THE POWER BEHIND THE PACKAGE

# PDC International Corp

## Operational Manual
## PDC Model R250-ERT
## Serial No.: 213


8 Sheehan Avenue, South Norwalk, CT 06854 USA 203-853-1516 F 203-854-0834 www.pdc-corp.com

PDC INTERNATIONAL

THE POWER BEHIND THE PACKAGE

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THE POWER BEHIND THE PACKAGE

**CONFIDENTIAL**

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**NOTE**

The machine is warranted as per PDC "terms and conditions" to work with the materials and products with which it was tested.

**MANUAL STORAGE**

Please keep this manual in a safe and accessible place for operators and other interested parties.


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# 1. SAFETY PRECAUTIONS

## 1.1 Warning

Failure to install, service, and operate this machine in accordance with the instructions in this manual, proper training, adherence to warning labels, and using caution may result in serious bodily injury.

## 1.2 Caution

***Caution**: Before any work is to be done on the machine, or before reaching into the machine for any reason, turn all switches to the off position including the main power fused disconnect switch (see picture below), and then follow proper lockout/tagout procedures!*



(The labels above are located on the Lexan™ windows that cover this machine.)



(The labels above are located on the main electrical enclosure door.)


MAIN POWER FUSED DISCONNECT SWITCH (FOUND ON MAIN ELECTRICAL ENCLOSURE DOOR AT BACK OF MACHINE)

## 1.3 Sleevelabeler/Conveyor Anchoring

Before startup, the PDC sleevelabeler must be securely anchored to the conveyor.

## 1.4 Off-the-shelf Components on this Machine

Please see the Literature section at the end of this binder for additional details of off-the-shelf components of this machine, including setup, safety, and maintenance instructions. Also, please read and follow any and all safety stickers and warnings on the off-the-shelf components that are included as part of this machine.

# 2. MACHINE AND SUB ASSEMBLY DESCRIPTIONS

## 2.1 General Description

There are two distinct material flow paths through the labeler. The container (a roll of tape on a puck) flow and the label flow.

The containers are transported single file through the labeler by a small plastic link conveyor. Each container is fastened to the conveyor with a small puck that holds it in place as the conveyor moves. As the containers enter the labeler they go through a an application point. The containers pass underneath the main feed unit, where a label is placed on each container. After label placement, the conveyor moves the container through a heat tunnel where the label is shrunk tightly onto the container.

The labels consist of printed or clear plastic tubing that shrinks when it is heated. They are supplied from the vendor wound on a small reel. The reel of labels is loaded into the labeler on the unwind assembly.

From the unwind reel, the film material passes over the splicing table, up through the unwind feed assembly, and into the unwind vacuum box (the first of two vacuum boxes in this machine). The label material then moves from the vacuum box through the servo registration sensor assembly and then through the perforator.

The perforator places a horizontal perforation on the labels. The horizontal perforation is for machine label separation. The label moves from the perforator into the perforator vacuum box, and then to the mandrel assembly. The label is fed over the mandrel, which opens the label up, so that the label can be placed over the top of the container.

## 2.2 Unwind Film Reels

This is where the reels of labels are mounted. They are equipped with film low sensors to detect the level of labels on the film material reels. When the sensor detects that the reel is low, it will activate the orange light on the stack light (the light assembly located at the top of the machine).


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## 2.3 Splicing Table

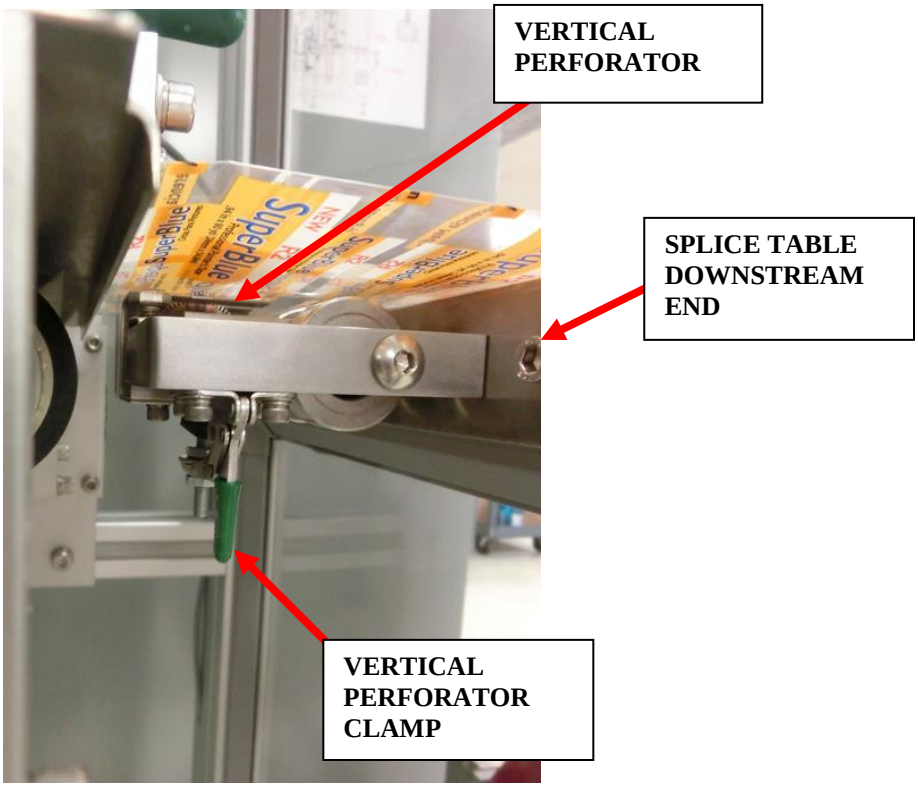
The splicing table is located between the dual unwind reels. This table is designed to ease the splicing. There is a film out sensor on the table. When the film runs out, the sensor will stop the machine. The sensor must be kept clean at all times.

(See Section 7.1 for more details on splicing.)

## 2.4 Vertical Perforator

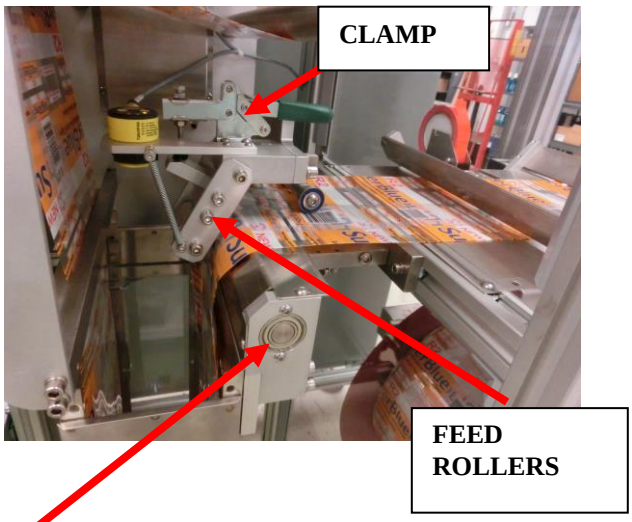
There is a vertical perforator located just after the splice table. Be sure that the clamp is fastened securely in place. This perforator makes the vertical perforation in the label that the end consumer will use to tear the label off from the container. It looks like a small pizza cutter with teeth. Use caution when doing any work in this area as the vertical perforator is very sharp.

[Note: This unit is called the vertical perforator throughout this manual. There is a separate horizontal perforator (that is referenced in this manual as simply, perforator) that makes the horizontal perforations that separate one label from another.]



## 2.5 Unwind Feed Unit

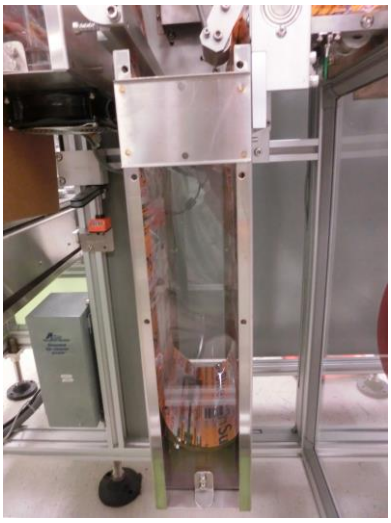
This unit feeds the material into the unwind vacuum box. The feed speed is controlled by the analog sensor that detects the depth of the film loop in the box. Make sure that the clamp is down to maintain proper roller pressure and keep the feed rollers clean with isopropyl alcohol.




## 2.6 Vacuum Box

On the machine there are two vacuum boxes, one for the unwind and one for the perforator. For the unwind, an ultrasonic sensor controls the level of film in the box. This sensor senses position of the film. If the film is low in the box, this will allow the motor to run slower. If it is high in the box, the motor will run faster. These motors are set for the maximum speed. Over speeding the motor will cause a film jam in the boxes or film folding over. If the speed is too low it will not be able to fill the boxes in time, causing the film high condition, which will be detected and the machine will stop. Check motor settings if a problem arises. Then check to see if rollers are clean and if the clamp is properly clamped down.

