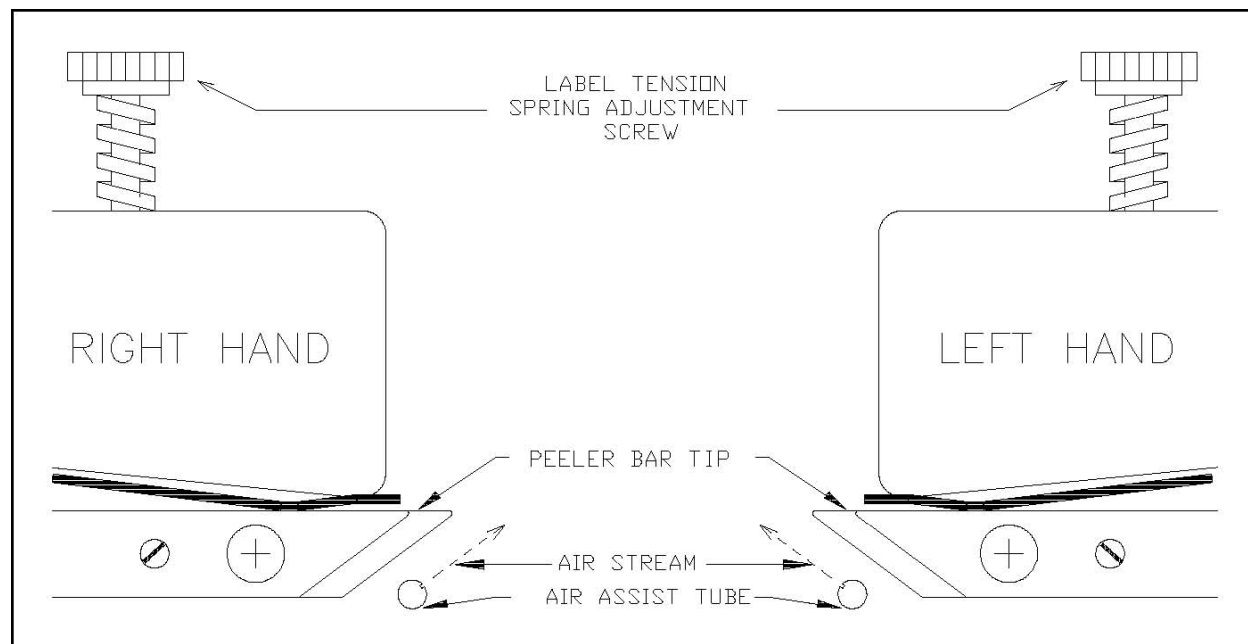


Figure 42 Air Assist Tube Adjustment

Go on to the Vacuum Grid Set-Up Section.

VACUUM GRID SET-UP



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

The standard vacuum box contains eighteen flexible tubes (optional oversize contains 36) that provide the blast of air that applies the label to the product. The pattern of the tubes must be arranged symmetrically on the label to blow the label accurately onto the product. Use the following procedure to arrange these tubes correctly.

1. With the [POWER] OFF (O), turn the drive roller by hand to dispense one label; set it carefully aside.
2. With the [POWER] switch ON (O) and the machine ONLINE, touch the [LABEL FEED] button to dispense a label onto the grid. Then use the other label to tape it in position on the grid. This will show you the position of the label on the grid as you arrange the air jet tubes.
3. With the machine OFFLINE, remove the outer vacuum box and arrange the air jet tubes in a symmetrical pattern. Most of the tubes should be in the center of the label (see Figure 43 for examples). Make sure that the tubes are pushed all the way into the grid, but are not sticking out from the grid face. Insert any unused tubes in the storage block, and replace the vacuum box.
4. Remove the labels from the grid. Be sure to remove any adhesive from the grid face.

Air Blast Tube Arrangement for Various Label Shapes.

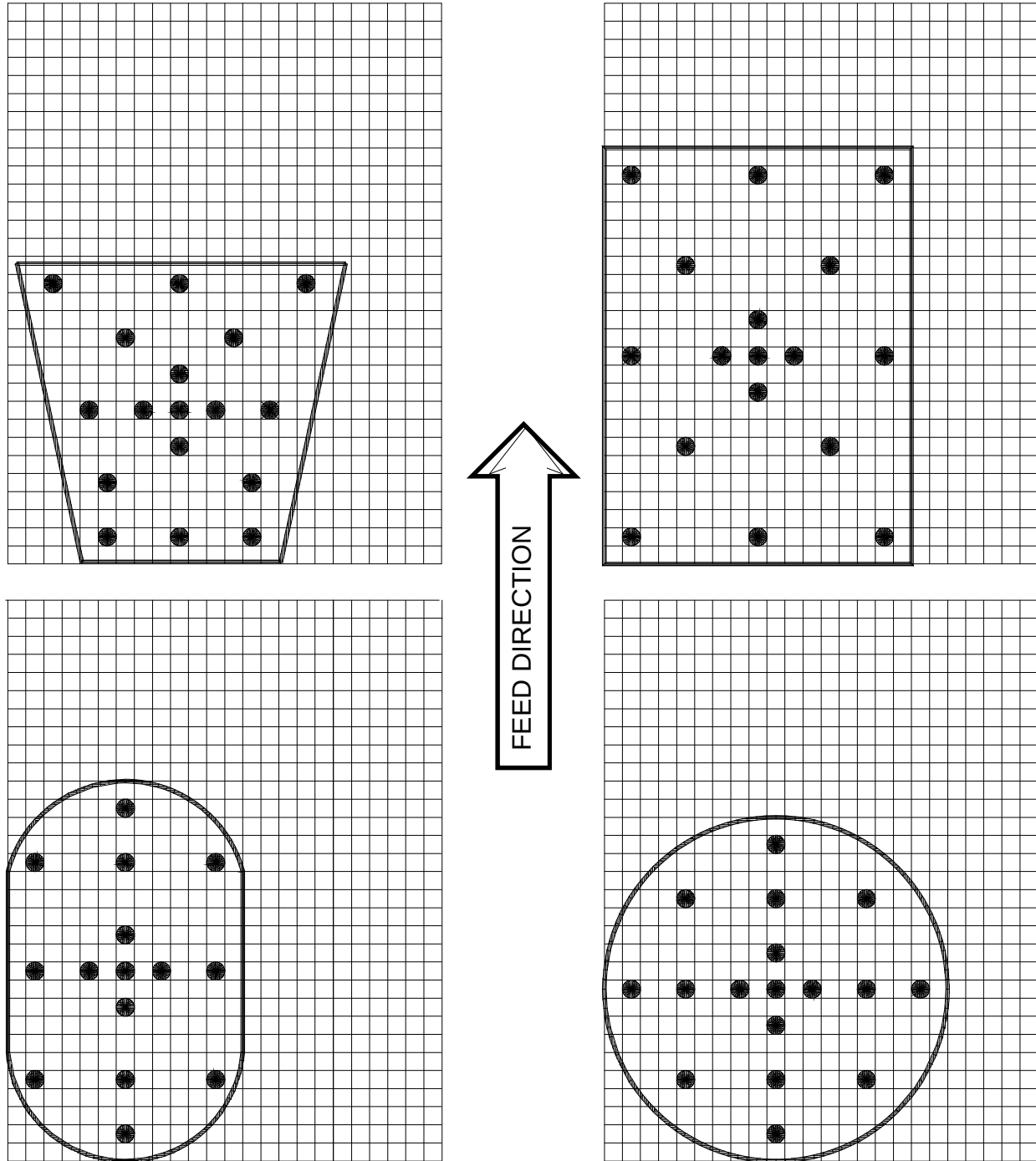


Figure 43 Air Blast Tube Arrangements

Go on to the Air Blast Set-up Section

AIR BLAST SET-UP

The air blast transfers the label from the vacuum grid to the product. The air blast is the combination of the AIR BLAST DWELL and the air blast air pressure.

AIR BLAST DWELL controls the duration of the air blast that applies the label to the product. Various factors, such as the distance from the vacuum grid to the product, or the size of the label will affect the length of the blast time that's needed. To keep the machine cycle time as short as possible, this time should only be slightly longer than the time needed to apply the label firmly. Some experimentation will be necessary to find the best AIR BLAST DWELL and air pressure combination. If the air blast time seems too long, try increasing the air blast pressure. An air blast pressure of 50 P.S.I. (4.0 bar) is typical for most labels. Very large or very heavy labels usually require higher air blast pressure. Very small labels may skip off the product if the air blast pressure is too high.

Use the following procedure to adjust the AIR BLAST DWELL and pressure.



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

1. In the Advanced Menu set the set the AIR BLAST DWELL to 25 milliseconds.
2. Use the air blast air regulator (See Figure 40) to adjust the air jets pressure gauge to read 50 P.S.I. (4.0 bar). This is a typical pressure setting, but it may be changed later if necessary.
3. The Air Blast Set-Up will be tested and adjusted if needed during the Label Stack Test. Go on to the Labeling Speed Section.

LABELING SPEED

LABELING SPEED is the speed at which the label stock will advance. You can designate speeds between 20 - 1500 inches per minute (0.5 - 38 meters per minute).

Generally, the slower the labeling speed:

- a) Set-up requirements for the Air Assist and Vacuum are less critical.
- b) Short feed stiff labels will dispense more precisely.
- c) Some label/adhesive combinations may dispense more reliably.
- d) Web stretch is minimized.
- e) Rewind slip clutch wear is minimized.

Of course, the LABELING SPEED must be set fast enough to meet the throughput requirement. Multiply the products per minute required (throughput) by the LABEL REPEAT LENGTH (in inches). Multiply that number by 1.25 to obtain the approximate LABELING SPEED required.

Example: 150 products/min X 3.2 inches label repeat length X 1.25 = 600 inches/min.

Set the LABELING SPEED to 600 inches per minute, or slightly greater.

To set the LABELING SPEED:

1. Place the machine OFFLINE.
2. In the Advanced Menu set the LABELING SPEED to the number that you estimated.

Go on to the Printer Dwell Time Section.

PRINTER DWELL TIME

The IMPRINTER INSTALLED menu item in the Service menu must be set to YES for this function to appear in the Advanced menu.

The hot stamp imprinter is used to add a date code, batch code, or other information to the labels before application to the product. The imprint occurs after the end of label feed and must be completed before the next label feed begins.

1. Set the machine OFFLINE.
2. If an imprinter is not used, set PRINTER DWELL TIME to zero.
3. If an imprinter is used, refer to the Options Section for instructions. Go on to the Label Stack Test Section.

LABEL STACK TEST

Now you're ready to test the applicator set-up. This is done by applying several labels to one product. If the labels are applied one on top of the other in a stack (i.e. like a deck of cards), then the applicator setup is correct for that label.

Label Stack Adjustment Flow Chart

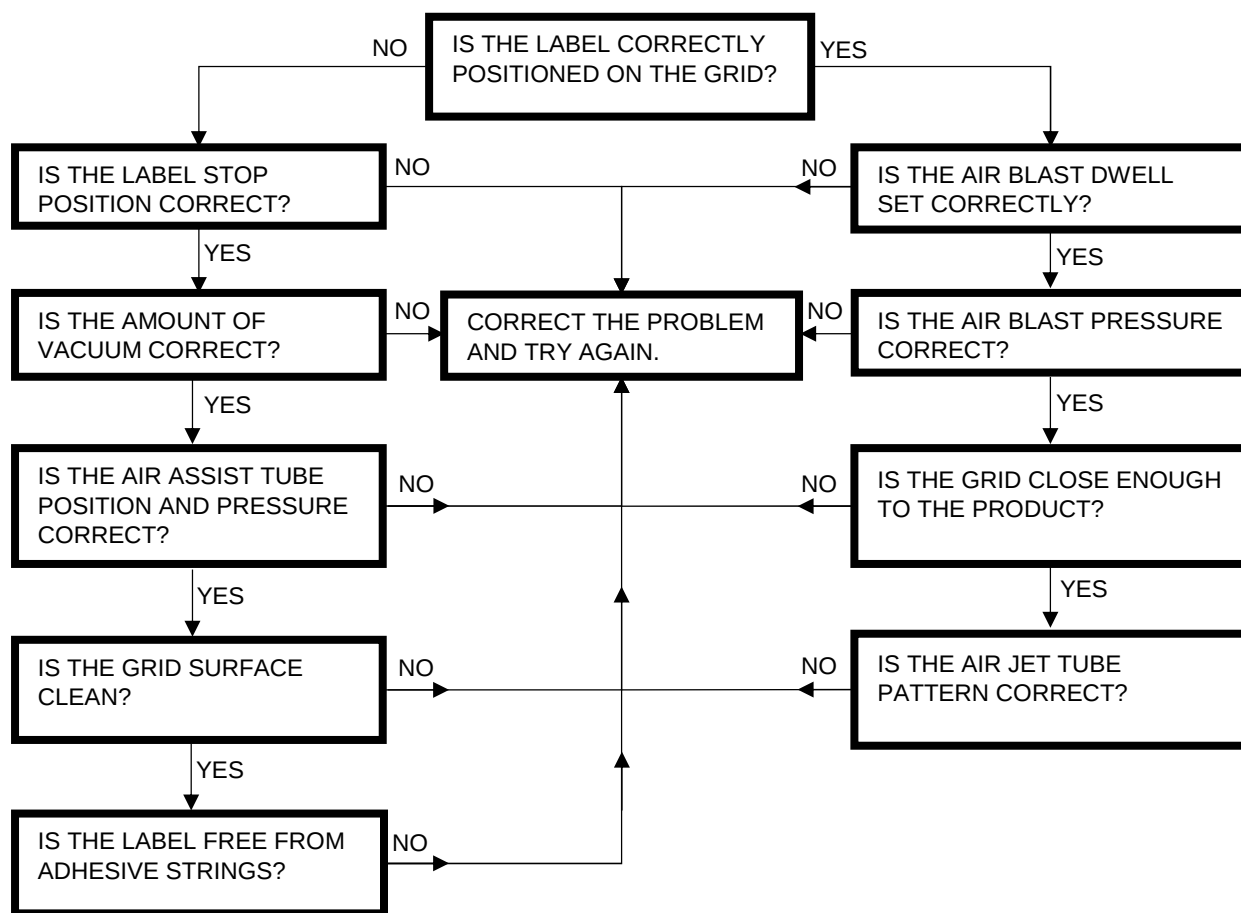


Figure 44 Label Stack Adjustment Flow Chart



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

1. Position a product in front of the vacuum grid.
2. Turn the [POWER] switch ON (I), and place the machine ONLINE.
3. Touch [LABEL FEED] to apply several labels onto one product. If the labels are stacked one on top of the other, you have correctly set-up the air blast. Go on the Product Detector Set-Up section. If the variation isn't within the tolerances that you require, use the following instructions to help you find and correct the problem.

4. CHECK THE POSITION OF THE LABEL ON THE VACUUM GRID

Each label must be dispensed to exactly the same position on the vacuum grid. If the position is different each time, go to step 5. If it is the same, go to step 11.

5. CHECK LABEL STOP VARIATION

Touch [LABEL FEED] several times and compare the stop positions of each label on the peeler bar. If all the labels stop within 1/32 inch (0.8mm) of each other, the label sensitivity is correctly set. Go on to step 6. If the stop position variation is more than 1/32 inch (0.8mm), repeat the label calibration adjustments and return to step 3.

6. CHECK LABEL STOP POSITION

Touch [LABEL FEED] to dispense a label. Check that the leading edge of the next label to dispense is 1/32 inch (0.8mm) from the end of the peeler bar. If the LABEL STOP POSITION is adequate, go to step 7. If the next label edge is greater than 1/32 inch (0.8mm) from the end of the peeler bar, increase the LABEL STOP POSITION. If the next label edge is less than 1/32 inch (0.8mm) from the end of the peeler bar, decrease the LABEL STOP POSITION. When the LABEL STOP POSITION is corrected, go back to step 3.

7. CHECK VACUUM GRID SURFACE

Make sure that the air jet tubes do not protrude from the grid face. Replace the air jets tubes if necessary. Make sure that the surface of the vacuum grid is clean and free from adhesive. If the vacuum grid is clean, go on to step 8. If it is not, clean with alcohol and go back to step 3.

8. CHECK VACUUM

- a. Touch [LABEL FEED] to dispense a label. Watch the label as it slides onto the vacuum grid. If the label buckles, the vacuum is too strong -- decrease the amount of vacuum. Set the vacuum switch to LOW.
- b. Touch [LABEL FEED] to dispense a label. If the label falls off or slides forward after leaving the peeler bar, the vacuum isn't strong enough -- increase the amount of vacuum, and/or insert a grid mask into the vacuum grid. Set the vacuum switch to HIGH.

- c. If the vacuum is correct, go on to step 8. If it is incorrect, adjust it and go back to step 3.

NOTE: A good test for vacuum strength is to press your finger against the adhesive of a label that has been dispensed onto the vacuum grid and then pull your finger away. If the label doesn't resist the pull of your finger, the vacuum strength is not sufficient.

9. CHECK AIR ASSIST

- a. Examine the position of the air assist tube to make sure that it is parallel to the tip of the peeler bar and that the air hole(s) is aimed at the center of the label (or evenly spaced). Correct if necessary.
- b. Touch [LABEL FEED] to advance a label. If the label is sliding on the vacuum grid after it has been completely dispensed, decrease the air assist pressure. If the tail edge of the label isn't flat against the vacuum grid, increase the air assist pressure. If the air assist is correct, go on to step 10, if it is not, correct it and go back to step 3.

10. CHECK FOR ADHESIVE STRINGS

- a. Place the machine OFFLINE. Turn the drive roller by hand to dispense a label.
- b. If the label doesn't dispense easily, but follows the liner around the peeler bar, the label is being held to the liner by adhesive "Strings." If the label is dispensing properly, go back to step 3 and re-check the other potential problem areas. If there are adhesive strings, go to step c (below).
- c. Adjust the angle of the air assist tube so that the air hole is angled at the end of the peeler bar rather than parallel to it (see Figure 45). You may also need to increase the air assist pressure.

