Cleveland Range

Cycle-Matic

Vertical Form-Fill-Seal Machine

Model AFF-1150

Operator's Manual

Table of Contents

The purpose of this manual is to guide the operator in the operation of Cleveland Range's Cycle-Matic form-fill-seal machine. This manual is an overview and not intended to answer all questions concerning the operation and functions of the Cycle-Matic. Please contact Cleveland Range for any and all technical questions concerning this product.

Power-up the Cycle-Matic form-fill-seal machine

For the Form-Fill-Seal machine to operate correctly sufficient electricity of the proper voltage must be supplied along with an adequate supply of compressed air. Please insure these are present prior to attempting to power up or operate the Form-Fill-Seal machine.

Turn on the power by turning the "Power" key switch and pressing the green button on the front of the control panel.

As the system powers up the operator interface screen will display the "Cleveland" logo screen.

After about five (5) seconds the run screen will appear.

Before we start the actual discussion of the operation of the system, we need to cover some points about the Operator Interface Panel or screen.

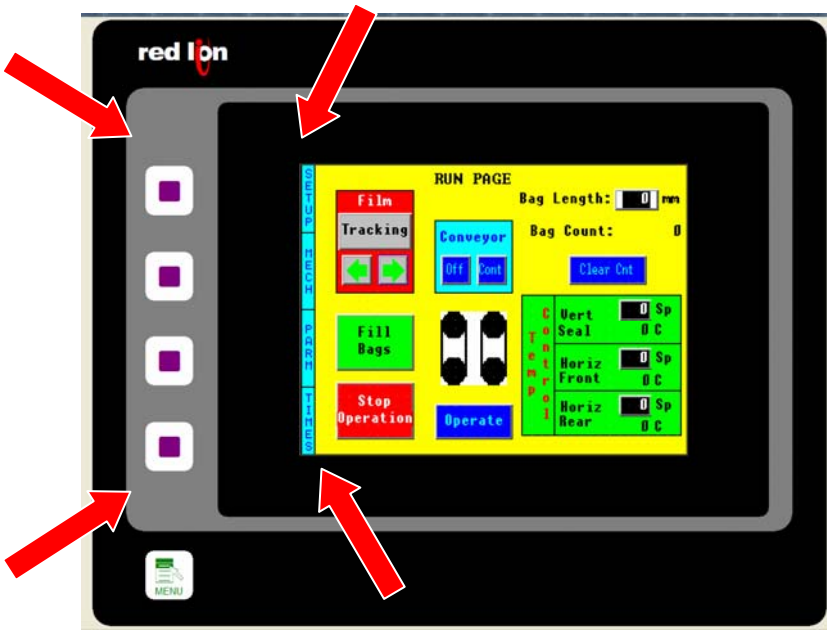
- There are five (5) keys on the face of the panel that are used to bring up various menus. On the Cycle-Matic machine the key labeled "Menu" is used to always return to the "Run Screen". The other four (4) unlabeled keys will jump to other operator used screens. These screens are indicated by the label on the far left of the screen next to the buttons.
- The complete illuminated section of the panel is touch activated. The areas that are active on any screen indicated by a colored box that will either jump to another screen, perform some action, or bring up a number pad for data entry.

- It should also be noted that some buttons or display objects on the various screens are not visible at all times. When a button or display object is not valid, pertinent or active, it will not be displayed.
- Finally, a couple of notes about this manual. This is not designed to be an inclusive guide for every situation encountered, although every attempt has been made to cover the everyday situations.
- On several of the screen images there are arrows that point to buttons or areas of the screen being discussed in the text. (example)

Run Screen

Items of interest on this screen are:

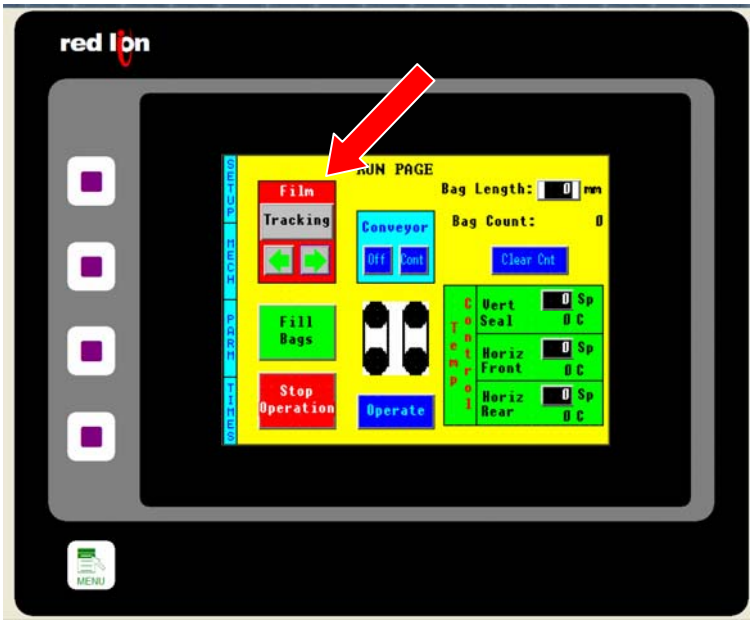
- On the left side of the screen are the abbreviations for four (4) of the five (5) normally used screens the operator may navigate to or from the current screen, they are: run, setup, mechanical, parameters, and timer settings. The four (4) buttons on the far left will take you to those screens. It should be noted that the parameters and timer settings screens are used during initial setup only and therefore are password protected to prevent inadvertent modification.



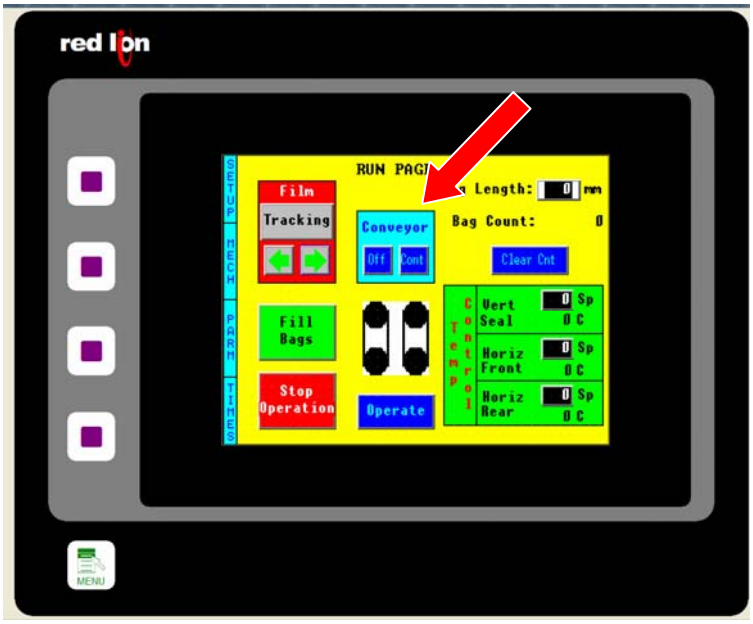
- The film tracking control allows the film alignment to be moved right or left and also has an auto tracking mode. The green arrows will move the film carriage to the right or to the left. Caution should be used when manually moving the film carriage; it takes the film alignment a substantial amount of time to react to any adjustments. When in the auto tracking mode the proximity sensors located in the

upper rear of the film path will move the film carriage to keep the proper alignment. Auto tracking only moves the carriage when the film is moving. This prevents overshooting which would require constant adjustment.

✦



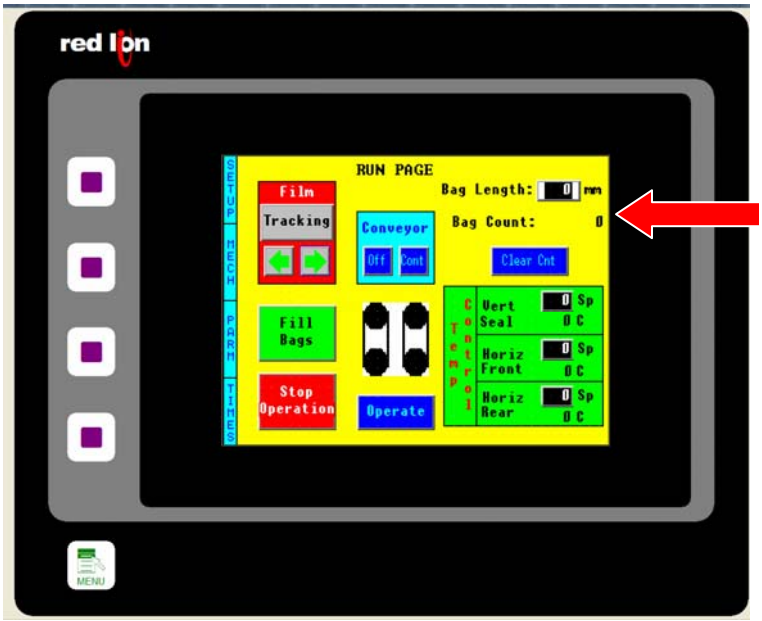
✦ The conveyor controls allow the conveyor to be turned on or off and also allow the conveyor to run continuously or in the timed mode. In the “Timed” mode the conveyor will run for a preset time only after the horizontal jaws have opened.



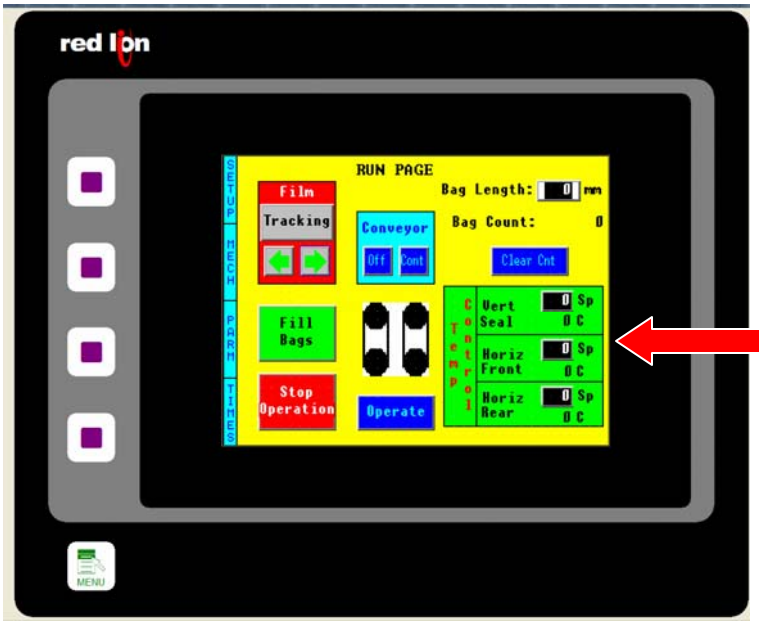
- The bag length set point selects the length of the bags to be made. The ranges of lengths that can be made are 5.0 inches to 30.0 inches. If you are using the metric system the lengths are 125 millimeters to 762 millimeters.