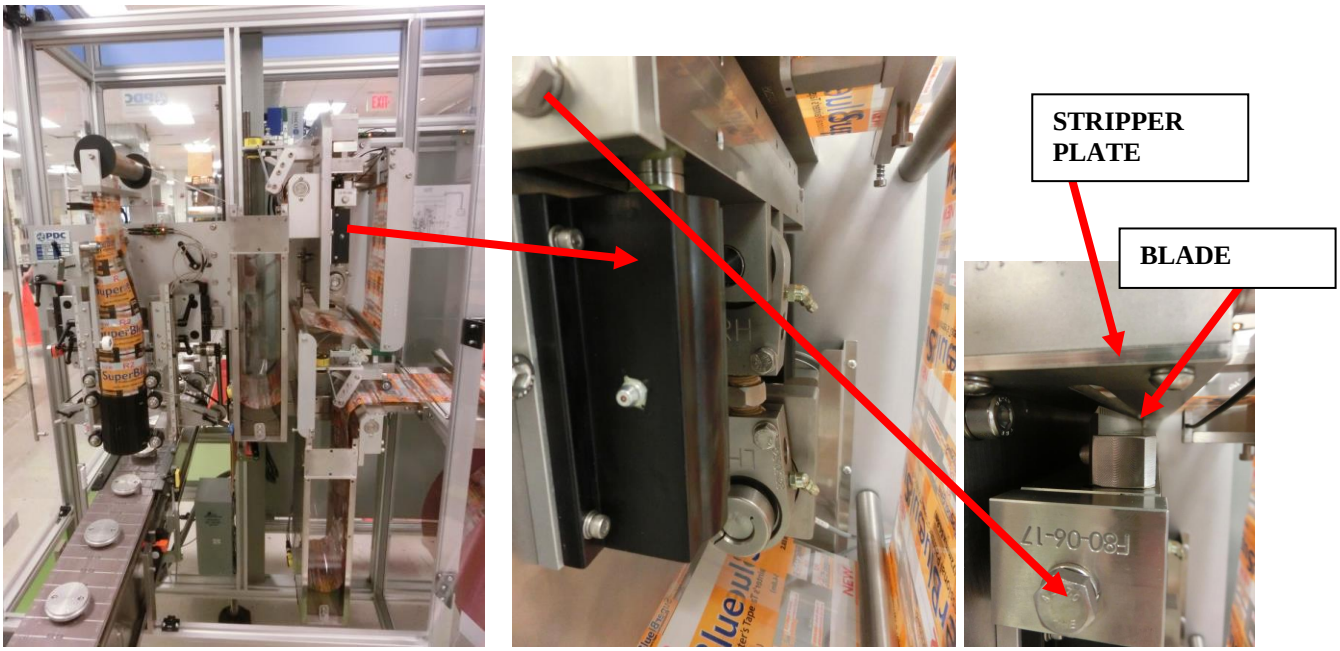
For the perforator, the same principle is used with the ultrasonic sensor to determine the need for the servo registration feed to deliver labels into the vacuum box.



## 2.7 Servo Stop Sensor

This unit controls the stop feed of the servomotor by a photoeye for registration. The servomotor feeds the film through the perforator. This photoeye will stop the servo once it detects a registration mark on the film.

## 2.8 Perforator




The perforator assembly is driven by a motor via the perforator crankshaft. At the end of the crankshaft there is the rod end assembly. This assembly is for your perforator adjustment and is connected to the perforator blade carriage. Perforations are made by the crankshaft turning the rod end assembly, which in turn moves the perforator blade carriage in an up-and-down motion. It moves up through a stripper plate, against the anvil assembly, where the blade (with vent pin) perforates the film material.

Once the perforation is made in the film, the perforator blade at this point will start to go to the down stroke. The perforator blades and vent pin then travel back through the stripper plate. When the blades/vent pin are just beneath the top of the stripper plate is the point when the film must index to the next band.

A flag (target) turned by the crank, activates the servo start proximity switch (located on the perforator assembly) which gives the signal for the start feed. The servo motor advances the film.

For proper operation of the machine, it is important to have the labels properly perforated. The perforation depends on the properly maintained adjustment of the

connecting rod, sharpness of the blade, and surface quality of the anvil. If the hard anvil that the perforation blades perforate against is ever damaged, it is to be reground or replaced. Generally, the surface will wear, but redressing the surface by grinding may be required after about a year.

## 2.9 Servo Feed Unit

This unit feeds the material into the perforator vacuum box. The feed signal is given by the analog sensor that detects the depth of the film in the box. Make sure that the clamp is down to maintain proper roller pressure and keep the feed rollers clean.

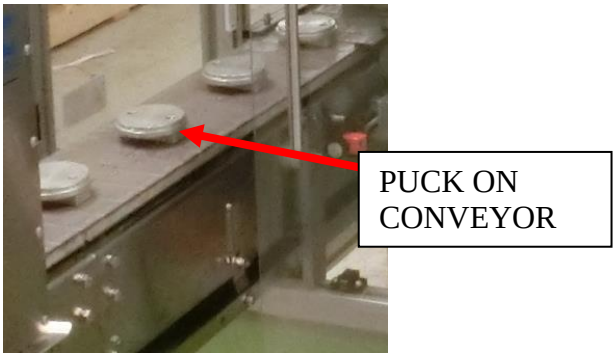
## 2.10 Machine Feed Unit and Mandrel

The main feed unit is designed to hold the mandrel in place, allowing it to "float". To feed the film material over the mandrel, perform the "Begin Perforating Batch" routine (See Section 3.10) to generate enough perforated film to prime the mandrel and feed unit. Then turn the "FEED DRIVE" to off and open the guard and load the film over the mandrel and tuck the film into the top feed rollers. Manually turn the rollers to feed film to be just above the registration sensor on the mandrel.

No lubrication is needed for the main unit and the mandrel, but both must be kept clean of dust and oil.

## 2.11 Puck Assembly

There are pucks that are fastened to the conveyor. These are designed to separate the individual containers and to carry them along the conveyor for presentation to the application area and through the heat tunnel.




There are guards at the infeed and outfeed of the conveyor.

***Caution: Do not operate the conveyor without these guards in place!***


Guard/pucks/conveyor *infeed* end


Guard/pucks/conveyor *outfeed* end

## 2.12 Heat Tunnel

After label application, the container travels to the heat tunnel (KST80-712) where the label is shrunk to the container tightly, via heat. See the Tunnel tab in this binder for a separate manual that pertains to this tunnel.

## 2.13 Conveyor

The conveyor will be traveling at an appropriate speed for the containers as they pass under the mandrel assembly. The conveyor speed is set to keep the containers in the correct position/spacing once they reach the mandrel assembly. The conveyor should be cleaned and tight at all times.

## 2.14 Stack Light

The stack light is located at the top of the machine and serves as a readily visible indicator of machine status to the operator.

**Green (On):** Machine is in running (operational) mode.

**Orange (Flashing):** Low film sensor has been activated.

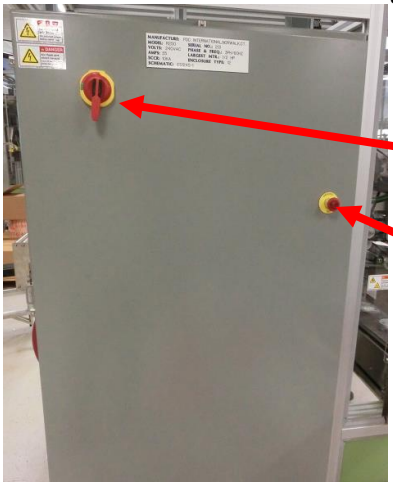
**Red (Flashing):** Machine has stopped due to input from a sensor.

## 2.15 Main Power Fused Disconnect Switch & E-Stop button

This switch removes power to the machine from the building.

It is located on the main electrical panel door.

Also on this door is an Emergency Stop button [there is also an Emergency Stop button located at the far right of the HMI enclosure box (see Section 3.1)].



# 3. CONTROLS PANEL FUNCTIONS

## 3.1 HMI Enclosure

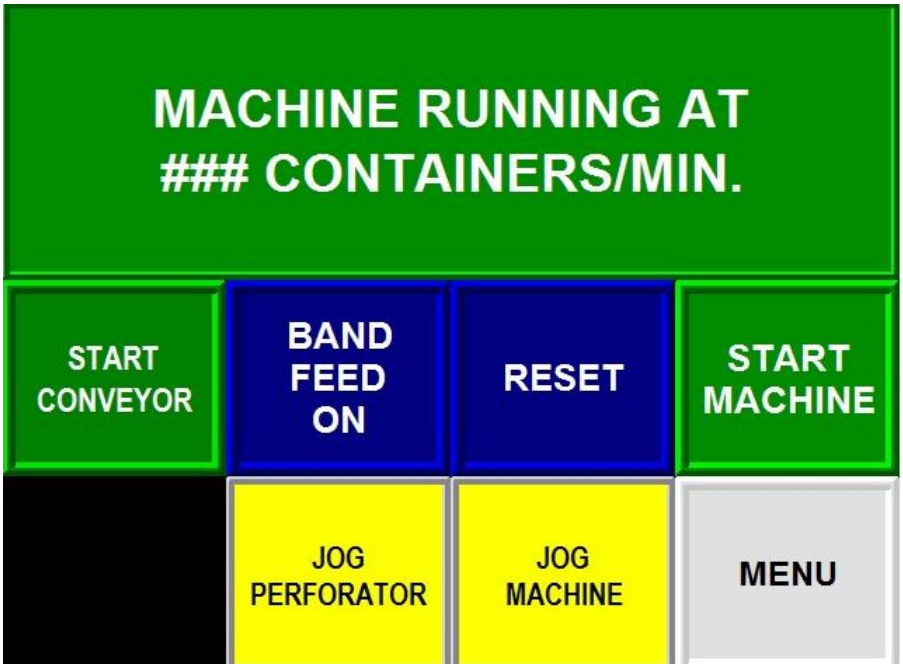

**Stop**: Stops functions of the main drive, feed drive and unwinding system (press to stop, pull to enable start and jog functions).

**Power On**: Push button used to power up the control power. Indicates that the power is on, used to reset an emergency stop.

**Run/Jog**: Switch to run or jog machine.

**Emergency (E-Stop)**: Emergency stop, switches off all power when pressed in. To restart system, pull out Emergency and press the "POWER ON" illuminated pushbutton.

## 3.2 Operator Screen




Operator menu displays machine status messages and any active faults (e.g. "Machine Running At ### Containers/Min.", as shown).