If the label still feeds onto the grid incorrectly, check with the label manufacturer regarding the type of label you're using. Replace the label roll and try again.

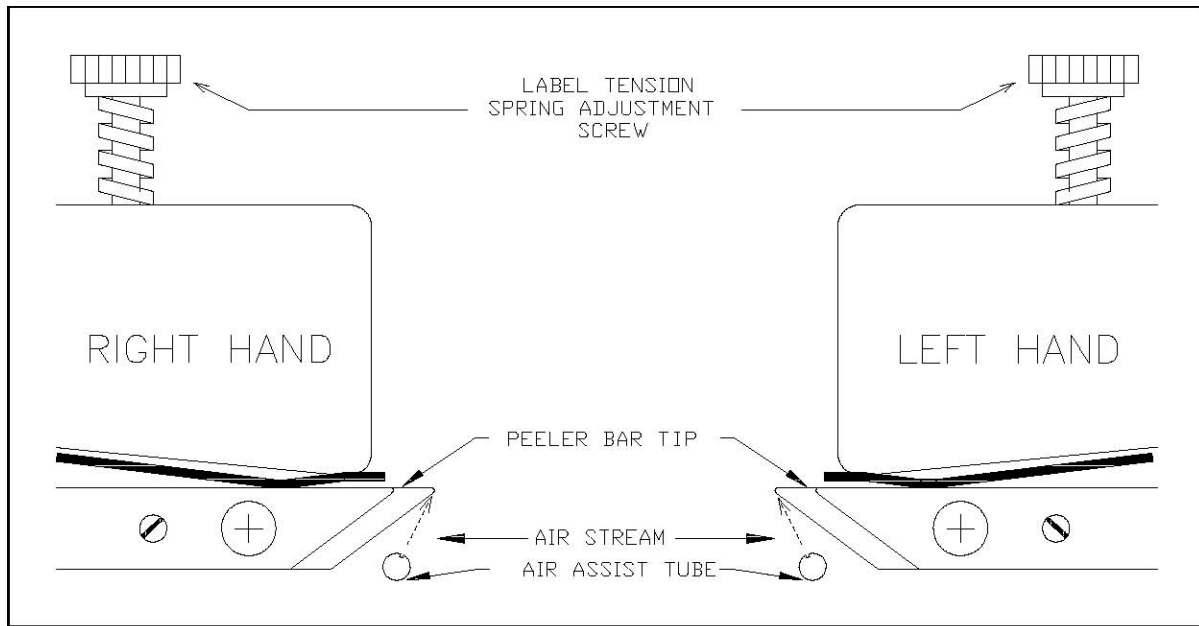


Figure 45 Air Assist Tube Adjustment To Correct Adhesive Strings

11. CHECK LABELING SPEED

Labels that are flimsy or have a short feed length may need to advance at a slower speed. If the labels are wrinkling or folding as they feed onto the vacuum grid, you may need to enter a lower value for LABELING SPEED. If you do lower the value for LABELING SPEED, you may need to either slow the conveyor or increase the minimum product repeat length so that the machine can still keep up with the product rate.

12. CHECK VACUUM GRID TO PRODUCT DISTANCE

The product should pass as close to the vacuum grid as possible without touching the peeler bar or any other part of the machine. Adjust if necessary and go back to step 3.

13. CHECK AIR BLAST DWELL AND AIR BLAST AIR PRESSURE

If all other adjustments are correct, the label stack will be attained by adjusting the Air Blast Air Pressure or the AIR BLAST DWELL. Make sure that the AIR BLAST DWELL is long enough to firmly apply the label. Larger labels require a longer AIR BLAST DWELL and higher air blast pressure. The longer the time, the slower the machine will operate. A shorter AIR BLAST DWELL will require higher Air Blast pressure. Too high Air Blast pressure will cause the label to skid onto the product.

Adjust the Air Blast Air Pressure to firmly apply the label. Some adjustment to the AIR BLAST DWELL may also be necessary. However, a longer AIR BLAST DWELL will not aid in applying

the label if the moving product has moved past the point of label application. A longer air blast dwell will slow the overall cycle of the applicator.

14. CHECK AIR JET PATTERN

Look to see if any area of the label stack is higher than the surrounding area. If it is, then the label isn't being applied uniformly. Re-arrange the air blast jet tube pattern and go back to step 3. If the stack seems to lean to one side, the pattern isn't symmetrical. Re-arrange the air blast jet tube pattern and go back to step 3.

When an adequate label stack is achieved, place the machine OFFLINE, and go on to the Product Set-Up Section.

PRODUCT SET-UP

This section of the manual explains how to adjust the machine for each type of product that you want to label. Because all of the adjustments affect each other, it is very important to do the steps that are listed in this section in the order that they are given.



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

POSITIONING THE APPLICATOR



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

The product must be presented to the applicator in a repeatable manner in order to attain label placement accuracy. Adjust the conveying devices as needed to present the product to the applicator reliably.

The applicator must be positioned so that the vacuum grid is about 5/8 inch (16mm) from the product when it is being labeled. Make sure that all machine parts clear obstacles in the area. See Figure 46.

Go on to the Product Detector Edge Section.

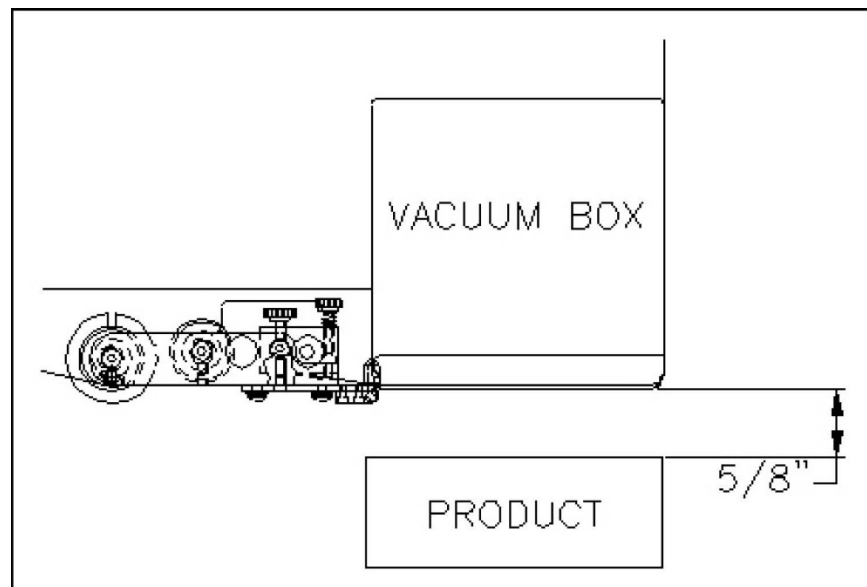


Figure 46 Applicator/Product Position (Right Hand Machine Shown)

PRODUCT SENSOR EDGE

This function allows you to tell the microprocessor which edge of the product you want it to detect.

It is more practical to mount the product detector and its reflector before adjusting the product detector sensitivity. However, the product detector and associated hardware may need to be re-located when actual products are being labeled.



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

1. With the [POWER] ON (I) and the machine OFFLINE, align the product with the applicator, so that the label will be applied in the correct position.
2. Set the PRODUCT SENSOR EDGE to LEAD or TRAIL as desired. It is usually best to set the detector to find the leading edge unless the physical situation prevents it, or the product has an irregular shaped leading edge.
3. Position the product detector so that it is even with (or slightly upstream from) the leading edge of the product (or the trailing edge if you set the PRODUCT SENSOR EDGE to TRAIL). See Figure 47. Remove the product.

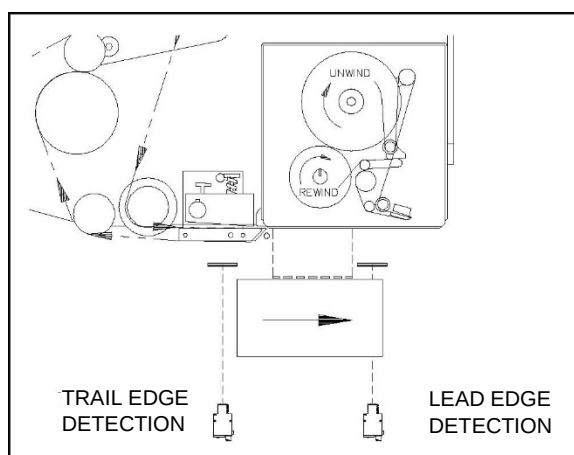


Figure 47 Product Detector Position

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.

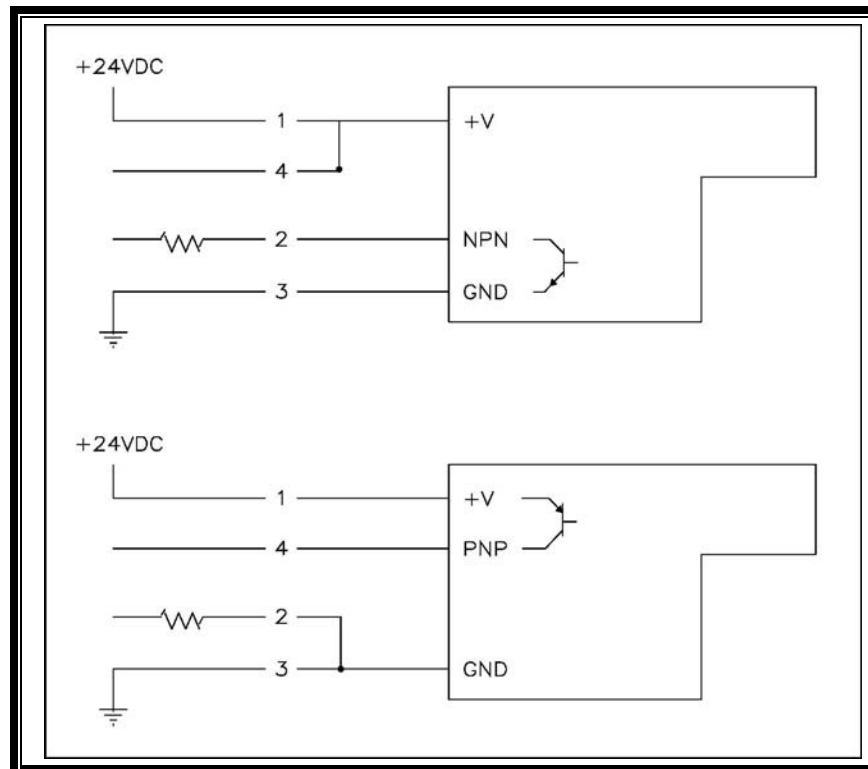


Figure 48 Wiring for PNP and NPN Detectors

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 49. 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.

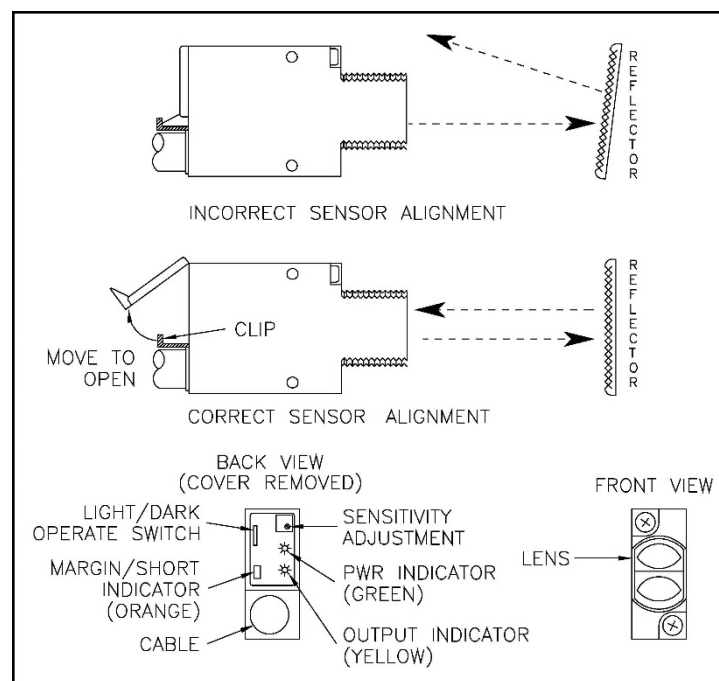


Figure 49 Through Beam Product Detector

LABEL ON PRODUCT POSITION

This function 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. Use this function when the position of the product detector doesn't produce the label placement that you require.

NOTE: The longer the LABEL ON PRODUCT POSITION distance, the slower and less accurately the applicator will apply labels. Try to keep this value to a minimum by adjusting the position of the product detector. The applicator has the ability to store up to thirty (30) products in Que (microprocessor memory). This allows for the sensing of product several products upstream before applying the first label. Que can be reset by going offline while in the operator's menu.



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

1. Set the conveyor to the production speed.
2. Place the machine OFFLINE, and set LABEL ON PRODUCT POSITION to the minimum value. Place the machine ONLINE.
3. With a label waiting on the vacuum grid, send a product down the conveyor and look at the label that is applied. If the label is applied late, reposition the product detector. If the label is applied too soon, either reposition the product detector, or use the LABEL ON PRODUCT POSITION function to produce a slight delay. See Figure 50.
4. If necessary, adjust the LABEL ON PRODUCT POSITION (Operator Menu) to apply the label correctly to the product.

Place the machine OFFLINE and go on to the Product Detector Lockout Section.

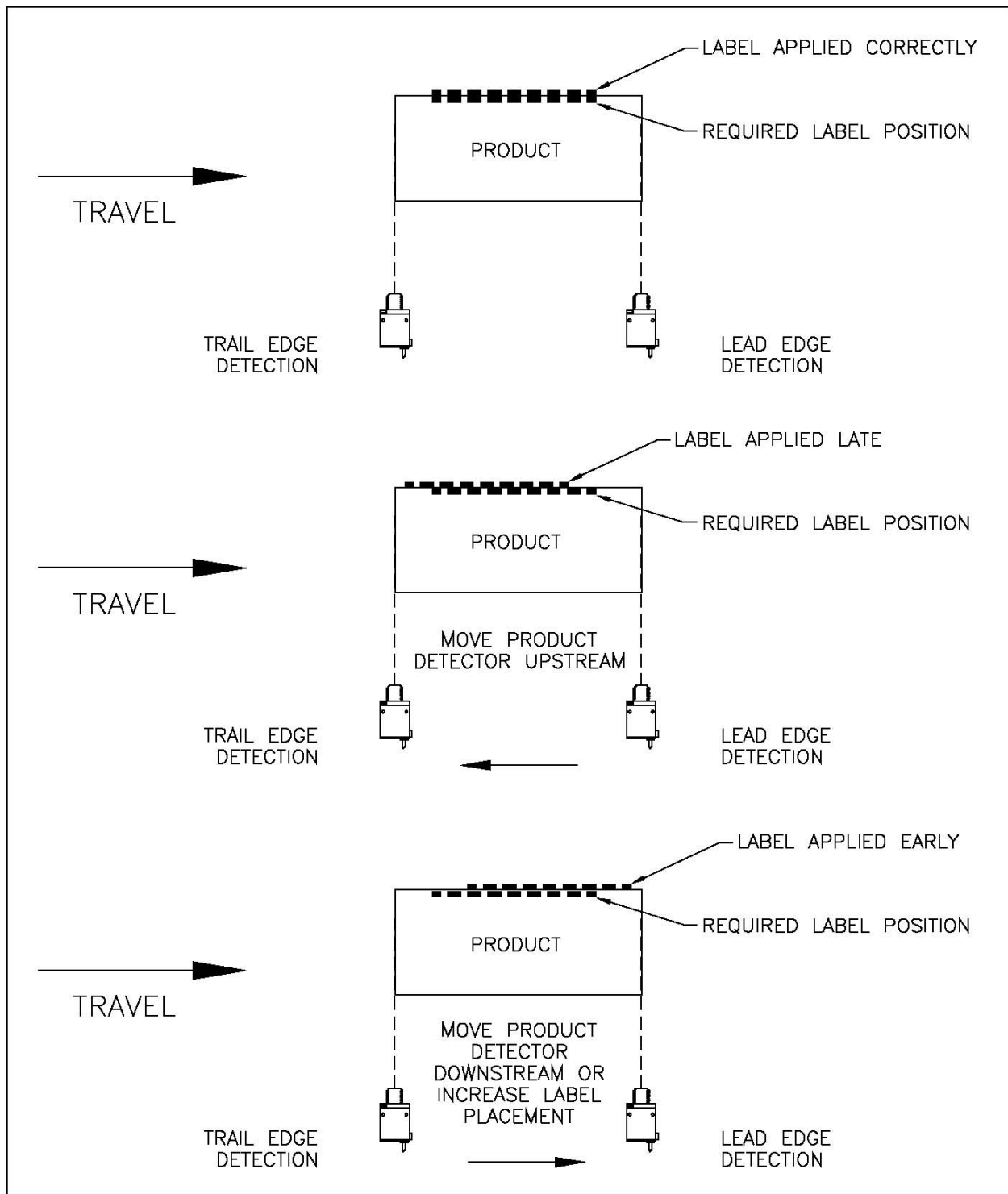


Figure 50 Desired Labeling Position

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're not using it.

1. In the Advanced Menu select Product Sensor Setup then PRODUCT DETECTOR LOCKOUT menu item.
2. Set the PRODUCT DETECTOR LOCKOUT to a low value (i.e., 0.4).



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. Go on to the Test Run Section.