- The bag counter displays the number of bags made. This counter only works in the automatic or "Fill Bags" mode. This gives the operator a record of the number of bags made during the production run.

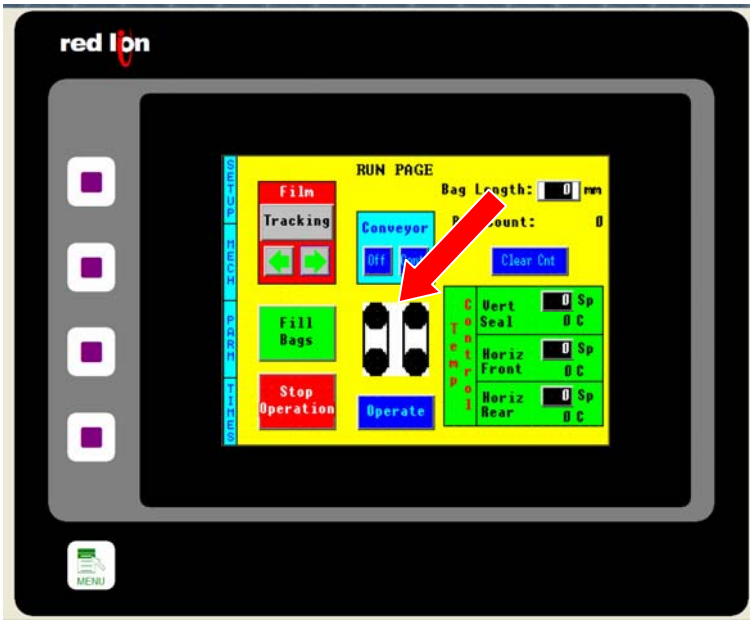
- The blue "Clear Cnt" or clear counter button allow the resetting of the bag counter. The button must be held for approximately 5 seconds before the counter is actually reset to zero (0).



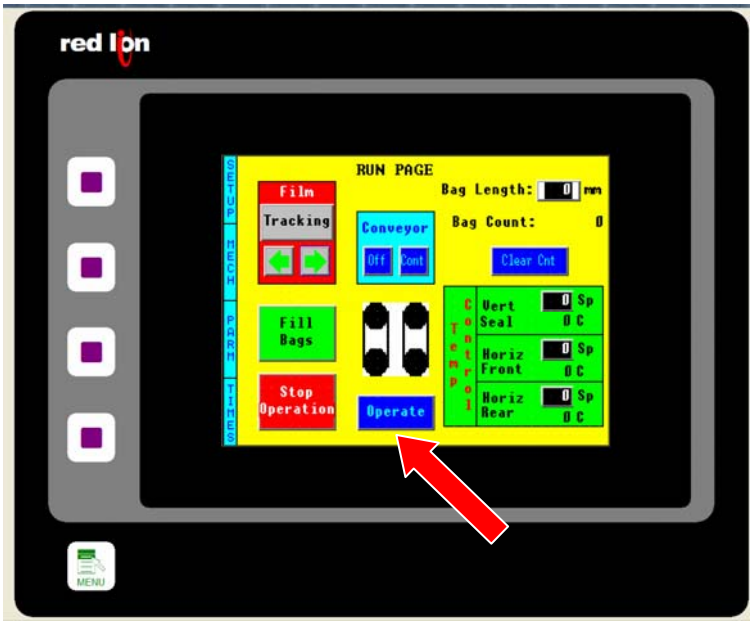
- The temperature controls for the heaters are in the green box. The set point ranges are: 0 to 400 degrees Fahrenheit, or 0 to 205 degrees centigrade. The actual temperature reading of the heater bar is below the set point box.



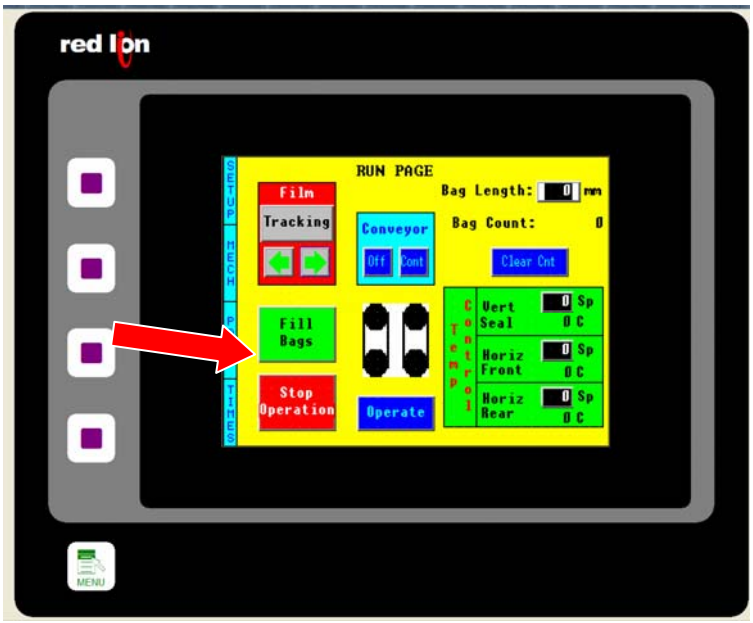
✦ The film pull belts positioning button moves the film pull belts in or out. The belts must be against the film horn to advance the film.



✦ The “Operate/Testing” mode button enables and disables the fault testing logic in the Cycle-Matic. If in the “Testing” mode the faults will not be displayed and the safety interlocks are disabled. Use extreme caution whenever operating the Cycle-Matic in the “Testing” mode.



✦ The last two buttons on this screen are the “Fill Bags” and “Stop Operation” buttons. The “Fill Bags” button starts the automatic filling operation. Bags are made and filled on a continuous sequence. The “Stop Operation” button is used to stop any continuous operation, but on this screen it is mainly used to stop the fill bags sequence.



Setup Screen

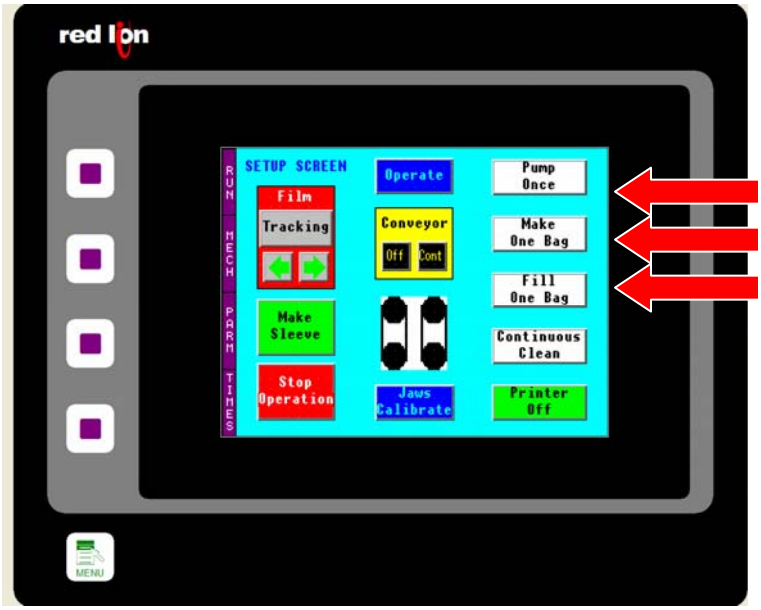
Several buttons or controls are identical as on the “Run Screen” and will not be discussed here. These include the film tracking, conveyor, film pull belts positioning, and the operate/testing mode controls.

The setup screen, as the name implies, is used to setup the Cycle-Matic for its main purpose, to fill bags automatically.

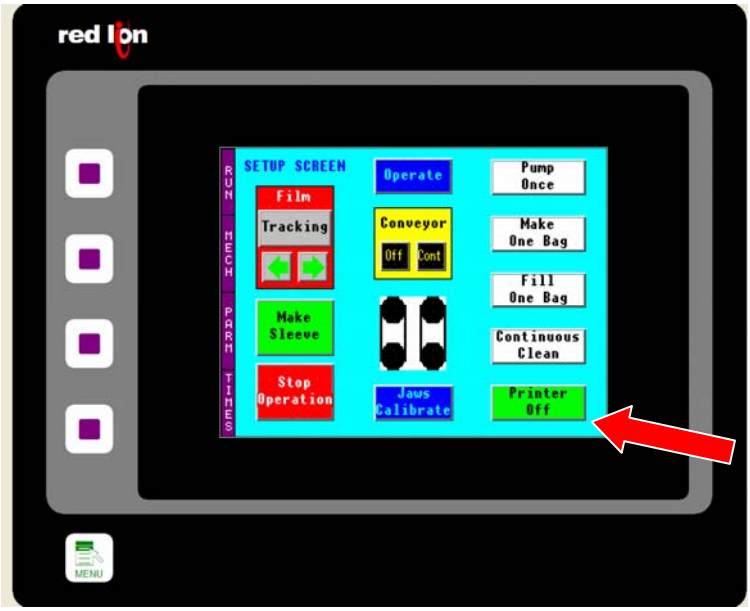
- The “Pump Once” button will cause the food pump and related valves to operate. This button is used to prime the system, filling the lines and hoses with food product that will be placed into the bags.

- The “Make One Bag” button will cause the Cycle-Matic to create one bag, however the bag will not be filled. This feature has two (2) uses; to check the bag making quality and to insure the filling process starts with an empty bag sleeve.