**Start (or Stop) Conveyor**: Press to start or stop the conveyor.

**Band Feed (On/Off):** Press to enable or disable the band feed unit.

**Reset**: Press to reset faults and messages.

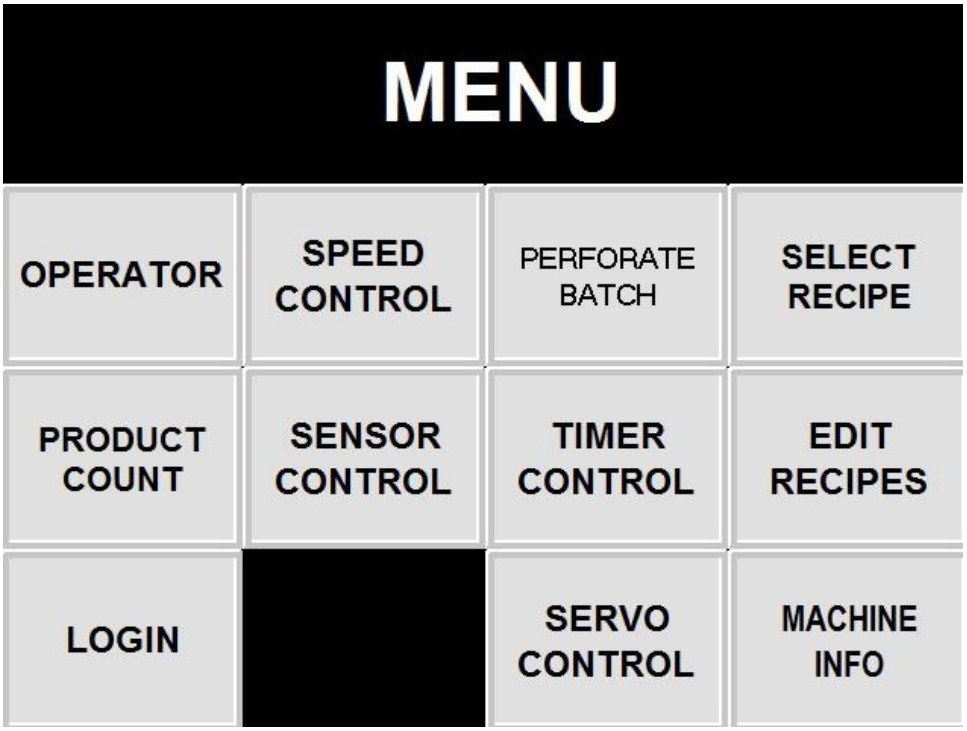
**Start Machine**: This button is used to start the machine main drive. "MACHINE RUNNING" will be displayed during run.

**Jog Perforator**: Press to generate perforated bands into the vacuum box. Once the vacuum box sensors are satisfied, the perforator will not feed further bands. This can be used to recover from a vacuum box high fault or to fill the vacuum box if the box is not full before running.

**Jog Machine:** Press to jog the machine at slow speed which will release containers and apply the sleeves.

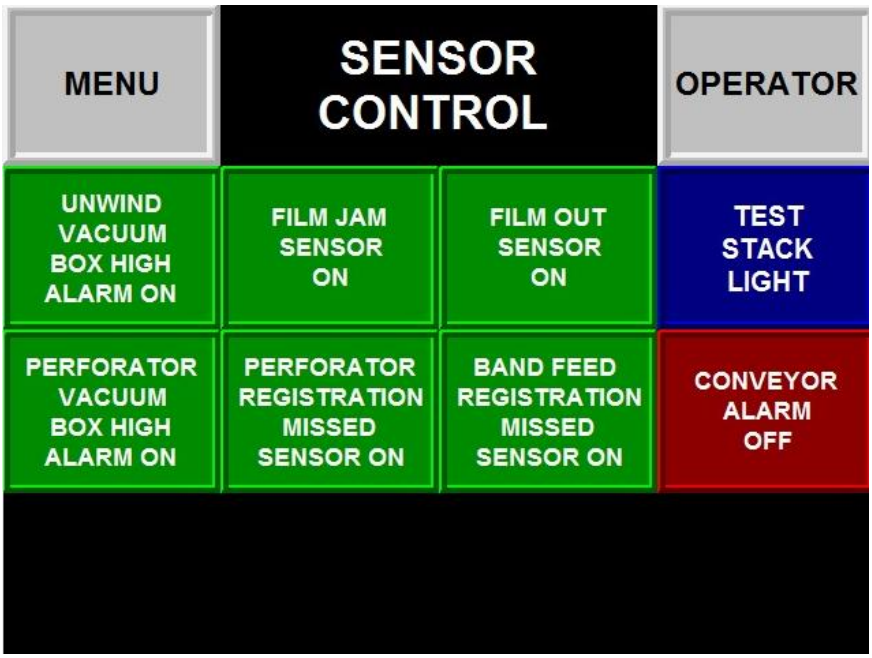
**Menu**: Press to go to the Menu screen.

## 3.3 Menu Screen




Press any button to navigate to the selected screen.

## 3.4 Sensor Control Screen



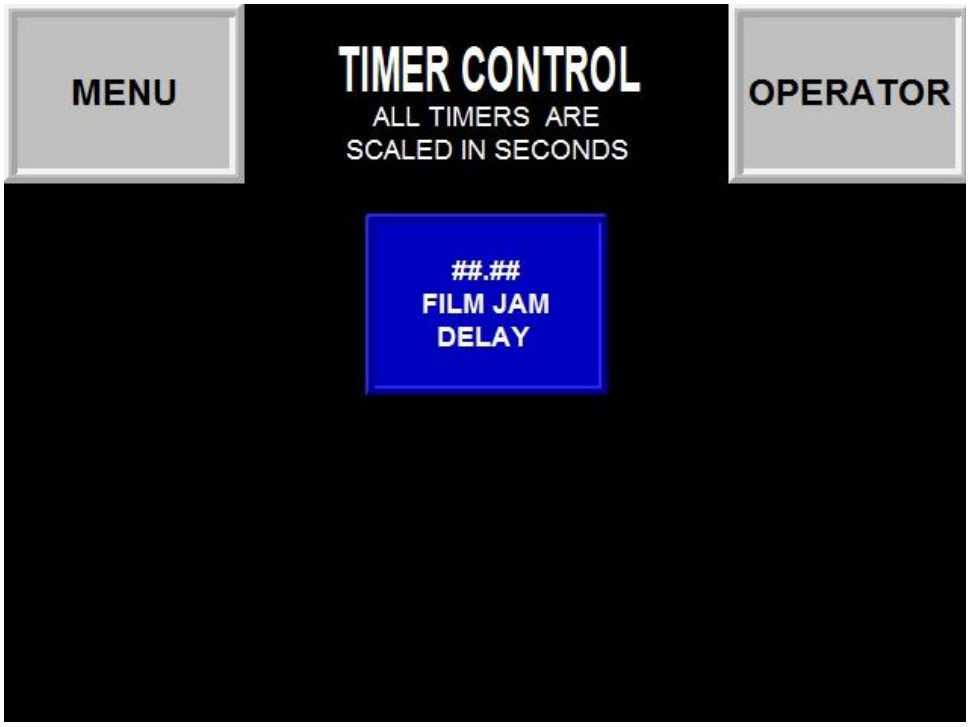

Press any button to enable or disable corresponding sensor or alarm.

**Menu**: Press to go to the Menu screen.

**Operator**: Press to go to the Operator screen.

**Test Stack Light**: Press to test the stack light (located at the top of the machine). It will illuminate the lights for a few seconds.

## 3.5 Timer Control Screen



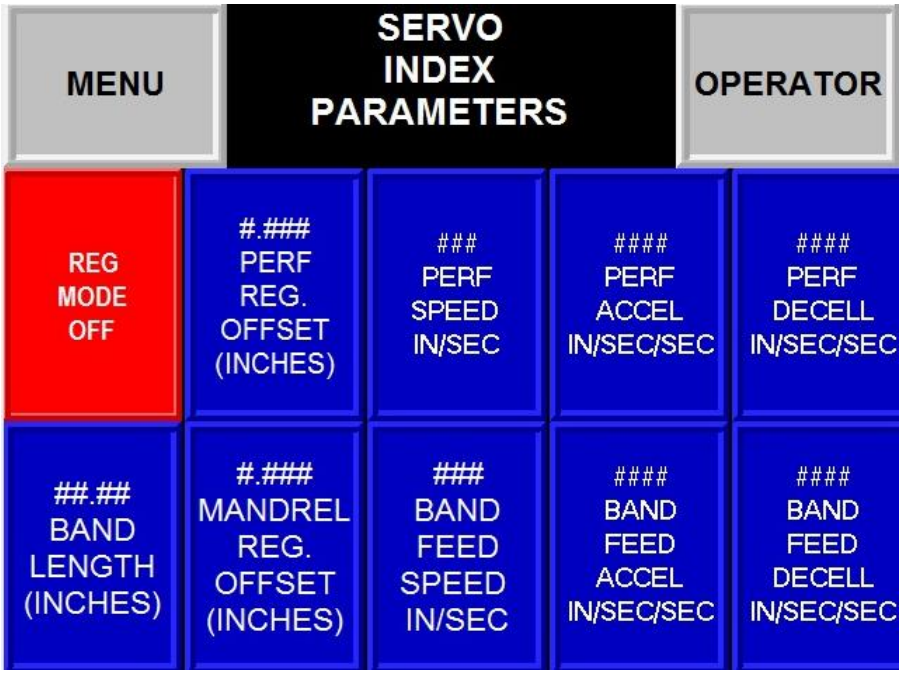

Press to activate numeric entry keypad. Enter value within range indicated on keypad and press “ENTER”. Press “DONE” to exit keypad. Units are seconds with fixed decimal point.

**Film Jam Delay**: Use to set time delay between a film jam fault condition and stopping of the machine.

**Menu**: Press to go to the Menu screen.

**Operator**: Press to go to the Operator screen.

## 3.6 Servo Control Screen




These functions are volatile and do not affect saved recipes. Generally used as a development or debug tool. If values are to be used on an application, they need to be entered in the Recipe screens and saved.

Note: For buttons needing values, press to activate numeric entry keypad. Enter value within range indicated on keypad and press “ENTER”. Press “DONE” to exit keypad.

**Reg. Mode (On/Off):** Press to enable or disable the registration mode.

**Perf Reg Offset:** This is the value of the move after the registration mark is detected to place the registration clear area at the perforator blade.

**Perf Speed:** This value is the linear speed of the film between the acceleration and deceleration of the index move.

**Perf Acceleration:** This is the value of the acceleration of the film at the start of the index move.

**Perf Deceleration:** This is the value of the deceleration of the film at the end of the index move.

**Band Length**: This is the value of the band length in inches.

**Mandrel Reg Offset**: This value is the distance that the film is moved beyond the mandrel registration sensor detecting the bottom edge of the film.

**Band Feed Speed:** This value is the linear speed of the film between the acceleration and deceleration of the index move.

