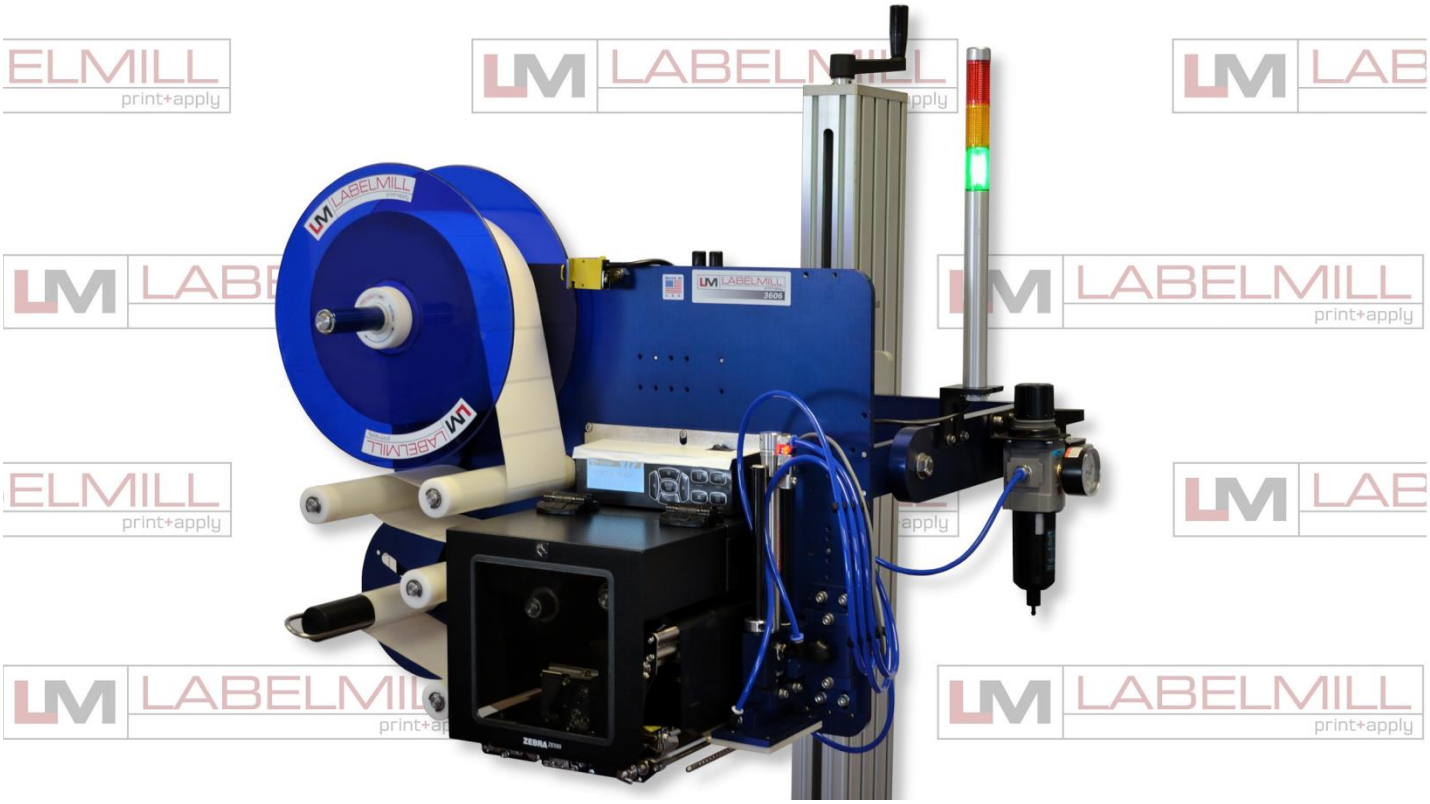
LM3606

PRINT & APPLY

OPERATIONS MANUAL



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SECTION 1

APPLICATOR OVERVIEW

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LABELMILL LM3606
THERMAL PRINTER/APPLICATOR SYSTEM
INTRODUCTION

The **LabelMill LM3606** is a state of the art THERMAL PRINTER & APPLICATOR SYSTEM created with maximum flexibility for your AUTOMATIC LABELING NEEDS. The unit will print and apply high quality labels and bar codes to your product at print speeds up to 14”/sec. and apply at speeds up to 90 labels/min.

OPERATION

The standard configuration is External Computer Mode. The configuration allows label formats to be sent to the standard Centronics Parallel Interface Port, or serial port, on the Printer/Applicator. Once the format is downloaded to the Printer Job Buffer, the system LM3606 can print and apply as normal. Standard industry label software packages can be used in conjunction with a PC to design and load label design.

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SYSTEM SPECIFICATIONS

PRINT SPEED	Up to 16"/second and approx. 90 labels/min. (Varies depending on label and product size.)
BAR CODES	Linear and Two-Dimensional Barcodes
BAR CODE RATIOS	1:2, 1:2.5, 1:3 or individually programmable bar code widths
HUMAN READABLE FONTS	OEM Standard Fonts, Firmware Support for Downloadable TrueType Fonts, and Additional Fonts Available
LABEL ROLL CAPACITY	12" Max. outside diameter wound on a 3" diameter core. Die cut waste removed with a minimum of 1/8" separation between labels in running direction.
LABEL SIZE	Minimum: 1.0" wide x 0.50" long Maximum: 6.6" wide x 14" long
MAXIMUM PRINT AREA	6.6" wide x 14" long (Varies dependent upon system configuration)
LABEL PLACEMENT ACCURACY	Up to + or - 1/32" (1mm) when labels are produced to specifications and product handling is controlled.
PRINTING METHOD	Thermal Transfer or Direct Thermal Right-Hand or Left-Hand
INTERFACE	Standard Centronics Parallel Port Standard RS-232C Serial Port, Ethernet port, USB
INTERFACE SENSORS	Ribbon out Product Sensor-Photo Eye-Limit Switch PLC input
ELECTRICAL	100-240VAC/50-60 Hz 250 W idle, 600 W running.
AIR REQUIREMENT	80 p.s.i./3 cfm
SIZE	26" T x 28" W x 26" D
ENVIRONMENT	Operating Temp. 50-95 F (10-35 C) 15-85% RH. non-condensing
WEIGHT	70 lb. Nominal (with U-Arms)

*Options available

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INVENTORY LIST

QTY. Description

1 Print & Apply Assembly
1 U-Arm Mount
1 Power Cord
1 Model 3606 Operators Manual (USB)
1 Extra Cardboard Ribbon Core
1 Product Switch (specified)
  a. Manual Limit Switch (optional)
  b. Photo Switch (optional)

TOOLS REQUIRED FOR ASSEMBLY
:
3/32” ALLEN WRENCH
¾” WRENCH
1-1/8” WRENCH

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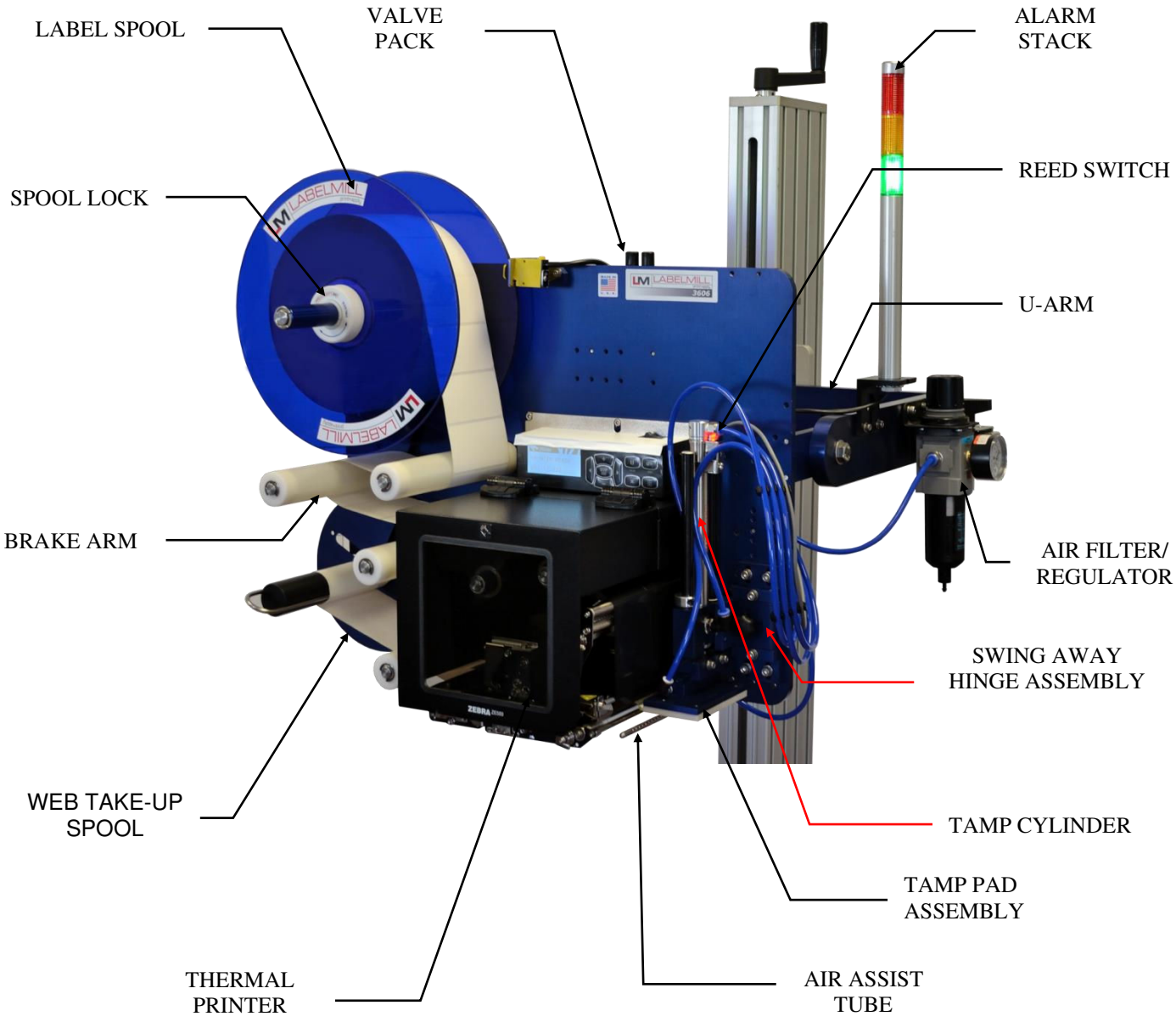
COMPONENT DESCRIPTION / LOCATION



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USER RESPONSIBILITY

This equipment will perform in conformity with the description thereof contained in this manual and accompanying labels and / or inserts when installed, operated, maintained, and repaired in accordance with the instructions provided. This equipment must be checked periodically. Defective equipment should not be used. Parts that are broken, missing, plainly worn, distorted, or contaminated should be replaced immediately. Should such repair or replacement become necessary, we recommend that a request for service advice be made.

This equipment or any of its parts should not be altered without the prior written approval of LabelMill. The user of this equipment shall have the sole responsibility for any malfunctions which results from improper use, faulty maintenance, damage, improper repair or alteration by anyone other than LabelMill. or a service facility designated by LabelMill.

SAFETY

Only qualified personnel should use this equipment.
Before installing, inspecting or servicing equipment, turn OFF all power and air controls at the source and lock out in accordance with OSHA Standards.
Be sure all external electrically conductive parts are connected to a good electrical ground.
Never handle live electrical equipment with bare hands while standing in water, or while hands and feet are wet. Dangerous electrical shock can result.
Whenever the equipment is unattended, turn off all control and power supply switches.
Keep equipment clean and in good operating condition. Promptly repair or replace all worn or damaged hoses, cables or parts.
Do not make any repairs to equipment unless you are fully qualified.
This equipment contains fast moving parts, which may move without warning. Keep hands, loose hair and clothes clear of machines at all times.
Never place hands or any other body parts under the label platen at any time.
This equipment uses compressed air. Proper care and maintenance must be taken when handling compressed air and its components.
These precautions are further detailed and explained where specifically required in this manual.

⚠ WARNING

READ AND UNDERSTAND THESE INSTRUCTIONS

Protect yourself and others. Be sure this information is read and understood by all operators.

ELECTRICAL SHOCK CAN KILL!
Do not touch live electrical parts with bare skin or work with gloves or wet clothing.

NOISE CAN DAMAGE HEARING!
Wear proper ear protection.