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 of the settings. This will enable you to quickly reset a label page and will provide a back-up in the event that 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 on the back of the page.
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.
8. Include any comments or observations that might help you or someone else set up the machine (i.e., product orientation instructions, peeler bar or air assist tube alignment, etc). The applicator is now completely set up, documented, and ready for use.

Refer to Appendix B for the Set-Up Sheet.

OPTIONS

The following pages contain the instructions for the set-up and operation of the optional equipment available on this machine.

ALARMS

Your machine may be equipped to provide an alarm output whenever it detects one of the following alarm conditions: Web Break/No Labels Found, and Low Label Supply. The Low Label alarm occurs when the label supply drops below a predetermined level. The Web Break alarm occurs when label sensor does not detect the value entered for CONSECUTIVE MISSING LABEL COUNT, or if the label sensor does not detect a gap in one LABEL REPEAT LENGTH. This could be caused by a web break, the exhaustion of the label supply, the loss of label detection, or other problems.

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 drive rollers.

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

1. Place the machine ONLINE. NOTE: The alarm light will not function with the machine OFFLINE.
2. 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. 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 51. Low Label Alarm Adjustments
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.

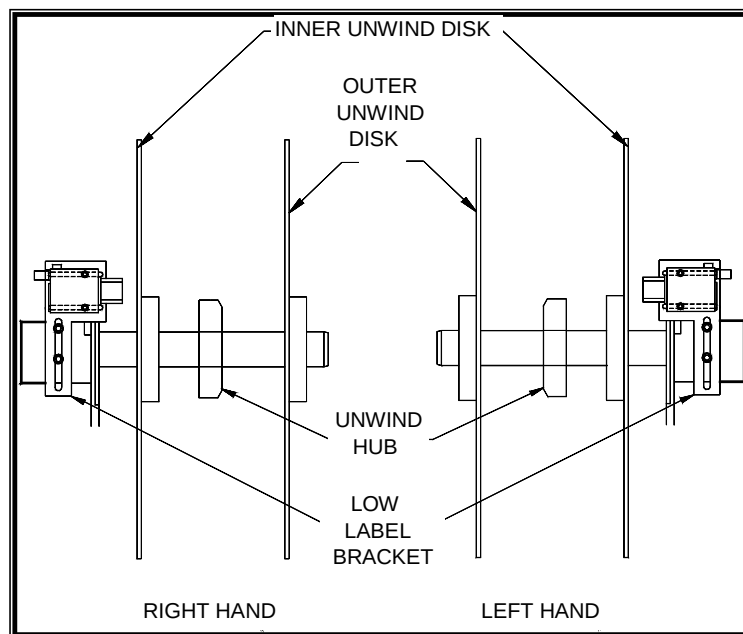


Figure 51 Unwind

LOW LABEL SENSITIVITY ADJUSTMENT

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

- A. 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
- B. 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 drive rollers.

1. Place the machine ONLINE.
2. 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 52. 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.

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.

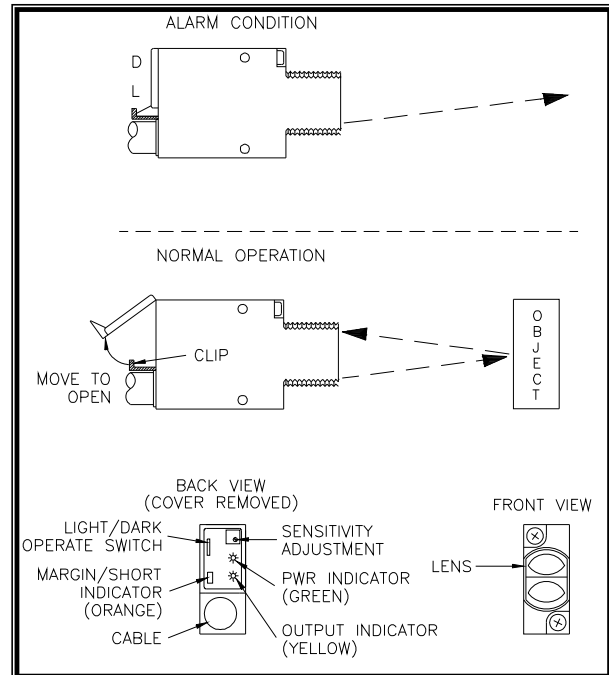


Figure 52 Low Label Detector

WEB BREAK

The only set-up involved for the web break detector is to set the LABEL REPEAT DISTANCE correctly, according to the Set-Up Procedures in the Operator's Manual. Make sure that the LABEL REPEAT DISTANCE is neither too long nor too short. Too much LABEL REPEAT DISTANCE will trigger the alarm long after a web break occurs. Too little LABEL REPEAT DISTANCE may interfere with the LABEL STOP POSITION function. Refer to the Label Repeat Distance Section of the manual.

OPERATION

When the applicator is correctly set-up, it will operate normally until the microprocessor detects a fault condition.

LOW LABEL

The low label alarm occurs when the label supply drops below a pre-determined level.

1. When a low label condition activates the yellow alarm light, the alarm can be stopped by touching the [RESET] button in the RESET MENU.
2. After you correct the low label condition, re-set the alarm by touching the [RESET] button in the RESET MENU.

A low label alarm will not stop the applicator from labeling. The labeling function will shut down only when the supply of labels is exhausted, or the LOW LABEL STOP COUNT is reached.

WEB BREAK

The web break alarm occurs when the label sensor does not detect the number of labels entered in CONSECUTIVE MISSING LABEL COUNT, or when the label detector does not see a gap during one LABEL REPEAT LENGTH. When the microprocessor detects this fault condition, it will shut down the applicator's labeling function, exhibit the WEB FAULT message on the display and activate the web break blue alarm light.

1. To turn off the alarm light and re-set the applicator, touching the [RESET] button in the RESET MENU.
2. After you correct the fault condition, place the machine ONLINE to continue normal operation. The alarm is re-set when you place the machine OFFLINE.

RATE COMPENSATION



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

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

RATE COMPENSATION is set-up in two basic methods: For individual products, and for continuous forms.

The product detector must detect the individual product that will be labeled next. This is very important due to variation in individual products and product spacing.

Continuous forms can be detected at a convenient location since all the forms are identical relative to the registration mark.

Use the appropriate set-up procedure below.

INDIVIDUAL PRODUCTS

1. Set-up the applicator according to the set-up procedures. RATE COMPENSATION will not operate properly if the applicator is not set-up for a label stack.

2. Turn OFF (O) the applicator. Mount the encoder assembly to the conveying device. Make sure that the ENCODER PULSE RESOLUTION is set correctly for the encoder used and the circumference of the encoder wheel.

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.

3. Connect the encoder cable between the encoder and the applicator.

4. Turn ON (I) the applicator power switch.

5. Position the product detector slightly over three inches away from the peeler bar tip.

6. Set the LABEL ON PRODUCT POSITION to about 1. Set the RATE COMPENSATION to minimum.

7. Place the machine ONLINE. Place a product on the conveyor and run the conveyor at a very slow speed. The applicator will apply a label. If the label misses the product, adjust the LABEL ON PRODUCT POSITION higher or move the sensor.

8. Run another product at the very slow speed. Repeat until the label is applied somewhere on the product. Stop the conveyor.

9. Set the conveyor to the production speed. Stop the conveyor.

10. Place a product (the same product if possible) on the conveyor. Start the conveyor and run it until the product is labeled.

11. Stop the conveyor. Examine the position of the label applied at the production speed. The label should have been applied late relative to the slow speed label, or applied so late that it missed the product.

Measure the offset. If the offset between the slow and fast product is more than the label on product position value move the product detector upstream and increase the label on product position.

a. The rate compensation must always be smaller than the label on product position value. Use the smallest label on product position value possible to minimize possible product movement.

12. Increase the RATE COMPENSATION and label another product at the slow speed. Stop the conveyor.

13. Set the conveyor to the production speed. Stop the conveyor.

14. Place a product (the same product if possible) on the conveyor. Start the conveyor and run it until the product is labeled.

15. Stop the conveyor. Examine the position of the last label applied at production speed relative to the label applied at the slow speed. The goal is to place the production speed label on top of the slow speed label.

If the label applied at production speed was applied late, increase the RATE COMPENSATION.

If the label applied at production speed was applied early, decrease the RATE COMPENSATION.

NOTE: Whenever the RATE COMPENSATION is adjusted, both the production speed label position and the low speed label position are affected.

16. Repeat this process until the lead edge of both labels are applied within $\pm 1/32$ of an inch of each other somewhere on the product. Ideally, the labels would be applied on top of one another.

17. At this point, the label is being applied reliably, but at the wrong position on the product.

If the compensated labels are applied late, move the product detector upstream.

If the compensated labels are applied early, increase the LABEL ON PRODUCT POSITION setting.

18. Run another product at the production speed Check the position of the labels on the product. Repeat until the labels are applied at the correct position on the product.

NOTE: Any change to the Air Blast Dwell, or Air Jets air pressure will adversely affect the set-up. Do not make any changes to the applicator after RATE COMPENSATION is set-up.

19. Place the machine OFFLINE. Record all settings on the Set-Up Record Sheet.

CONTINUOUS FORMS

1. Set-up the applicator according to the set-up procedures. Velocity Comp will not operate properly if the applicator is not set-up for a label stack.

2. Turn OFF (O) the applicator. Mount the encoder assembly to the conveying device. Make sure that the ENCODER PULSE RESOLUTION is set correctly for the encoder used and the circumference of the encoder wheel.

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.

3. Connect the encoder cable between the encoder and the applicator.

4. Turn ON the applicator Power switch.

5. Position the product detector slightly over three (or a multiple of three) inches away from the peeler bar tip.

6. Set the LABEL ON PRODUCT POSITION to about 100. Set the RATE COMPENSATION to minimum.

7. Run the forms at a very slow speed. Place the machine ONLINE. The applicator will apply labels. Place the machine OFFLINE.

8. Stop the forms. Note the position of the labels on the forms.

9. Start the forms. Set the forms to the production speed.

10. Place the machine ONLINE and label several forms. Place the machine OFFLINE.

11. Stop the forms. Examine the position of the labels applied at the production speed. The labels should have been applied late relative to the slow speed label.

Measure the offset. If the offset between the slow and fast label is more than the label on product position value, increase the product position value to be greater than the label offset. Reposition the product detector if necessary to keep the label on the form. The Rate Compensation Value must always be smaller than the label on Product Position value.

12. Set the forms to the slow speed. Increase the RATE COMPENSATION setting. Start the conveyor. Place the machine ONLINE and label several forms.

13. Place the machine OFFLINE and stop the forms. Note the position of the labels on the forms.

14. Start the forms. Set the forms to the production speed. Place the machine ONLINE and label some more forms.

15. Place the machine OFFLINE. Stop the conveyor. Examine the position of the labels applied at production speed relative to the labels applied at the slow speed. The goal is to place the production speed labels at the same position as the slow speed labels on the forms.

If the labels applied at production speed were applied late, increase the RATE COMPENSATION.

If the labels applied at production speed were applied early, decrease the RATE COMPENSATION.

NOTE: Whenever the RATE COMPENSATION is adjusted, both the production speed label position and the low speed label position are affected.

RATE COMPENSATION

16. Repeat this process until the lead edge of both labels are applied within $\pm 1/32$ of an inch of each other somewhere on the respective forms. Ideally, the labels would be applied at the same position on each form.

17. At this point, the label is being applied reliably, but at the wrong position on the form.

If the compensated labels are applied late move the product detector upstream.

If the compensated labels are applied early, increase the LABEL ON PRODUCT POSITION setting.

18. Apply more labels at the production speed. Check the position of the labels on the forms. Repeat until the labels are applied at the correct position on the forms.

NOTE: Any change to the Air Blast Dwell, or Air Jets air pressure will adversely affect the set-up. Do not make any changes to the applicator after RATE COMPENSATION is set-up.

19. Place the machine OFFLINE. Record the settings on the Set-Up Record Sheet.

IMPRINTER

The hot stamp imprinter is used to add a date code, batch code, or other information to the labels before application to the product. The imprint occurs after the end of label feed and must be completed before the next label feed begins.

The imprinter is pneumatically driven. The imprinter regulator should be set for 60 P.S.I. (4 bar).

The imprinter heater element is factory set to 350 degrees F. Each 360 degree rotation of the heater thermostat adjustment screw will adjust the temperature approximately 25 degrees F (counterclockwise to increase temperature, clockwise to decrease temperature).

IMPRINTER DWELL TIME

This microprocessor function allows you to control the amount of time that the imprinter is activated. Imprint quality is affected by a combination of factors, including PRINTER DWELL TIME, temperature of the heating element, etc. Keep the PRINTER DWELL TIME as short as possible, because the machine cycle can increase if the PRINTER DWELL TIME is too long.

1. The IMPRINTER DWELL TIME may be adjusted from the Advance Menu.
2. Increase the dwell time if you want the imprinter to remain activated longer. Decrease the dwell time if you want the dwell time to be shorter. Adjust as required.



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

3. To test the PRINTER DWELL TIME, place the machine ONLINE and touch the [LABEL FEED] button to cycle the machine and evaluate the imprint function. Adjust as needed.

IMPRINT POSITION ADJUSTMENT

1. Adjust the vertical position of the imprinter so that the label liner is in light contact with the rubber anvil insert in the imprinter.
2. Adjust the drag block spring so that the label stock is kept lightly taut as it travels through the imprinter.
3. Adjust the position of the imprint across the web by moving the position of the entire imprinter. See Figure 54.
4. Adjust the position of the imprinter along the label stock by moving the registration roller.
5. Adjust the angle of the imprint by using the pivot adjustment.

NOTE: Refer to the imprinter manual for detailed instructions on imprinter adjustments, imprint quality, and maintenance.

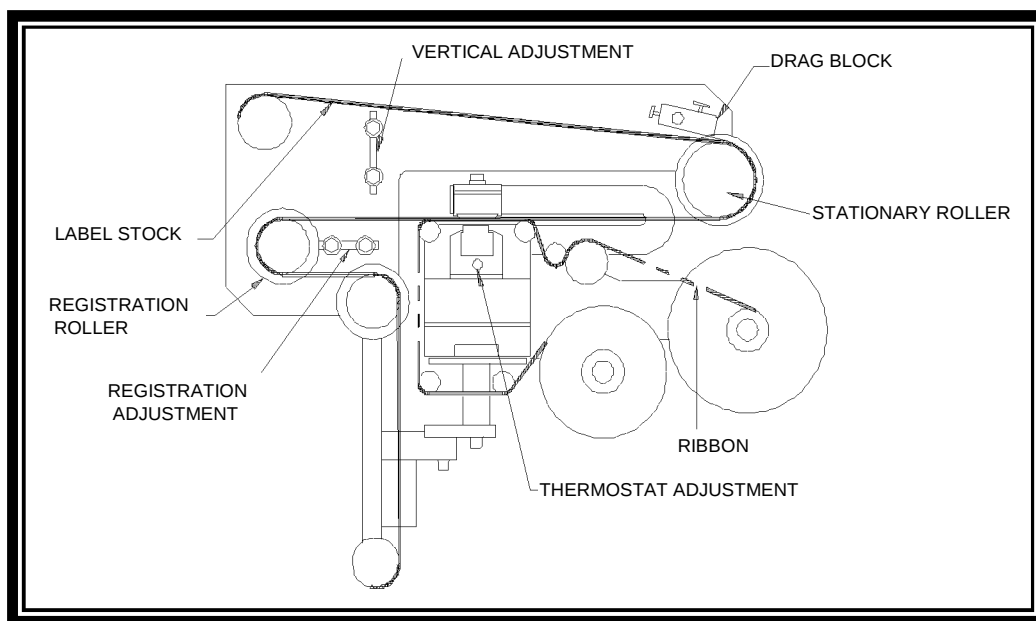


Figure 53 Imprinter

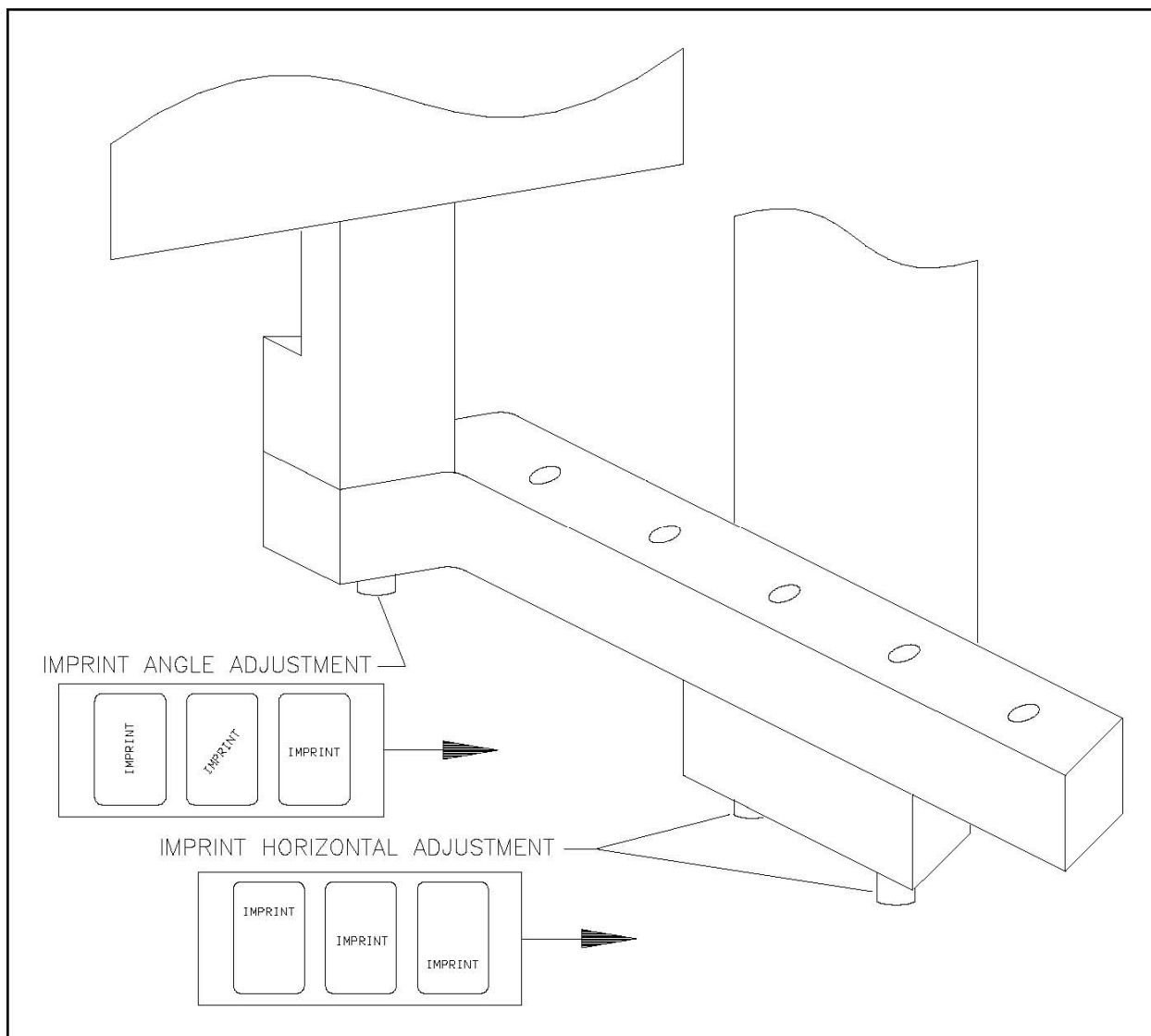


Figure 54 Imprinter Adjustment Brackets

LABEL REPEAT LENGTH ADJUSTMENT

The LABEL REPEAT LENGTH is used to set the length of one label and one gap. This value is set-up automatically during the label sensor calibration, but it can also be entered manually if required. When an imprinter is in use, the LABEL REPEAT LENGTH is used to advance the web one LABEL REPEAT LENGTH each machine cycle. If there is a missing label on the web, the web will only advance one LABEL REPEAT LENGTH when the missing label passes through the label sensor. This insures that each label receives an imprint even though a product will not be labeled.