**Band Feed Acceleration:** This is the value of the acceleration of the film at the start of the index move.

**Band Feed Deceleration:** This is the value of the deceleration of the film at the end of the index move.

**Menu**: Press to go to the Menu screen.

**Operator**: Press to go to the Operator screen.

## 3.7 Machine Info Screen

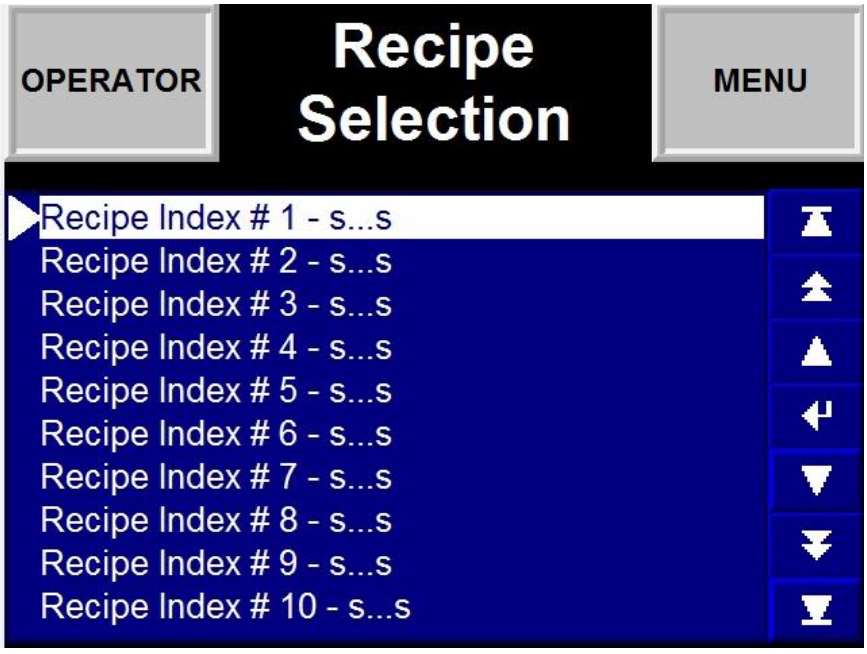

Displays machine information (e.g. model and serial number)

**Menu:** Press to go to the Menu screen.

**Go To Config Screen**: Press to go to the PanelView configuration screen.

**Operator:** Press to go to the Operator screen.

## 3.8 Select Recipe Screen



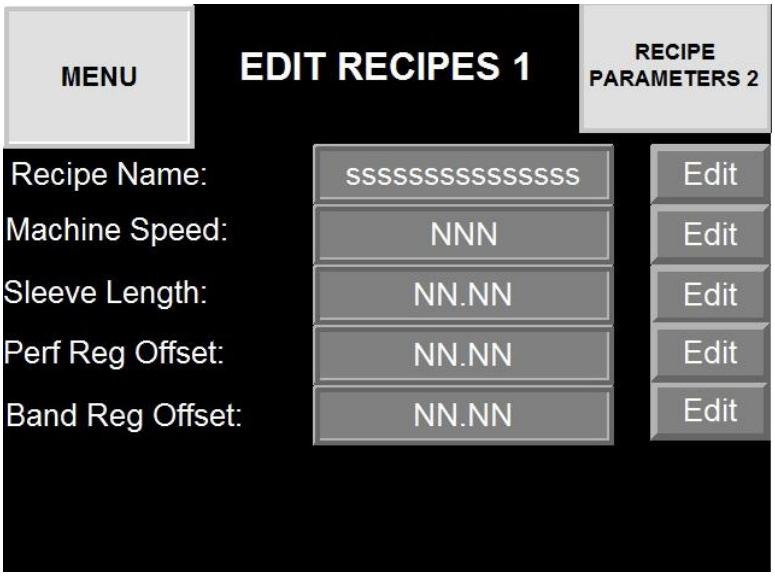

Arrows at right may be used to scroll to highlight a given recipe index.

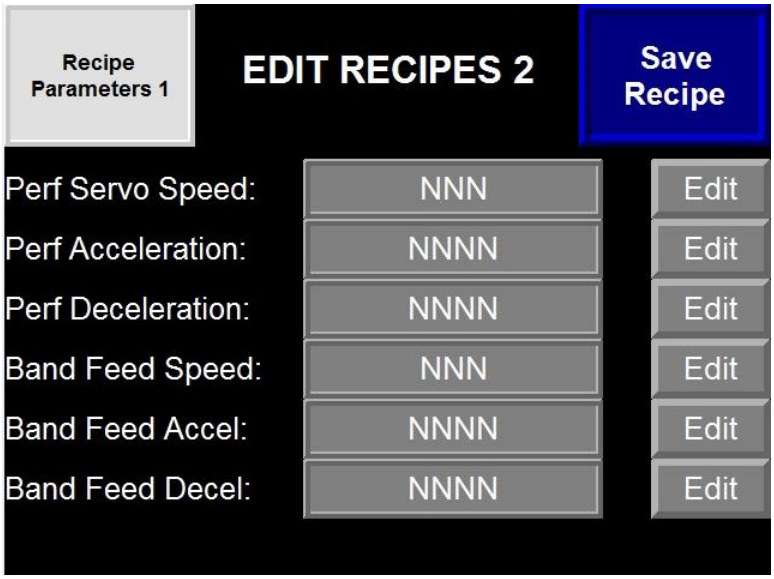
Then, the middle button  (the Enter key) loads the recipe parameter values to the current running recipe (i.e., the corresponding container's values become current).

**Menu**: Press to go to the Menu screen.

**Operator**: Press to go to the Operator screen.

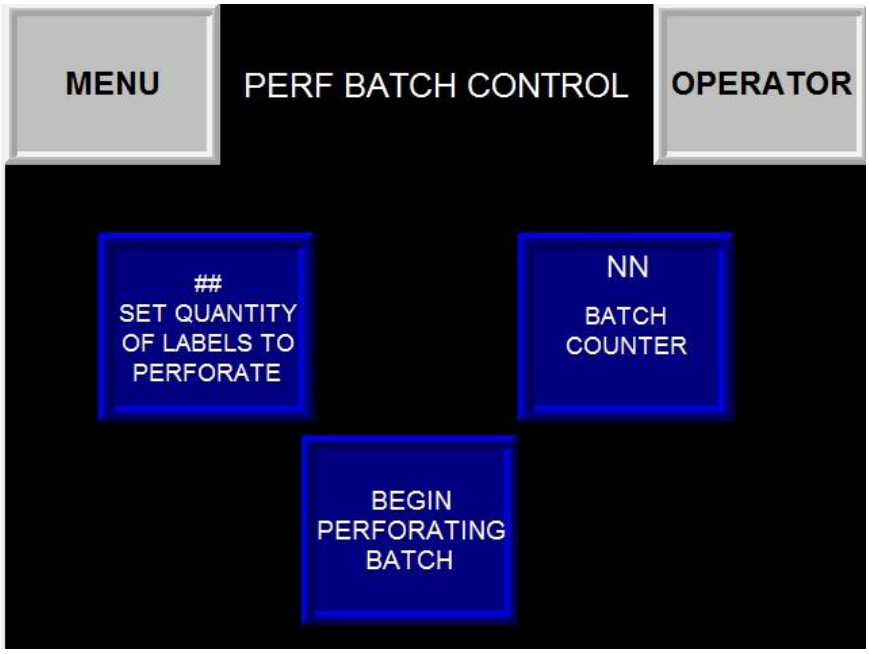
## 3.9 Edit Recipes Screens




Use these screens to edit programs in the machine. Press the Edit button to change values. Once completed, press Save Recipe and re-select recipe to reload saved changes.

## 3.10 Perf (Perforator) Batch Control Screen




**Set Quantity of Labels to Perforate:** Press to open a numeric keypad where you can enter the number of labels you would like to perforate.

**Batch Counter:** Displays (read-only) of batch counter tally.

**Begin Perforating Batch:** Press to begin perforating the quantity of labels entered in the "Set Quantity of Labels to Perforate" numeric input. Press again or press Operator Stop pushbutton to cancel.

**Menu**: Press to go to the Menu screen.

**Operator**: Press to go to the Operator screen.

## 3.11 Product Count Screen


Displays (read-only) the tally of sleeves applied.

**Menu:** Press to go to Menu screen.

**Reset Production (Hold 3 Sec):** Press (and hold for 3 seconds) to reset the tally to zero.

## 4. START-UP

(BEFORE PROCEEDING READ THE CONTROL PANEL FUNCTIONS)

Make sure all switches on the control panel are in the "Off" position. Turn on the main power disconnect switch (located on the main electrical enclosure) and the HMI enclosure control panel power on switch (the green one).

Manually feed the material through the machine. Coming off the unwind reel go through the low film/ film out sensor rollers over the splice table. Unclamp the unwind feed rollers and feed the material through the rollers then into the vacuum box. Next feed the material through the perforator sensor assembly, perforator unit, then unclamp and feed the material through the perforator feed assembly and clamp roller. Close the machine guard and go to the Batch Perforate screen (see Section 3.11). Press the “Begin Perforating Batch” button to produce a length of perforated labels.

Turn the “FEED DRIVE” to off and open the guard and load the film over the mandrel and tuck the film into the top feed rollers. Manually turn the rollers to feed film to be about ¼” above the registration sensor on the mandrel.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## 5. OPERATION PROCEDURE

**MACHINE CAUTION**: Make sure that the conveyor is turned on and the speed is set correctly in relation to the production speed. Make sure that the conveyor is always running while the shrink tunnel is on. If conveyor is off while shrink tunnel is on, the conveyor chain may melt.

Make sure that the shrink tunnel is operational and up to the correct temperature.

Set the Main Drive Speed to the desired speed setting (if the machine is equipped with Dual Speed Control the following controls have to be set to the desired speed settings: High and Low Main Drive Speed Control).

Go back to the Menu screen on the HMI enclosure. Turn the Run/Jog select key switch to the Run position. Make sure that all doors are closed so that the red light on the light stack is not flashing (interlock sensors will not allow the machine to start). Press and release the fault reset button on the HMI enclosure screen. Press and hold the machine Start button for approximately 3 seconds (an audible alarm will sound). The Model R-250 will now operate in the automatic mode.


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## 6. SHUT DOWN

Machine: To Stop the machine, simply push the control panel drive Stop switch to the stop (in) position (the leftmost Red button on the HMI enclosure).

**NOTE**: A safety switch is mounted on the enclosure doors. The machine will shut down the machine if any door is opened while the machine is operating and may cause a film jam in the feed assembly. The door should not be used for an operator stop.

**NOTE**: When the machine will be shut down for an extended period of time, turn all control panel switches to the off position and turn off the main power fused disconnect switch, and follow proper lockout/tagout procedures.