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SECTION 2

SETUP AND OPERATION

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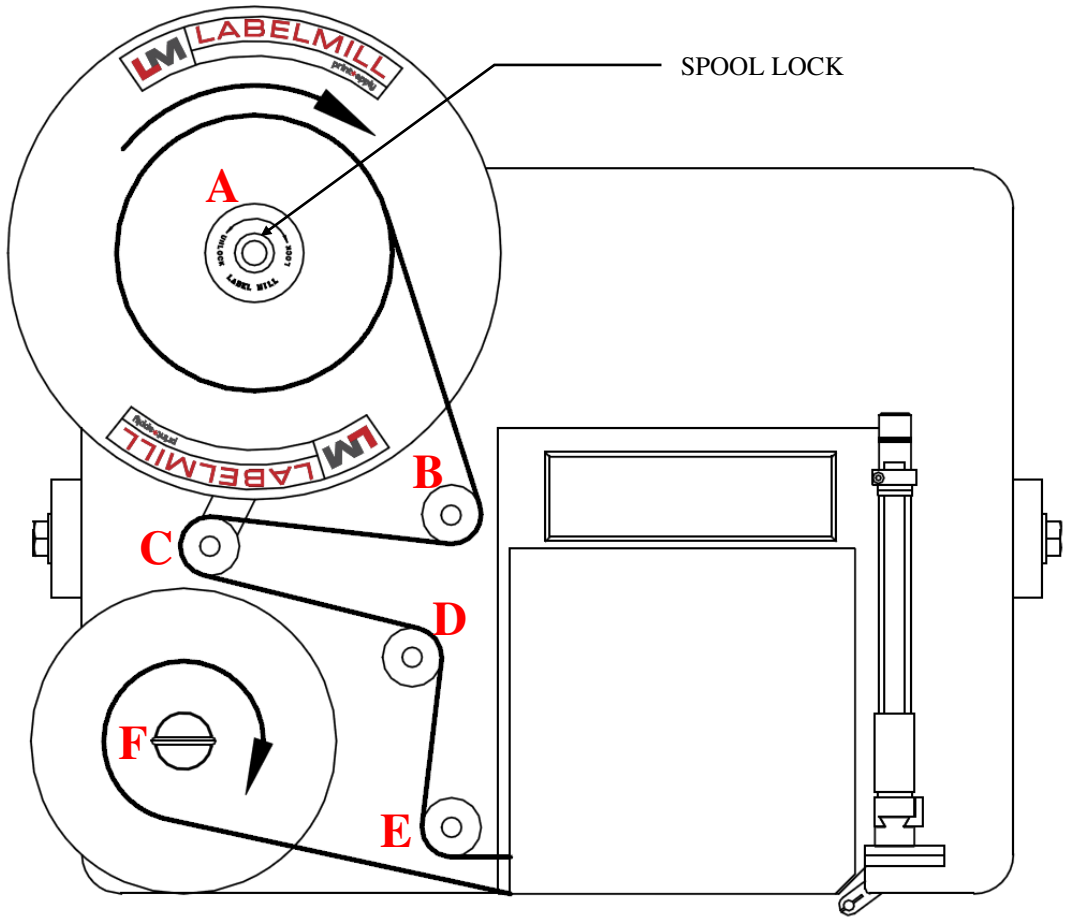
WEB ROUTING

(Right Hand Configuration Shown Below)

Step	Operation
1	Load web onto label storage spool (A) so it unloads in a clockwise direction.
2	Feed the web to the right around guide roller (B), to the left and around brake arm (C), to the right of roller (D) and to the left and below roller guide (E).
3	Feed the web into the thermal printer.
4	Finish the process by loading the waste backing paper onto the web take up spool (F). The take up spool rotates in a clockwise direction.
5	Adjust the (2) plastic web guide clips so the web is guided straight and even. Make sure clips do not bind the web.

*For a detailed illustration of this procedure, see Figure 2-1 below.

FIGURE 2-1



2-01

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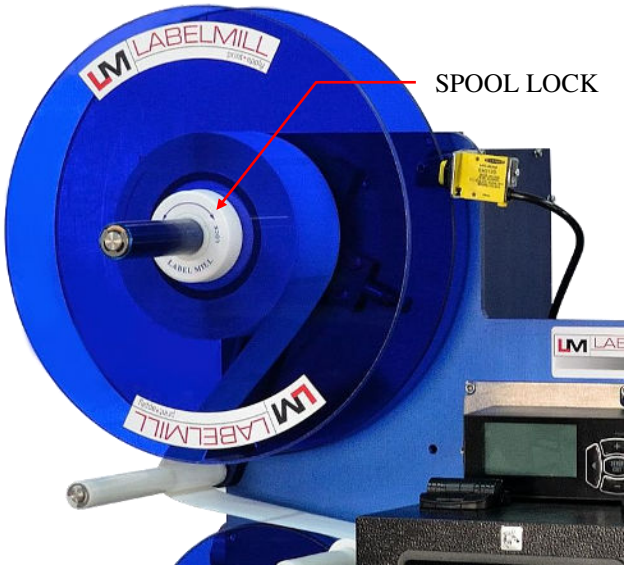
SUPPLY SPOOL



SPOOL LOCK REMOVAL:

To remove the label storage spool, turn the spool lock counterclockwise until you reach a stop. The spool will now slide off. To secure the spool, simply turn the spool lock clockwise until snug. DO NOT over tighten!

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LOADING THERMAL PRINT HEAD

REFER TO PRINTER MANUAL

LABEL & RIBBON ROUTING

REFER TO PRINTER MANUAL

THERMAL RIBBON LOADING

REFER TO PRINTER MANUAL

NOTE: The printer will not operate unless the front cover is in the fully closed position. For your continued safety, do not override the front cover interlock switch.

LABEL SENSOR ADJUSTMENT

REFER TO PRINTER MANUAL

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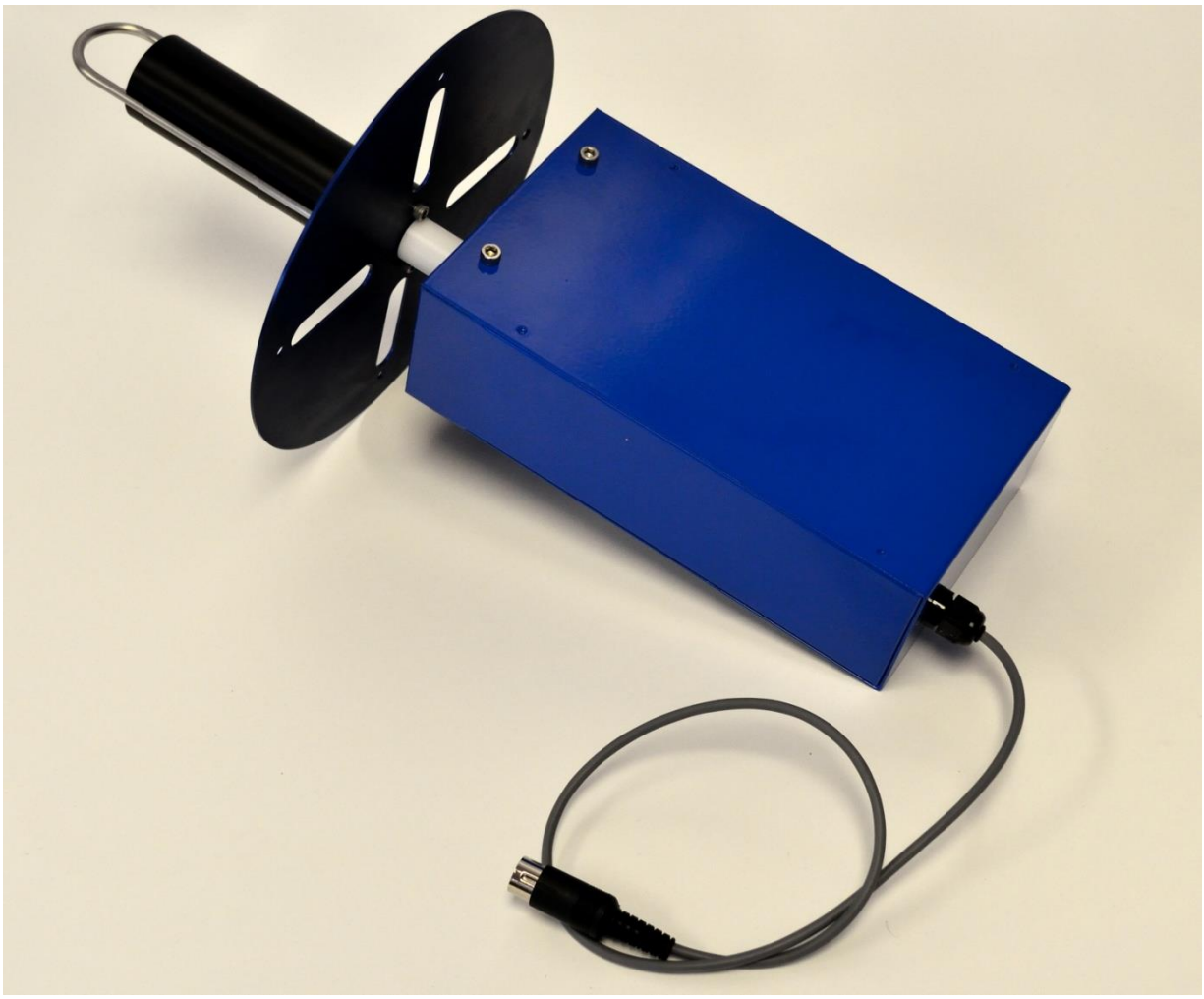
TAKE-UP UNIT ASSEMBLY



The Take-Up Assembly is located on the backside of the main panel. To adjust the clutch, the rear enclosure must be removed to gain access. The mounting bolts for the Take-Up Assembly can be found directly behind the aluminum spool.

WARNING!!! Be sure power is off before performing any service.

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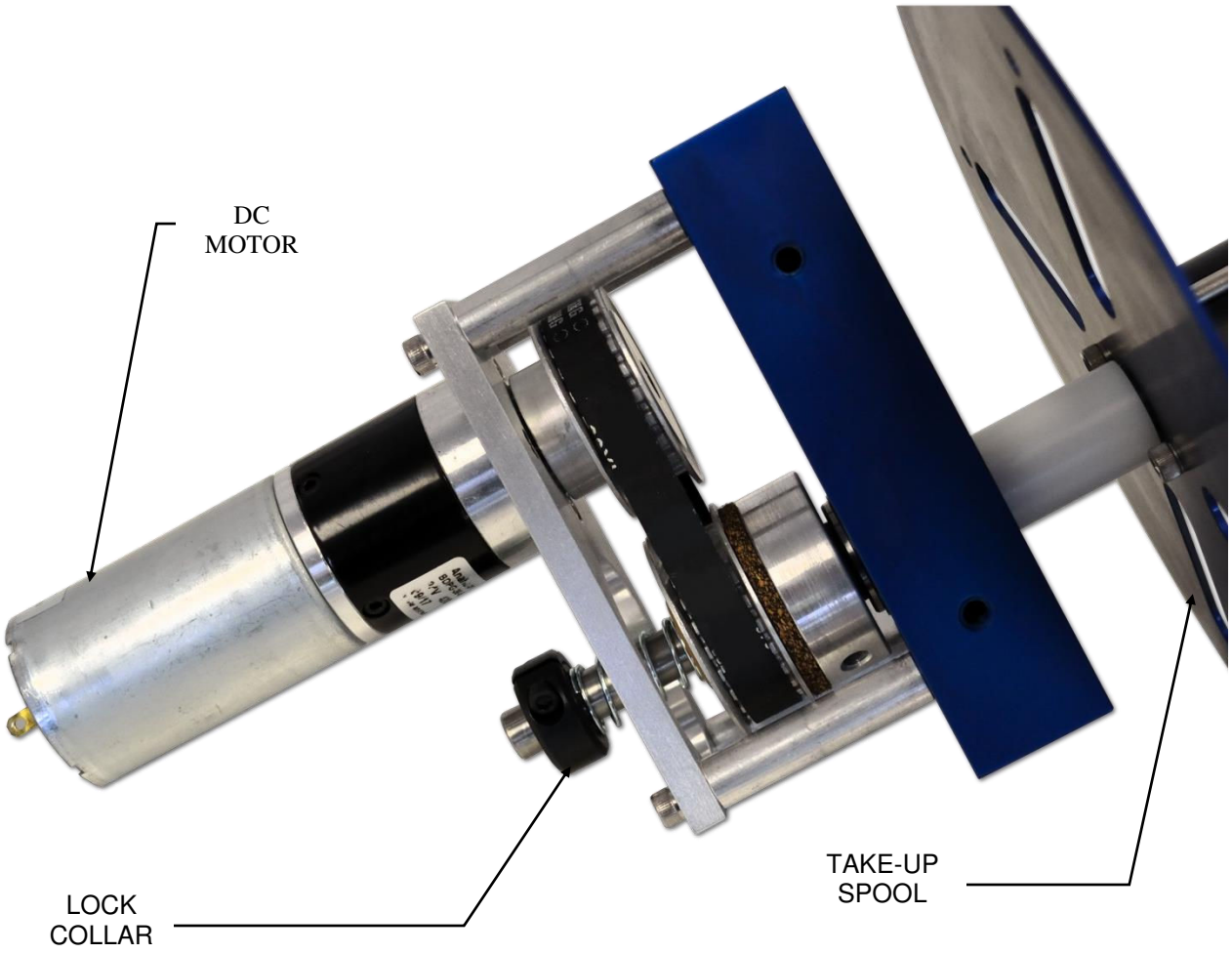
CLUTCH ADJUSTMENT



To reduce waste web tension, move the lock collar 1/32" away from the take-up spool. To increase web tension, move the lock collar 1/32" toward the take-up spool.

CAUTION! Too much web tension may cause web breakage, label drifting, or premature failure of the take-up spool assembly.

