ROVEMA
GLOBAL PACKAGING GROUP

VPR-220
Operator's Manual



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About this Manual

This manual is a reference tool for the Rovema VPR-220 series bag makers. It should be used in conjunction with instructor lead training.

The following information is included in this manual:

- Introduction
- Safety Instructions
- Installation Procedures
- Parts and Functions
- Operator Controls
- Machine Setup Procedures
- Operation Procedures
- Maintenance Instructions
- Maintenance Procedures
- Troubleshooting Procedures

How to Use this Manual

There are several ways to find information in this manual:

- The Table of Contents lists the sections of the manual and their corresponding page numbers.
- The header at the top of every page indicates the name of the section.
- The bottom of every page contains the page number, the manual number, and the revision date.

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Section 1: Introduction

The Rovema VPR is a continuous motion form-fill-seal vertical bagmaker that packs a variety of products into bags. It forms, fills, and seals bags by forming flat packaging material into a tube, sealing the edges and bottom of the tube, filling the tube with product, cutting the tube to length, and sealing the top of the tube.

The bagmaker can be equipped with a number of options that can change a bag's shape or print information on a bag.

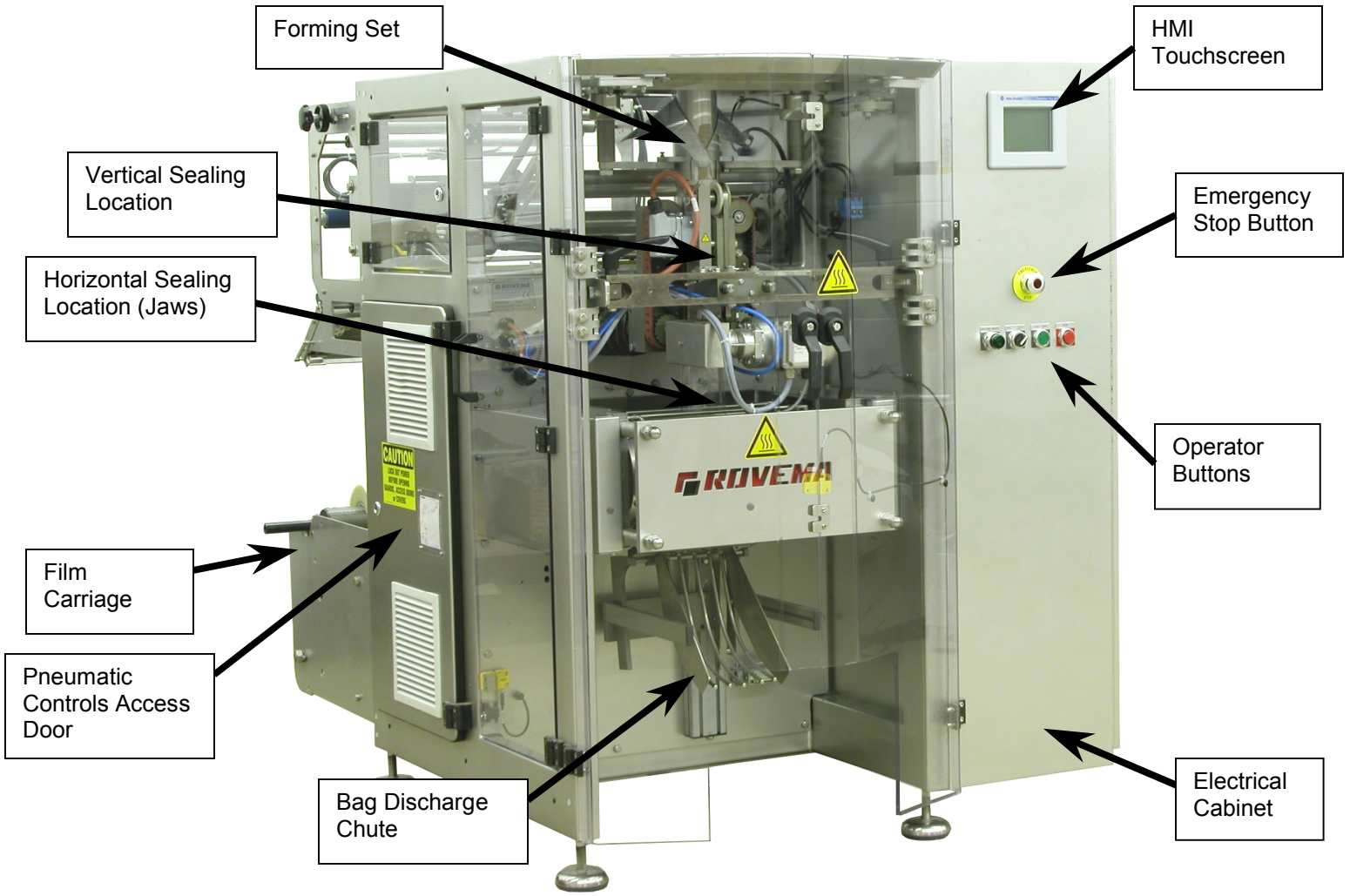


Figure 1.1
Shows the VPR bagmaker.

Section 2: Safety Instructions

This section contains information on machine safety issues. These issues include:

- Bagmaker Safety Devices
- Component Safety
- Operator Safety
- Machine Lockout Procedure

Safety Devices

The VPR safety devices include guard doors, an EMERGENCY STOP push-button, and safety labels.

Guard Doors

The guard doors isolate the operator from the forming and sealing area. The doors are also equipped with a switch that causes the machine to stop when they are opened.



Figure 2.1
Shows the safety switch locations.

Safety Devices

EMERGENCY STOP Push-Button

The EMERGENCY STOP push-button causes the bagmaker to immediately stop operating if pushed. This push-button should be used when there is perceived or actual damage occurring to an individual, environment or the machine. (To release a pushed in button, turn the button in the direction of the arrows, and pull the button out.)