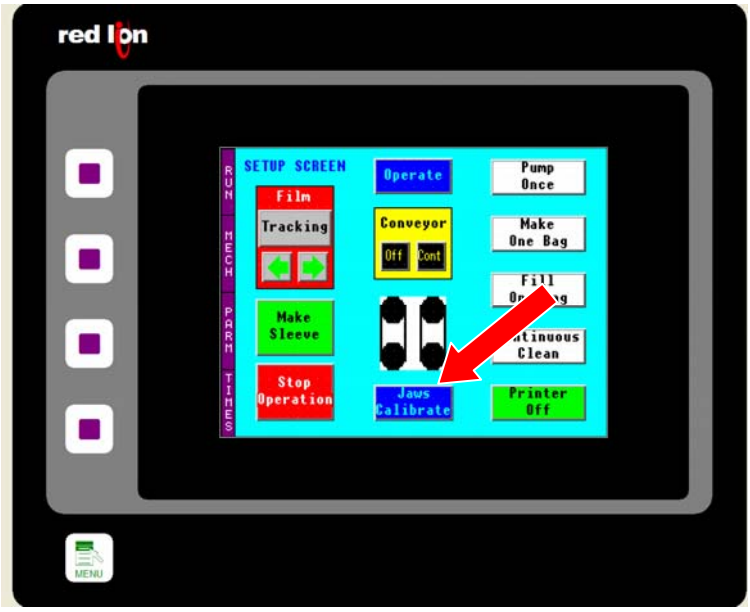
- The “Fill One Bag” button runs the Cycle-Matic through one bag making/filling cycle. This feature is used to check the overall machine operation and to insure that the pump stroke and filled bag weights are correct prior to starting the automatic cycle.



- The “Printer On/Off” button enables the printer commands to the label printer. It should be noted that the label printer is a total separate device and must be turned on and placed on-line prior to being functional. This printer on/off button enables the print command to be sent to the label printer only.



- The "Jaws Calibrate" button will jump to the calibrate jaws screen. This feature is seldom needed, but is available if necessary. The actual screen is discussed later in this manual.

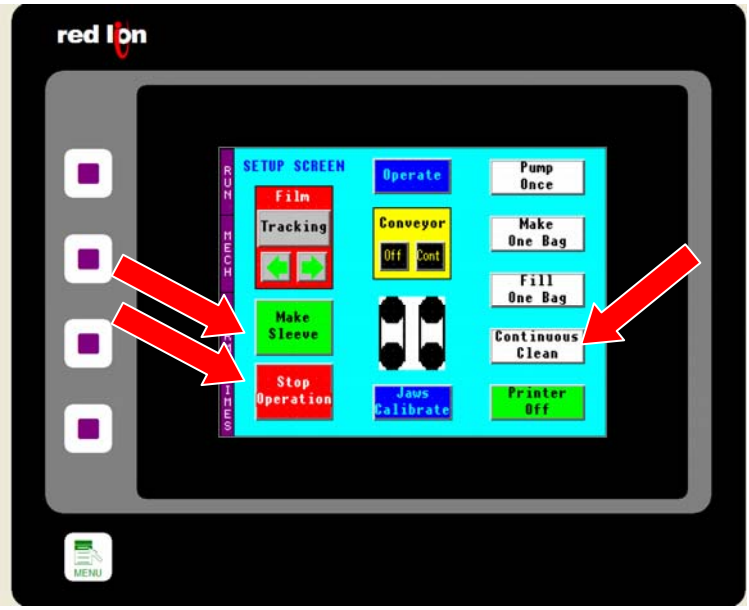


The last three (3) buttons on this screen are used for cleaning the Cycle-Matic's lines between batches of product. This is not the total cleaning mode, but a rinse cleaning used during the day as different products are processed into bags.

- The "Make Sleeve" button will cause the Cycle-Matic to make a continuous sleeve or tube with which the rinsing process will route the discarded material away from the Cycle-Matic to a drain area.

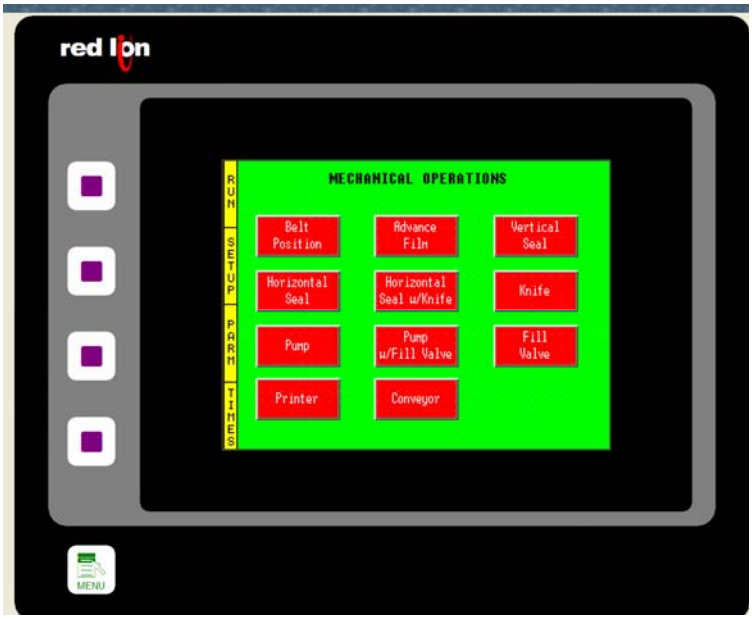
- The “Continuous Clean” button will cause the pump to operate continuously flushing out the lines and tubing.

- The “Stop Operation” button will stop the continuous sleeve process or the continuous cleaning process.



Mechanical Operations

This screen is used to test the mechanical operation of each of the devices that make up the Cycle-Matic individually. The purpose of this screen is to assist the maintenance department during repairs or to prove the operation of a specific feature of the Cycle-Matic. Most of the buttons on this screen are momentary and active the device or feature while the button is pressed and deactivate the device or feature when the button is released. The text on the buttons is self-explanatory and will not be discussed further.



Parameters Screen

This screen is password protected. Upon selecting this screen a prompt will appear on the screen for the user name and password entries. The parameters available for modification on this page affect the film movement, film fault, and units of measurement.

- Film pull speed is a relative number from 1 to 60. This is used as a multiplier internally to calculate the frequency at which the film pull motor operates. The number “60” represents the maximum speed allowable. The greater the speed setting, the more chance there is of the film tearing and/or slipping during the starting and stopping of the pulling process.

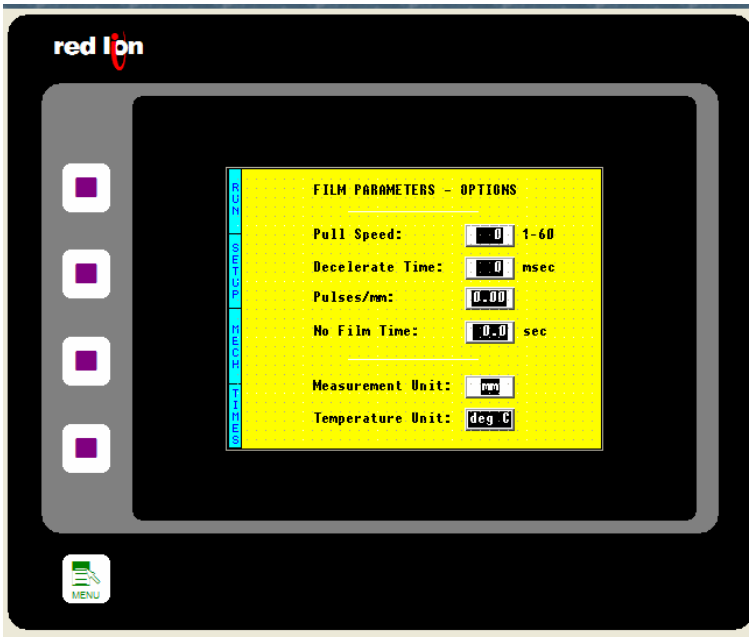
- The deceleration time is not used on this model of the Cycle-Matic.

- The pulses per inch or pulses per mm are the values used to calculate the length of the bags. Once this number is set it should not be modified or the bag length may vary from the selected bag length.

- No film time is a time limit when a film fault will not be detected. If this time is too short there is a possibility of film faults halting the operation. If the time is too long the actual film faults will not be detected in time to prevent a more serious problem, ie having to reroute the film in the Cycle-Matic.

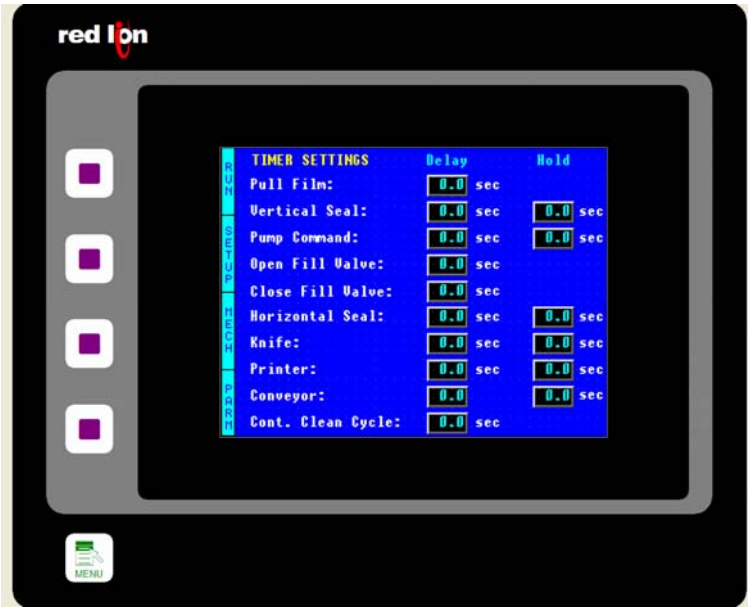
- The measurement unit is used to select either inches or millimeters for the bag length. Note: when this measurement is changed the length of the bag is reset to zero (0).

- The temperature unit is used to select either degrees Fahrenheit or degrees Centigrade. Note: when the temperature unit is modified the heater set points are reset to zero (0) degrees.



Timer Setting

This screen is password protected to ensure that undesired modifications are not made. Upon selecting this screen a prompt will appear on the screen for the user name and password entries. Here are the time delay and time active (hold) times for the various operations that make up the Cycle-Matic sequences. The delay times are used to postpone a command from taking affect by allowing another command to finish first. The hold times are the amount of time a command is active for. The easiest to understand would be the hold times for the vertical seal and for the horizontal seal. Note: these times are very interrelated and making modifications without a complete understanding of the Cycle-Matic operations may cause some sequences to malfunction. Be sure to note the timer settings before making any modifications so the timer can be reset should the adjustment cause an operation failure.