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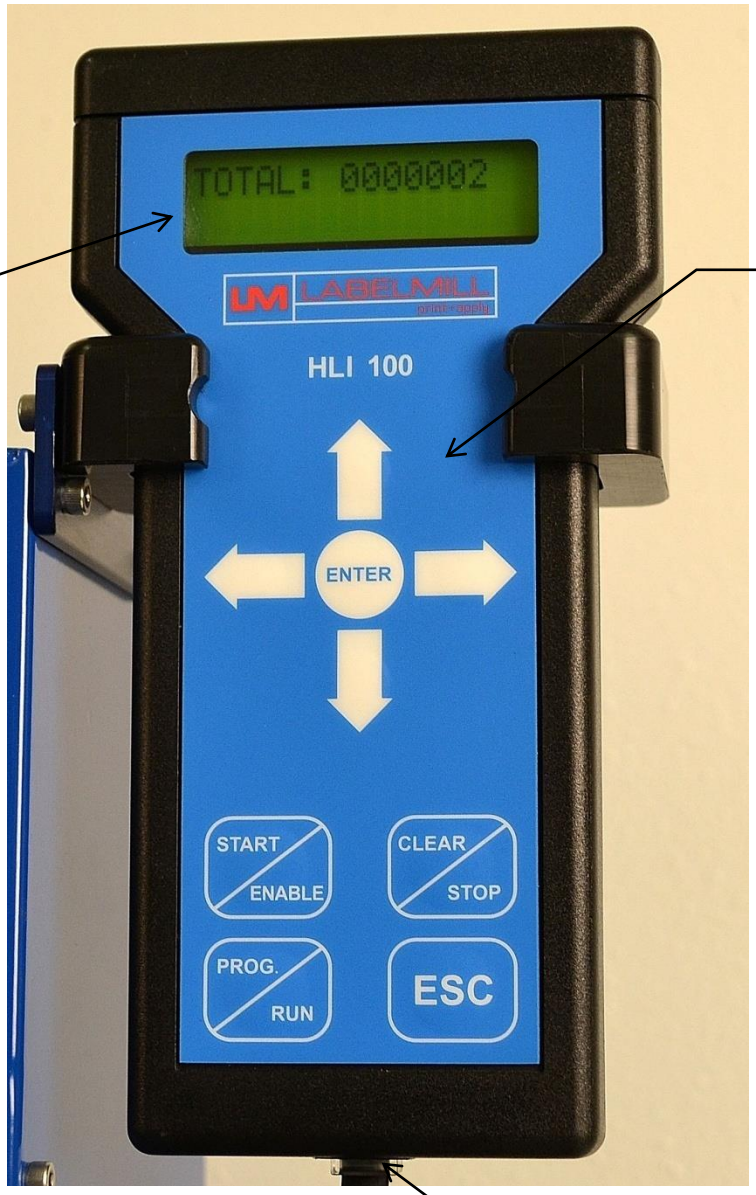
HAND HELD LABELER INTERFACE
HLI-100



LCD DISPLAY

OPERATOR INTERFACE

INTERFACE PORT

2-06

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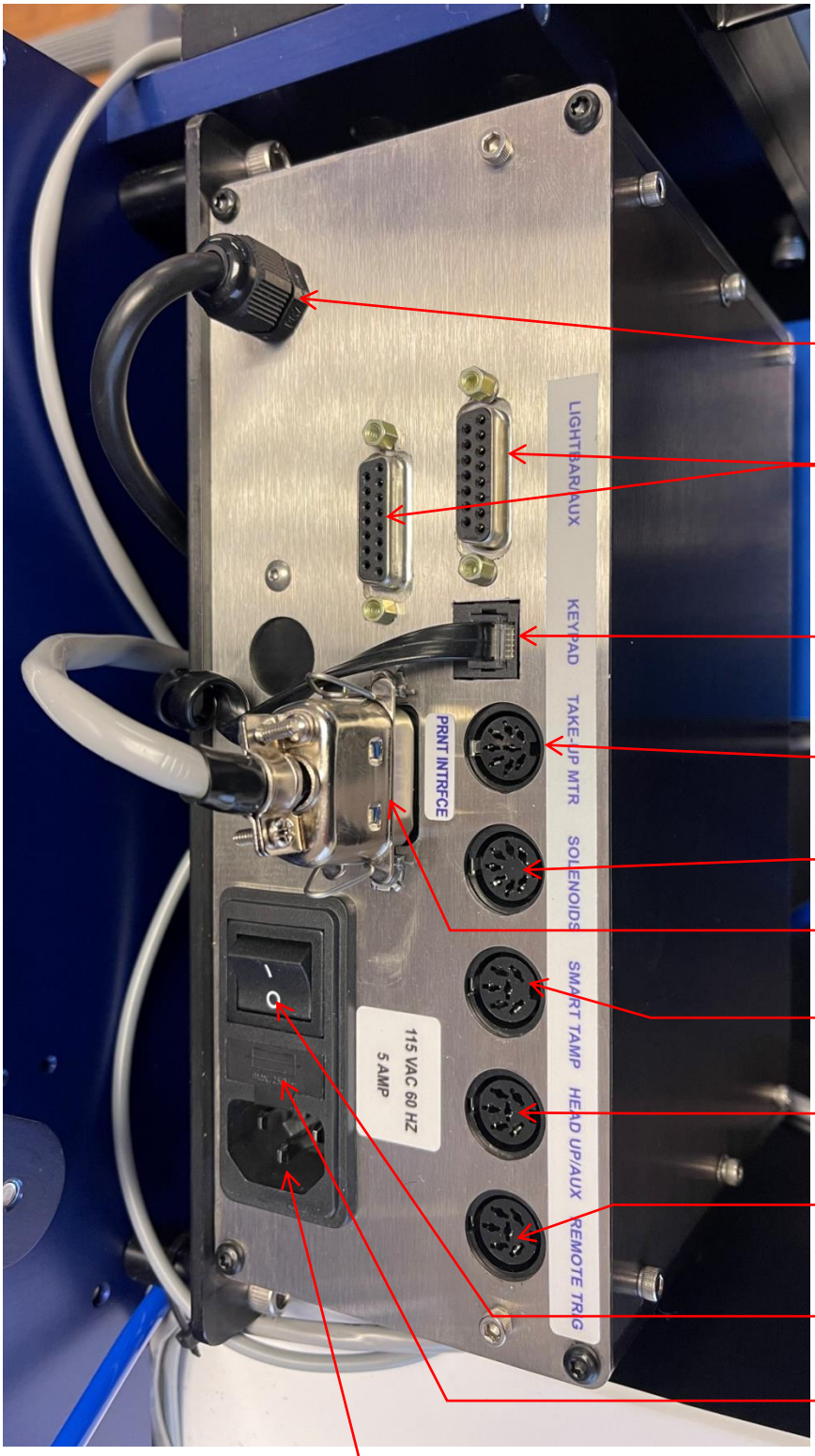
ACCESSORY CONNECTIONS

LOCATED ON BACK OF LABELER CONTROL ENCLOSURE



PRINTER POWER

LOW LABEL & WARNING LIGHT KIT / AUX

HLI-100 PORT

TAKE-UP MOTOR

SOLENOIDS

PRINTER INTERFACE

SMART TAMP / PRE-PRINT

HEAD UP / AUX PORT

START INPUT / REMOTE TRIGGER

POWER SWITCH

FUSE

MAIN POWER ENTRY

2-07

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T-52 PHOTO EYE

(Remote Trigger)

Refer to Section 3 for I/O details

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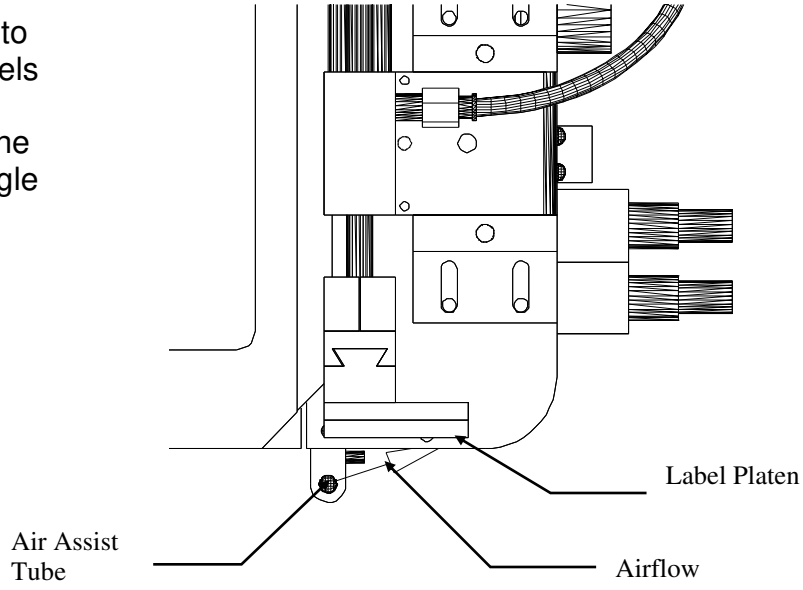
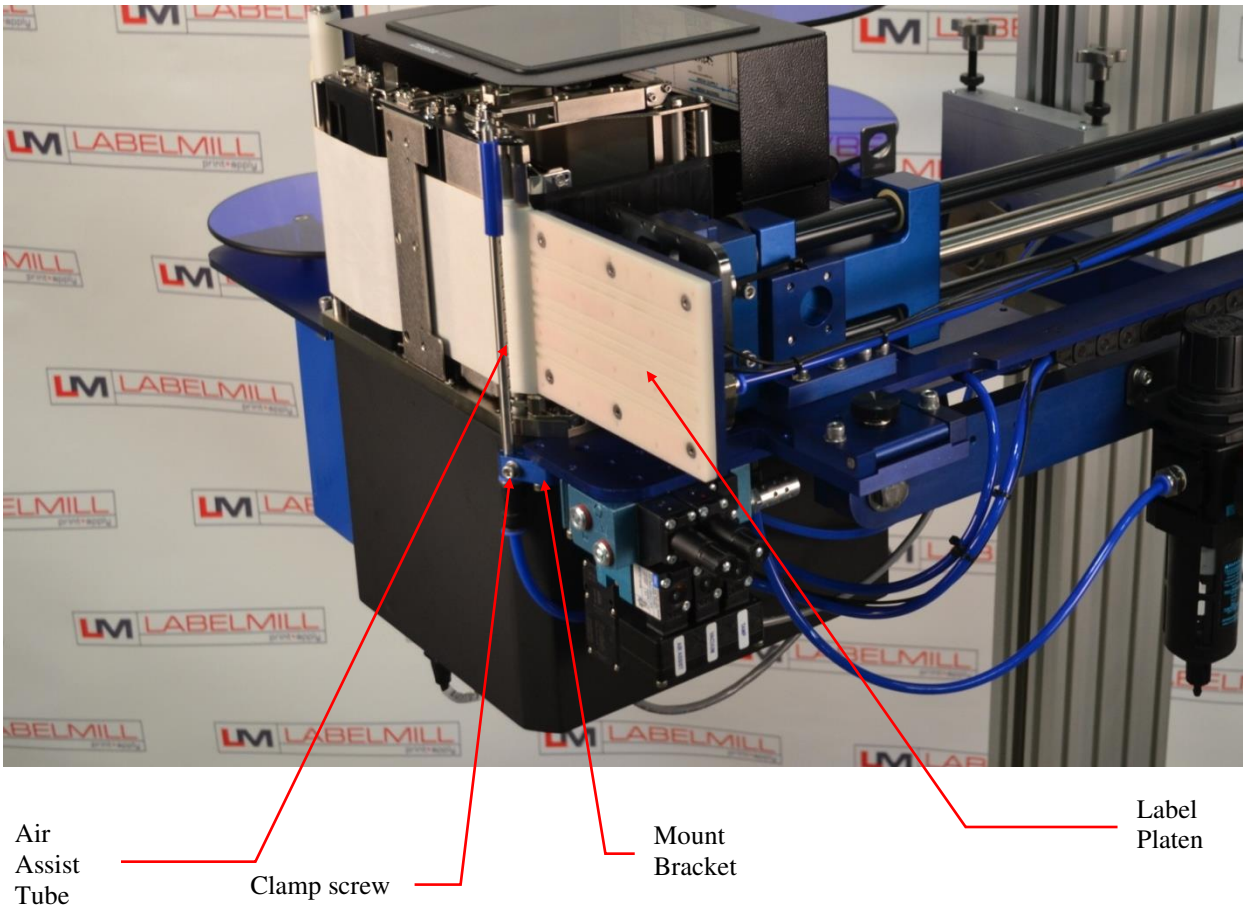
AIR ASSIST TUBE

The Air Assist Tube must be adjusted to clear the trailing edge of the printed labels and the Label Platen. An adjustment screw is used to adjust the position of the air holes in relation to the labels. An angle of 45 degrees is required.

One slot is provided to make the appropriate adjustments desired.





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OPTIONAL T-150 MOUNTING STAND

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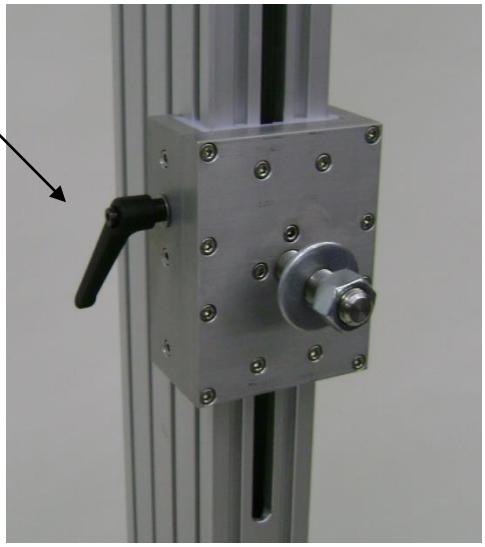
T-STAND ADJUSTMENT

Column Crank

Column Lock



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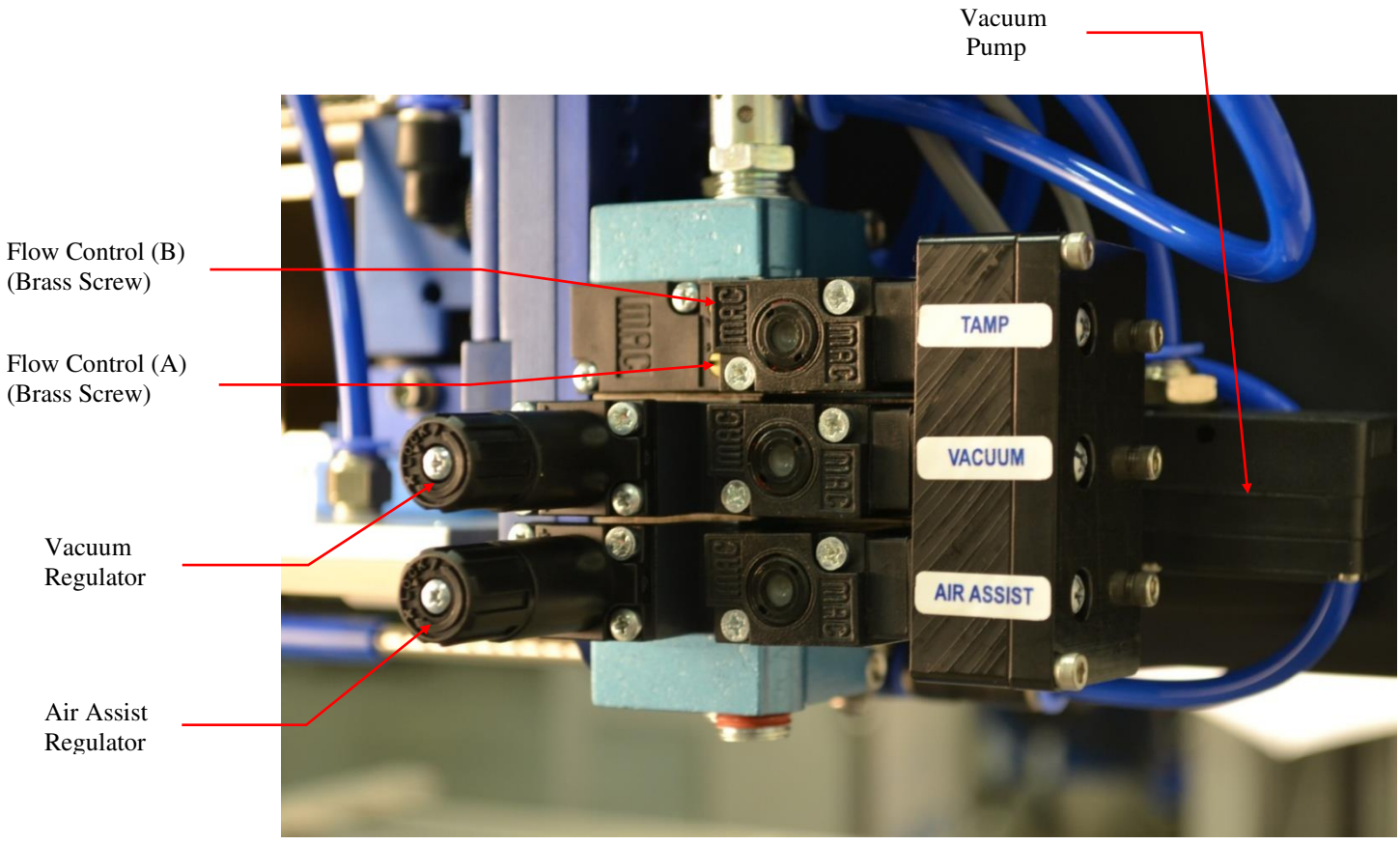
TAMP UNIT OPERATION

Tamp Duration

Tamp duration is used to provide an on timer for the solenoid valve on the main tamp cylinder. The delay on standard versions can be programmed from 0 to 30.000 seconds in 1/1000 of a second accuracy. This allows for easy change over from one product height to another without physically changing the height of the unit. It also allows for precise adjustments of how close the tamp head comes to the product.