⚠ ***CAUTION: Before any work is to be done on the machine, turn all switches to the off position, including the main power fused disconnect switch, and follow proper lockout/tagout procedures!***


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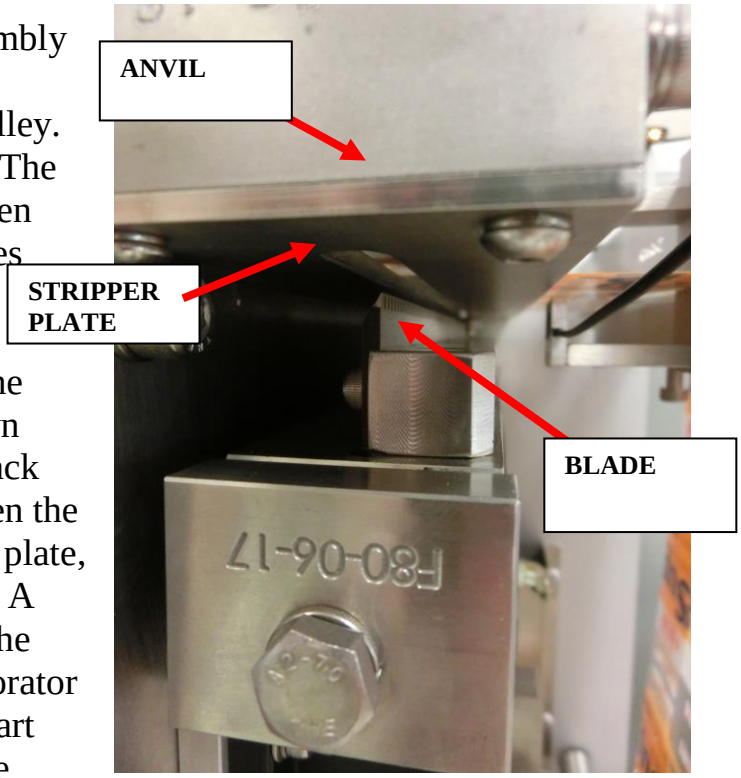
## 7. PERFORATOR ADJUSTMENT PROCEDURE AND BLADE REPLACEMENT




**General Description**: The perforator assembly is driven by a 3/8 HP motor. It drives the perforator crankshaft by a gear belt and pulley. The crankshaft drives the blade cartridge. The carriage moves into a stripper plate, and then against the anvil assembly, where the blades perforate the film material.

Once the perforation is made in the film, the perforator blade will start to go on the down stroke. The perforator blade then travels back through the stripper plate. At the point when the blade is just beneath the top of the stripper plate, the film must be indexed to the next band. A flag (target) turned by the crank activates the start proximity switch (located on the perforator assembly) which gives the signal for the start feed. The motor advances the film. On the infeed of the perforator assembly is the stop photo eye. This eye will stop the motor once it detects an eye mark on the film.

For proper operation of the machine, it is important to have the labels properly perforated. The perforation depends on the properly maintained adjustment and surface quality of the anvil (back up block) and the sharpness of the blade.

To remove the blade, follow the description below:

The first step is to jog the machine, which will turn off the machine safeties, please do do with caution.

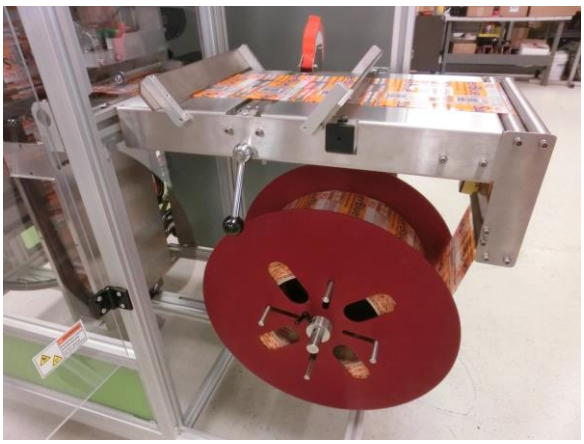
Jog the machine, from the HMI enclosure Menu screen, until the perforator is in the fully open position. Remove one screw and cap then slide out.

Once the cap is removed, slide out the whole blade guide.

## 7.1 SPLICING PROCEDURE

Splicing (connecting) film is done when one reel has run low and prevents the new reel from having to be threaded through the machine. The new reel is connected to the previous reel at the point of the splicing table.

Remove the old cardboard core from the machine and install a new reel of material.



Take the beginning of the new reel of material and overlap it onto the end of the material in the machine.

If the material is registered, line up the artwork from the new material until it is matches with the artwork on the material currently in the machine.

Cut the material straight across the flat width (through the middle of the artwork if registered) with a razor blade.

Connect (splice) the new material to the current material in the machine by butting the two pieces together and applying tape to the splice.

Note: There should not be a gap between the two pieces of material, otherwise the tape will stick to itself and will cause a jam in the machine. Also, if the material is registered, the tape should not overlap or interfere with the registration mark in any way.

# 8. MAINTENANCE

## 8.1 Specific Maintenance

**Perforator**
Ensure the perforator blades and anvil are clean and clear of debris.

**Main Unit**
There is no lubrication to be done on the front of this unit. Make sure that all of the belts are tight and inspect the belts for wear. Inspect all feed rollers, replace at the first signs of wear. Clean this unit with a mild solvent.

**Feed Drive Unit**
Make sure that there is proper belt tension.

**Main Drive**
Check for belt wear, and if any signs of wear replace the worn parts at once.

**Servo Drive**
No lubrication is needed for this unit; make sure that this unit is clean and free of dust and oils. Inspect the belt in the rear of the machine that drives this unit for wear.

**Unwind Film Reel**
Grease the four bearings that secure the unwind shafts monthly. Check for wear.

## 8.2 Cleaning

The equipment and surrounding area are to be kept clean.

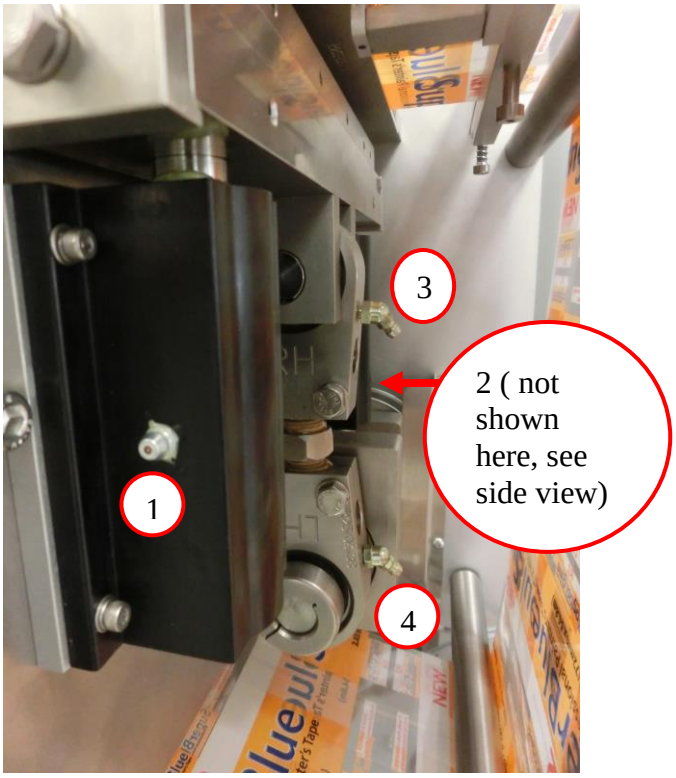
**Floor** – Sweep daily the surrounding area of the equipment to maintain safe operator area.

**Exterior Lexan™ Guarding** – Weekly wipe panels clean with general purpose window cleaner to maintain cleanliness and visibility.

**Interior of Equipment** – Weekly blow with an air hose to remove debris. Clean urethane feed rollers with isopropyl alcohol.

**Control Panel Enclosures** – Weekly clean with general purpose cleaner.

## 8.3 Lubrication Points




**Picture of perforator area (front view)**


**Picture of perforator area (side view)**

| Lube Point | Location | Frequency | Lubricant |
|---|---|---|---|
| 1 | Perforator Shaft | Weekly | Mobil FM-222 Grease |
| 2 | Perforator Shaft | Weekly | Mobil FM-222 Grease |
| 3 | Linear Bearing Perforator | Weekly | Mobil FM-222 Grease |
| 4 | Linear Bearing Perforator | Weekly | Mobil FM-222 Grease |

## 8.4 Installation and Factory Service Notification

| Date | Brief Description of Problem | Solution Applied | Signature |
|---|---|---|---|
| | | | |
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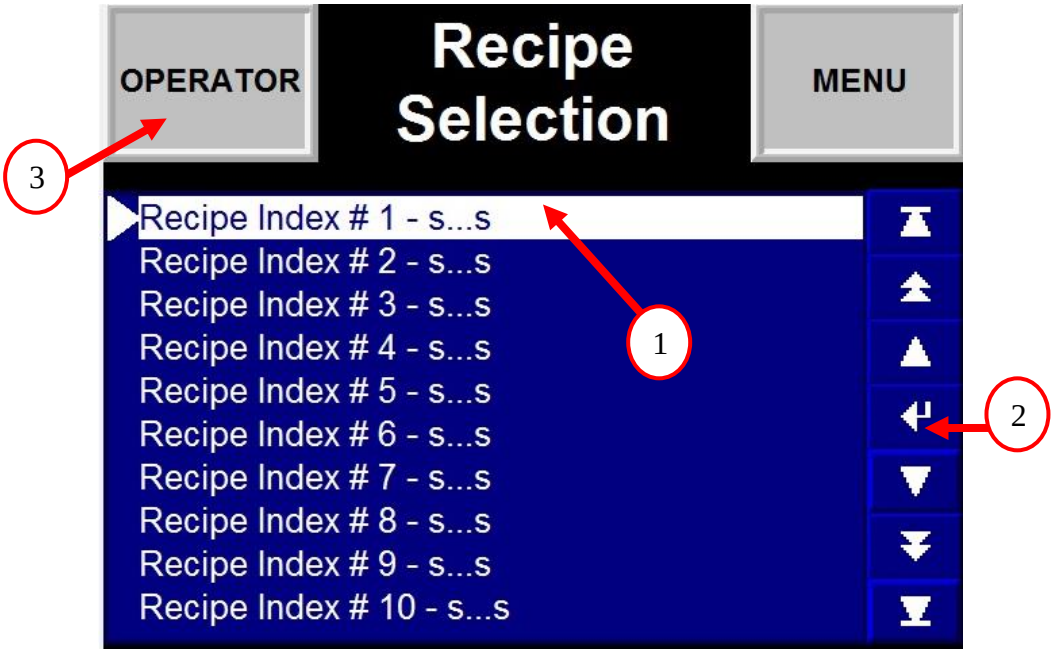
## 9. CONTAINER CHANGEOVER PROCEDURES

When using the machine for the first container type, or when changing the machine for use of a different container type than an existing setup, the following steps need to be performed. Each container type requires a unique setup. Refer to the Machine Setup Sheet (in this manual binder at the back of the Operational Manual tab) for detailed data for the SIKO readings and other data. Section 9.12 contains an overview of the primary adjustment handles for this machine.