Timer Setting (base starting point – all times are in tenths of seconds)

	Delay	Hold
Pull Film:	0.5	
Vertical Seal:	0.0	1.7
Pump Command:	0.2	0.3
Open Fill Valve:	0.0	
Close Fill Valve:	0.2	
Horizontal Seal:	0.4	1.3
Knife:	0.2	0.7
Printer:	0.0	0.5
Conveyor:	0.0	2.0
Cont. Clean Cycle:	2.0	

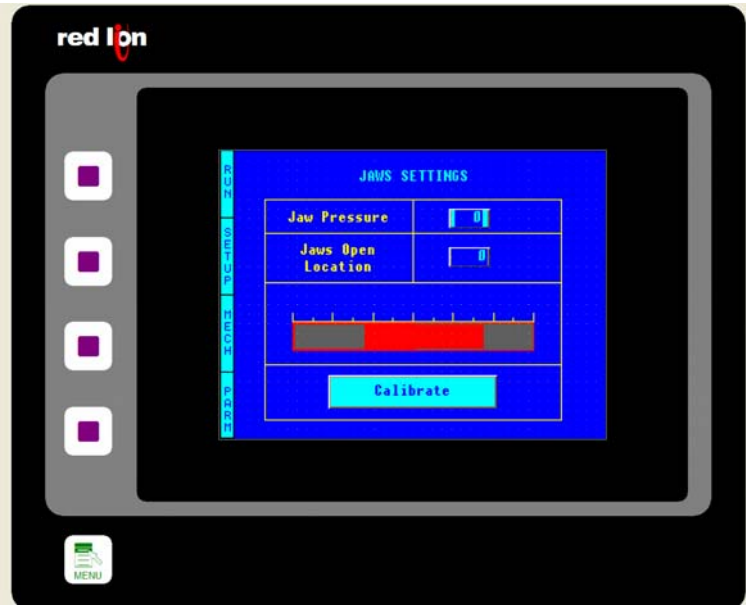
Jaw Calibration

There are two (2) variables the operator can set on this screen.

- The “Jaw Pressure” or the amount of force applied after the jaws are closed. The pressure number is a relative value with a range of “0” (no additional pressure) to “999” (maximum additional pressure). Care must be used when changing this value as the motor driver may detect a fault if this value is set too high.

- The “Jaws Open Location” is the stopping location of the jaws after sealing a bag. Fully open is a value of “0”, while fully closed is a value of “4000”. The closer to ‘closed’ the jaws stop the quicker the horizontal seal process is when operating. If the jaws do not open wide enough the film may get caught on the jaws during advance, or the film may stick to the heated jaws and a hole may develop. Normally the jaws should operate at the fully open position “0”.

- The “Calibrate” button is used to calibrate the jaws position with the PLC which is controlling the jaw movement. The jaws will close to a known position and then open slowing so the PLC can detect the fully open position. This task is only necessary if the horizontal seal does not seem to fully close or there is a jaw motor drive fault.



Alarm Faults Screen

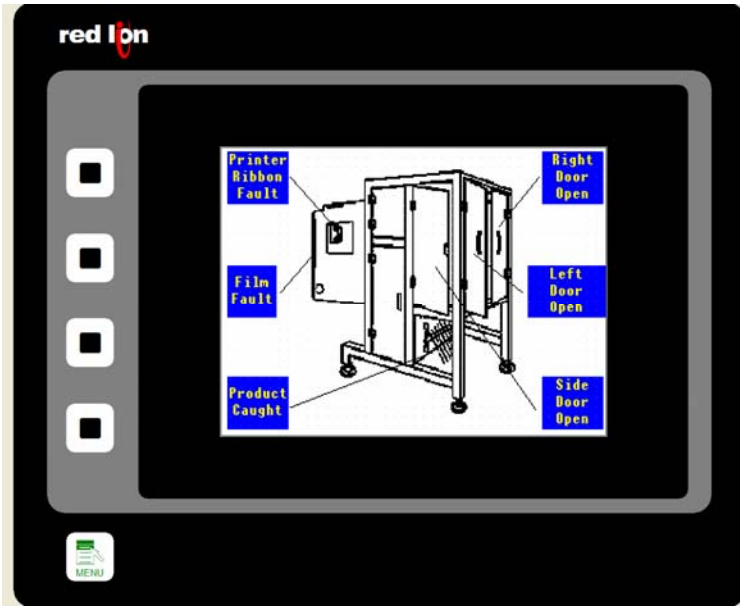
There are six (6) fault conditions that are tested for, these include; printer ribbon fault, film fault, product caught fault, and three (3) doors open indications. Each of these faults will be defined below:

- ✦ Printer Ribbon Fault – this indicates the printer ribbon has either broken or has reached the end of travel; one of the ribbon spools is empty.

- ✦ Film Fault – this indicates that the film tension bar in the very back of the machine is either in the full up or the full down position. Advance the film spool forward or rewind the film spool to correct the problem.

- ✦ Product Caught – this fault is not used on this model of the Cycle-Matic.

- ✦ Door Faults – the three (3) large Plexiglas doors are monitored and must be in the shut position or a fault will occur.

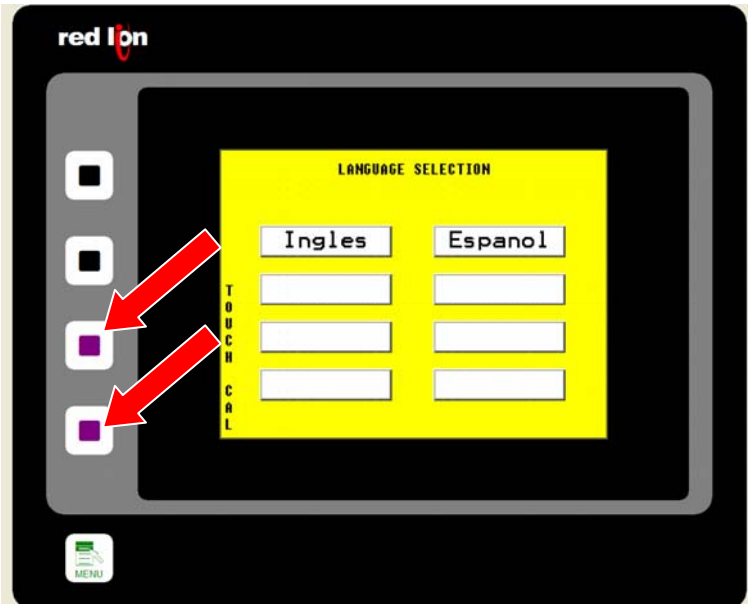


Should any of these faults occur, any process in progress will stop immediately and the above screen will be displayed. The fault must be corrected; the text in the blue boxes will then be erased. To go back to operating the machine, press the “Menu” button. The screen will revert to the “Run Screen”.

Language Selection Screen

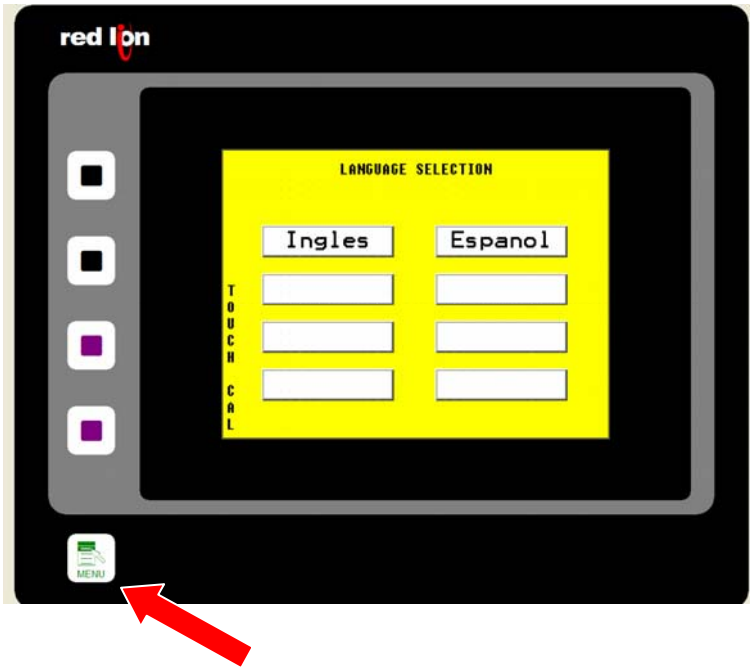
The language screen allows the user to select the language which the screens will appear in. Currently there are only two (2) languages in the system, English and Spanish.

In the event the buttons on the touch screen do not seem to be aligned with touch sensitive locations are, the touch screen may need to be calibrated. The calibration screen may be reached by pressing either of the lower two membrane buttons on the left of the screen.



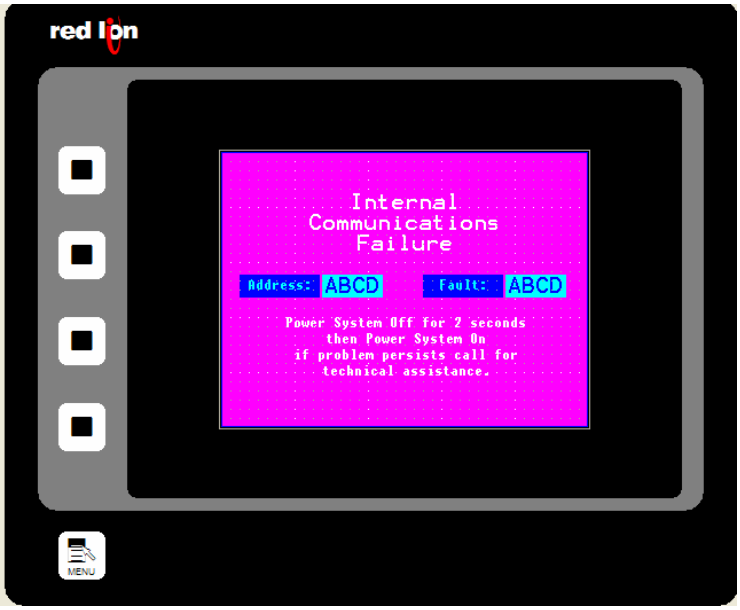
The screen calibration screen is not displayable for this manual.