There is flow control adjustment for the valves. It may be necessary to adjust the flow rate on the tamp solenoid for optimum performance after installation. The adjustment is performed as shown below. They are set at the factory. The regulators on the vacuum, air assist, and flag valves are for increasing or decreasing the air pressure as necessary for proper operation. Note: Flag Regulator not shown below – only supplied with flag applicators.



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TAMP FLOW CONTROL ADJUSTMENT

Regulator Adjustment:

Clockwise - Increase pressure **Counterclockwise** - Decrease pressure

FLOW CONTROLS (tamp and flag applications)
Control A: This is used to adjust the pressure that controls the tamp cylinder in the upward direction.
Control B: Controls the tamp cylinder in the downward direction.

Valve Pack Regulators

MAIN AIR REGULATOR
Controls maximum air pressure available to entire applicator. Should be set between 40 and 80 PSI.

FLAG REGULATOR
The flag regulator is used to adjust the pressure that the flag jaws apply to the label as it is applied.

VACUUM REGULATOR (only used on the flag and tamp applicator system)
The vacuum regulator is used to control the vacuum that is used to hold the label to the flag jaws or the tamp pad.

AIR ASSIST REGULATOR
The air assist regulator is used to change the pressure that is applied to the blow tube. The blow tube is below the front edge of the peeler plate and is used to help “push” the label onto the bottom of the tamp pad or the flag jaws.

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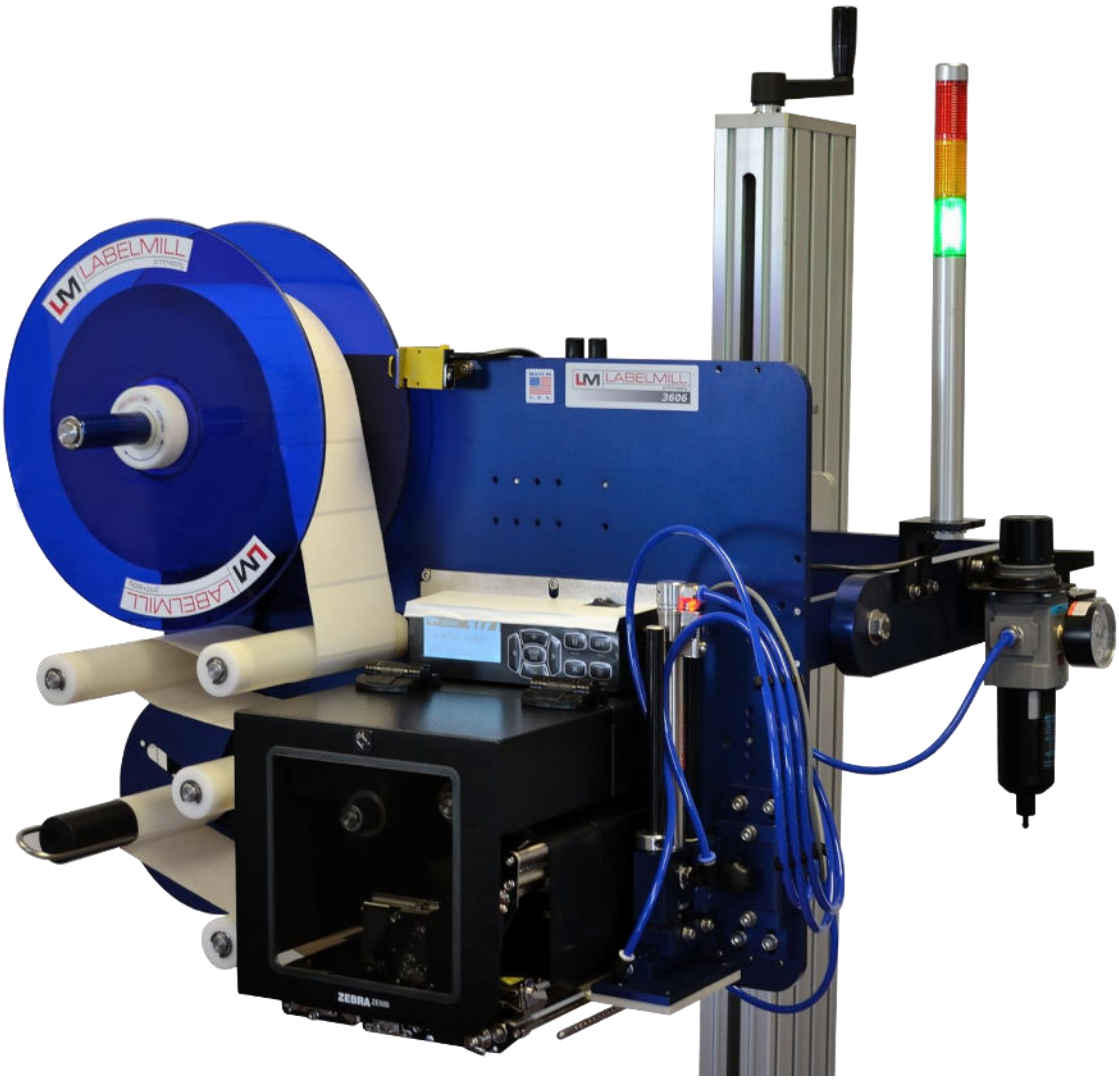
OPTIONAL TAMP APPLICATOR

(Right Hand Configuration Below)



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OPTIONAL CORNER-WRAP APPLICATOR

(Left Hand Configuration Below)

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OPTIONAL ADJACENT PANEL APPLICATOR

(Right Hand Configuration Below)

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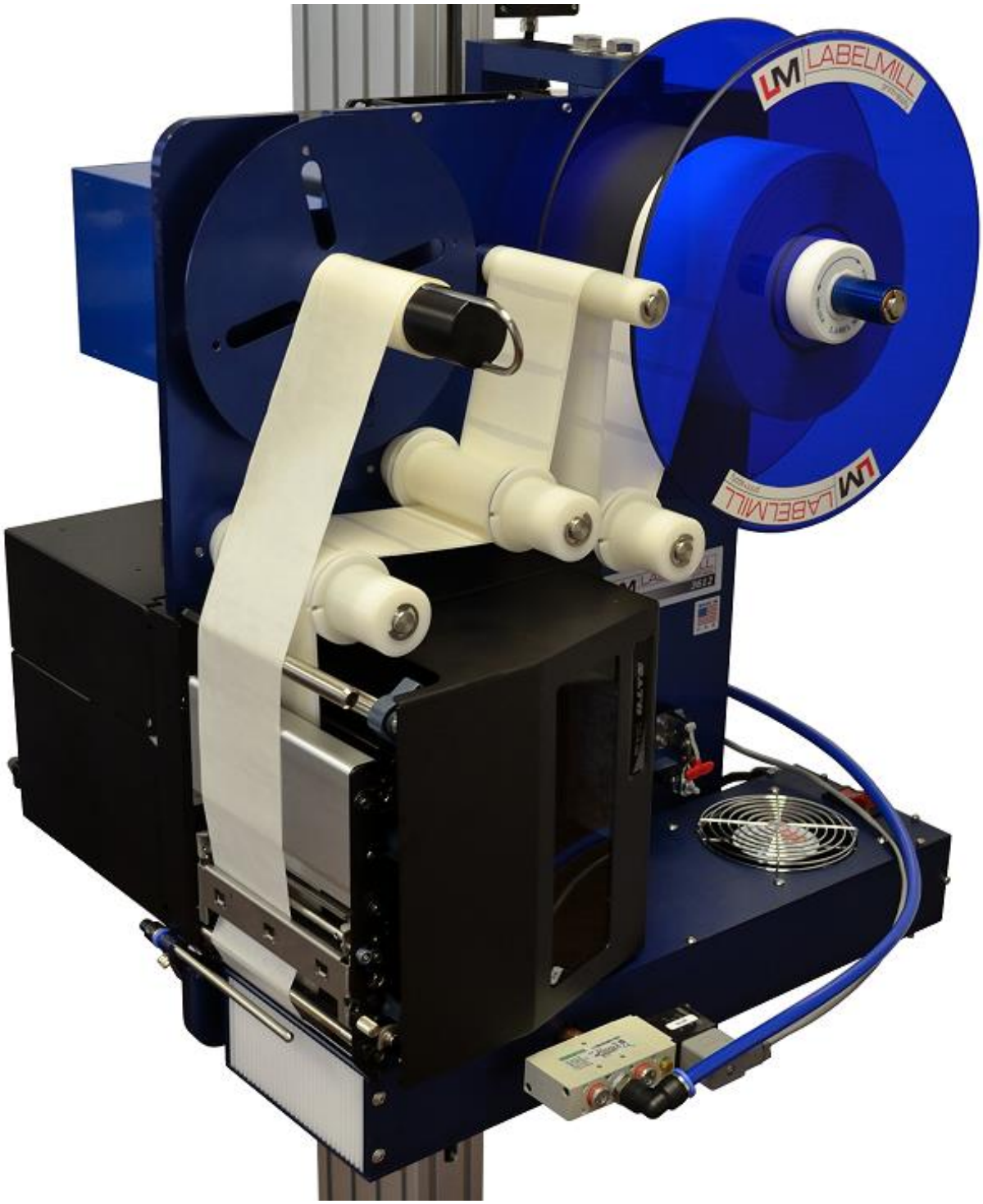
OPTIONAL BLOW-ON APPLICATOR

(Right Hand Configuration Below)



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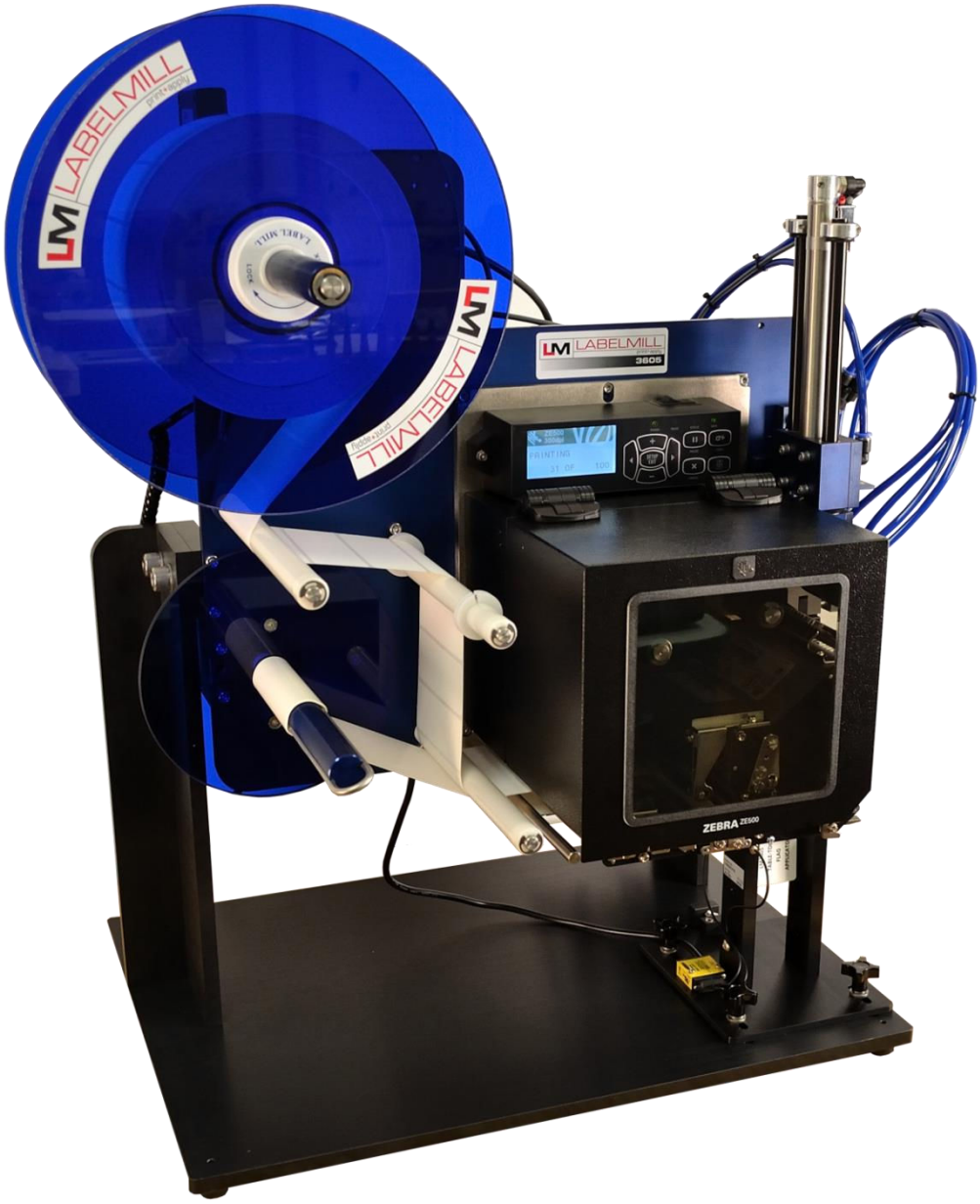
OPTIONAL TABLE-TOP APPLICATOR



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SECTION 3

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Key Definitions	3-13
Quick Start & Set Up of Key Features	3-14
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PROGRAMMING

All programming is performed via the **HLI-100** keypad and display as shown on page 2-6. All programmed settings are backed in nonvolatile memory and are not lost when the unit is powered off.