Use this procedure to test and adjust the LABEL REPEAT LENGTH.

1. Remove one label from the label web close to the peeler bar.
2. Place the machine ONLINE.
3. Use the [[LABEL FEED] button to cycle the applicator until the “missing label” section of the liner is on the peeler bar. The web should stop just after dispensing the previous label. Touch the [LABEL FEED] button one more time. Check the print registration on the labels that are just past the imprinter. The imprints should all be within registration.

If an imprint is out of registration, or missing, adjust the LABEL REPEAT LENGTH and repeat until the label that receives an imprint when the “missing label” is at the label detection point is correctly imprinted. Refer to the Label Repeat Length Section if necessary.

4. Cycle all mis-printed labels out of the system.
5. Place the machine OFFLINE.

ZERO DOWN TIME - OPTIONAL EQUIPMENT

Zero Down Time (ZDT) option in the service menu, when turned on in two machines; allows for the labeling of products missed by the upstream applicator. This feature can be used to increase the amount of products labeled per minute, or a back-up for missed labeled products due to product spacing or speed.

ZDT SET-UP

1. Using cable P/N 0031026 connect the crossover connector from the upstream applicator to the crossover connector on the downstream applicator.

2. In the service menu set ZERO DOWN TIME INSTALLED to YES.

3. In the advanced menu set ZERO DOWN TIME TO UPSTREAM for the first applicator the product meets. Set the ZERO DOWN TIME TO DOWNSTREAM for the second applicator the product meets.

NOTE: There cannot be more than thirty (30) products between product detectors for upstream and downstream applicators.

4. Set ZDT bypass product to the number of products to be ignored between applicators.

5. Set both applicators online.

6. Start an empty conveyor.

7. Feed a product and set the upstream product detector so that the product is labeled properly.

8. Set the upstream applicator offline.

9. Feed a product to the downstream applicator and set the product detector and applicator so that the product is labeled properly.

10. Take the downstream applicator offline.

11. To clear the product queue in both applicators, enter the operator menu and cycle the applicators online to offline.

12. Put both applicators online.

LABEL LOADING - OPTIONAL EQUIPMENT

If the applicator is equipped with an imprinter only, refer to the Imprinter Option for the label loading sequence.

If the applicator is equipped with some optional or custom equipment that requires a deviation from the standard loading sequence, use the diagram on the following page to load labels.

APPENDICES

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

APPENDIX A

RE-LOADING LABELS (STANDARD)



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

This section of the manual explains how to re-load labels through the machine.

1. Place the machine OFFLINE. Remove the outer unwind disk.
2. Remove and discard the empty label core.
3. Slide a roll of labels onto the hub of the inner unwind disk. Make sure that the labels will be face up as they slide over the peeler bar. Replace the outer disk.
4. Remove and discard all the labels from the first six feet (two meters) of liner.
5. Turn the pinch roller cam lever to separate the pinch and drive rollers.
6. Loosen the label tension spring thumbscrew on the label tension spring.
7. Thread the web through the machine as shown in Figure 55 or Figure 56.

Make sure to thread the label liner through the label sensor, and between the air assist tube and the peeler bar.

8. Lay the end of the liner over the “quick release” rewind mandrel, and turn the mandrel by hand to take up any slack.
9. Turn the rewind mandrel by hand. Check that the inner edge of the label aligns with the inner edge of the vacuum grid. Adjust the positions of the inner unwind disk and the rewind disk if necessary.
10. Re-tighten the label tension spring thumbscrew.
11. Slide the guide collars to within 1/64 inch (0.4mm) of the label liner.
12. Re-engage the pinch and drive rollers.
13. Place the machine ONLINE to resume normal operation.
14. In the Operator Menu perform the Label Calibration.

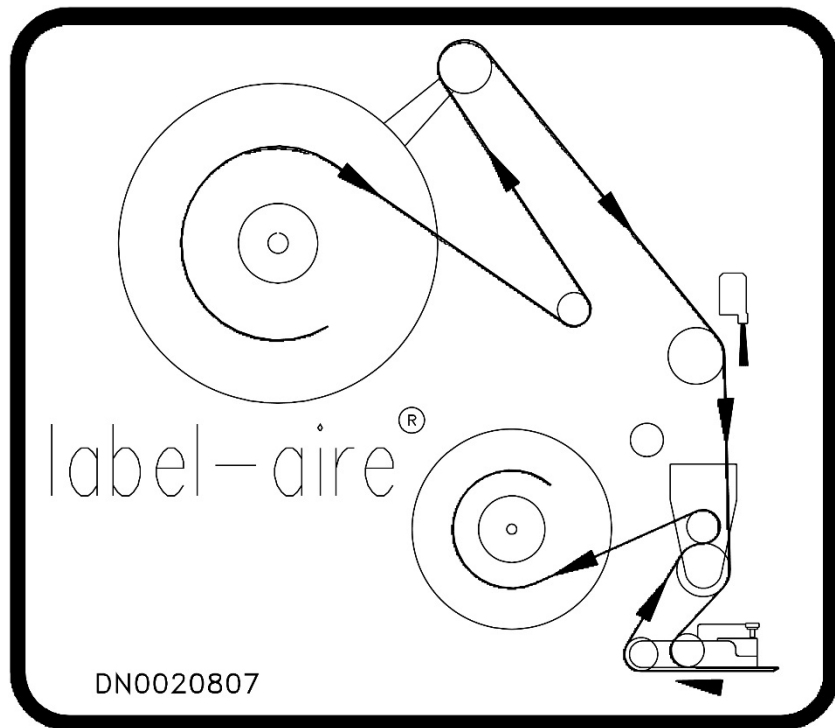


Figure 55 Threading Diagram (Right Hand)

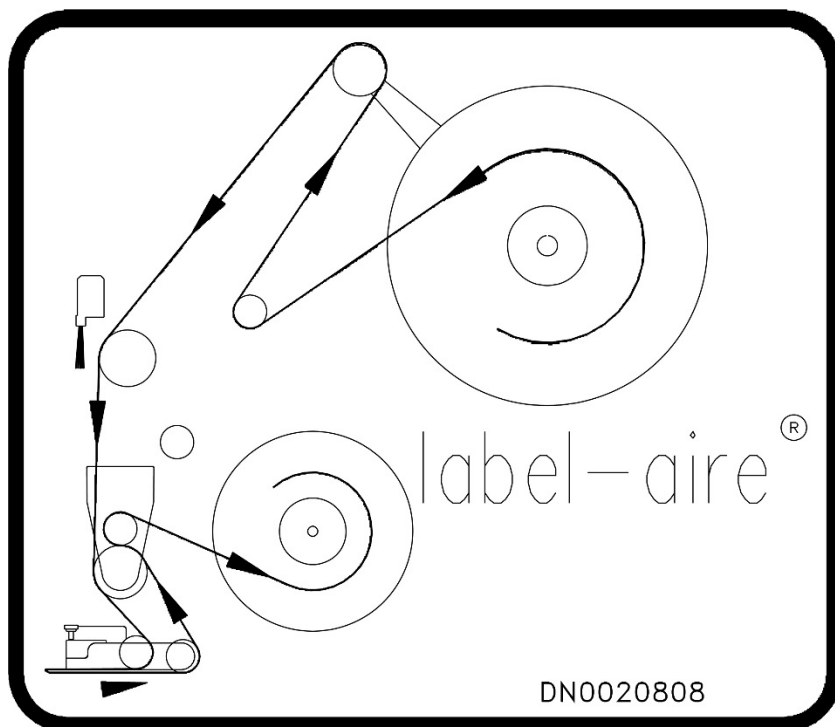


Figure 56 Threading Diagram (Left Hand)

APPENDIX B

SET-UP RECORD SHEET

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

SYSTEM INFO	
CONTROLLER	HMI
P/N:	P/N:
VERSION:	VERSION:
DATE:	DATE:
OPERATOR MENU	
LABEL STOP POSITION:	LABEL ON PRODUCT POSITION:
LABELING SPEED:	PRODUCTS PER MINUTE:
LINE SPEED:	RECALL PARAMETER FROM PAGE:
ADVANCED MENU	
Label Sensor Setup	
LABEL SENSOR EDGE:	SENSOR DETECTED:
SENSOR SENSITIVITY:	SENSOR TO PEEL-TIP DISTANCE:
LABEL REPEAT LENGTH:	LABEL STOP POSITION:
Product Sensor Setup	
PRODUCT SENSOR EDGE:	LABEL ON PRODUCT POSITION:
PRODUCT DETECTOR LOCKOUT:	PRODUCT DETECTED:
ZDT SETUP	
UP/DOWN STREAM:	
Low Label Setup	
LOW LABEL STOP COUNT:	
Label Speed/Slew Speed	
LABELING SPEED:	SLEW SPEED:
Web Break/Missing Label	
CONSECUTIVE BROKEN WEB COUNT:	CONSECUTIVE MISSING LABEL COUNT:

Air Blast/Assist Setup	
EXTEND AIR ASSIST:	AIR BLAST DWELL:
Imprinter Dwell	
IMPRINTER DWELL TIME:	
Page Save/Recall	
SAVE PARAMETER TO PAGE:	RECALL PARAMETER FROM PAGE:
Skip/Multi-Labels	
LABELS PER PRODUCT:	NUMBER OF PRODUCTS TO SKIP:
LABEL SPACING:	NUMBER OF PRODUCTS TO LABEL:

SERVICE MENU	
Machine Menu	
MACHINE TYPE: 3111 AIR BLOW	POWERED UNREWIND:
POWERED REWIND:	
Label Sensor Option	
LABEL SENSOR EDGE:	LABEL SENSING NORMAL:
LABEL SENSOR INVERT:	
Zero Down Time & Inhibit	
ZERO DOWN TIME INSTALLED:	INHIBIT FUNCTION INSTALLED:
Speed Following	
SPEED FOLLOWING:	LINE SPEED:
ENCODER PULSE RESOLUTION:	
Imprinter	
IMPRINTER INSTALLED:	
Low Label Sensor	
LOW LABEL INSTALLED:	
Skip Products/Multi-Labels	
MULTIPLE LABELS ON PRODUCT:	SKIP LABELING PRODUCTS:
AIR ASSIST PRESSURE:	AIR BLAST PRESSURE:

APPENDIX C

STATUS PORT J19

Status outputs are found on J19. When the following conditions exist, the outputs are brought to zero volts.

PIN	CONDITION (SIGNAL NAME)	RESET BY
1	Low Label	touching the [RESET] button in the RESET MENU
2	End of Web	touching the [RESET] button in the RESET MENU
3	Unlabeled Product	touching the [RESET] button in the RESET MENU
4	Offline	
5	24 Volts	
6	Label on Pad	
7	Web Break	touching the [RESET] button in the RESET MENU
8	Tamp Back	
9	24 Volts	
CHASSIS	GROUND	

Example:

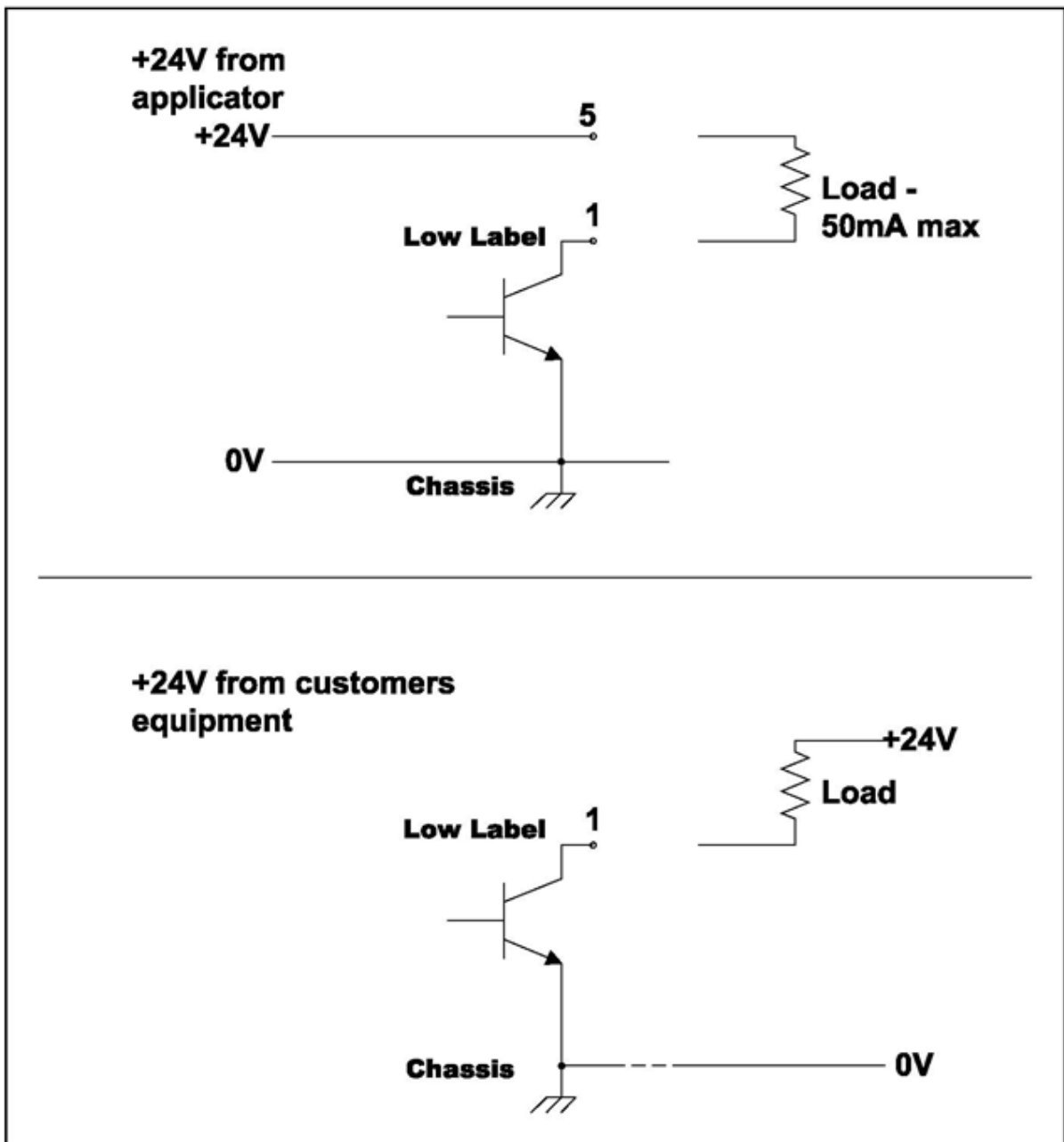


Figure 57 I/O Wiring

ALARM PORT J18

The outputs on J18 are either PNP (sourcing), or FET (sinking) as indicated below.

PIN	CONDITION (SIGNAL NAME)	OUTPUT TYPE	RESET BY
1	Ready	PNP	
2	Ready	FET	
3	Warning - Low Label, Unlabeled Product	PNP	RESET MENU
4	Warning - Low Label, Unlabeled Product	FET	RESET MENU
5	Fault - End of Web, Web Break, Offline	PNP	RESET MENU
6	Fault - End of Web, Web Break, Offline	FET	RESET MENU
7	24 Volts		
8	Ground		
9	Reserved		

PNP = Sourcing = Active High

FET = Sinking = Active Low

MAINTENANCE

This section gives instructions for performing ordinary maintenance and adjustments on the 3111TS applicator. The procedures recommended in the periodic maintenance sections are detailed in the Adjustments Section.