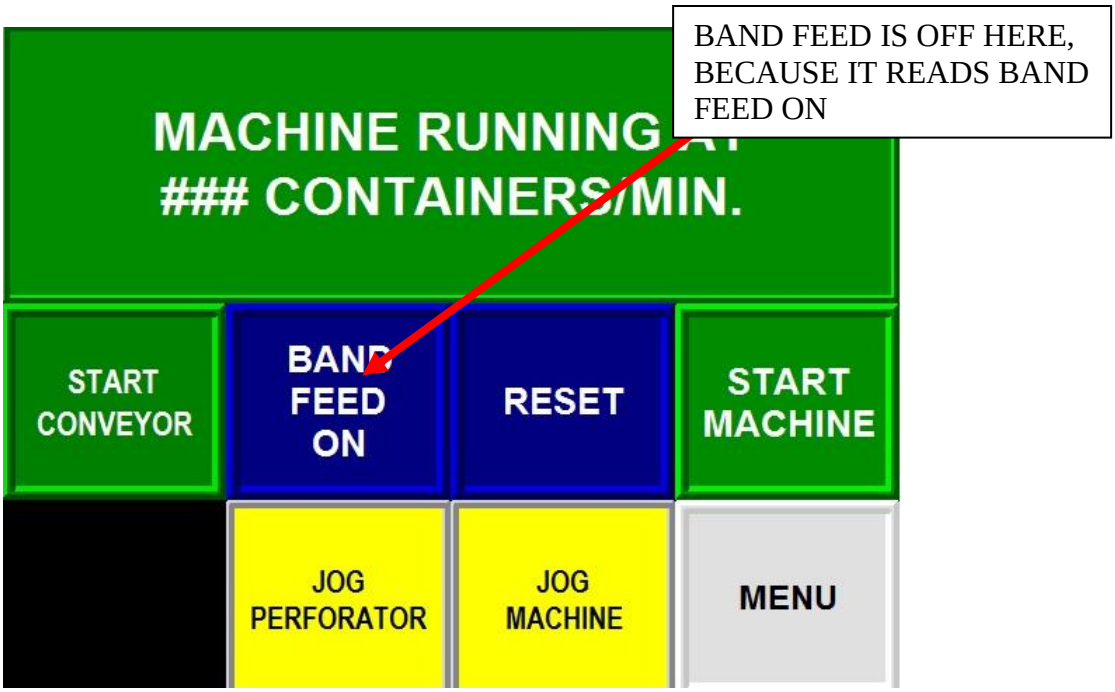
### 9.1 Change Recipe & Turn the Band Feed Off

On the HMI touchscreen, go to the Menu Screen.
Then click on the "Select Recipe" button to go to the Recipe Selection Screen (shown below).
Then click on the recipe that corresponds to the new container that will be used in the machine (example, Recipe Index #1 is picked in this picture).
Click enter (arrow #2 below).
Click Operator button.



In the Operator Screen, make sure Band Feed is off. It will read *Band Feed On* if it is off and *Band Feed Off* if it is on. (It reads the opposite of what it currently is. So in this case you want the button to read *Band Feed On*.)

Having turned the band feed off, now manual movement of the film on the mandrel is possible.




## 9.2 Splice the Film

Splice (attach) the new film to the existing film in the machine at the splice table. See Splice Procedure Section 7.1.

(If no film is in the machine, then a complete spooling of the film will be necessary. Refer to the threading diagram that is on the back of the HMI enclosure for details of the spooling.)

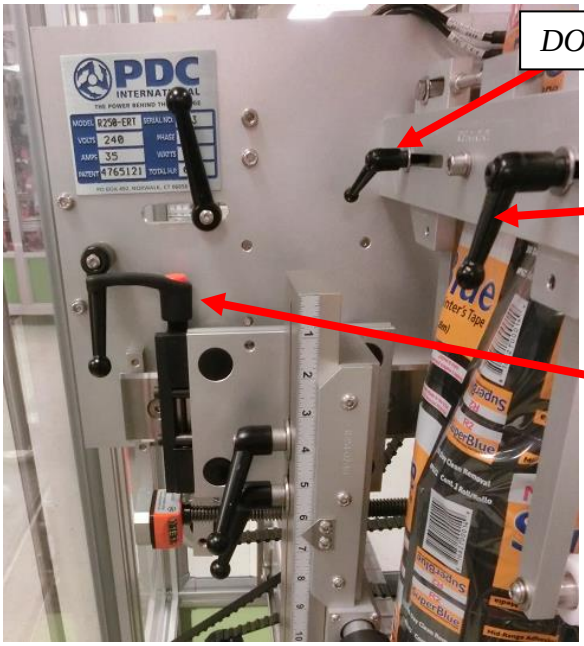
## 9.3 Remove Mandrel

The next step is to remove the mandrel that is currently in the machine.

In the following steps, use care not to bump the film jam sensor (shown below, as a j-shaped tube just below the mandrel).

***<u>Caution:</u> When holding any part in the machine, and especially the mandrel, look for and avoid any sharp edges!***

Loosen the mandrel guide adjustment handle (only loosen the front handle, not the back one. The back handle should not ever need to be loosened.)



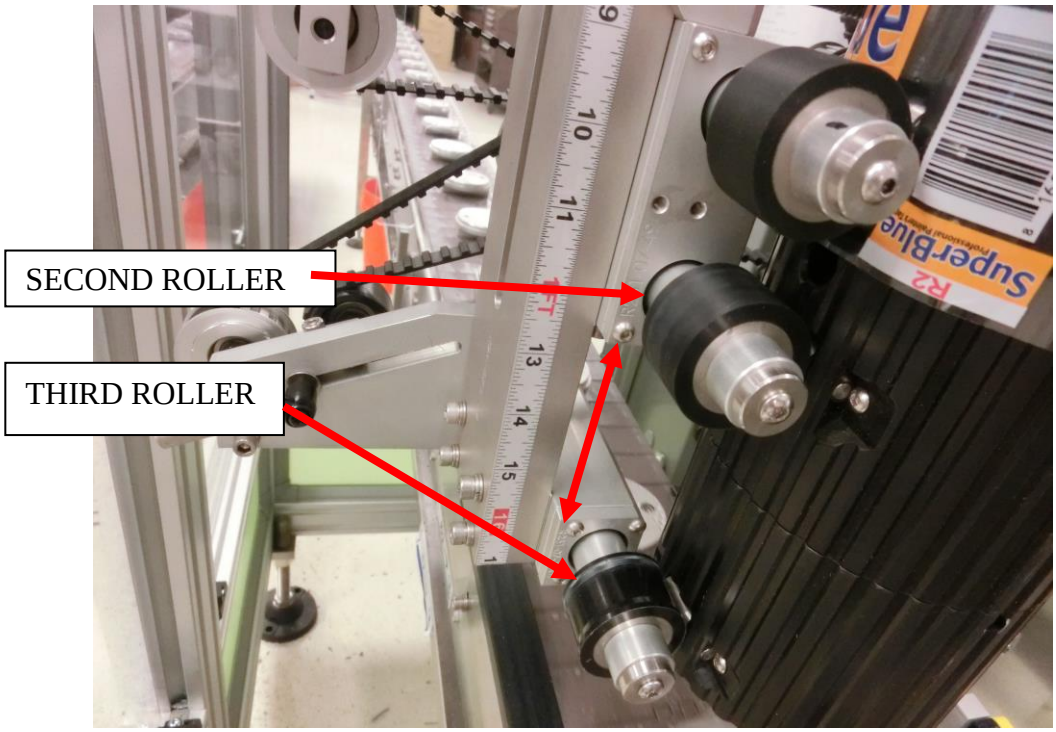

Next, hold the mandrel carefully using caution not to cut your hands, and loosen the main unit horizontal handles (one on each side of the mandrel). Then loosen the main unit horizontal ratchet. Remove the mandrel carefully.

Place the mandrel somewhere safe and clean for working on it and replace the extension piece located at the bottom of the mandrel with the new extension that has the color coded to fit the proper container that will be run through the machine.