Upon power up of the control, the screen will display *MODEL NUMBER & REVISION* of the HLI-100 and then the *MODEL NUMBER & REVISION* of the labeler control. After this, the screen will now display the counter, *TOTAL XXXXXXX*.

- **KEY FUNCTIONS:**

"PROG" PROGRAM KEY IS USED TO:

1. **Enter and exit** the program menu.

"ENTER" KEY IS USED TO:

1. Access or "Enter" the selected "PROGRAM BLOCK". (example PRODUCT SENSOR or TAMP SETUP)
2. Access or "Enter" the ***data selection/options*** line (bottom line of display) of the "PROGRAM BLOCK" ***Sub Menus.***
3. Store the selected data.

UP / **DOWN ARROW** KEYS ARE USED TO:

1. Scroll up & down through the primary menu "PROGRAM BLOCKS" . (Header name)
2. Scroll ***sub menus*** inside of "PROGRAM BLOCKS". (top line of display while ***IN*** a "PROGRAM BLOCKS")
3. Increment and decrement programmable values.
4. Select different display views while in the "RUN" mode.

Left / **Right ARROW** KEYS ARE USED TO:

1. Move the "up carrot" left or right when programming a value.

START / **ENABLE** KEY:

1. Start key will initialize the application cycle.
2. Enable key will "Enable" the drive after it has been disabled.

CLEAR / **STOP** KEY:

1. Stop key will abort the cycle only when not in the program menu.
2. Clear key will delete stored values while in the edit mode.
3. Clear key will disable the drive.

ESC (escape) KEY:

1. Will back out of the sub programming menu without saving changes.

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• PASSWORD

The PASSWORD is used to lock the menus of the control. This option is used to prevent unauthorized access to variable data. When shipped from the factory, the pass word is to 7074 and NO MENUS are locked. The password cannot be changed.

• PRODUCT SENSOR

This is an external device that when "activated" starts the application cycle.

PROGRAMMABLE BLOCKS:

Product Delay – Delays the application of the label (x) seconds after the sensor has been activated.
Sensor Trigger – Designates whether the product sensor is activated at the leading or trailing edge of the product.
On Debounce – Allows a small delay to be programmed in to prevent false triggering on the **leading** edge of the product.
Off Debounce - Allows a small delay to be programmed in to prevent false triggering on the **trailing** edge of the product.
Multiple Feed – How many labels are applied to one product with one signal.
Interval Delay – Amount of time in seconds between multiple fed labels. Note: only active if quantity 2 or higher
Two Hand Mode – turn on to activate two-hand anti tie-down input device option.

• TAMP SET UP

This is used to adjust the different variables related to the tamp cycle.

PROGRAMMABLE BLOCKS:

Tamp duration – used to adjust the time that the tamp cylinder valve is actuated. (0.000 to 9.999)
Flag duration – used to adjust the time the flag jaws are held open after label application. (00.00 to 99.99)
Head up limit switch – type: ***normally open-***standard, normally closed, none
Head up Debounce – Debounce is used to allow time for the tamp cylinder to settle on return. (00.00 to 01.00)
Vacuum Release – Used to release label when tamping on light products.
Vacuum Delay On – Used to reduce label flutter when feeding large labels while tamping.

• TAKE UP

This is used to delay the start and stop of the take up motor.

PROGRAMMABLE BLOCKS:

Start delay – delays (x) seconds after start print before starting take up motor.
Stop delay – take up runs (x) seconds after end print signal is received from printer.
Jog take up – press the UP ARROW to start and the DOWN ARROW to stop the take up motor.

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• COUNTER

Used to reset the internal counter of the control (displayed on the main screen of the HLI-100).

• PRINT TYPE

The print type command is used to activate the print repeat cycle in the supplied print engine. This feature will continue to print the **last label** in the buffer after the buffer count has expired.

PROGRAMMABLE BLOCKS:

Reprint – Turns reprint option ON or OFF

Serial End – On or Off Not Supported

• CYCLE TYPE

Cycle Type determines the application type and sequence in relation to the label feed.

PROGRAMMABLE BLOCKS:
No Tamp- Print and Feed Label Only
Tamp Before Feed – (standard) Tamps label first, prints label second
Tamp After Feed – Prints label first, tamps label second
Blow Before Feed – Blows on label first, prints label second
Blow After Feed - Prints label first, Blows on label second
Pre-Print Tamp – First trigger prints label, second trigger applies tamp label (requires additional external trigger)
Pre-Print Blow – First trigger prints label, second trigger blow applies label (requires additional external trigger)
Clamshell Before Feed – Clamshell applies label first, prints label second
Clamshell Before Feed – Prints label first, clamshell applies label second
Round Before – Not Supported
Round After – Not Supported

• JOB STORAGE

Used to store frequently used settings pertaining to different labeling jobs.

PROGRAMMABLE BLOCKS:
SAVE JOB – stores settings for active job.
RESTORE JOB – Restores saved job.

• DEFAULT SETTINGS

This setting will return the controller to the default settings.

• I/O STATUS

Displays the status of the inputs and outputs

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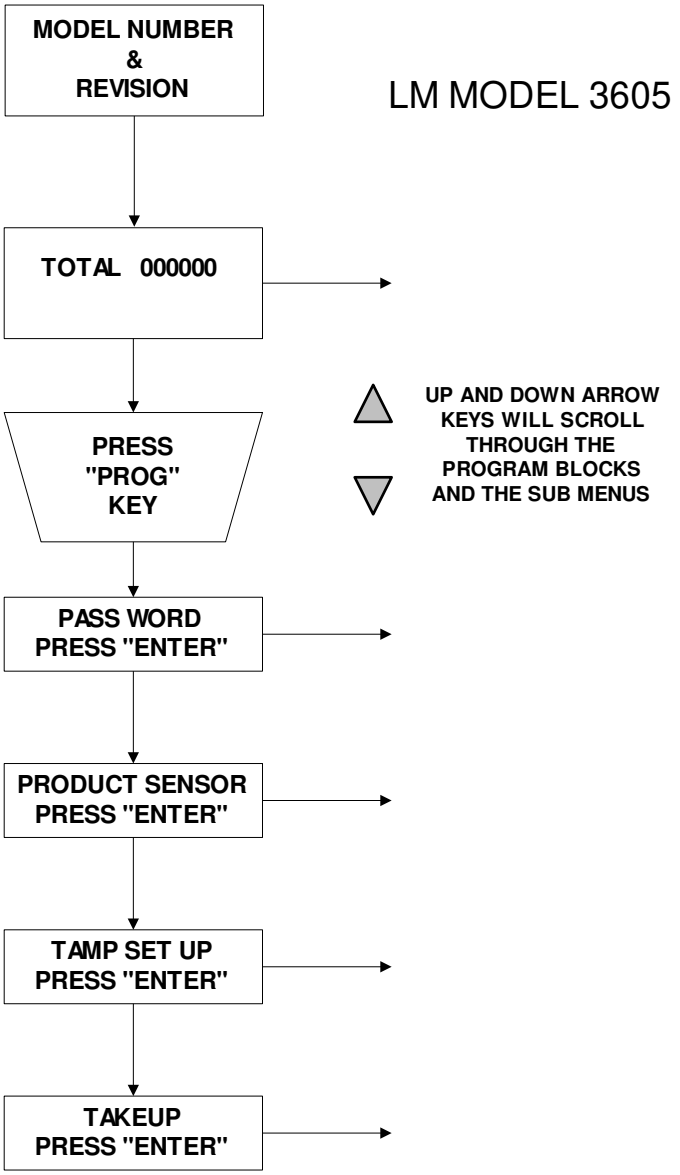
QUICK PROGRAMMING CHART



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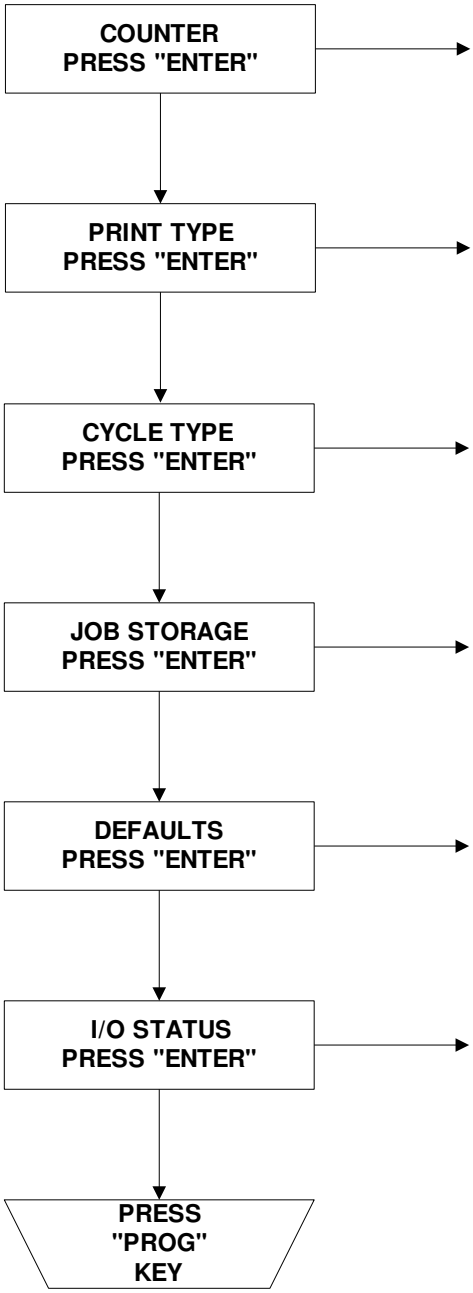

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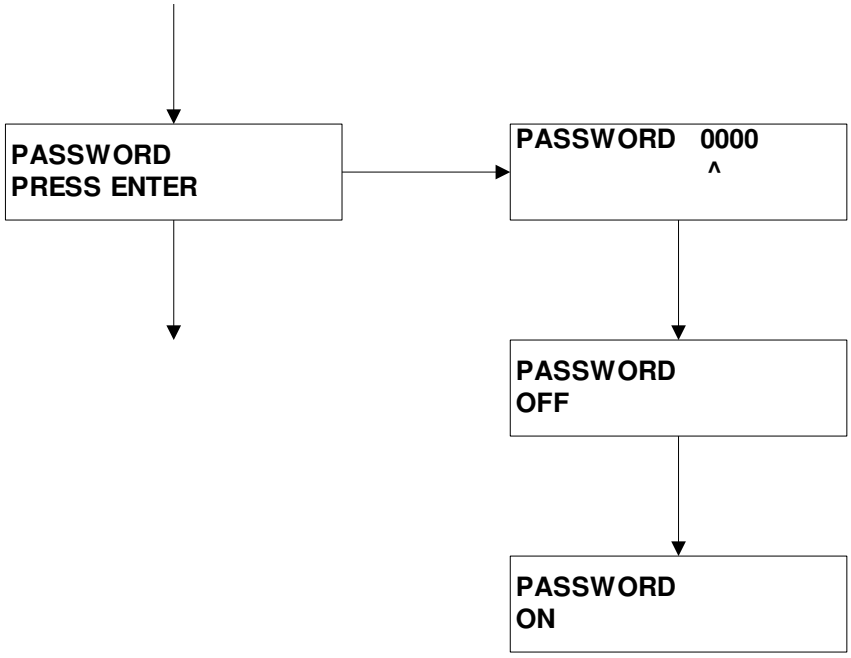
MAIN DISPLAYS



Note: use UP and DOWN arrows to toggle between "ON" and "OFF". The enter key will save selection.