DAILY MAINTENANCE

(EVERY 8 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. Examine air filter for evidence of excessive water or oil collection. Drain if necessary and eliminate the source of contamination.
2. Examine vacuum grid, peeler bar and rollers for excessive adhesive build up. Clean if necessary, using alcohol or other similar solvent.
3. Check generally around the machine for any evidence of loose screws, rollers, fixtures, fittings, etc. Tighten as necessary.

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 all rollers remove adhesive and paper dust, using solvent (alcohol or equivalent).
2. Clean peeler bar and vacuum grid.
3. Clean dust from all photoelectric cells and lamps.
4. Examine air supply connections for leakage, correct if necessary.
5. Wipe down the exterior surface of the machine.

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. Examine all roller assemblies for free rotation, excessive play, etc. and correct as necessary.
3. Examine the rewind slip clutch and o-ring. Clean if necessary.
4. Replace worn or broken air jet tubes.
5. Perform the procedures listed in the Weekly Maintenance Section.

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. Replace air filter elements, clean filter bowl.
2. Examine the rewind slip clutch disk and o-ring and clean or replace as necessary.
3. Clean inside and outside machine enclosure, using an industrial vacuum cleaner.

NOTE: Using air pressure from the shop air supply to blow off dust, etc., can create more problems than it solves. There is a good possibility that this air will contain water and emulsified oil. If you must use compressed air, be sure that it is adequately filtered and regulated to low pressure and remove the electronic module.

4. Perform the procedures listed in the Monthly Maintenance Section.

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. Examine moving parts for excessive wear. Check the stability of roller mounts, and motor mounts.
2. Examine timing belts for damage. Replace if necessary.
3. Replace the rewind slip clutch disk and o-ring in the rewind station assembly. Clean all friction faces.
4. Check the one way clutch on the rewind shaft for correct operation.
5. Examine pulleys and belt for wear. Replace if necessary.
6. Perform the procedures listed in the Semi-Annual Maintenance Section.

+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.

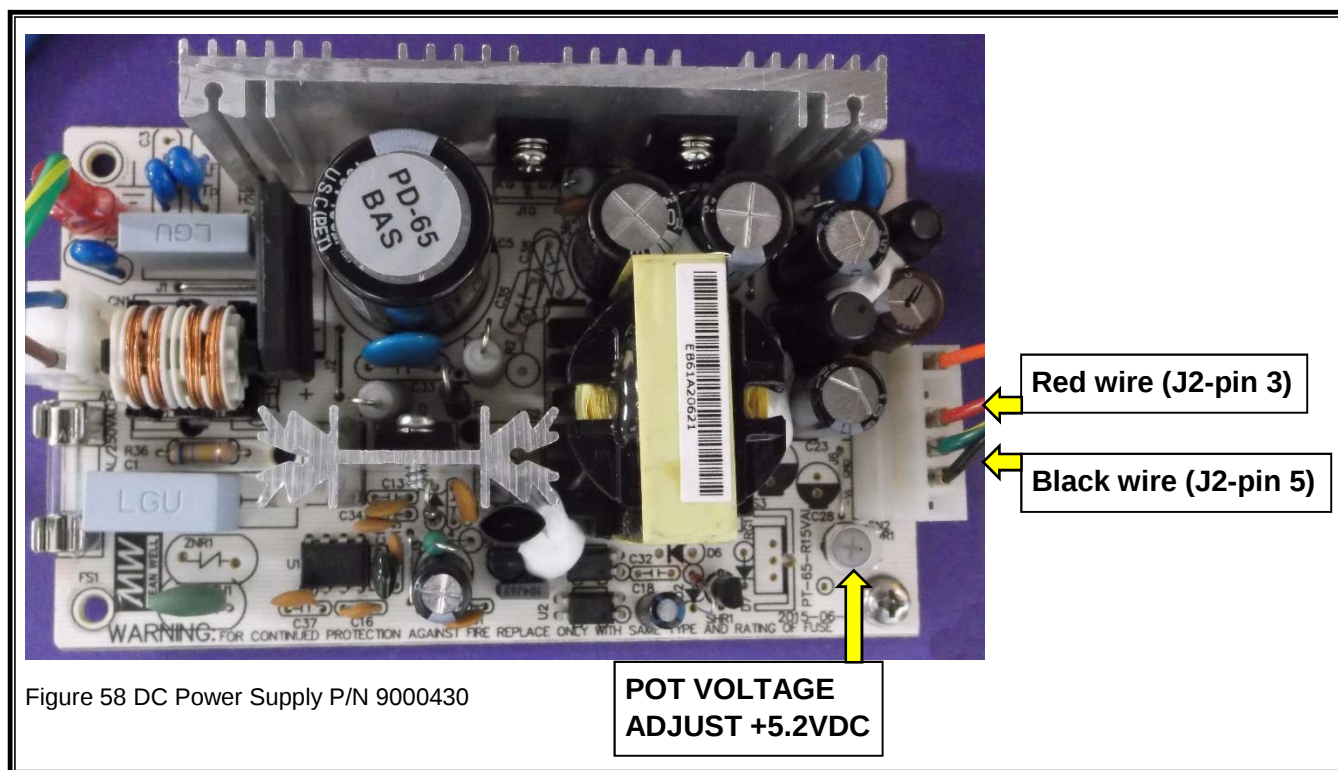


Figure 58 DC Power Supply P/N 9000430

**POT VOLTAGE
ADJUST +5.2VDC**

Red wire (J2-pin 3)

Black wire (J2-pin 5)

REWIND SLIP CLUTCH ADJUSTMENT

You may need to adjust the rewind slip clutch if the rewind mandrel is not turning fast enough to take up the label liner, or if the rewind mandrel torque is such that the liner is breaking. When making adjustments to the rewind slip clutch (see Figure 59) note that the spring tension can be adjusted by adding or removing flat washers. Sometimes it may be necessary to replace the o-ring and slip clutch disk.

To increase friction drive (rewind), add flat washers P/N 7101697, to compress or increase spring tension, (see Figure 59). To decrease friction drive, remove flat washers P/N 7101697, to expand or lessen spring tension, (see Figure 59). Flat washers should be added or subtracted one at a time until proper drive is achieved. Conditions that may warrant adjustment of the rewind slip clutch are:

1. A change in applicator attitude. Example: 1. Reels up.
2. Upright and above.
2. A change in label carrier size. Example: 1. One inch (25mm) web. (Narrow)
2. 4-6 inch (101-152mm) web. (Wide)
3. A change in the manual speed of the applicator.

NOTE: Depending on the attitude of the machine, you will need to observe the response of the rewind mandrel from the beginning of a roll, (no web liner on rewind mandrel), to the end of the roll (a full web liner roll on the rewind mandrel). As waste builds up on the rewind mandrel, the weight will play a roll in the way that the rewind operates. Some further adjustments may still be necessary to compensate for the change in load from the beginning to the end of a roll of labels.

When replacing the o-ring and slip clutch disk (see Figure 59), it will be necessary to follow these adjustment procedures to attain the correct web rewind tension. As the o-ring and slip clutch disk wear you may have to periodically follow the adjustment procedures to maintain consistent web rewind tension.

Follow these instructions to adjust the rewind slip clutch tension.

1. Turn the [POWER] OFF (O).
2. Disconnect the machine A.C. power cord from the A.C. power.
3. Disconnect the A.C. power cord from the IEC receptacle on the machine.
4. Use a #1 Phillips screwdriver to remove the screws from the enclosure cover. Remove the enclosure cover.
5. Use a #1 Phillips screwdriver to remove the screw from the end of the drive shaft.
6. Carefully remove the flat washer, and the compression spring.
7. Install one flat washer (P/N 7101697) to increase the rewind drive, or remove one flat washer to decrease the rewind drive.
8. Carefully re-install the compression spring, the flat washer, and the screw. Tighten the Phillips screw onto the rewind shaft.
9. Use a #1 Phillips screwdriver to install the enclosure cover.
10. Reconnect the A.C. power cord to the IEC receptacle on the machine.
11. Reconnect the machine A.C. power cord to the A.C. power.
12. Turn the [POWER] ON (I). Test the machine and observe the rewind from the beginning of a new roll of labels, to the end of the roll.
13. Re-adjust if necessary.

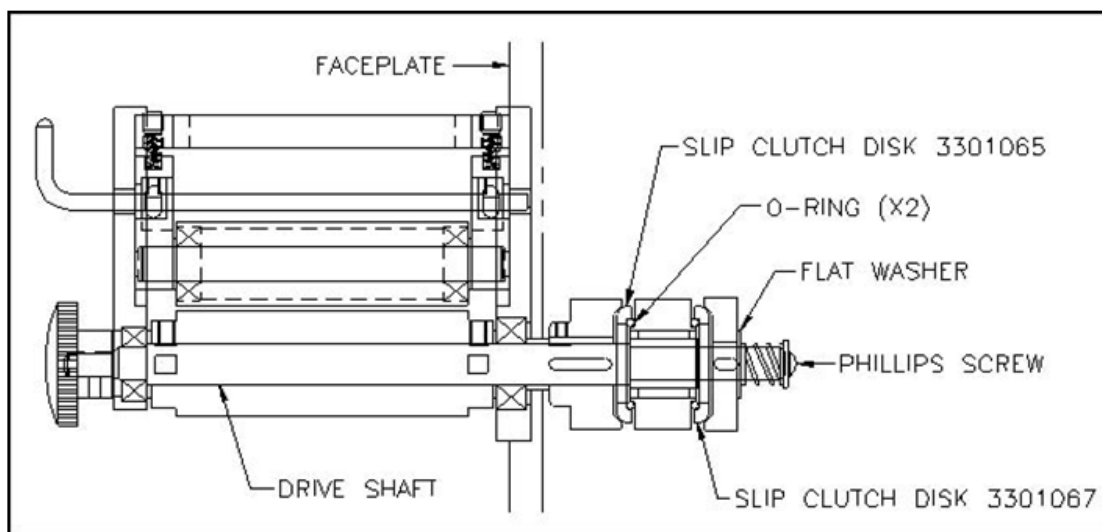


Figure 59 Rewind Slip Clutch

PINCH ROLLER COMPRESSION ADJUSTMENT



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. Turn the [POWER] OFF.
2. Disconnect the machine A.C. power cord from the A.C. power.
3. Disconnect the A.C. power cord from the IEC receptacle on the machine.
4. Turn the four pinch roller set screws in (clockwise) by the same amount, to increase the pinch roller pressure, or out (counterclockwise) to decrease the pinch roller pressure.

The pinch roller tension should be just enough to feed the web through the machine without the web slipping.

5. Reconnect the A.C. power cord to the IEC receptacle on the machine.
6. Reconnect the machine A.C. power cord to the A.C. power.

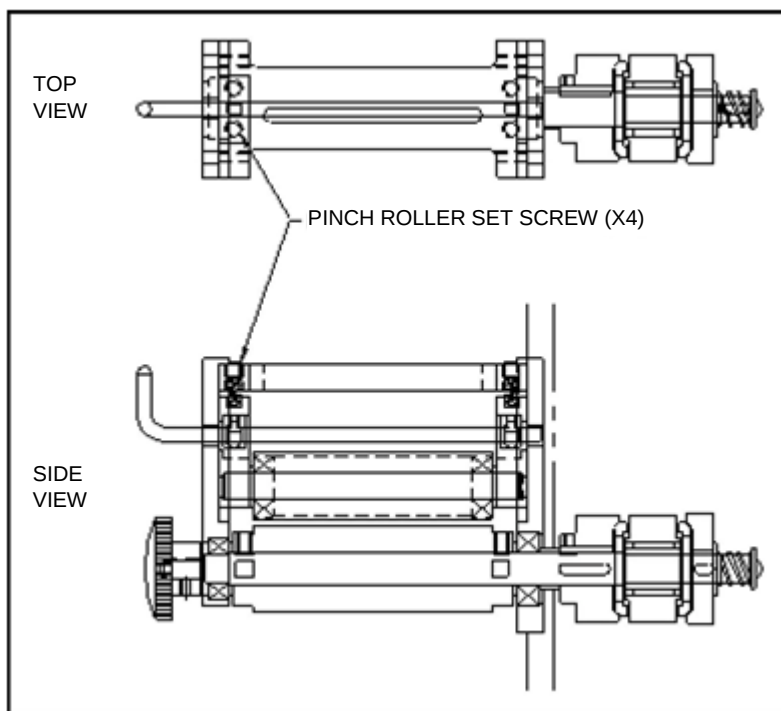


Figure 60 Pinch Roller Adjustment

BRAKE & DANCER ARM ADJUSTMENT

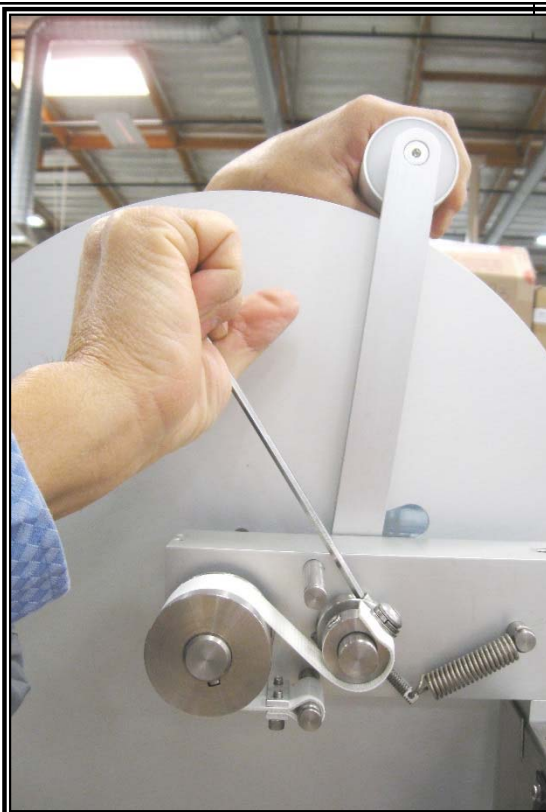


Figure 61 Dancer Arm



Figure 62 Allen Screw

The inner collar adjusts the dancer arm tension.

1. Loosen two Allen screws on the inside collar.
2. Holding the dancer arm pull to the desired position or proximity (1 o'clock) and then slightly tighten the Allen screws so the collar will still move on the shaft then using 5/32" T-handle push collar clockwise slightly to set into position tighten the screws back down.

NOTE: The outer collar has no adjustments the brake tension is set with the dancer arm adjustment.



Figure 63 LH Brake



Figure 64 RH Brake

CONTROLLER SOFTWARE UPDATE

1. Power OFF the applicator.
2. Disconnect air supply (if applicable).
3. Unplug the Rewind Control cable J3 (if cable is present).