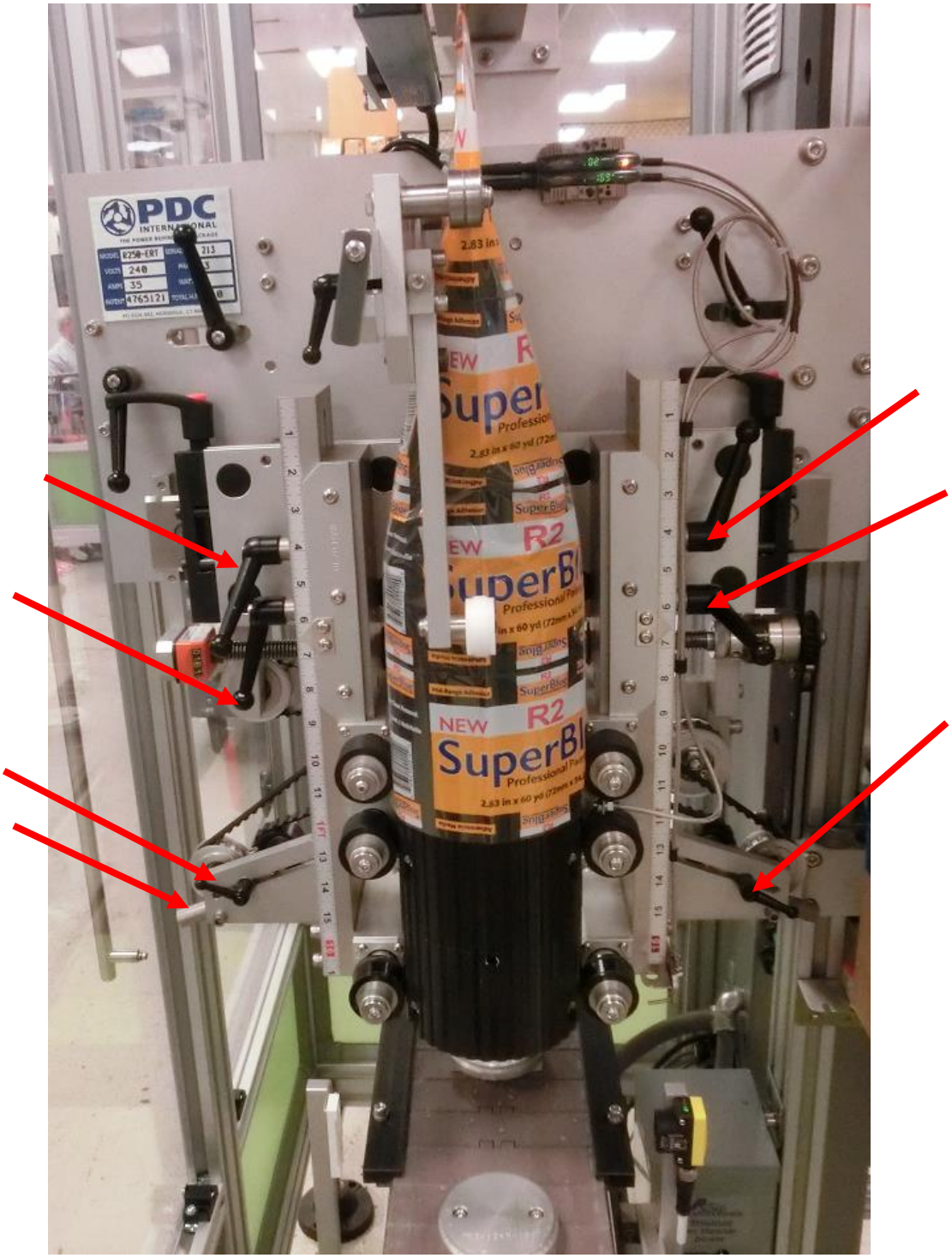
| Color | Assembly | Band Height | Product Height |
|---|---|---|---|
| Black | R702-1245-200 | 63.5 mm | 1 in |
| Blue | R702-1245-300 | 76.2 mm | 1.5 in |
| Green | R702-1245-400 | 88.9 mm | 2 in |
| Red | R702-1245-500 | 111.1 mm | 3 in |

## 9.4 Set Third Roller Height

The next step is to set the distance between the second and third roller blocks.

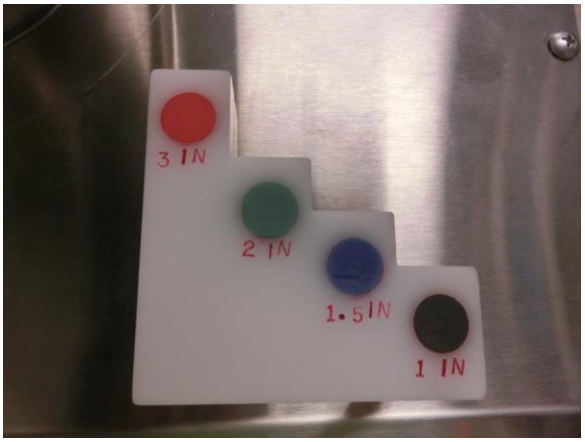


Loosen each of the handles shown below (with the arrows).



Using the tooling gauge block, TG-1245-01, and using the color that corresponds to the new container that will be run through the machine (see the chart in Section 9.3 if necessary), place the tooling gauge block at that color's step, between the second and third roller blocks and by hand move the third roller block until the exact distance between the second and third roller blocks matches the tooling gauge block's step.

Once this distance is set accordingly, then retighten each of the handles from the previous picture.



Tooling gauge, TG-1245-01

## 9.5 Head Height Adjustment

The next step is to raise, or lower, the head height. To do so, loosen the handle on the far left side of the main plate (as shown below) and turn the ratchet located below the vacuum box as shown below, until the corresponding SIKO gauge reads the appropriate number for the containers being used. Refer to Machine Setup sheet (found in the manual binder) for the SIKO number.

HEAD HEIGHT HANDLE

## 9.6 Insert the New Mandrel

Make sure the properly color-coded mandrel extension has been placed on the mandrel to match the new container that will run through the machine. The bottom of each mandrel is color coded to match its corresponding product height.

Place the new mandrel into the machine in its place.

## 9.7 Main Units & Mandrel Guide

The main units are designed to hold the mandrel in place allowing it to "float". If the main units are too loose, the mandrel may fall out. If the main units are too tight, it can cause the mandrel to "walk", which can cause jamming or film break. The units have been designed to be positioned equally about the center at all times.

### 9.7.1 Main Units Horizontal Adjustment

See Section 9.12 for the handle locations.

Loosen the two (2) *uppermost* Main Unit Belt Takeup handles, then the two (2) Main Unit Horizontal handles (if they were retightened earlier), then turn the Main Unit Horizontal ratchet (located to the right of the mandrel). Turn it to the desired location (see Machine Setup sheet for detailed SIKO setting data). The SIKO dial is at the other end of the screw from the ratchet that you are turning.

Retighten the two (2) Main Unit Horizontal handles, then retighten the two (2) Main Unit Belt Takeup handles.

### 9.7.2 Main Units Vertical (Up/Down) Adjustment

See Section 9.12 for the handle locations.

Loosen the four (4) Main Unit Vertical handles (as shown), then by hand, raise or lower the main unit height, using the rulers shown (see Machine Setup sheet for detailed setting data).

Retighten the four (4) handles.

### 9.7.3 Main Units Angular Adjustment

See Section 9.12 for handle locations.

Loosen the two (2) *lowermost* Main Unit Belt Takeup handles. Turn the dials next to them, to the desired location (see Machine Setup sheet for detailed setting data). Retighten handles.

### 9.7.4 Mandrel Guide Adjustment

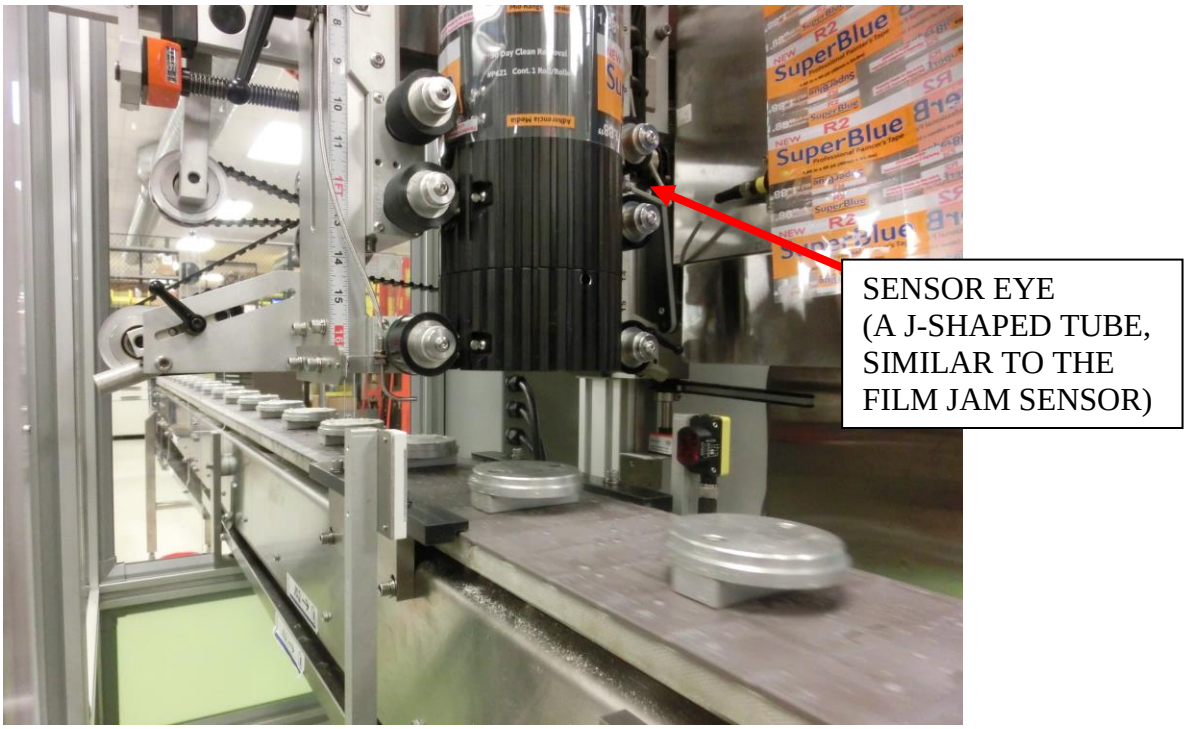
See Section 9.12 for handle locations.

Loosen the Mandrel Guide handle (the front one only, not the back one) and adjust the top, main unit roller assembly (see vertically supported white roller and those rollers connected to its support unit, shown in Section 9.12), to the desired locations (see Machine Setup sheet for detailed setting data). Retighten handle.

## 9.8 Place Label

On the HMI touchscreen, make sure you are in the Operator Screen and press the "Start Machine" button and hold for 3 seconds. The labels will be running through the machine now and perforating them as the film goes through the machine.