After selecting the desired language, or completing the screen calibration, press the "Menu" button to jump to the "Run Screen" to use the Cycle-Matic.


red lion
LANGUAGE SELECTION
Ingles
Espanol
TOUCH CAL
MENU

Internal Fault Screen

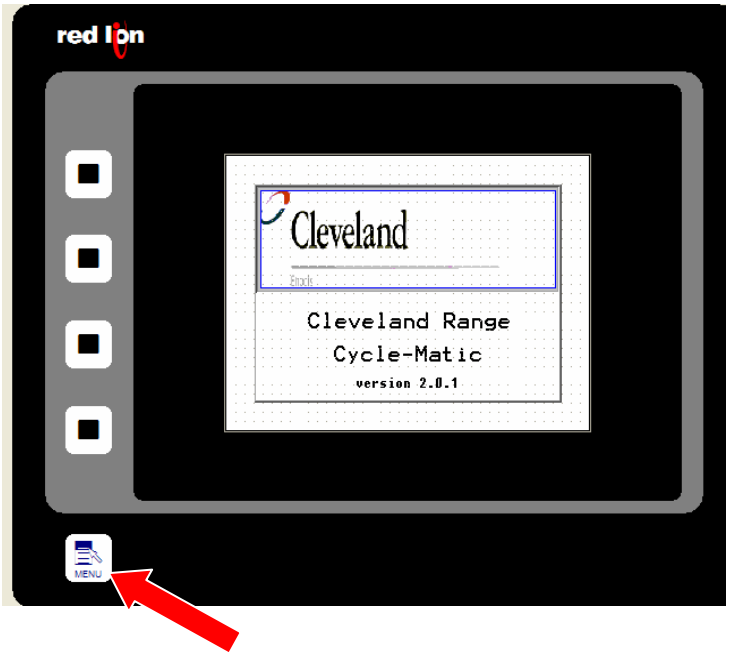
The internal fault screen is used to inform the operator that an internal communications fault has occurred. Should this screen appear the Cycle-Matic must be turned off for at least 2 seconds. If the problem persists please call for technical assistance be sure to copy down the numbers/letters after the "Address:" and the "Fault:" fields.

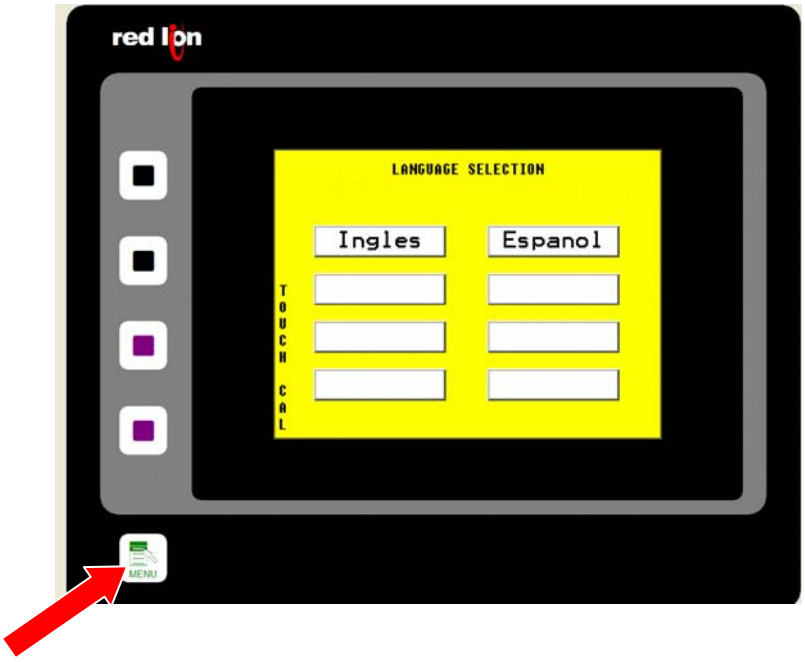


Normal Operating Procedures

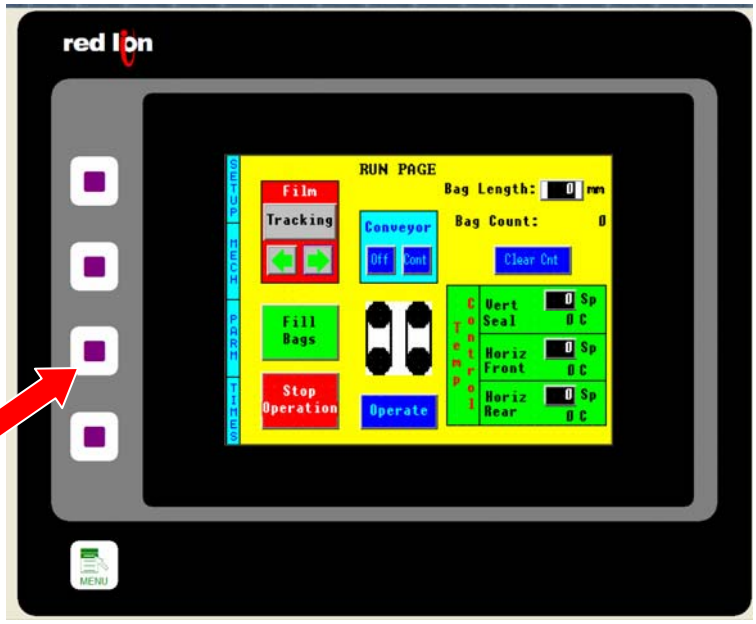
Original Setup

The first time the system is powered up the language (English or Spanish), temperature scale (Fahrenheit or Centigrade), and measurement scale (inches or millimeters) should be selected. Upon powering up the system the HMI will start with the initialization screen and after five (5) seconds will change to the run screen. To modify the language the menu button must be pressed while the screen is displaying the initialization screen, this will bring up the language selection screen.

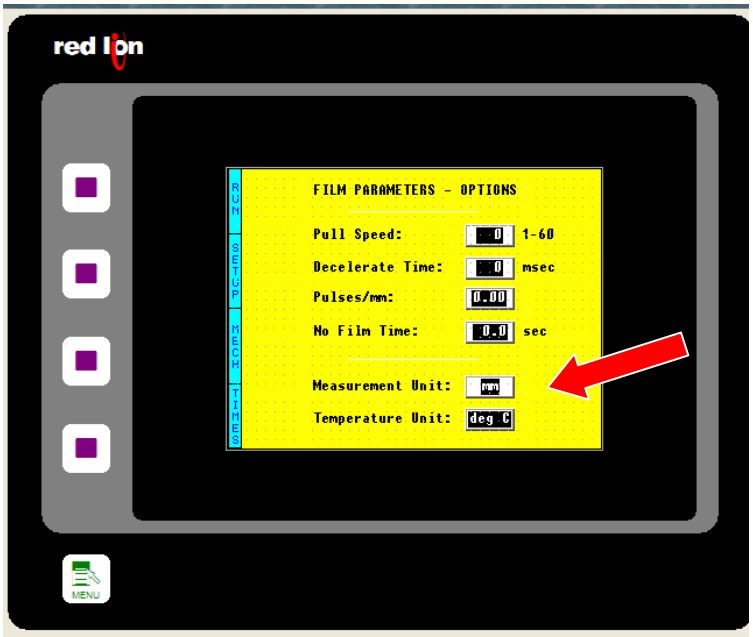




After selecting the desired language press the menu button on the touch screen. This will not return to the run screen. If the temperature scale or measurement scale needs to be changed select the parameters screen.



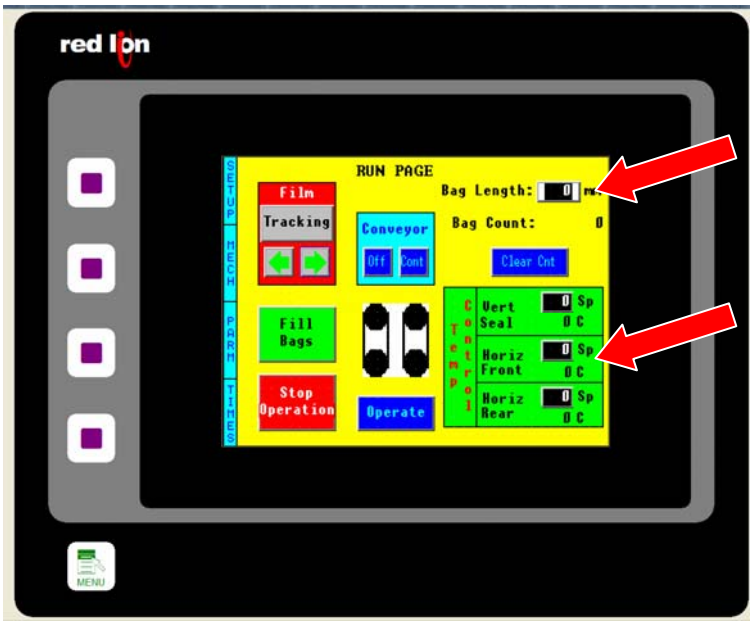
A user name and password are required to access the parameter screen. Upon selecting this screen a prompt will appear on the screen for the user name and password entries. Select the measurement unit and temperature unit as desired. Press the desired box twice to open the selection window. Use the up or down arrows to change the selection and finally press “enter” to make the selection.



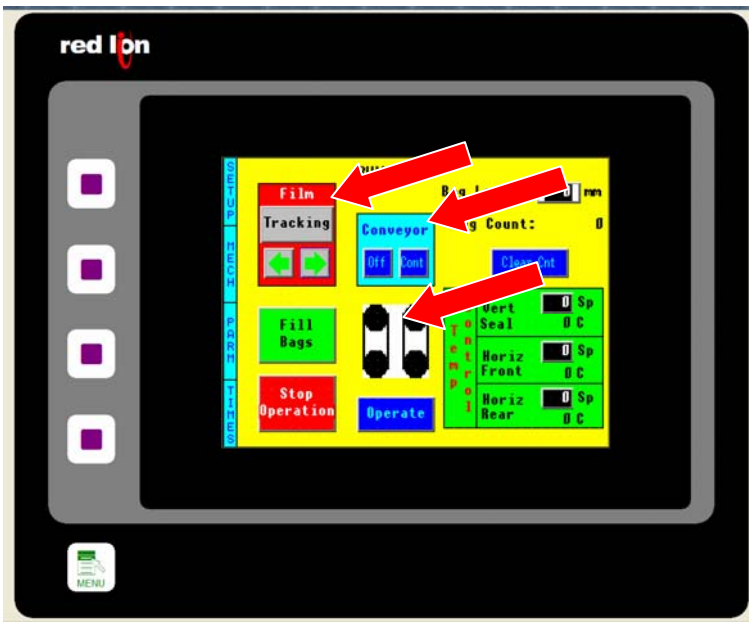
Press the “menu” key to return to the run screen.