UNPLUG REWIND
CONTROL CABLE
J3

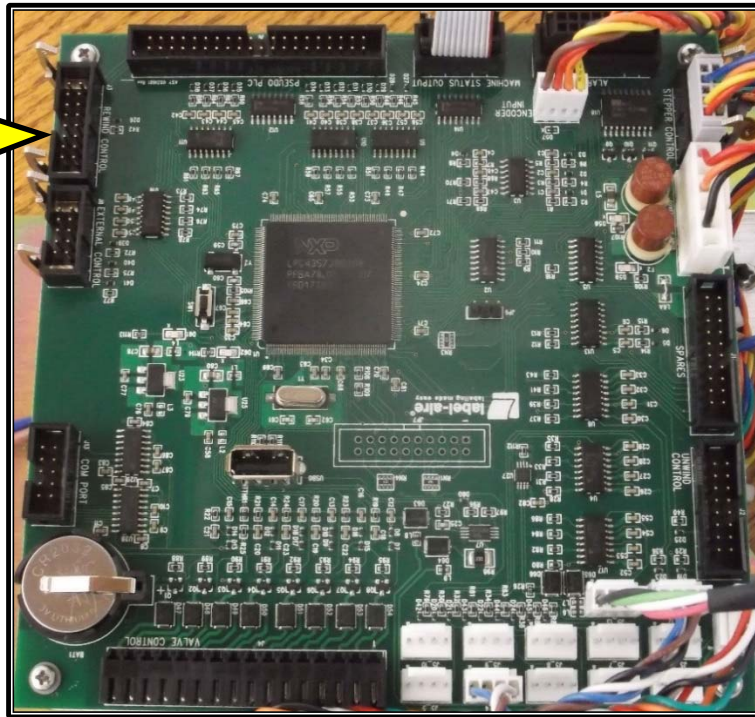


Figure 65 Unplug J3

4. Power ON the applicator.
5. Touch the large arrow button to proceed to the Main Menu.

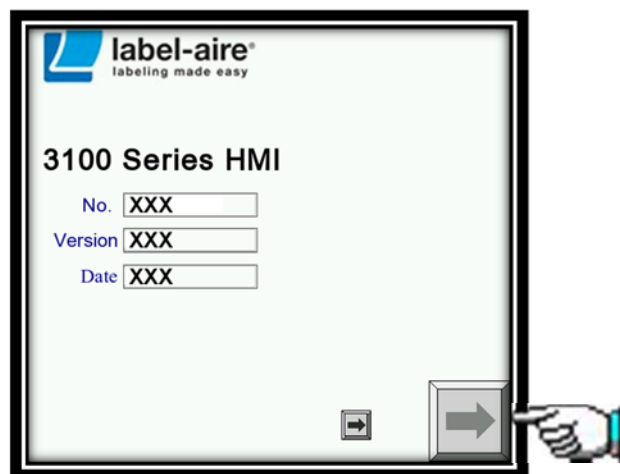


Figure 66 Touch Large Arrow

6. Touch the Service Menu button.

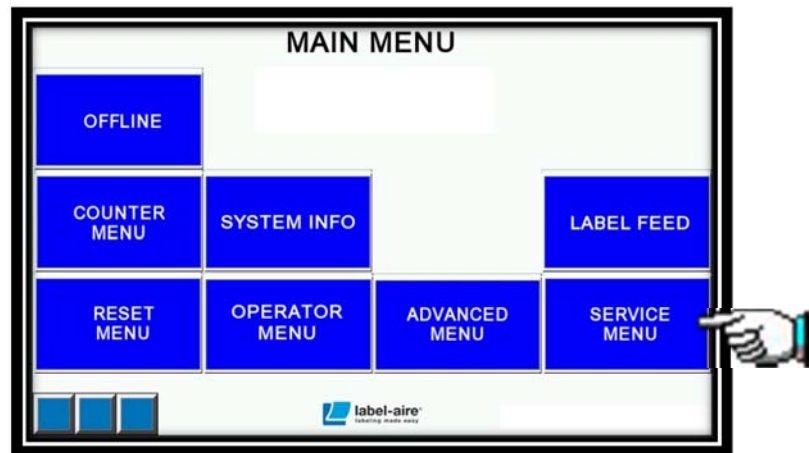


Figure 67 Service Menu Button

7. Touch the Password Button. Note: Refer to your supervisor for the password.



Figure 68 Touch Password Button

8. Type the password then touch ENTER.



Figure 69 Touch Enter

9. Touch the HMI/Controller Update button.

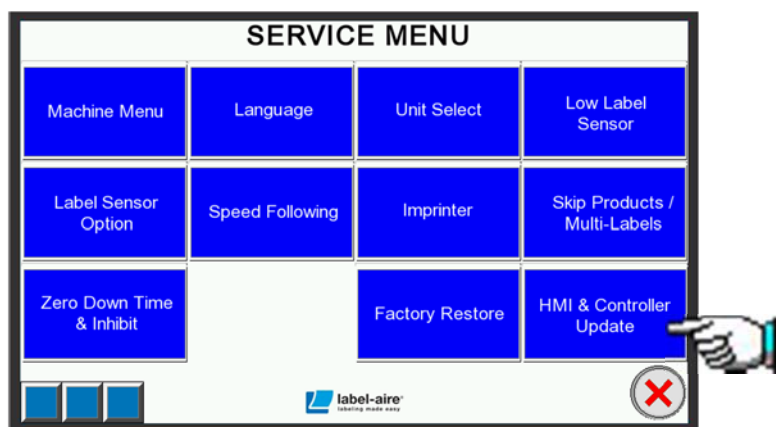


Figure 70 HMI/Controller Update Button

10. Touch the Update Controller button.

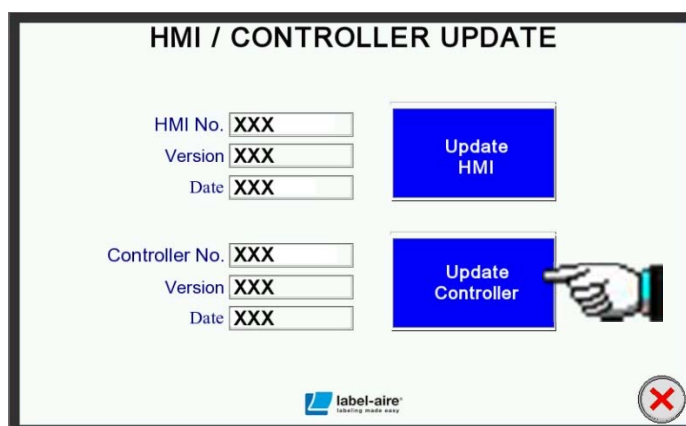


Figure 71 Update Controller Button

11. Touch the YES button.

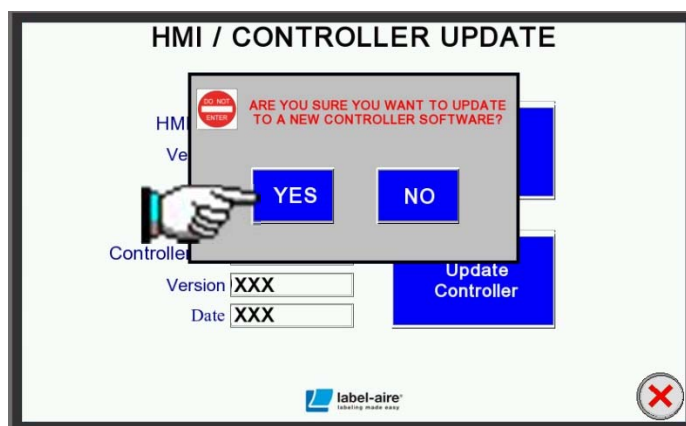


Figure 72 Yes Button

12. Touch the UPDATE button.



Figure 73 Update Button

13. Locate the USB port on the controller.

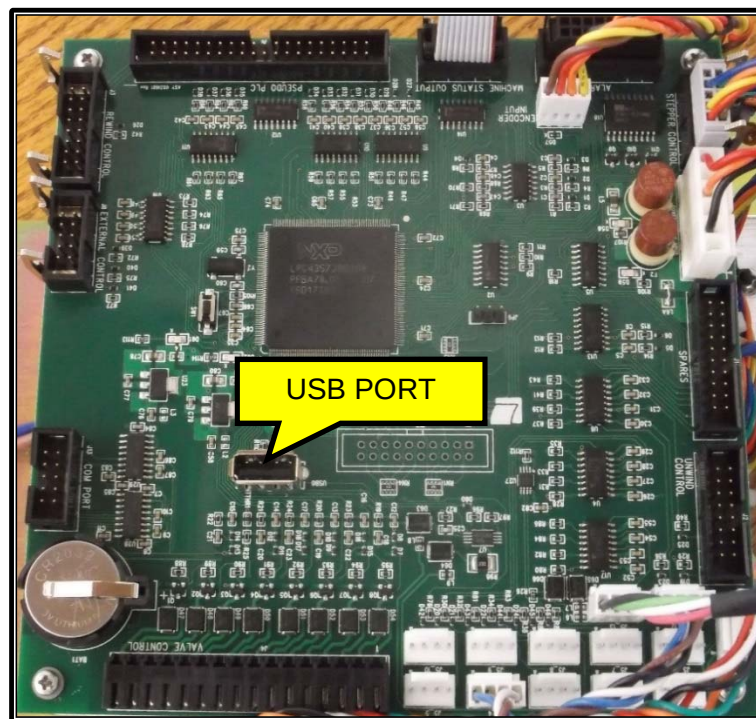


Figure 74 Controller USB Port

14. Insert the Thumb Drive into the USB port on the controller.

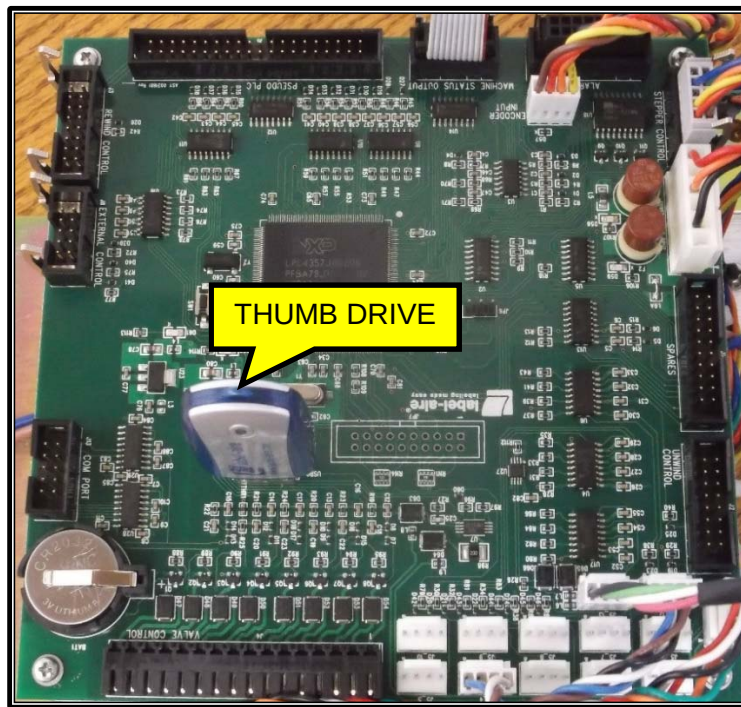


Figure 75 Thumb Drive

15. Power OFF the applicator. Wait at least 5 seconds then power ON the applicator.

16. Wait 50-60 seconds to allow for the download. "PLC No Response" message will appear.

Note: For Label-Aire suggested Thumb Drive with LED (P/N 9046639), LED will blink and stop blinking after 16 seconds.

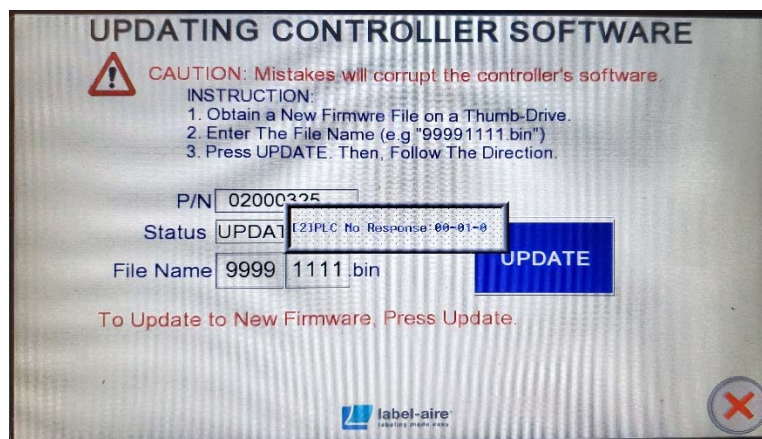


Figure 76 No Response

17. Power OFF the applicator.

18. Remove the Thumb Drive.

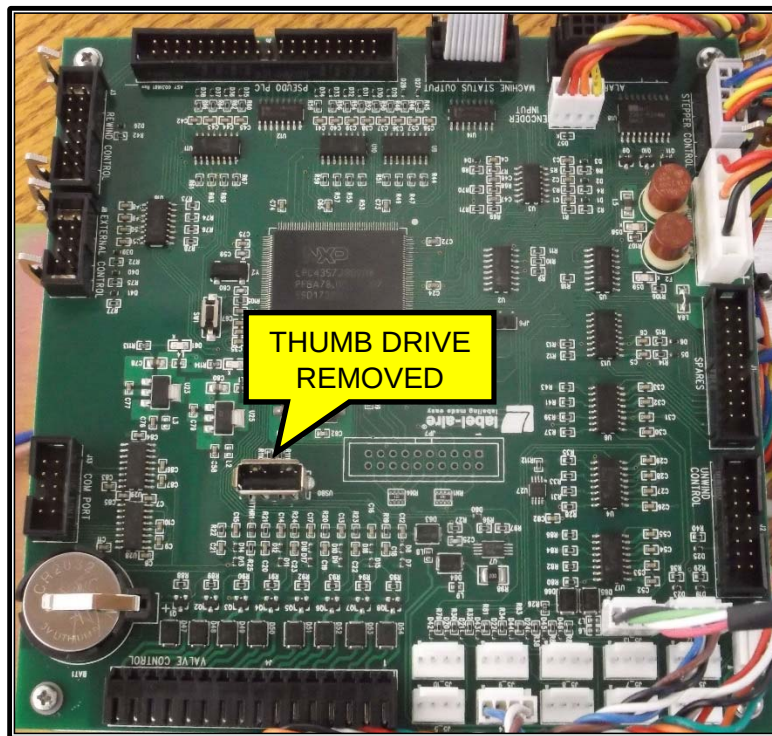


Figure 77 Remove Thumb Drive

19. Reconnect the Rewind Control cable J3 (if cable is present).

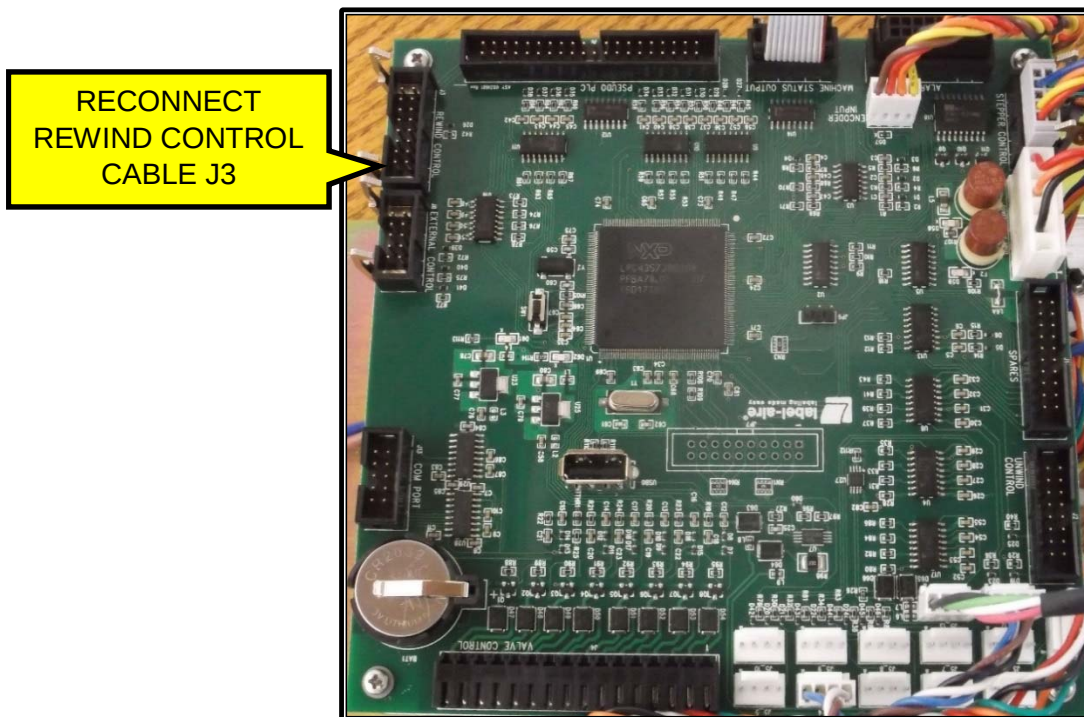


Figure 78 Reconnect J3

20. Power ON the applicator.

21. Touch the large arrow button to proceed to the Main Menu.

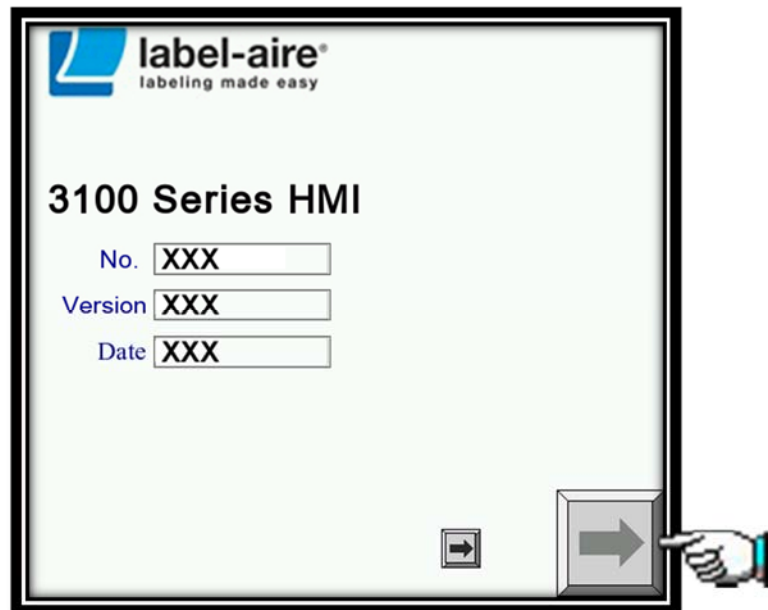


Figure 79 Touch Large Arrow

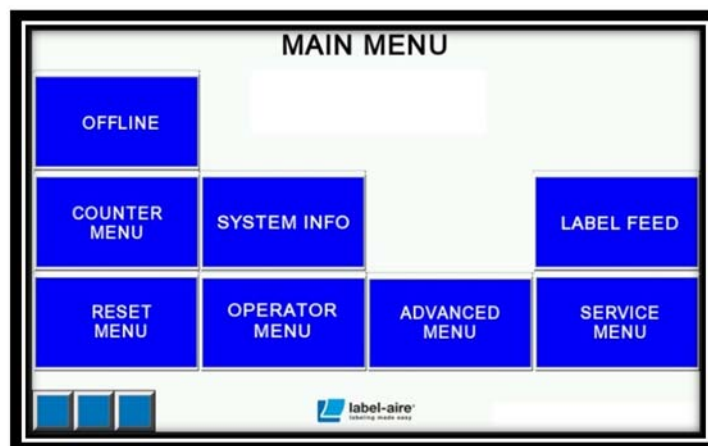


Figure 80 Main Menu

22. Reconnect air supply.

Controller software update complete.