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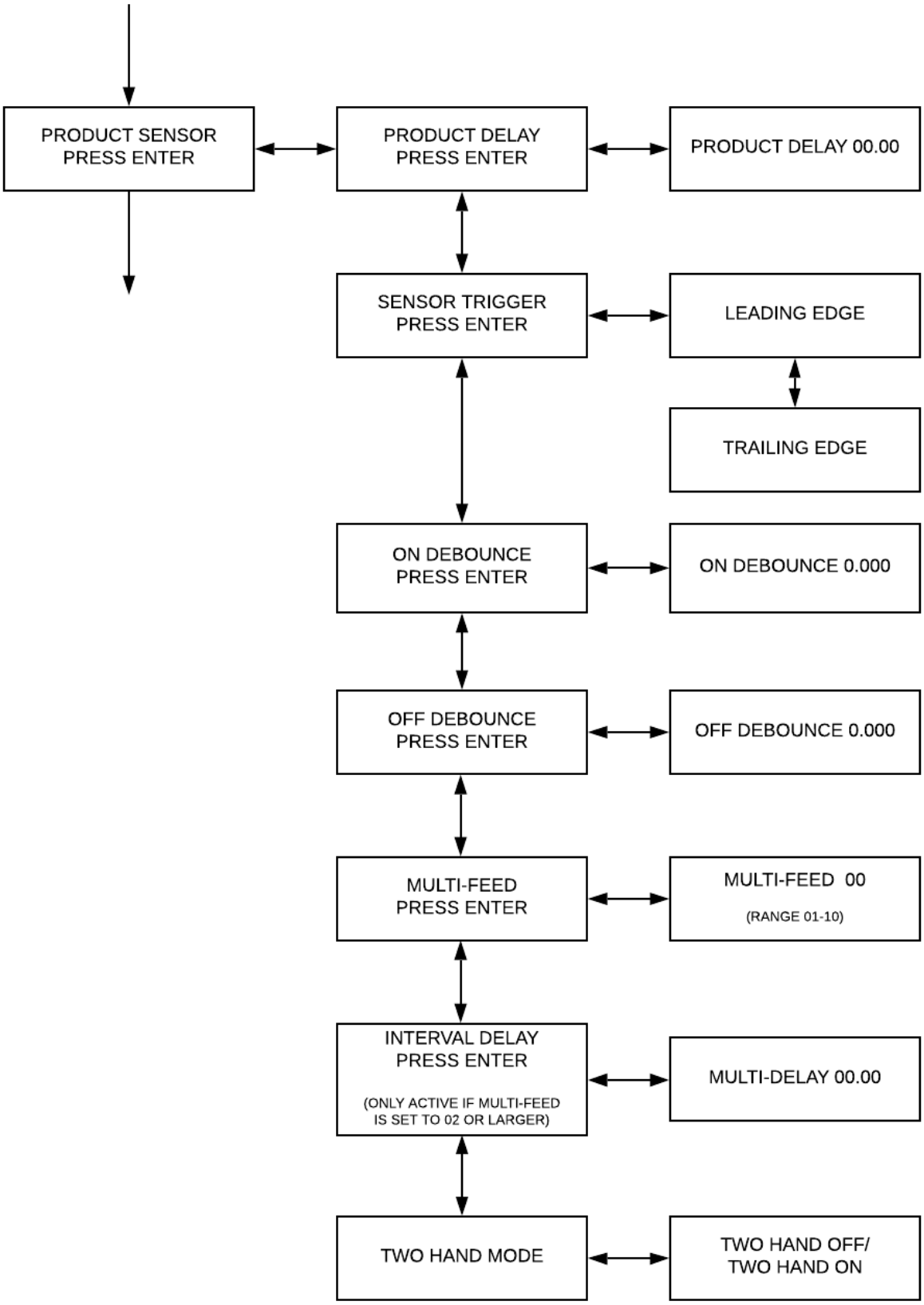

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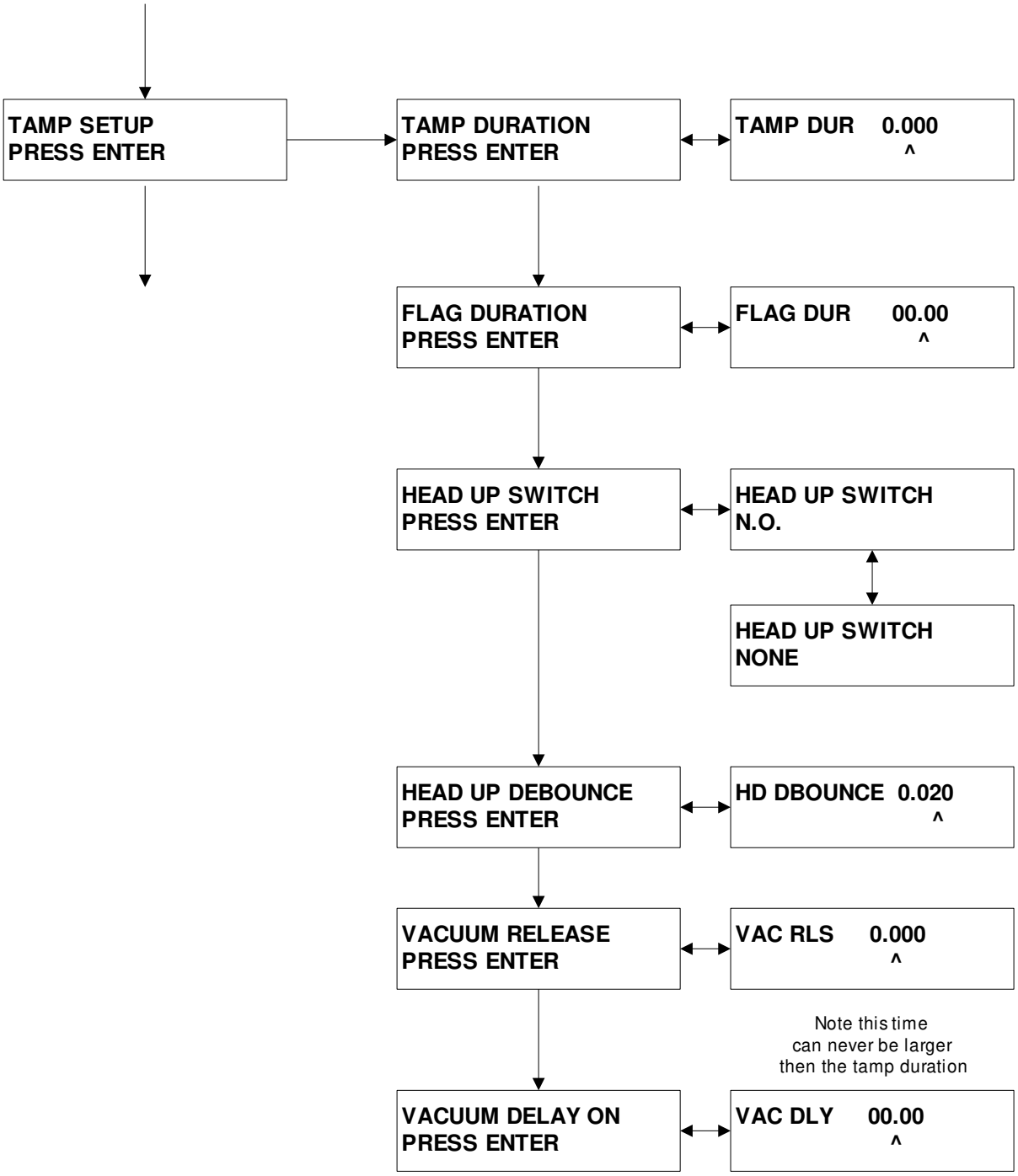

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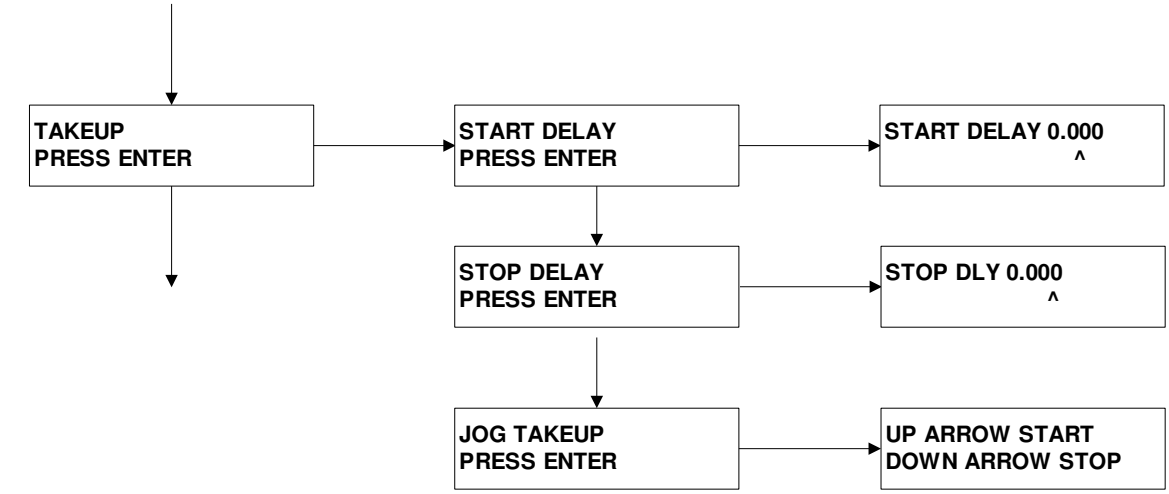

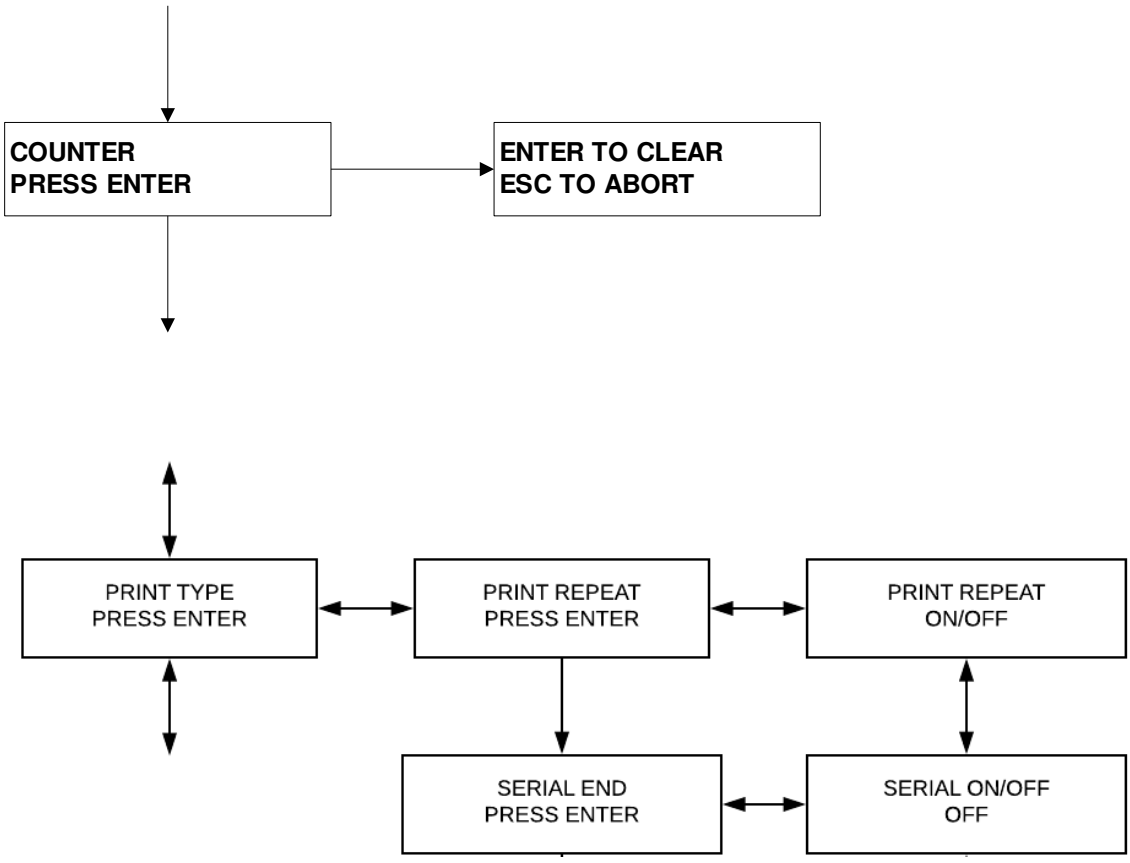

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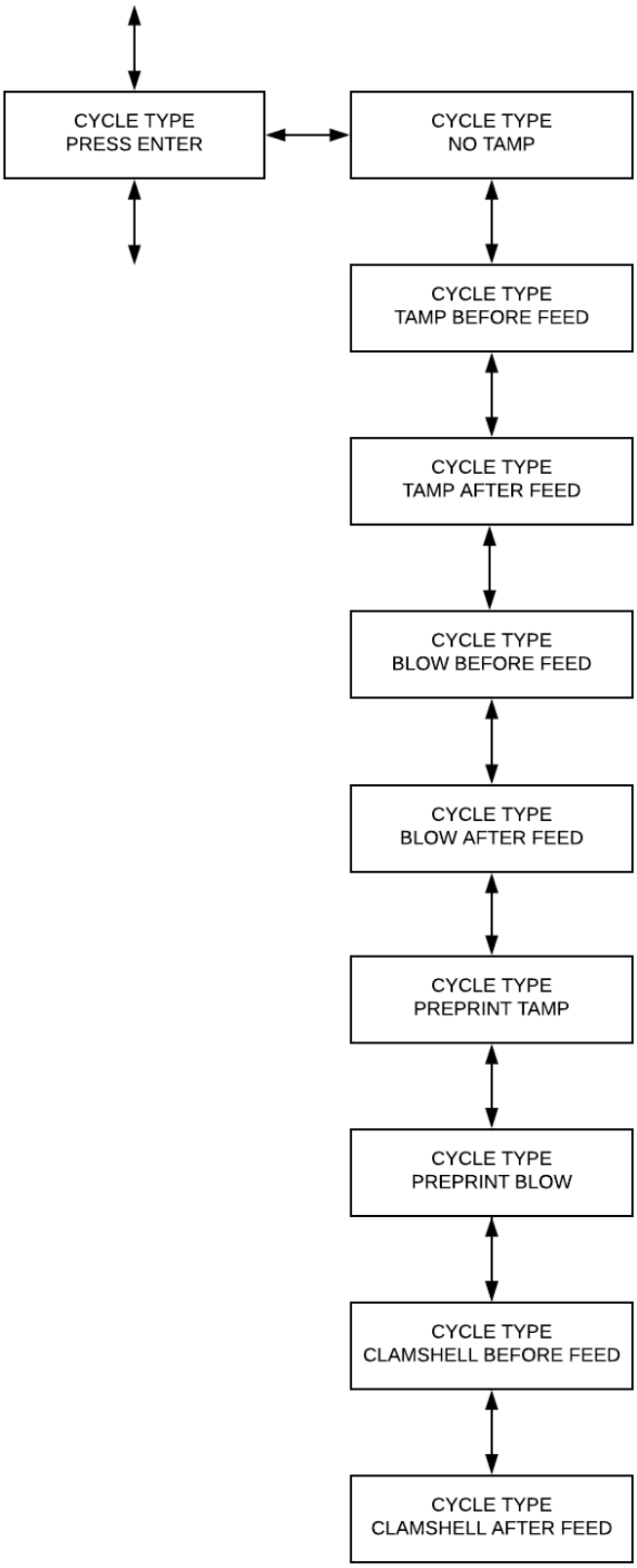