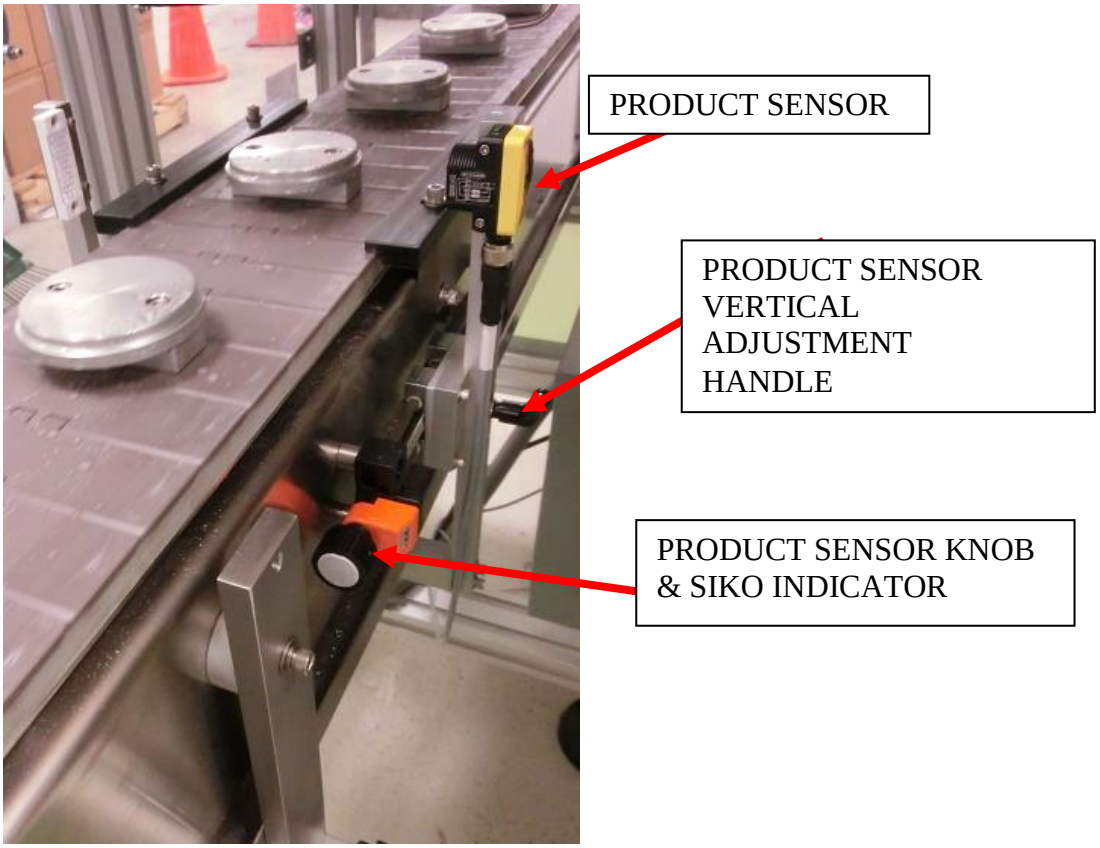
Once perforated labels for the new container are running over the mandrel, on the HMI touchscreen press Stop Machine. At the mandrel, set the bottom of the current label just above the sensor eye (see below).



## 9.9 Product Sensor Adjustment

Next, find the product sensor. It is located just below, and downstream, of the mandrel. Turn the hand knob located downstream from it, to the appropriate SIKO reading for the container being used (see the Machine Setup sheet for detailed data).

(If necessary, loosen the vertical adjustment handle and adjust the height of the sensor, and then retighten the handle.)



## 9.10 Final Preparatory Steps

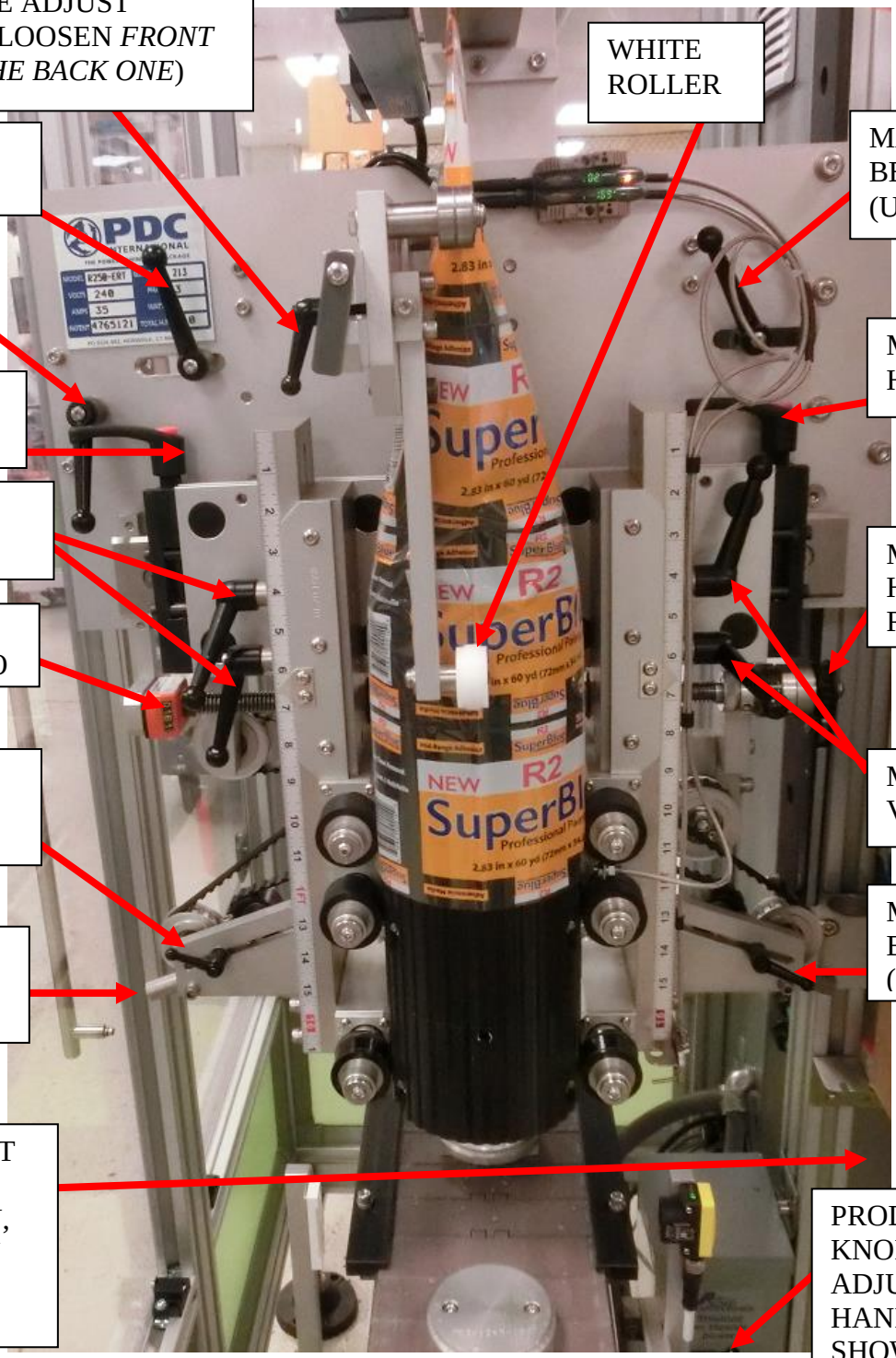
Ensure that the proper product containers will be coming down the conveyor.

***Caution:*** ***Ensure that all operators are clear of the machine and that the Lexan™ doors are closed!***

At the HMI touchscreen, in the Operator Screen, turn the Band Feed to be on (so that Band Feed button reads "Off", see Section 9.1 for details on this button).

Machine will now run.

## 9.11 Handles/Ratchets Overview (For Quick Reference)



## 10. TROUBLESHOOTING GUIDE

The following section describes problems which can occur and which may be remedied by fairly simple procedures. In the event serious problems develop, it is advisable to request qualified assistance. If this situation should arise, try to give as precise and detailed description of the fault condition as possible. It is very important that you record all actions taken when attempting to correct problems.

**Note**: Exercise caution at all times when making adjustments to the machine. When possible the main power fused disconnect switch should be turned off.

### 10.1 Perforator

**If the perforation is not located in the proper position and it does not keep good consistency of the position:**

Make sure the gear belt driving the feed rollers is properly tightened. If not, tighten the belt and check performance of the machine (this is the most frequent cause). If the test is negative, check the position of the feed units. Make sure the film accumulator is working correctly and the photo eye for film feed is clean and set to the correct sensitivity.

Check the spring-loaded guides on the servo stop table. Make sure that the table is free from dirt or oil. If the problem is still there, check for any type of drag. Too much drag will cause drifting or ripping. The film is also guided. If the guides are too tight this will allow the film to wedge and cause a film fault.

Check the feed assembly for proper roller pressure. Ensure that the rollers are not slipping, else rollers must be cleaned. If any signs of wear, rollers must be replaced. To check slippage, power must be on with the operator Stop button pushed in. Grasp the top roller and try to turn it. If the top roller turns, check for dirty rollers or loose clamp. Clamp is adjusted by increasing the rubber bumper engagement. Also check for worn clamp. If any signs of wear on any parts, they must be replaced as soon as possible.

**If the perforation is difficult to separate:**
Try manually to separate a pre-perforated label. If it is difficult to separate on the perforation, replace the perforator blade. Then check the quality of the perforation again. If there is no improvement, check for a groove on the perforating surface of the perforator back up (anvil) block. If there is a visible groove on the block, the backup block assembly should be removed and reground.
Note: The backup block is pinned for correct alignment during assembly.

**If the perforator is not working:**
1. The unwind vacuum box analog eye may be faulty.
2. The flag (target) starting the servo is not aligned with the start proximity switch.

**If the *vertical* perforator is not working (see Section 2.4 for picture):**
1. Check that the toggle clamp is engaged.
2. Adjust the toggle clamp.
3. If the wheel is dull or not perforating, it should be replaced with a new wheel.

## 10.2 Material Jam

**If material is jamming on the bottom of the mandrel:**

Check the flat width (the measurement of the width of the material in millimeters, see the Machine Specification Form for this specification) of the material – the measurement must be within the permissible tolerances.

## 10.3 Label Misapplication

**If the label is being misapplied**:

You will need to adjust the product sensor photo eye. You will have to move it forward (downstream) if the label is applied too early and backward (upstream) if the label is applied too late.

If you see a problem at the point of application there is a chance that the blade is dull. If separating the labels by hand is difficult, the blade should be replaced at this point.

Check for moisture on the containers. If the containers are wet, the label will not be applied properly.

Check the main feed units for alignment. If there is not correct pressure on the feed rollers (too loose), the label will not be fed through the mandrel at the required speed.

Check that the main unit feed rollers are not dirty or worn, as that can cause slippage. Check that the conveyor speed is correct.

## 10.4 Electronic Sensor Setups & Adjustments

See the manufacturer's literature (in the Literature section of this binder) for detailed setup and adjustment of the individual electronic sensors used on this machine.

The Literature section is organized alphabetically by manufacturer's name, for ease of use.