TOUCH SCREEN SOFTWARE UPDATE

1. Touch the Service Menu button.

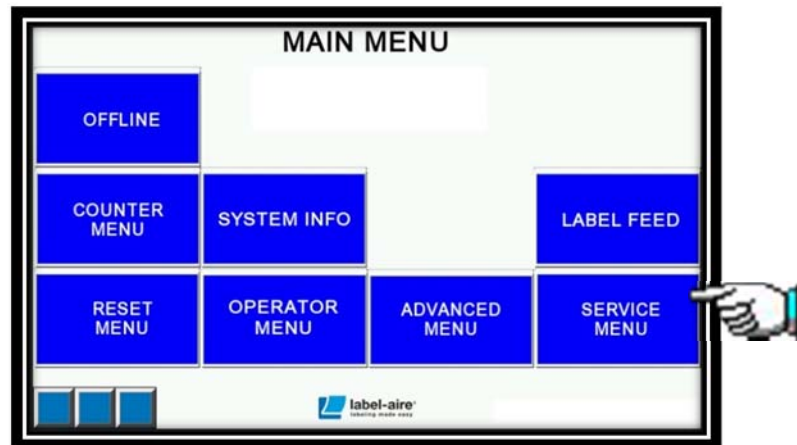


Figure 81 Service Menu Button

2. Touch the Password Button. Note: Refer to your supervisor for the password.



Figure 82 Touch Password Button

3. Type the password then touch ENTER.



Figure 83 Touch Enter

4. Touch the HMI/Controller Update button.

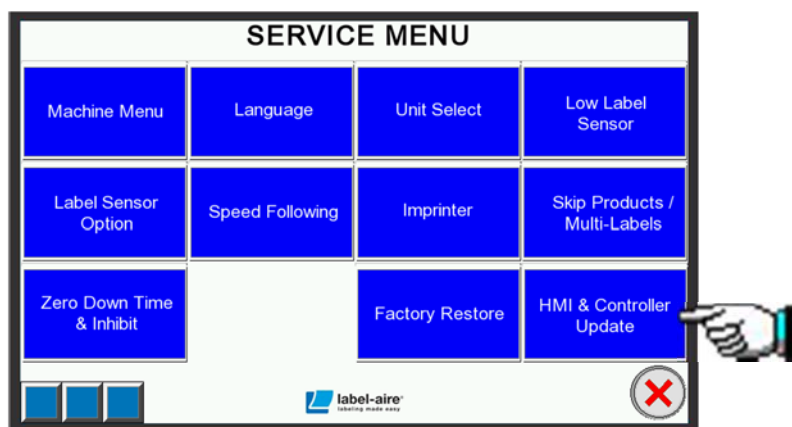


Figure 84 HMI/Controller Update Button

5. Touch the Update HMI button.

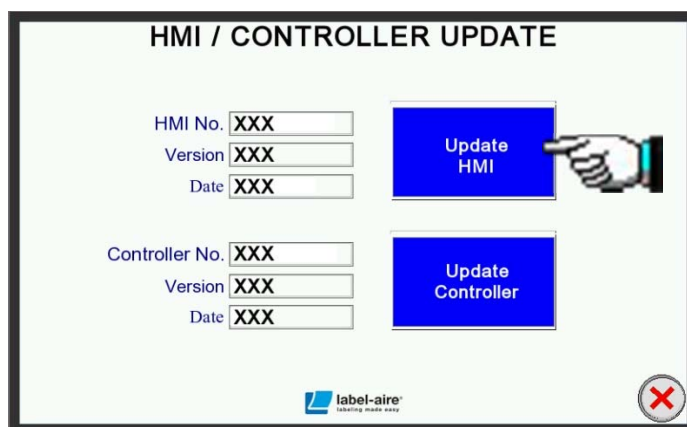


Figure 85 Update HMI Button

6. Touch the YES button.

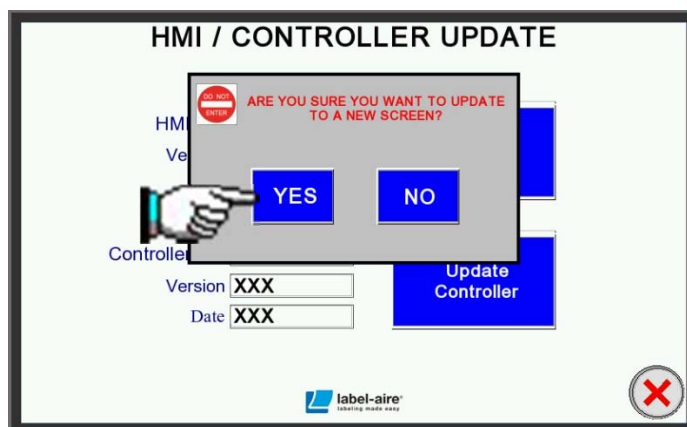


Figure 86 Yes Button

7. Locate the USB port at the bottom of the Touch Screen.



Figure 87 Touch Screen USB Port

8. Insert the Thumb Drive into the USB port.



Figure 88 Insert Thumb Drive

9. Touch the folder usb1/. Note: It may take a few seconds for “usb1/” to appear.

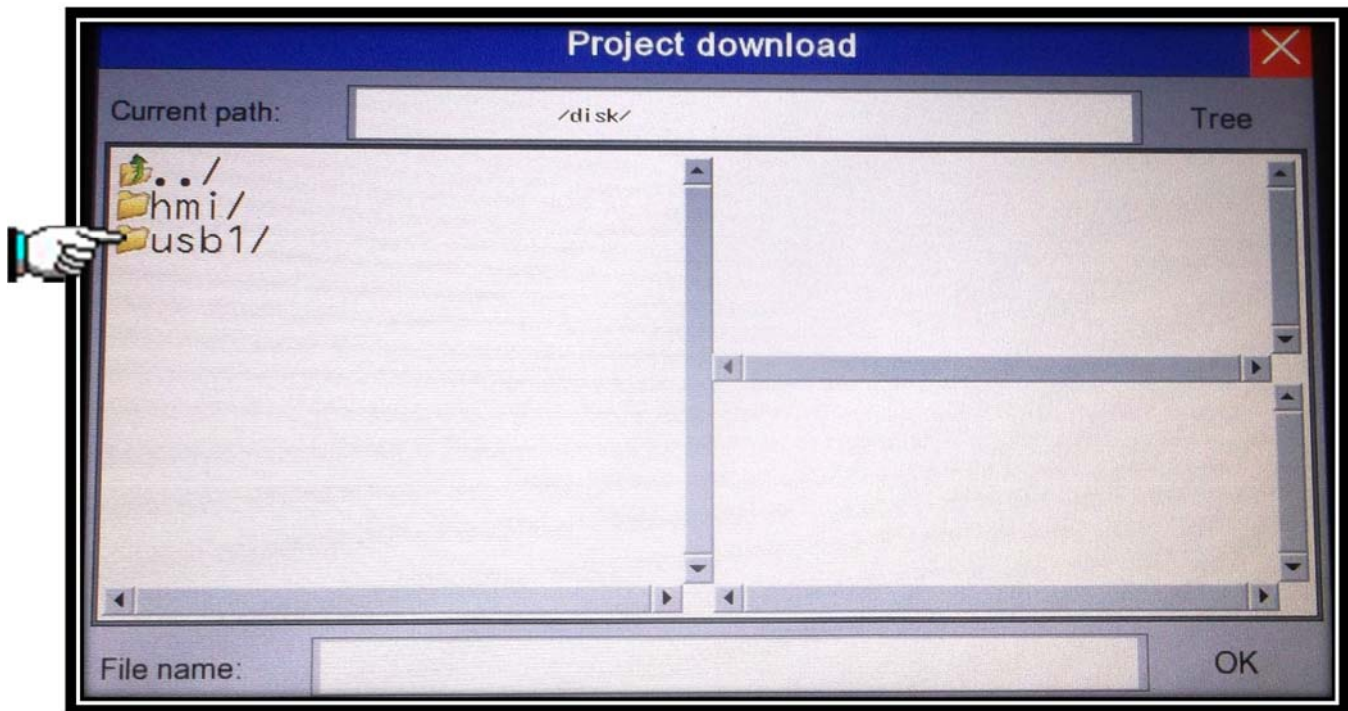


Figure 89 Touch Folder USB1

10. Touch the filename with the extension “.pkgx”. Note: Filename must end with “.pkgx”.

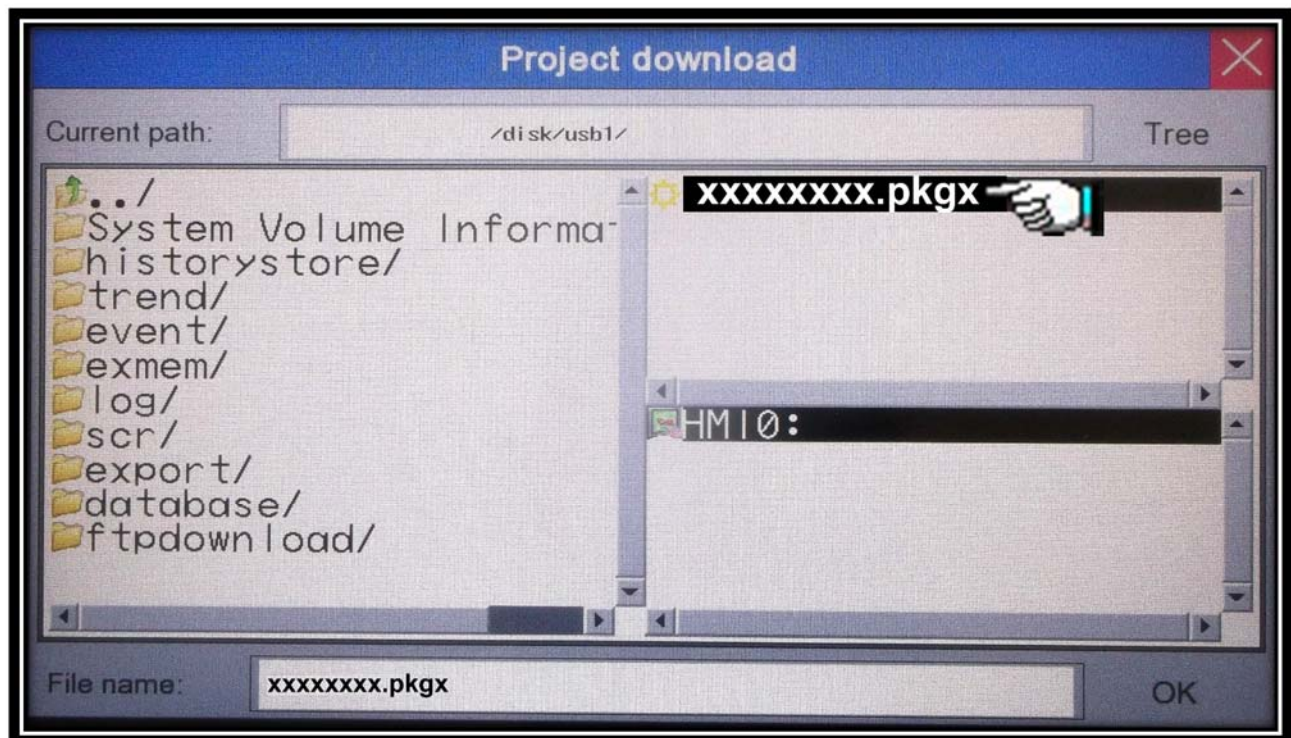


Figure 90 Touch Filename PKGX

12. Touch OK.

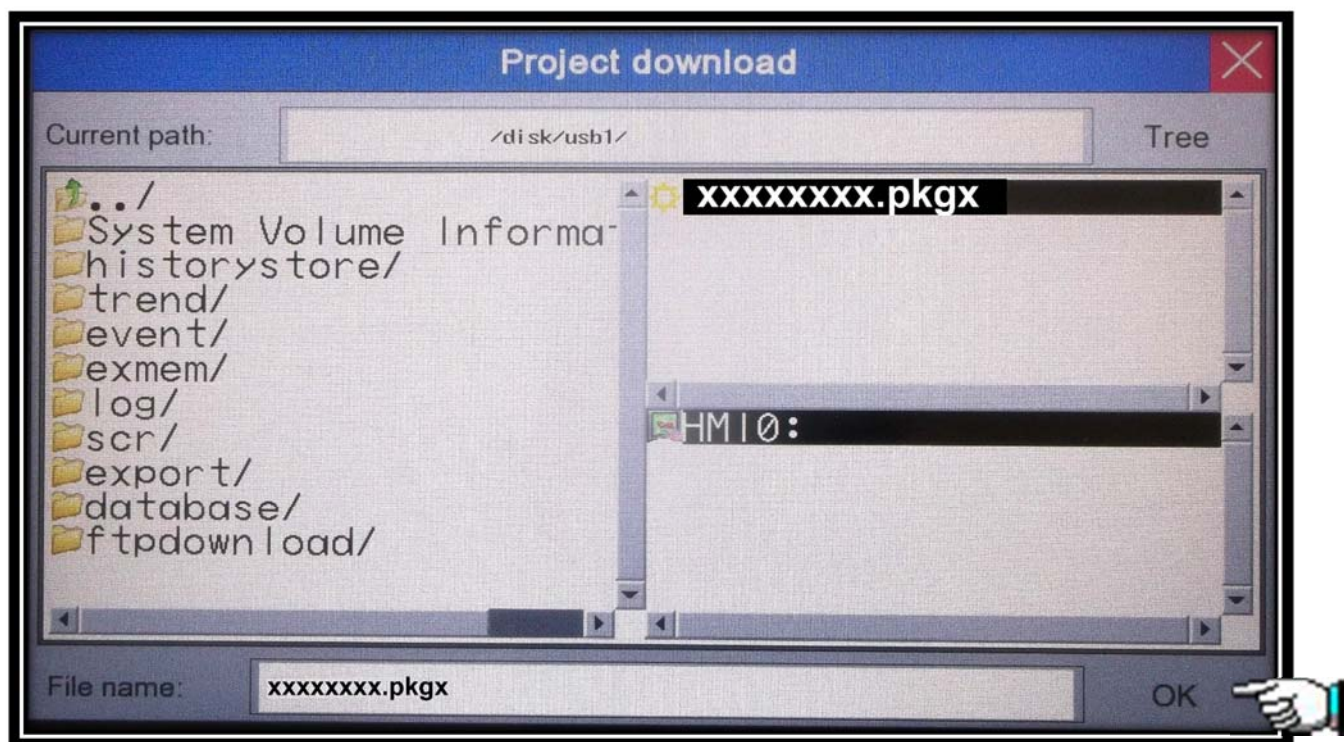


Figure 91 Touch OK

13. After the Touch Screen returns to the screen as shown below, go to next step.



Figure 92 Screen

14. Remove the USB thumb drive.



Figure 93 Thumb Drive Removed

15. Touch the large arrow to continue to the Main Menu.



Figure 94 Touch Arrow

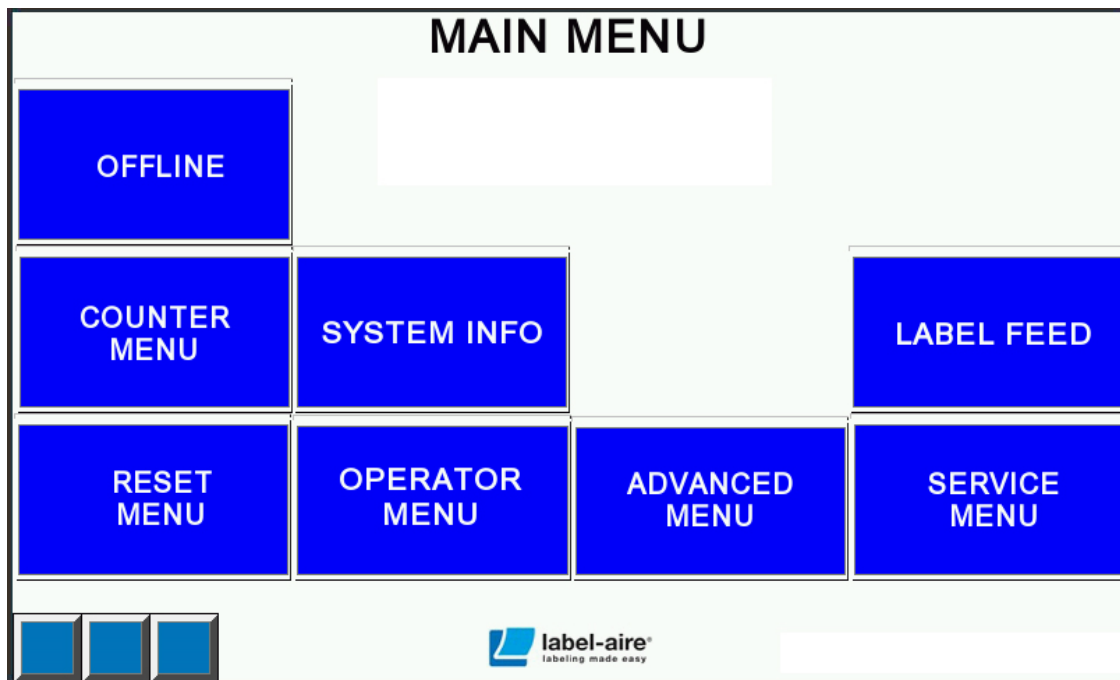


Figure 95 Main Menu

Touch Screen software update complete.