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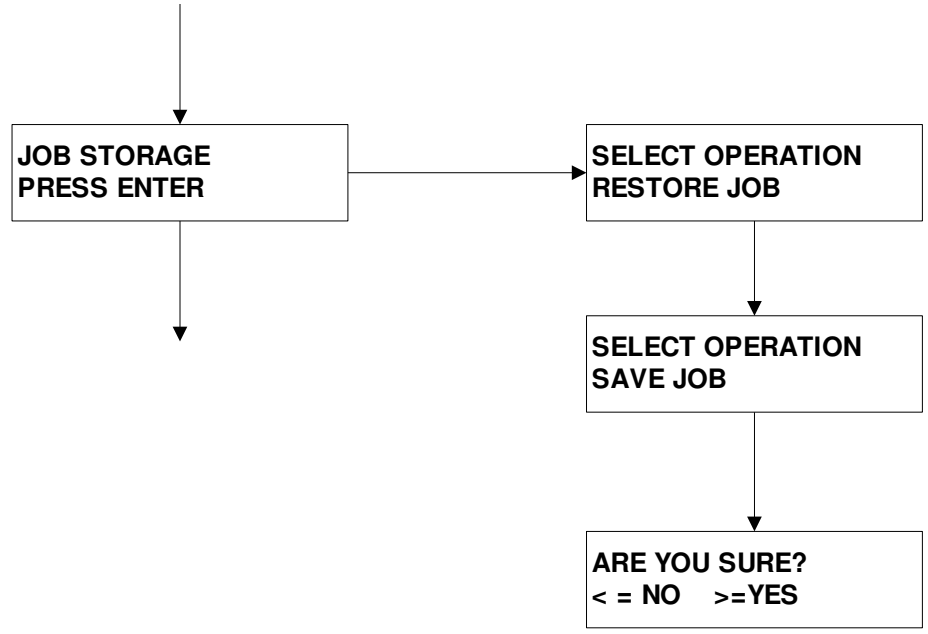

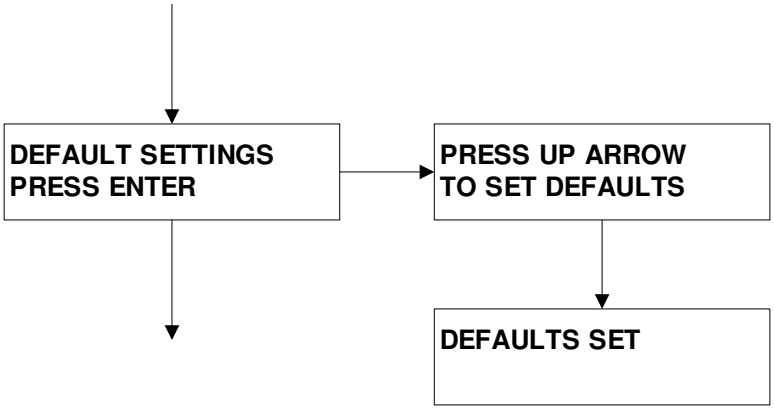

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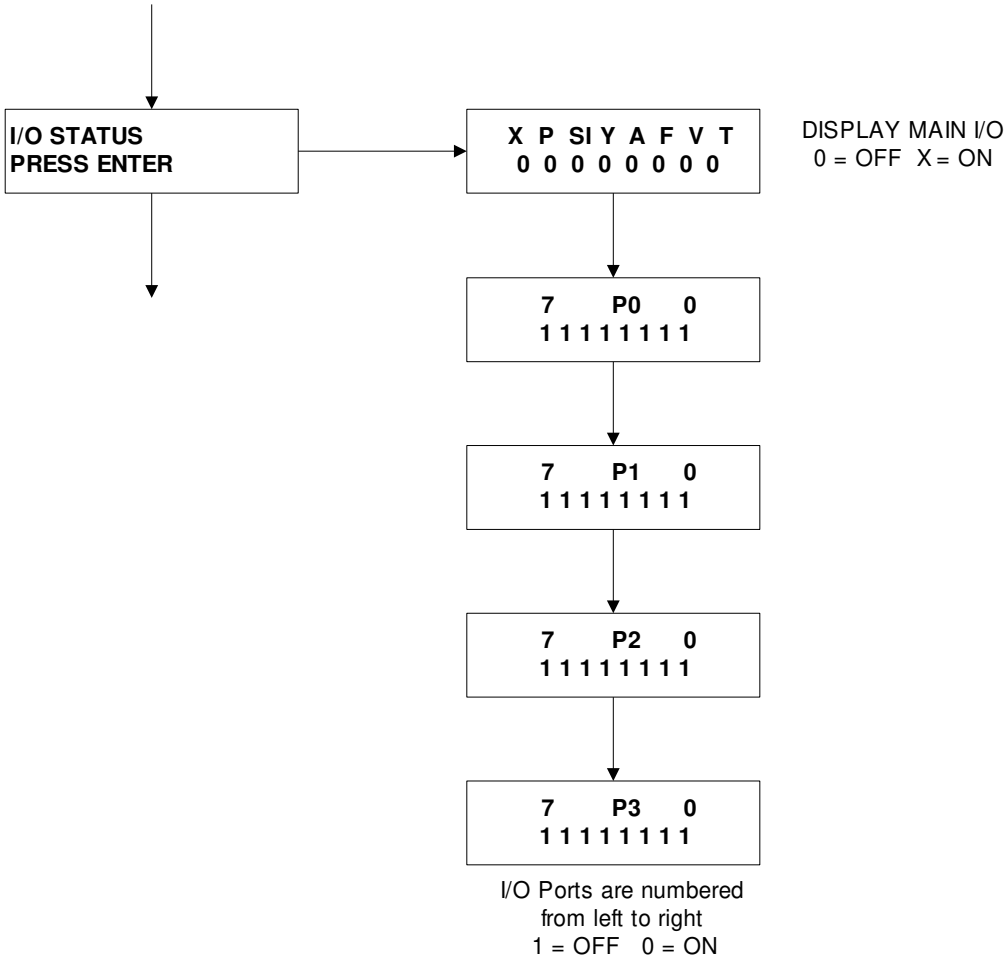

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KEY DEFINITIONS

- ASYNCHRONOUS OPERATION – The term "ASYNCHRONOUS OPERATION" is used because the speed of the printer applicator motor (label speed) does not necessarily match the speed of the product conveyor. In other words their speed is set independently of one another and has NO interrelation. The 3606 can only be configured in asynchronous operation.

- SYNCHRONOUS OPERATION - The term "SYNCHRONOUS OPERATION" is used because the speed of the applicator motor (label speed) is matched to the speed of the product conveyor. In order to accomplish this, an encoder is used to monitor the speed and distance the product conveyor travels. In order for this feature to function the "CONVEYOR LOCK" mode must be turned on. In synchronous operation, the applicator motor is ELECTRONICALLY GEARED to the product conveyor. **The 3606 CANNOT be configured in synchronous operation.**

- START COMPENSATION – Start compensation compensates for the reaction time of the Label Mill control and start signal from the product switch. The purpose of start compensation is to maintain label placement on a product that is traveling at different speeds. An example of this is a conveyor that accelerates on start up and decelerates to a stop. At high speeds an uncompensated system would apply a label too late and the label would be placed too far back on the product. Linear interpolation is used to correct this problem. The start compensation corrects this error by adding an offset distance at LOW speeds, since it is not possible to apply any correction at high speed. **Note: Start compensation ONLY effects label placement on product.**

- ELECTRONIC GEARING – Electronic gearing is a function of the product encoder and the LabelMill control. This is used to match the speed of the applicator to the product conveyor. Electronic gearing is similar to mechanical gearing in that there is a gear ratio and the change of speed of one affects the speed of the other. This feature is part of the Synchronous feed mode. In order for this to operate properly, the correct number of lines per inch of product travel must be entered into the ENC LINES/INCH in encoder setup menu.

- ENCODER – AN ENCODER is a device that is used to monitor the speed of an external device like a product conveyor. The reason this speed is monitored is to match the speed of the label applicator to the product speed. An encoder uses "LINES or COUNTS" per revolution in order to track speed and distance. Note that lines per revolution are also referred to as counts per revolution. These counts are feed into the LABEL MILL control to be processed for the different features that require this feedback.

- ENCODER OVERRIDE – This feature is used in conjunction with ELECTRONIC GEARING. This feature is used to fine-tune the ratio of the applicator to the product conveyor.

- TRIGGER DIST – TRIGGER DISTANCE is used in conjunction with the encoder feature. Trigger distance is similar to product delay in that it is used to electronically move the placement of the label on the product. When the encoder feature is used, the product delay feature is rendered inactive. Trigger distance will move the label placement in inches (00.00).

- PRODUCT DELAY is NOT used in conjunction with the encoder feature. Product delay is similar to trigger distance in that it is used to electronically move the placement of the label on the product. Product delay will move the label placement in time (00.000) seconds. Because the product delay feature utilizes time, the speed of the product MUST remain constant. A product traveling at a higher velocity will travel further in a given time, thus effecting the placement of the label.

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QUICK START GENERAL SETUP
(TAMP APPLICATION)

1. Inspect applicator system and verify all cables are installed properly.
2. Web system with labels.
3. Turn power switch on.
4. Turn printer on & load label files.
5. Press “PROGRAM”
6. Enter Defaults.
7. Select "PRODUCT SENSOR"
8. Enter sensor parameters.
9. Press "TAMP SETUP"
10. Set tamp duration to .500 and set Head up switch to “N.O.”
11. Press "CYCLE TYPE"
12. Set cycle type to “Tamp Before Feed”
13. Press "EXIT"
14. System is now ready for set up of advanced features and options.

SETUP OF KEY FEATURES

HOW TO SET UP AN ASYNCHRONOUS APPLICATION

- **“TAMP”**

Determine the following and select it in the software

1. Type of application mode. MENU “CYCLE TYPE”
2. Tamp before or after feed (before feed is standard)
3. Enter a value in the tamp duration (start with 00.500).
4. Set head up limit switch, normally open is standard.
5. Use the product delay to “MOVE” the label placement on the product.

The asynchronous application mode is used to apply labels to products that are either stationary or moving at a constant speed when the label application is to take place.

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PRODUCT DELAY

PRODUCT DELAY is NOT used in conjunction with the encoder feature. Product delay is similar to trigger distance in that it is used to electronically move the placement of the label on the product. Product delay will move the label placement in time (00.000). Because the product delay feature utilizes time, the speed of the product MUST be constant and consistent.

1. Set basic applicator up first, refer to quick setup
2. Ensure that applicator is operating properly before starting this procedure.
3. Set Product delay to 00.000
4. Start system and apply label at the desired speed.
5. Check the placement of the label on the product.
6. Measure the OFFSET of the label placement. Note: A label CAN NOT be advanced on the product ONLY moved "back" since the applicator can only delay the product signal.
7. Apply a small delay to the product delay or if too great, it may be necessary to physically move the product switch. Keep product delays to a minimum for best results.
8. Operate system again and measure offset.
9. Apply a small delay to the product delay or reduce if too much.
10. Test again, repeat if necessary until label is in proper registration.
11. Turn back on any options that may have been disabled for setup of this particular feature

HOW TO APPLY MULTIPLE LABELS TO A SINGLE PRODUCT

Product delay is used to electronically move the placement of the **FIRST** label on the product. Product delay will move the label placement in time (00.000). Because the product delay feature utilizes time, the speed of the product MUST be constant and consistent. This section will explain how to apply more than one label to a single product with a single start signal. MULTIPLE FEED will allow you to select how many labels to be applied.

1. Set basic applicator up first, refer to quick setup
2. Ensure that applicator is operating properly before starting this procedure.
3. Set Product delay to 00.000
4. Start system and apply label at the desired speed.
5. Check the placement of the label on the product.
6. Measure the OFFSET of the label placement. Note: A label CAN NOT be advanced on the product ONLY moved "back" since the applicator can only delay the product signal.
7. Apply a small delay to the product delay or if too great, it may be necessary to physically move the product switch. Keep product delays to a minimum for best results.
8. Operate system again and measure offset.
9. Apply a small delay to the product delay or reduce if too much.
10. Test again; repeat if necessary until label is in proper registration.
11. Go to **MULTIPLE FEED** in PRODUCT SENSOR menu and set the number of labels to be applied to the product.
12. Set the Distance between each label entering a time (0.000) into **"INTERVAL DELAY"**
13. Test the placement of the labels and adjust as necessary. Note: The spacing between each label will be equal. With this feature the space between labels **cannot** be set individually.
14. Note: **TRAILING EDGE TRIGGER** will NOT work with this feature!
15. Note: Product speed fluctuations can effect label placement.
16. Turn back on any options that may have been disabled for setup of this particular feature.

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HOW TO SET UP A VARIABLE DATA APPLICATION

- **"TAMP" WITH TWO TRIGGER PHOTO EYES**

Variable data application is utilized when the LM3606 is interfaced with a scale or other equipment that will be transmitting a DIFFERENT label format to the applicator for every label that is applied. When this option is activated, the use of the **pre-print photo eye (option) is required**. The pre-print photo eye will trigger the printing of the label. The product photo eye (switch) will trigger the application (tamp) of the label. The reason for two triggers is to improve the accuracy of the label placement when **printing before applying**.

General set up

1. The PRE-PRINT photo eye connects to the AUX 2 port.
2. The PRE-PRINT photo eye should be set to trigger on the leading edge of the product.
3. The PRE-PRINT photo eye should be set to trigger BEFORE the product switch.
4. The PRE-PRINT photo eye should be set to allow the printer enough time to print the format before the product switch is activated.
5. The PRODUCT DELAY should be kept to a minimum.
6. With this feature only work with the cycle type set to "tamp after feed' and only with "leading edge trigger".

Determine the following and select it in the software

- "TAMP AFTER FEED"

1. Set Product Sensor to leading edge.
2. Set Cycle type to tamp after feed.
3. Set print Type to "Variable Data ON"
4. Enter a value in the tamp duration (start with 00.500)
5. Set head up limit switch, normally open is standard
6. Use the product delay to "MOVE" the label on the product

The asynchronous application mode is used to apply labels to products that are either stationary or moving at a constant speed when the label application is to take place.