Daily Operation

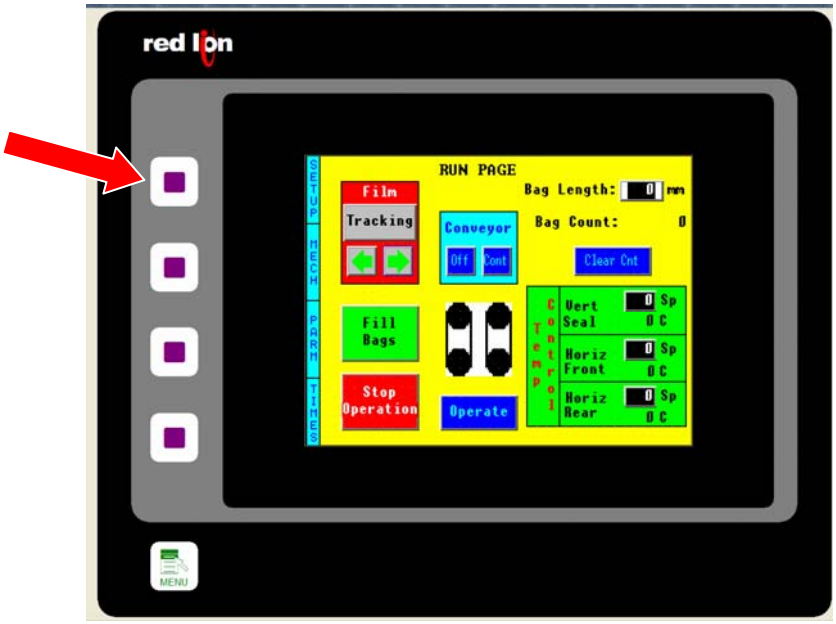
Now set the bag length desired and the heater set points. When the Cycle-Matic is cold the heaters should be allowed to run for approximately fifteen (15) minutes prior to starting to make bags. This not only allows the heaters to get hot, but is also allows the jaws metal to become saturated with heat and will provide a more uniform heating/sealing.



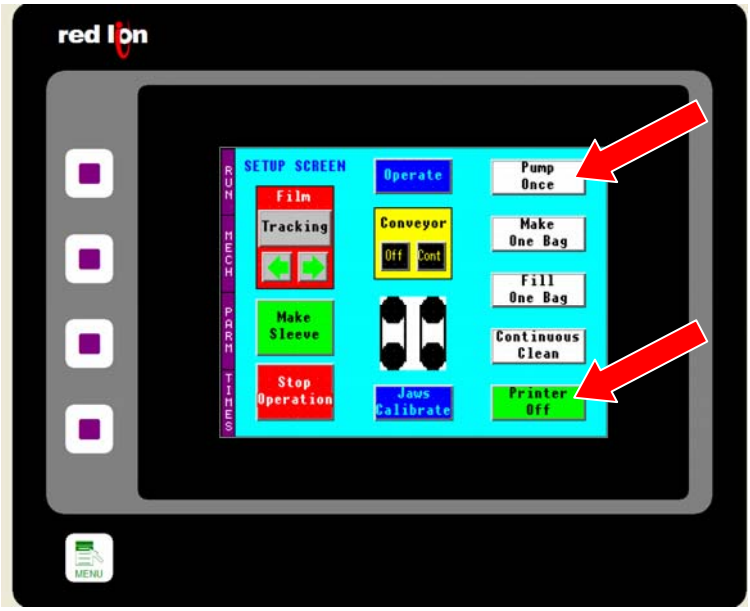
Close the film pull belts assembly by pressing the graphic that shows the film pull assembly. Turn on the conveyor and select the desired mode. If automatic film tracking is required please turn it on now also.



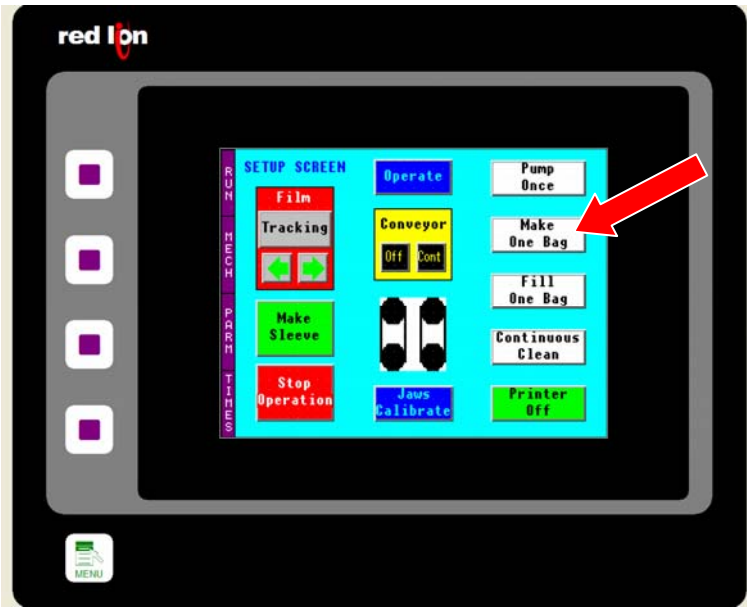
While the heaters are heating up, connect the food lines from the kettle in use to the food pump and from the food pump to the Cycle-Matic. After completing the heat-up process select the “Setup” screen button.



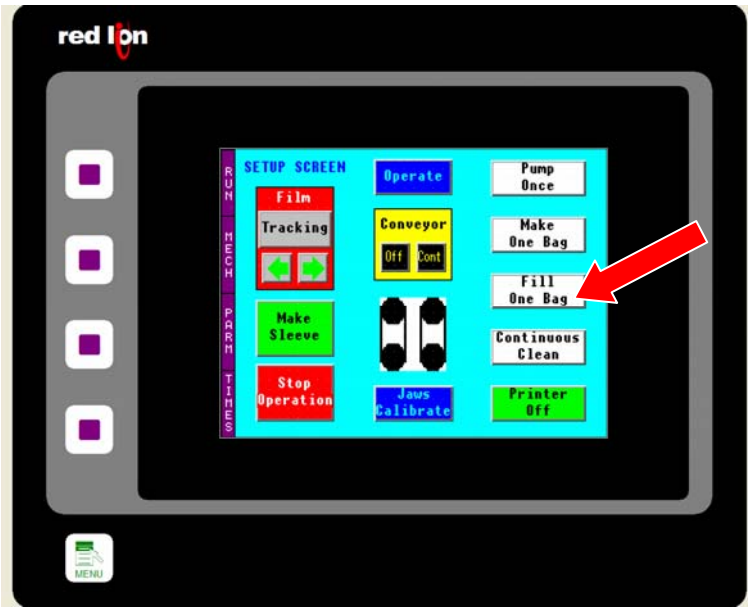
Turn on the label printer and select the “Printer” button to enable the label making process if the bags are to be labeled by the Cycle-Matic. Starting the label making now will reduce the amount of empty bags required to get the labels to the filling station.
In preparing to pump food into and make bags, the product lines need to be primed first. This will save making several unfilled bags during the start-up routine. The lines are primed by pressing the “Pump Once” button until product exits from the fill tube located in the bag opening. When first starting with empty lines this will require several pump strokes before product exits the fill tube.



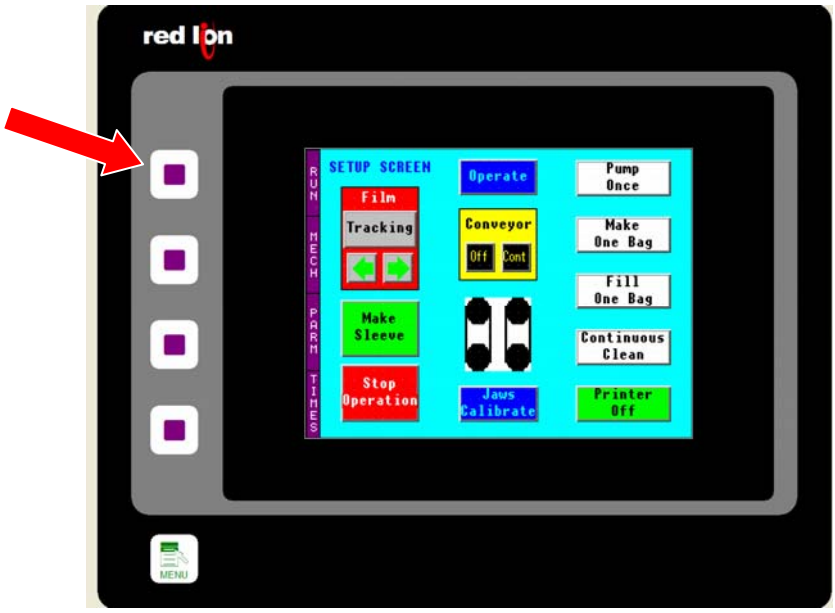
After some product has been pumped into the partially formed bag, a new empty bag must be made. This is accomplished by pressing the "Make One Bag" button. The purpose of this button is to make empty bags: to check the bag size and seals or to create a new bag in preparation to start production. If the Cycle-Matic is labeling the bags, it may require making several bags to get the labels to the filling station.



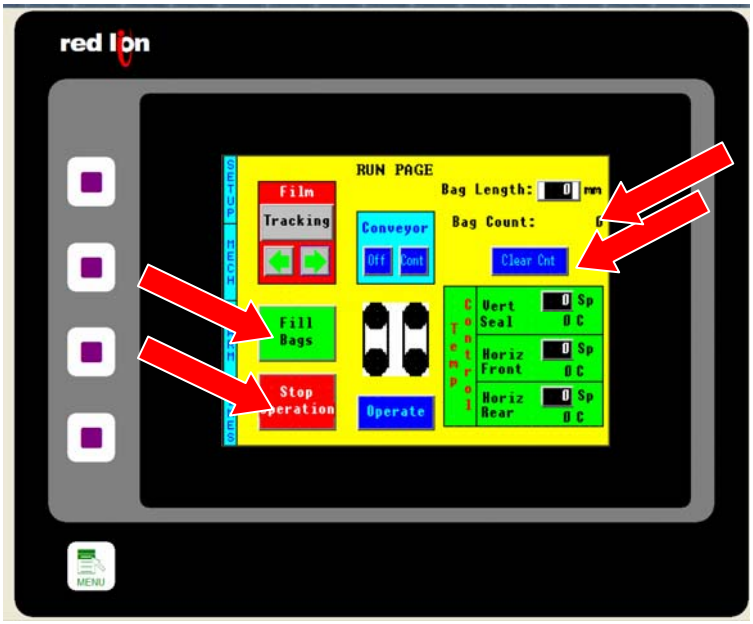
At this time the bag volume must be checked. Press the "Fill One Bag" button and the Cycle-Matic will create and fill one bag. This is the time to check for: proper fill stroke of the food pump by weighing the filled bag, proper bag length compared to the required volume, and proper bag squeezer adjustment (used to remove excess air). The fill one bag process can be performed as many times as necessary to reach the optimum settings.