RESTORE FACTORY DEFAULT SETTINGS

1. Touch Service Menu button.

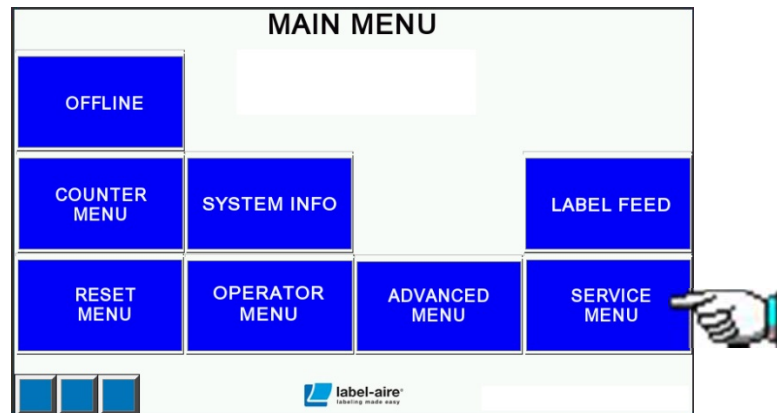


Figure 96 Touch Service Menu

2. Touch Password Button. Note: Refer to your supervisor for the password.



Figure 97 Touch Password Button

3. Type the password then touch ENTER.



Figure 98 Touch Enter

4. Touch Factory Restore button.

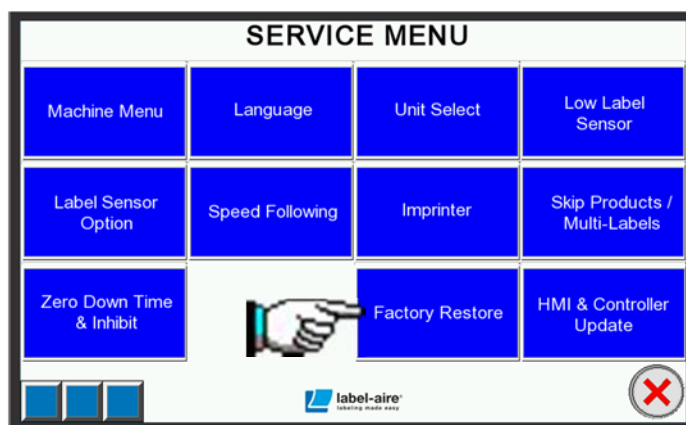


Figure 99 Touch Factory Restore

5. Touch Restore button.



Figure 100 Touch Restore

6. Touch X to return to the Main Menu.

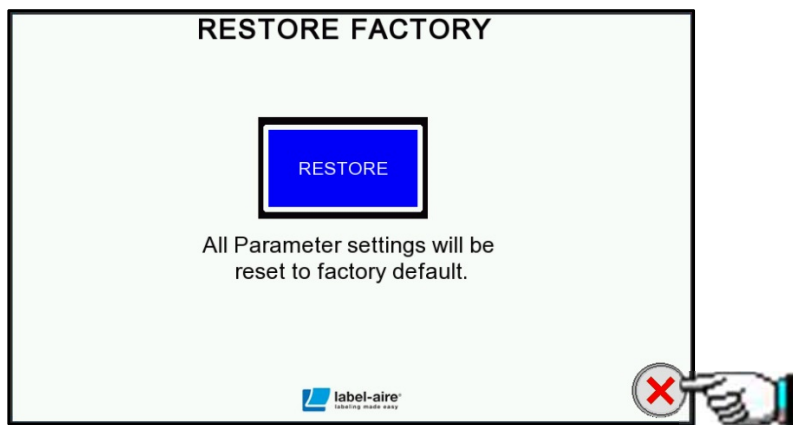


Figure 101 Touch X

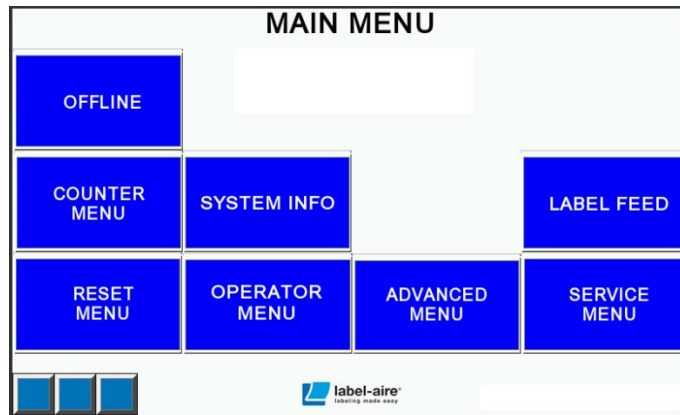


Figure 102 Main Menu

REPLACING THE CONTROLLER

Restore the factory default settings after replacing the controller. See Restore Factory Default Settings.

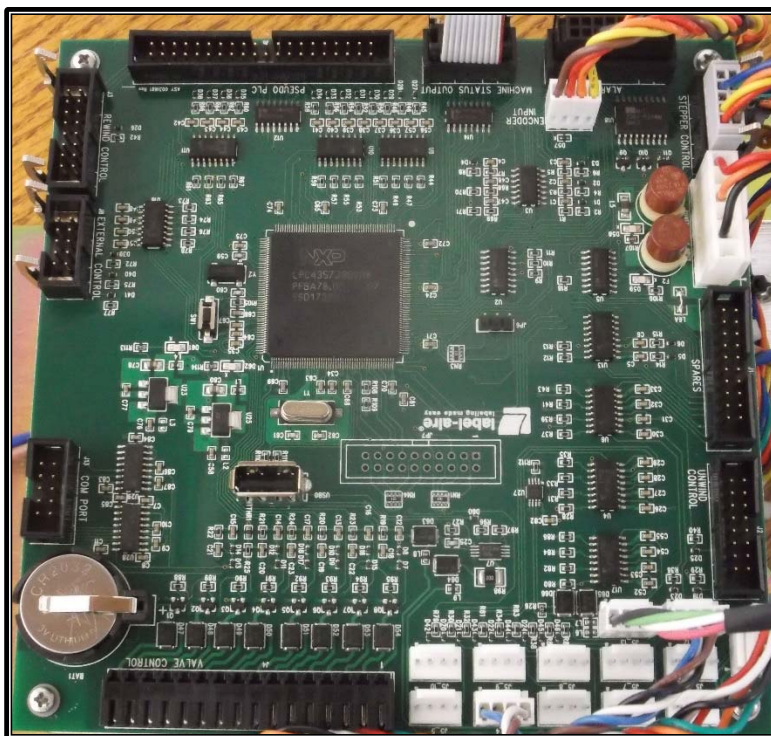


Figure 103 Controller

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.

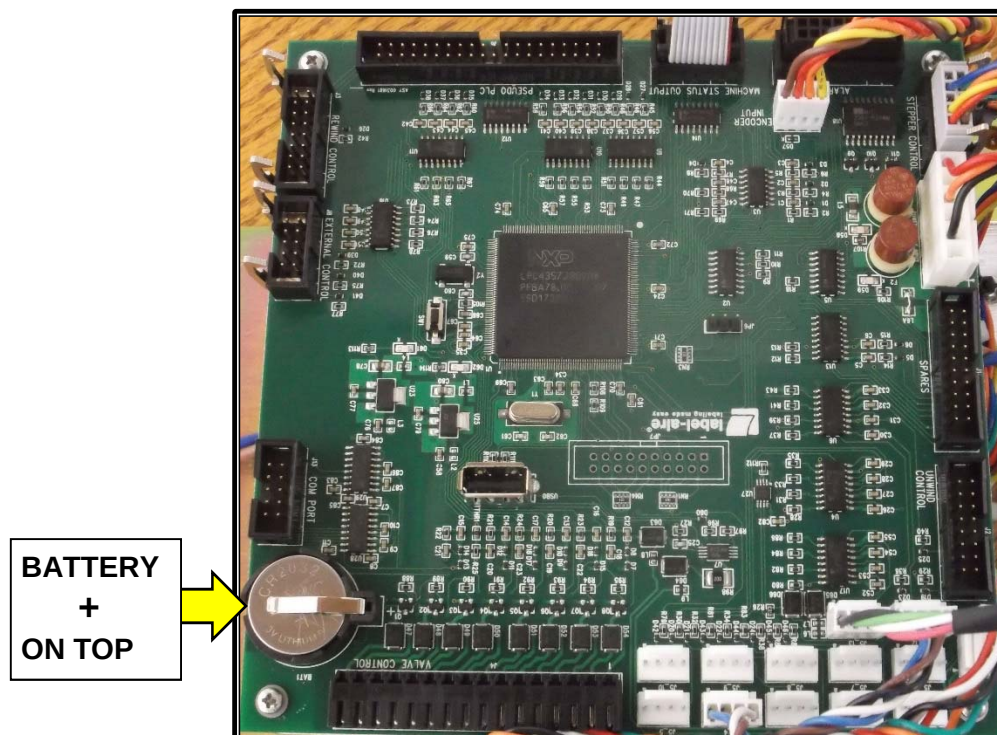


Figure 104 Processor Battery

Note: You may lose the program software if the battery fails or is replaced. Follow the procedure Controller Software Update.

LITHIUM BATTERY 3V	9000109
--------------------	---------

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.
	Fuse blown (located in the power supply).	Determine cause. NOTE: This fault may require specialized attention and the fastest solution may be to replace the control module. If any doubt exists, replace the control module and request qualified assistance to repair the defective unit.
	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.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
	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.
	Unit is offline.	Place the unit online.
	Encoder rotating in wrong direction.	Switch SW1 on encoder interface card to operate setting to change the encoder rotation.
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.
	Dancer arm/unwind roll tension incorrect.	Investigate and correct dancer arm tension.
	Label core slipping on the unwind hub.	Build up the I.D. of the label core with labels until label core fits snugly on the unwind hub.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Label placement on the vacuum grid 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.
	Air assist pressure too high, too low, or incorrectly positioned.	Investigate and adjust the air pressure. Correct the Air Assist Tube position if necessary.
	STOP POSITION is out of adjustment.	Investigate and correct.
	Peeler bar dive 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.
	Adhesive or other obstruction on the vacuum grid.	Clean vacuum grid-- Examine the label roll for damage. Replace if necessary.
	Air jet tubes protruding from the vacuum grid.	Replace damaged air jet tubes.
	Premature release of the label from the liner before peel point.	Poor adhesive quality. Replace the label roll.
	Loose transtorques.	Tighten transtorques (175 lbs-in).
	Pinch roller not engaged.	Engage pinch roller.
Labels are not being held on the vacuum grid after the label advance.	Vacuum fan not operating.	Investigate and repair/replace.
	Vacuum not high enough.	Switch vacuum to high (LH), adjust baffle plate (RH), or install grid mask.
	Peeler bar dive angle incorrectly set.	Refer to the set-up instructions and correct.
	Air assist tube incorrectly positioned.	Adjust the position of the tube.
	Excessive label memory.	Replace label roll.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
Air assist does not function or is ineffective.	Air pressure too low or too high.	Check the pressure gauge and adjust as necessary.
	Air assist tube incorrectly positioned, damaged, or disconnected.	Examine and correct tube position. Repair or replace as necessary.
	Labels incorrectly threaded.	Refer to the set-up procedures. Make sure that the label liner is threaded between the air assist tube and the peeler bar.
	Air assist solenoid malfunction.	Examine and replace if necessary.
	Applicator control card malfunction.	Replace plug-in card or request qualified assistance.
Air blast does not occur.	BLAST TIME time is too short.	Refer to the set-up instructions.
	Machine not connected to the air supply or pressure regulator turned down.	Check air pressure gauge on the front panel. Correct as necessary.
	Air blast solenoid malfunction.	Investigate and replace as necessary.
	Control module malfunction.	Replace plug-in card or request qualified assistance.
	Product detector incorrectly aligned.	Refer to the set-up procedures for instructions.
	Product detector disconnected from the machine or connecting cable damaged.	Investigate and correct or replace as necessary.
	Product detector defective.	Investigate and replace as necessary.
	SPEED FOLLOWING is set ON but not in use.	Set SPEED FOLLOWING to OFF.
	SPEED FOLLOWING is set ON and no input from encoder.	Check that encoder is connected. Check encoder output and wiring. Replace if necessary.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
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. Set lead or trail (odd shaped labels).	Refer to the Label Sensor Detection Point 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 erratic 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

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
		for mold release agent removal.
		Check with product manufacturer. Check product handling and storage methods prior to label application.
	Shape variations from product to product.	Refer to the set-up instructions.
	Velocity compensation incorrectly setup.	Re-adjust the label applicator position relative to the product conveyor.
	Product too far away from the vacuum grid.	Check with the label manufacturer.
Machine will not cycle. Message reads: BROKEN WEB.	Poor adhesive quality on the label.	
	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.
Applicator runs after missing CONSECUTIVE MISSING LABEL COUNT.	Pinch roller not engaged.	Engage the pinch roller.
Machine functions at random without being initiated.	Incorrect Label Repeat Length.	Refer to the Label Repeat Length Set-Up.
	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.

TROUBLESHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
	Excessive machine cycle time.	Refer to the set-up instructions.
	Set-up adjustments incorrectly made.	Refer to the set-up instructions.
	Velocity compensation incorrectly set.	Refer to the set-up instructions.
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.
	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	Replace worn parts.

TROUBLESHOOTING

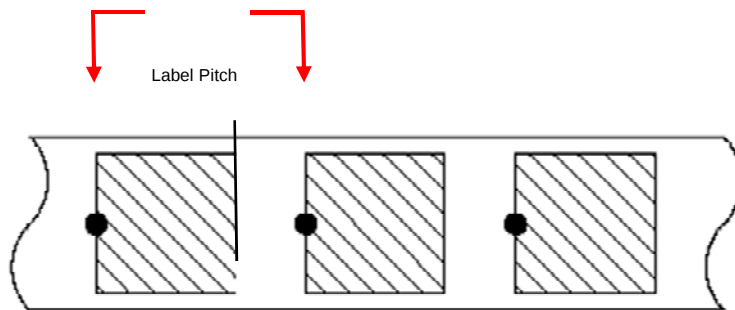
PROBLEM	POSSIBLE CAUSE	SOLUTION
	rollers or worn dancer arm bearings.	
	Unwind disks, rewind disk, or guide collars not aligned. Label stock path not aligned.	Adjust disks and collars to guide the label stock straight through the machine.
	Peeler bar label tension spring too tight.	Adjust with knob. 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.

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 of 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.

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 “PRESS AND HOLD” button was not pressed long enough to see both the label and the gap between each label.
 - a. Press the “PRESS AND HOLD” button until two (2) labels dispense from the peel tip assembly before releasing the “PRESS AND HOLD” button. The applicator should dispense one (1) to two (2) additional labels after you release the “PRESS AND HOLD” 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 there is any labels or label debris inside the label sensor.
3. The processor 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.**
 - (Standard Label Sensor) Go into the Advanced Menu of the software and set the LABEL SENSOR SETTING to 005. Go to the Operator Menu/Label Calibration and press the “PRESS AND HOLD” button until two (2) labels dispense from the peel tip. If the label sensor setting changes then the processor board is functioning properly. If the label sensor setting does not change you will need to replace the processor board.
 - When you press the “PRESS AND HOLD” button and if you hear a high pitched sound and the labels do not move you will need to replace the processor board.
4. Defective stepper motor driver.
 - a. Check to see if the main drive turns when the “PRESS AND HOLD” button is pressed.
5. Bad stepper motor.
6. Nip roller open.
 - a. Check that the nip roller is closed properly.
7. The difference between the label/liner and the liner is not sufficient (not enough contrast) to do a label calibration.

8. Issues with static.
9. Issues with the AC power supplied to the applicator.
10. 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.

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 vacuum grid or pad.

Air Assist Pressure Gauge: The gauge that shows the air pressure that is being supplied to the air assist tube.

Air Assist Tube: A small tube at the end of the peeler bar (or plate) which points a stream of air at the label to help it break free from the label liner as it is dispensing.

Air Assist: The stream of air that the air assist tube directs at the label to help it break free from the label liner as it is dispensing.

Air Blast: The blast of compressed air that transfers a label from the vacuum grid or pad to the product.

Air Filter: A device that removes dust and other debris from the air.

Air Regulator: the valve that controls the amount of air which is being supplied to the machine.

Air Supply Requirements: The air pressure and delivery that are required to operate the machine.

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

Clutch: A device that engages and disengages a driving and driven part.

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

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.

Detent Arm: The device that is used to separate and hold the pinch roller from the drive roller to simplify threading labels.

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

Encoder Pulses: The measurement of conveyor travel: the number of pulses per inch is usually 100, but may vary depending upon the encoder used.

Encoder: A device mounted to the conveyor drive system that reports Distance Traveled information to the microprocessor(s).

Gain Control: The control on the photoelectric product detector that regulates the amount of light that is necessary to activate the sensor.

HMI: Human Machine Interface (Touch Screen)

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 Page: The set of values that are stored in the microprocessor menu for applying a particular kind of label.

Label Placement: 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.

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.

Motherboard: The DC power-supply for the applicator.

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. ($\text{BAR} = \text{PSIG} \div 14.4$)

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

Photocell: A device that varies the intensity of an electric current according to the amount of light it is receiving. It is used in the label sensor and product detector.

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

Pitch: The distance from product leading edge to leading edge as they exit the feed screw.

Pneumatic: Moved or operated by air pressure.

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

Rate Compensation: An optional feature that permits the correct application of labels despite variations in the conveyor speed.

Registration Roller: The roller that moves to adjust the position of the labels relative to the print head of the imprinter.

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

Select Key: The key on the microprocessor faceplate that is used to advance from one microprocessor menu item to another.

Slip Clutch: A clutch that disengages by slipping when there is enough tension on the driven part (used on the rewind).

Solenoid: An electromagnetic switch.

Label Stack: A stack of labels that have been applied one on top of the other like a deck of cards. A good label stack will have less than 1/32 inch (0.8mm) variation in any direction.

Thread Sequence: The manner in which the label stock or ribbon are threaded through the machine rollers.

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

Unwind Brake: The device which prevents the unwind roll from turning unless there is a demand for labels (see unwind dancer arm).

Vacuum Venturi: A device which uses compressed air to create a vacuum, Web: See Label Stock.

INDEX

ADHESIVE STRINGS, 69
AIR ASSIST, 61
AIR ASSIST TUBE, 61
AIR BLAST, 64
AIR SUPPLY, 10
ALARM LIGHT, 83
ALARMS, 83
CLUTCH, 113
DANCER ARM, 116
DEFAULT VALUES, 40
DETECTOR LOCKOUT, 36, 79
ELECTRICAL SUPPLY, 10
IMPRINTER, 92
LABEL DIVE, 57
LABEL PAGE, 35
LABEL SENSOR, 51
MACHINE SEQUENCE, 44
MAINTENANCE, 106
MENU, 35
PEELER BAR, 55
RATE COMPENSATION, 88
TOUCH SCREEN, 20
VACUUM, 59
VACUUM GRID, 62
ZERO DOWN TIME, 96