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LOGIC BOARD

DESCRIPTION OF I/O

LEGEND

24V OPT: 24V OPTO INPUT WITH INTERNAL 24V COMMON
OH: HIGH CURRENT OUTPUT Rated @ 500ma

All user inputs and outputs are **"SINKING"** type.
Example: In order for a status light to illuminate for "Run Status Ok" the light should be wired between pins #1 & #8 on the **"Light Bar/Aux"** Connector.

Status display legend: 0 = OFF X = ON

INPUTS				OUTPUTS			
S	P	H	Y	A	F	V	T
SMART TAMP	PRODUCT SENSOR	HEAD UP TAMP SENSOR	AUX OUT #1	AIR ASSIST SOL	FLAG SOL	VACUUM SOL	TAMP SOL

P0.0	Paper End Input	0=On
P0.1	Ribbon End Input	0=On
P0.2	Priner Error Input	0=On
P0.3	Ribbon Near End Input	0=On
P0.4	Print End Input	0=On
P0.5	On-Line Input	0=On
P0.6	Reprint Output	0=On
P0.7	Print Output	0=On
P1.3	Red Light On (Green Off)	1=On
P1.4	Yellow Light On	1=On
P1.5	Low Label Input	0=On
P1.6	Takeup Motor Out	0=On
P1.7	Pre-Print / 2-Hand Start	0=On
P2.0	Tamp Sync. Output	0=On
P2.1	Green Light Output	0=On
P2.4	Vaccum Sol Out	0=On
P2.5	Air Assist Out	0=On
P2.6	Tamp Out	0=On
P2.7	Flag Sol Out	0=On
P3.2	In-Cycle Output	0=On
P3.4	Trigger Input	0=On
P3.5	Head Up Switch Input	0=On
P3.6	Smart Tamp Input	0=On
P3.7	Inhibit Input	0=On

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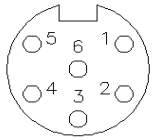
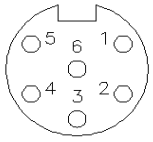
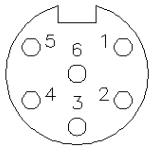
REMOTE TRIGGER CONNECTOR (PRODUCT SWITCH)	P PIN #	I/O	I/O Monitor ADDRESS
+24vdc	1		
+24vdc	2		
Trigger Input #1	3	Input	
Pre-Print	4	Input	
24v Common	5		
24v Common	6		
Shield			



HEAD-UP / AUX IN	P PIN #	I/O	I/O Monitor ADDRESS
+24vdc	1		
+24vdc	2		
Head – Up	3	Input	
Smart Tamp	4	Input	
24v Common	5		
24v Common	6		
Shield			



SMART TAMP	P PIN #	I/O	ADDRESS
+24vdc	1		
+24vdc	2		
Pre-Print	3		
Smart Tamp	4		
24v Common	5		
24v Common	6		
SHIELD			



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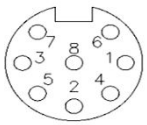
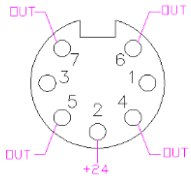
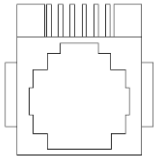
WASTE TAKE-UP	P PIN #	I/O	I/O Monitor ADDRESS
	1	Input	
	2		
	3		
Take up output	4		
	5		
	6		
	7		
+24vdc	8		
Shield			



TAMP SOLENOIDS	P PIN #	I/O	I/O Monitor ADDRESS
	1	Output	
+24 Volt	2		
No connection	3		
Air Assist Sol 24vdc	4	Output	
Vacuum Sol 24vdc	5	Output	
Tamp Sol 24vdc	6	Output	
Flag Sol 24vdc	7	Output	
Shield			



KEYPAD / DISPLAY RS232 HMI RJ Conn	P PIN #	I/O	ADDRESS
232 XMIT	1		
232 RCV	2		
GND	3		
+24VDC	4		
GND	5		
	6		



LIGHT BAR/AUXILIARY CONNECTOR DB-15 FEMALE	P6 PIN #	INPUT/ OUTPUT	ADDRESS	
+24VDC	1			
+24VDC	2			
24 COM	3			
24 COM	4			
LOW LABEL IN	5	I		
ERROR LITE (Red light)	6	O		On=GREEN Off=RED
LOW LABEL (Yellow light)	7	O		
RUN STATUS OK (Green Light)	8	O		Green = /Red
TAMP SYNC (TIP-120)	9	O		
INHIBIT IN	10	I		
No Connection	11	I		
No Connection	12	I		
No Connection	13	I		
IN CYCLE	14	O		
No Connection	15	O		

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LIGHT BAR/AUXILIARY CONNECTOR **DB-15 FEMALE**	P7 PIN #	INPUT/ OUTPUT	ADDRESS	
+24VDC	1			
+24VDC	2			
24 COM	3			
24 COM	4			
LOW LABEL IN	5	I		
ERROR LITE (Red light)	6	O		On=GREEN Off=RED
LOW LABEL (Yellow light)	7	O		
RUN STATUS OK (Green Light)	8	O		Green = /Red
TAMP SYNC (TIP-120)	9	O		
INHIBIT IN	10	I		
No Connection	11	I		
No Connection	12	I		
No Connection	13	I		
IN CYCLE	14	O		
No Connection	15	O		

PRINT AND APPLY INTERFACE **14 pin Centronix**	P PIN #	I/O	I/O Monitor ADDRESS
Paper End	1	Input	
Printer Ground	2		
Ribbon End	3	Input	
Printer Error	4	Input	
Print Start	5	Output	
Print End	6	Input	
Reprint	7	Output	
	8		
ONLINE (Sato Only) (Zebra Data Ready)	9	Input	
Ribbon Near End	10	Input	
	11		
	12		
+5vdc From Printer	13		
	14		
Shield			

PHOENIX **CONNECTOR** **DC POWER IN**	P11 PIN #	ADDRESS
COM	1	
+24 VDC	2	
COM	3	

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SECTION 4

CLEANING & MAINTENANCE

Troubleshooting 4-01
Fault Codes 4-02
Replacing the Power Fuse 4-03

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TROUBLESHOOTING GUIDE

If the system malfunctions, it is necessary to determine where the problem exists in a normal sequence of operation. The procedure of the unit is outlined in the left hand column of the table below to provide a systematic approach to troubleshooting.

Problem	Possible Cause	Corrective Action
Unit will not turn on.	A. Blown Main Fuse	Check main power fuse and replace if necessary as shown on page. Check printer fuse
Tamp will not operate.	A. Cable B. No tamp duration C. Sticky cylinder	Check connection Reference to page 3-02 Consult factory
Unit will not print or tamp	A. Unit off line B. Incorrect label configuration C. No label format downloaded D. Wrong interface selected E. Interface cable F. Error on printer	Check printer cover limit switch Check software Check software Check applicator mode setting (printer) Check connection Check printer manual
Take-up unit does not turn.	A. Motor not running B. Friction plate failure in clutch C. Mechanical failure in clutch	Consult Factory Consult Factory Consult Factory
Waste web tension too loose.	A. Clutch tension too low.	Adjust clutch as shown on page 2-05.
Waste web breaks or printing drifts on labels	A. Clutch adjusted to tight. B. Machine webbed wrong. C. Low quality webbing. D. Friction plate failure in clutch. E. Mechanical failure in clutch.	Adjust clutch as shown on page 2-05. Re-web system as shown on page 2-01. Consult label mfg. Consult factory. Consult factory.

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FAULT MESSAGES

DISPLAYED FAULT	FAULT	CORRECTIVE ACTION
Memory Checksum	Data lost in serial EEPROM	Consult factory or service provider
Print Time Out	Printer failed to print or Control failed to receive a "End Print Signal"	A. Printer Off Line B. No Label Formats Loaded C. Check Printer Interface Cable D. Printer mode incorrect
Tamp Down FLT	Head up limit switch failed to switch during the tamp cycle. Cylinder did not move off of reed switch.	A. Tamp Cylinder Is Not Up B. Miss Adjusted Reed Switch C. Faulty Reed Switch D. Tamp duration too small E. Check programming of Tamp switch NOTE: Light on reed switch should be on when cylinder is up
Head Down	Head up limit switch failed to switch during the tamp cycle. Cylinder did not return up.	A. Tamp Cylinder Is Not Up B. Miss Adjusted Reed Switch C. Faulty Reed Switch D. Tamp duration too small E. Check programming of Tamp switch NOTE: Light on reed switch should be on when cylinder is up
Ribbon Out	Printer is out of ribbon	Check printer for ribbon
Low Ribbon	Printer is low on ribbon	Check printer for ribbon
Label Out	Printer is out of ribbon	Check printer for label stock

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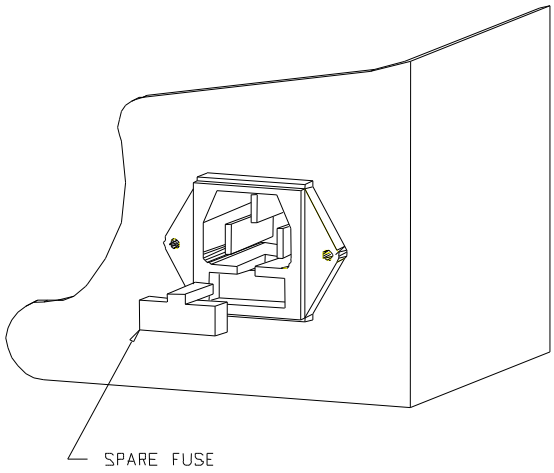
REPLACING THE MAIN POWER FUSE

The circuitry is protected from a current overload by GMA 5A a fast blow fuse. Should the applier fail to operate, the condition of this fuse should be checked. If the fuse is open, the cause of the overload condition must be determined and corrected prior to replacing the fuse. NEVER replace the fuse with one of a greater AMP rating. The specified rating has been selected to prevent damage and/or injury.

ACTIONS TO REPLACE THE MAIN FUSE

1. Set the main power switch to the OFF position.
2. Disconnect the AC power cable from the rear of the console.
3. Locate the fuse holder / power cord assembly.
4. Gently press down the fuse holder cover while pulling away from the console.
5. Replace with the spare fuse provided in the holder.



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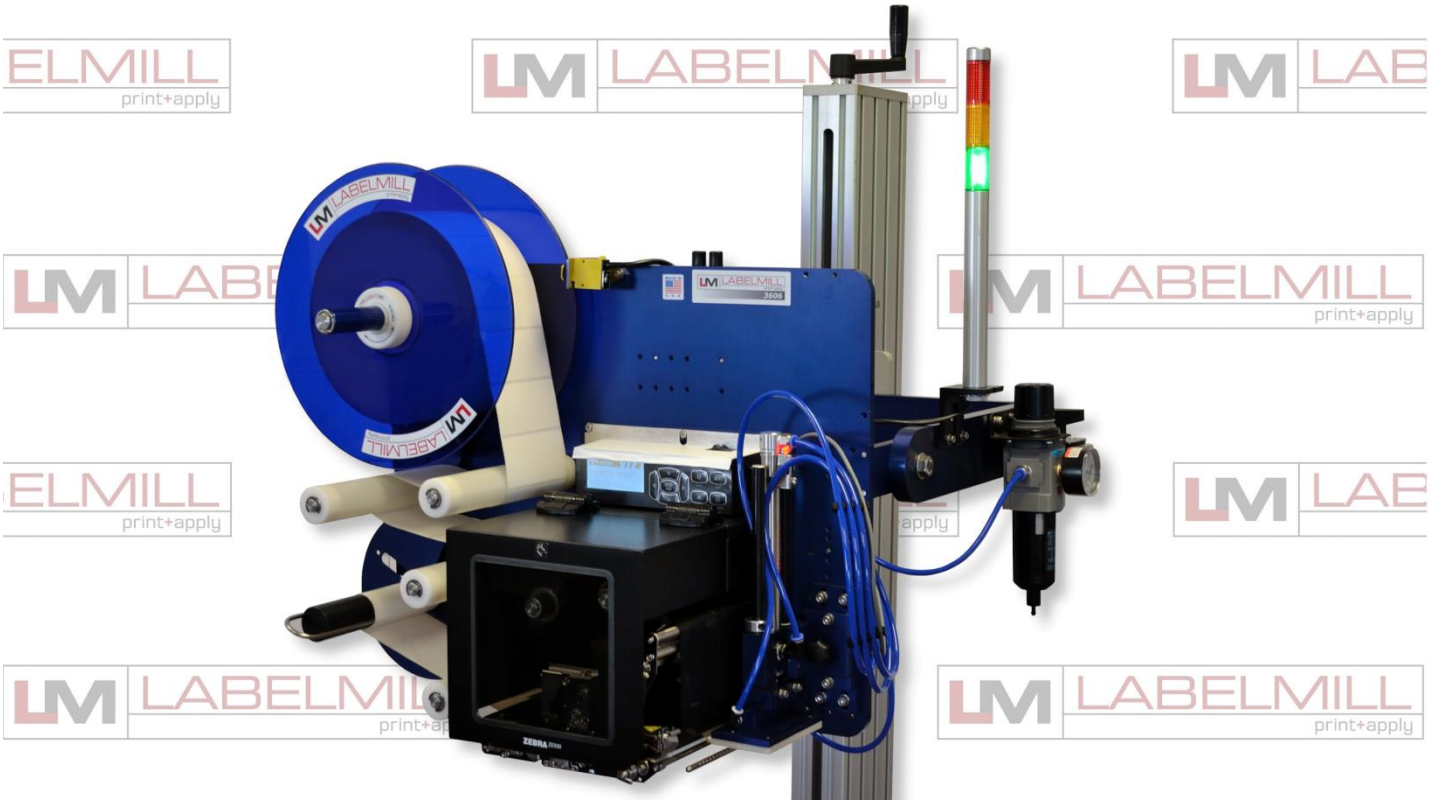
LM3606
PRINT & APPLY
OPERATIONS MANUAL



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