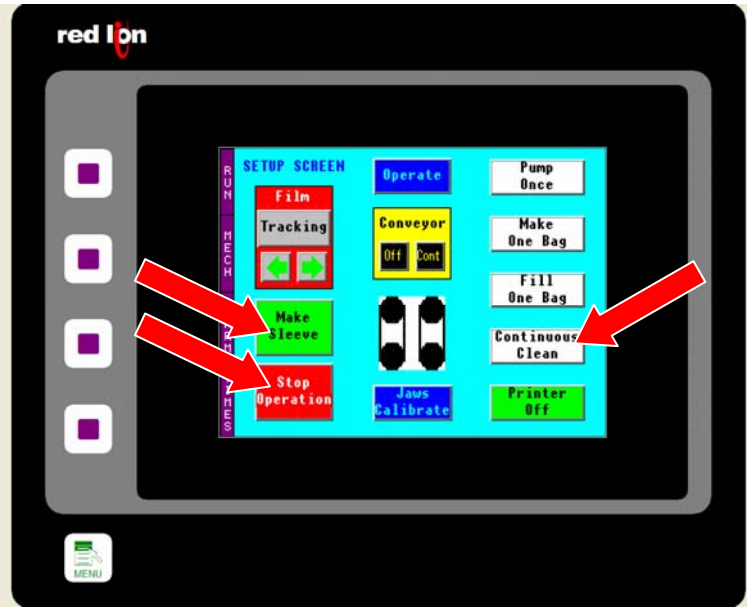
When the bag volume, length, and seals are correct, select the run screen to start production.



The Cycle-Matic is now ready to start a production run. First clear the bag counter by pressing and holding the blue “CleanCnt” button until the bag count is zero (0). Now press the green “Fill Bags” button. The Cycle-Matic will start making and filling bags and will continue until the red “Stop Operation” button is pressed. If for some reason the process needs to be stopped just press the red “Stop Operation” button. Pressing the green “Fill Bags” button will restart the production process.

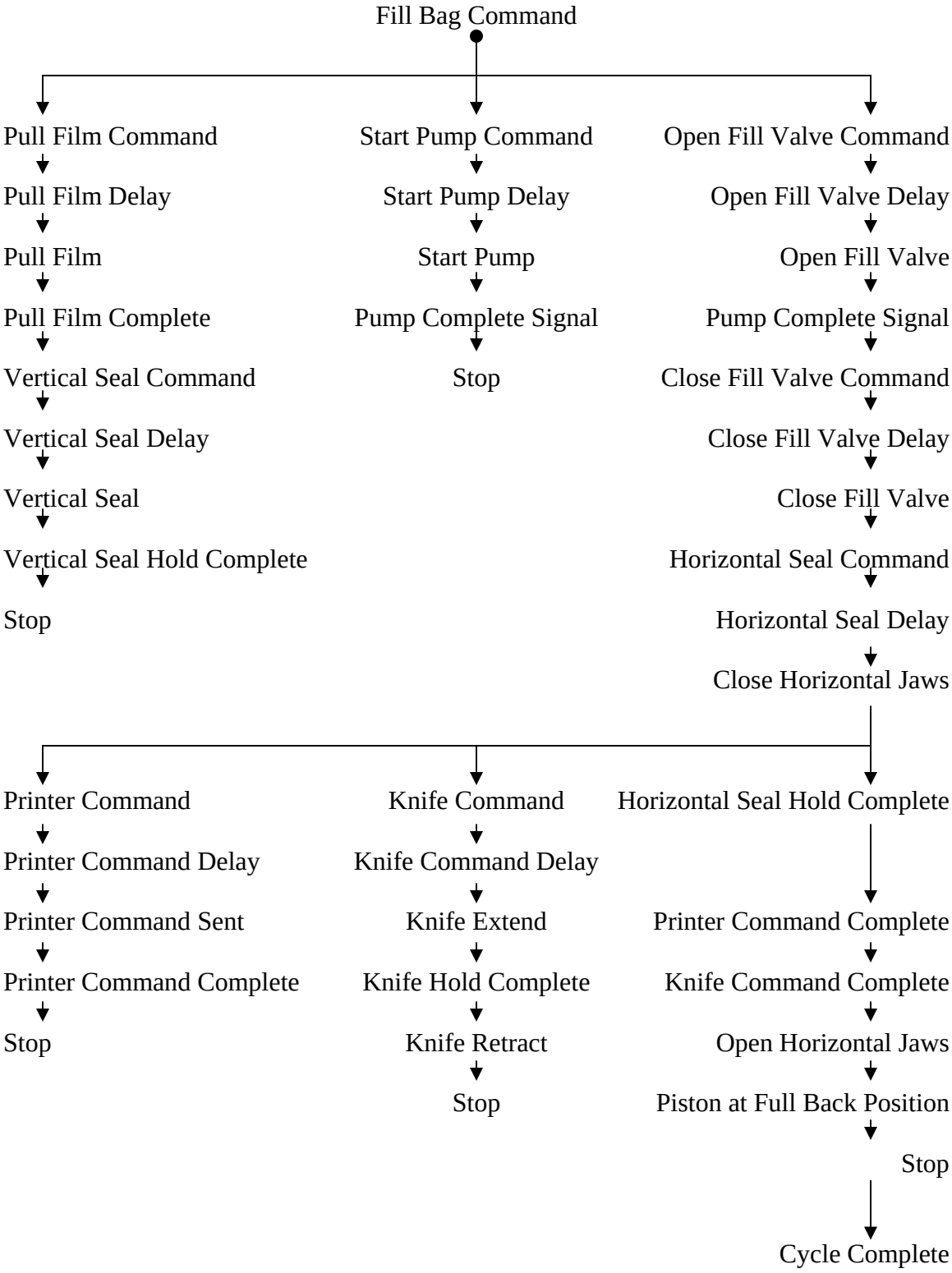


If a different product is to be bagged next the system can be rinsed out so there is no cross contamination of products for the next batch. This is accomplished by returning to the setup screen and making a rinse sleeve. Move the conveyor out of the way. Press the "Make Sleeve" button. As noted earlier in this guide, the sleeve process advances film and seals it vertically only. While the sleeve is being created grab the end and keep some tension on the film so it does not lie against the horizontal jaws and melt together or create a hole. When the sleeve is long enough press the "Stop Operation" button. Cut the sealed end off the sleeve. Now press the "Continuous Clean" button to start the rinse cycle. The pump will now cycle continuously until stopped by the operator. Press the "Stop Operation" button to stop the continuous clean cycles. Press the "Make One Bag" button to cutoff the sleeve and make the seals on the end of the film in preparation for the next bagging cycle. Connect the product lines to the next kettle and restart the setup and production process.


red lion
SETUP SCREEN
Operate
Pump Once
Film Tracking
Conveyor
Off
Cont
Make One Bag
Fill One Bag
Make Sleeve
Continuous Clean
Stop Operation
Jaws Calibrate
Printer Off
RUN
MECH
PRINT
MES
MENU

Operational Troubleshooting

Below is a diagram of the full operation process:



Front Jaw Removal, Installation and Rubber Replacement

CAUTION: Turn the Power Disconnect Switch to the **off** position.

WARNING: Make sure the heater bars have cooled completely down.

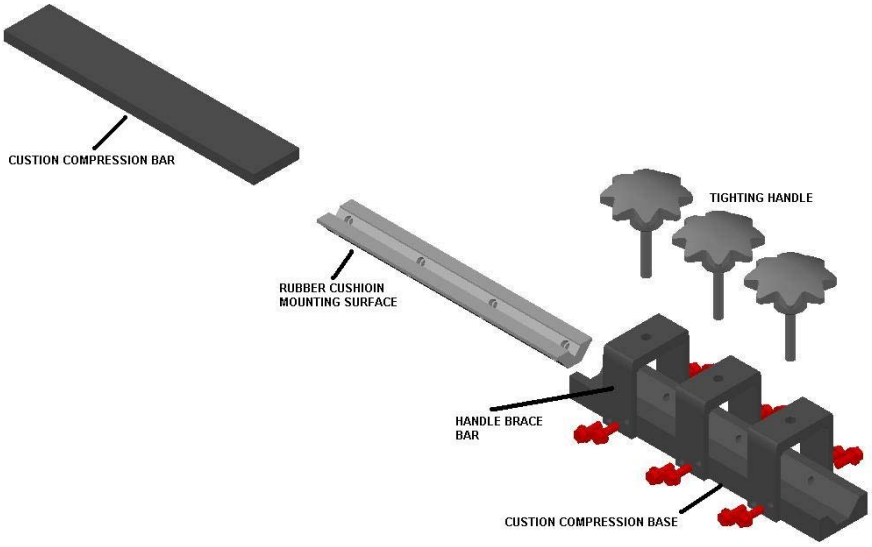


FIG. 1

1. When rubber becomes inoperable, carefully remove the upper and lower jaws by removing the (**4**) bolts holding each jaw in place. **ALWAYS REPLACE THE JAWS IN PAIRS, NEVER REPLACE A SINGLE JAW AS THIS WILL AFFECT THE OVERALL PERFORMANCE.**

2. Clean the jaw mounting areas on the jaw mounting plate. Use caution cleaning around the heaters. Get the spare set of jaws making sure the heaters are secured and centered. Bolt the new jaws in place.

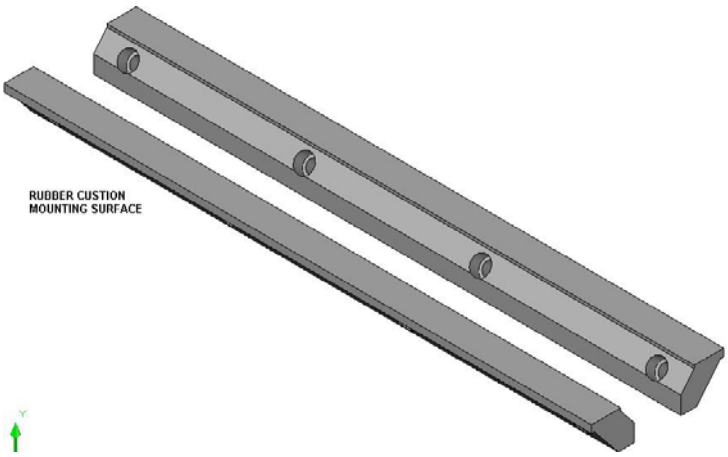


FIG. 2

3. With the jaws that have been removed strip the old rubber. Clean the rubber mounting surface with a brass brush (supplied). (REF. FIG. 2)

4. **CAUTION:** WHEN USING CLEANING CHEMICALS AND ADHESIVES FOLLOW THE MANUFACTURES INSTRUCTIONS ON HANDLING AND USE OF THESE ITEMS. CLEVELAND RANGE, LLC ASSUMES NO RESPONSIBILITY FOR MISHANDLING OR MIS-USE OF THE CLEANING PRODUCTS OR ADHESIVES.

5. Using a non-oil based cleaner (example Acetone) clean the jaws thoroughly and allow to completely dry.

6. Cut (2) ¾" wide X 14" long red rubber cushion strips. Using medium sandpaper, a wire brush, or a file completely rough up both sides of the rubber cushion strips.

7. Using a non-oil based cleaner completely clean both sides of the rubber cushion strips and allow to dry.

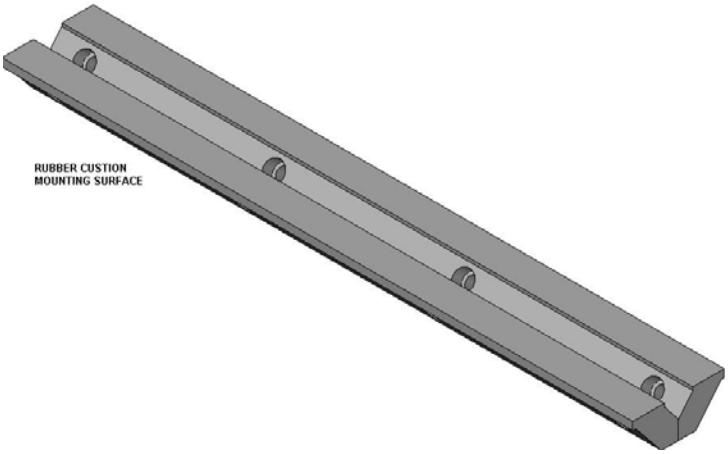


FIG. 3

8. Using the Wacker adhesive apply a bead onto the aluminum surface. Spread the adhesive out covering the entire rubber cushion mounting surface. (REF. FIG 3).

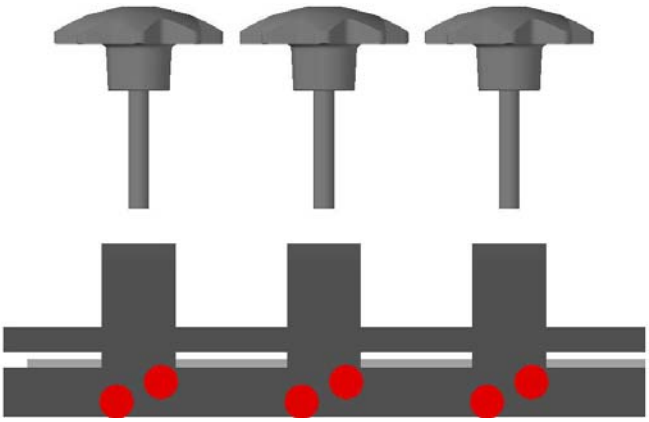


FIG 4

9. Place the jaws in the Cushion Setting Tool. (REF FIG 4)

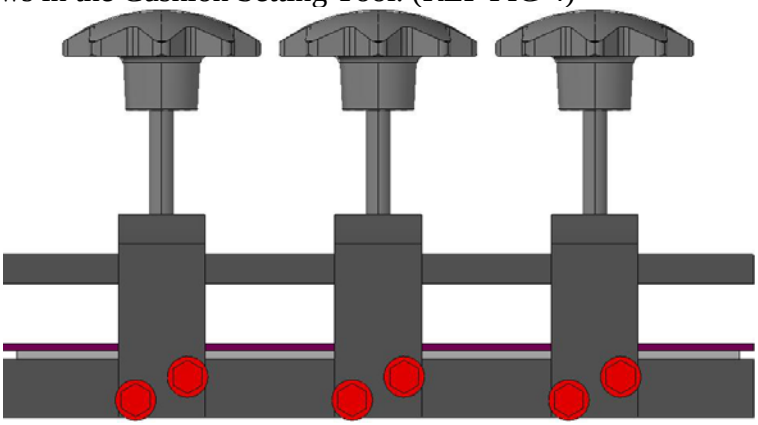


Figure 5

10. Gently Place the rubber cushion strip on each jaw as even as possible allowing the rubber to over hang on each end. Ref. Figure 5

11. Carefully lower the cushion setting tool top plate on the positioned jaws.Ref. figure 5

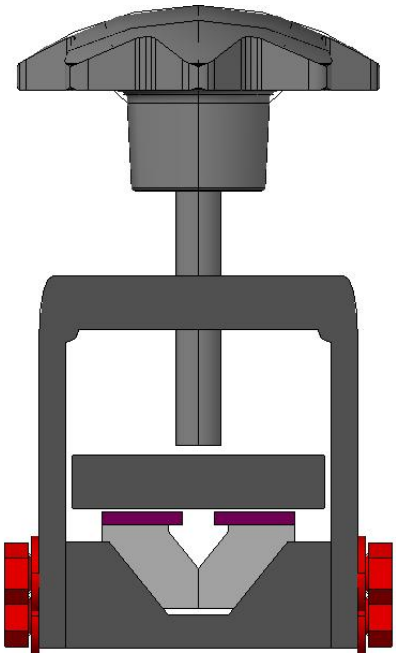


Figure 6

12. Screw a knob into the threaded holes of the handle brace bars and gently tighten the center knob first. Then tighten the (2) outside knobs. Repeat this procedure to make sure even pressure is applied to all wing nuts. Check to make sure rubber cushion strips are even and in proper position. **HAND TIGHTEN ONLY**(REF FIG 6)

13. Allow adhesive to cure for 18 to 24 hours in a well ventilated area.

14. Loosen the knobs and remove front jaws from the Cushion Setting Tool. Examine each jaw for proper adhesion to the rubber cushion. Trim the excess rubber cushion from the jaw ends. Clean the excess adhesive from the bolt holes and the jaws.

15. Make sure the rubber cushion surface is clean and free of oil and grease.

16. Wrap jaws to protect them from dust and dirt until needed.

Bagging Film Routing Path

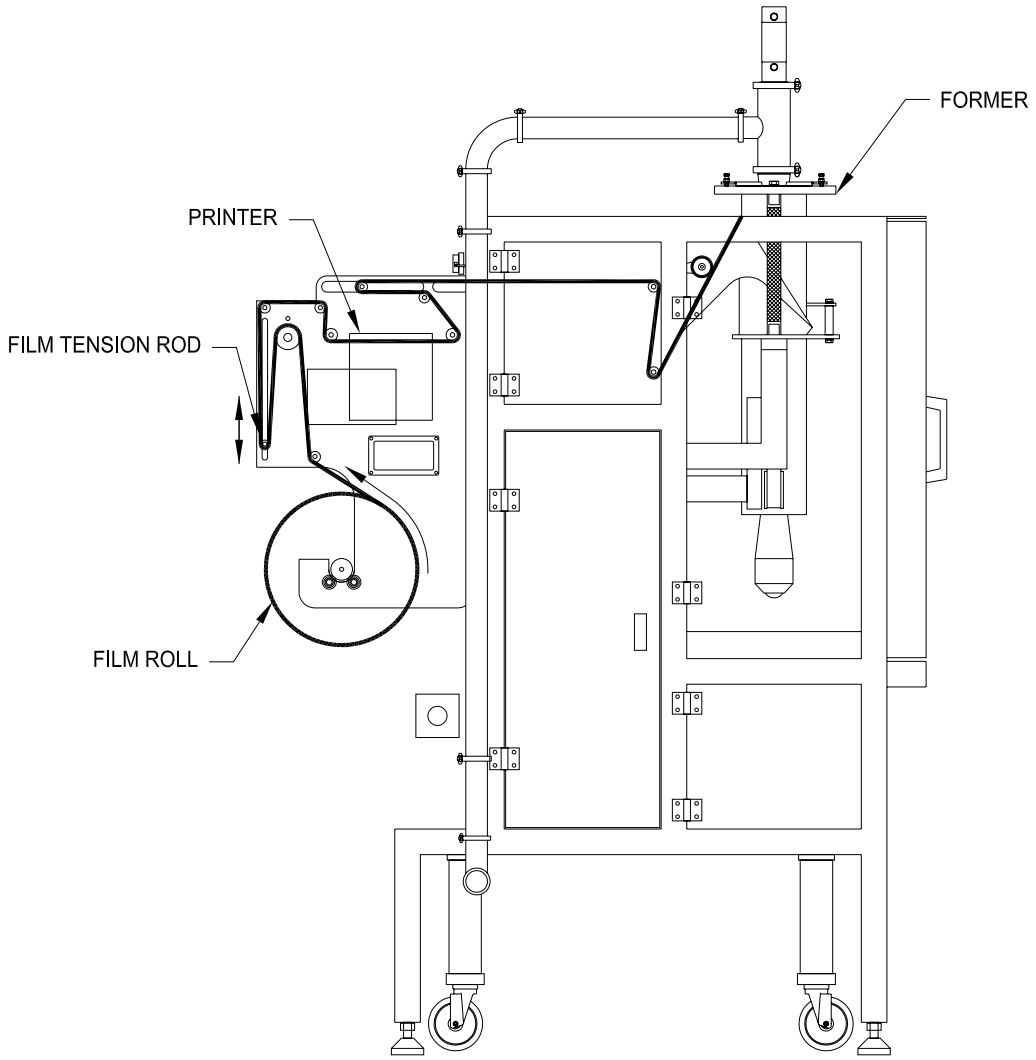


Figure 6

Note: It is essential that the bagging film is routed according to figure 7.