Figure 2.2
Shows the EMERGENCY STOP push-button on the enclosure

Safety Devices

Safety Labels

Safety labels alert an operator to a particular hazard. These labels appear at various places on the machine. Look for these labels, read them, and follow their instructions.



Figure 2.3
The left label indicates areas of the bagmaker that could burn if touched. The right label indicates areas of the bagmaker that has moving parts and could crush a limb.



Figure 2.4
Caution: Lock Out Power label.

Component Safety

Rovema does not allow any electrical or mechanical modifications to the VPR bagmaker without explicit authorization.

Only original Rovema spare parts and accessories should be used on the bagmaker. This ensures that the machine will perform safely and as designed.

The user must confirm that the wrapping material (film) will not produce harmful gases during sealing. The film supplier should provide such assurances.

Operator Safety

Only properly trained personnel can operate the bagmaker. The operator is responsible for following the operator safety guidelines presented in this section as well as any employer safety guidelines.

Operator Safety Guidelines

Use the following safety guidelines for safe operation of the bagmaker.

1. Do not operate the bagmaker until you have read and understood it's operating instructions and have become thoroughly familiar with them.
2. Do not wear rings, loose jewelry, or loose clothing while operating the bagmaker.
3. Secure long hair under a hair net or bump cap while operating the bagmaker.
4. Follow the lockout procedure before performing any cleaning, maintenance, or repairs on the bagmaker.
5. Never use the MAIN DISCONNECT switch to stop the bagmaker.
6. Do not remove the guards or open doors except during necessary adjustments or repairs. Be sure to lockout the bagmaker before removing any guards or doors.
7. Lockout the bagmaker before clearing jaw jams. Never use your fingers to remove jammed material; Use a tool or a rod.
8. Always wear safety glasses when servicing the bagmaker.

Lockout Procedures

Air Supply Lockout

Use the following procedure to lockout the air supply:

1. Push the air supply handle in all the way to the OFF position.
2. Place a padlock with a lockout tag through the lockout hole.
3. Verify that the air supply handle cannot be pulled to the ON Position.

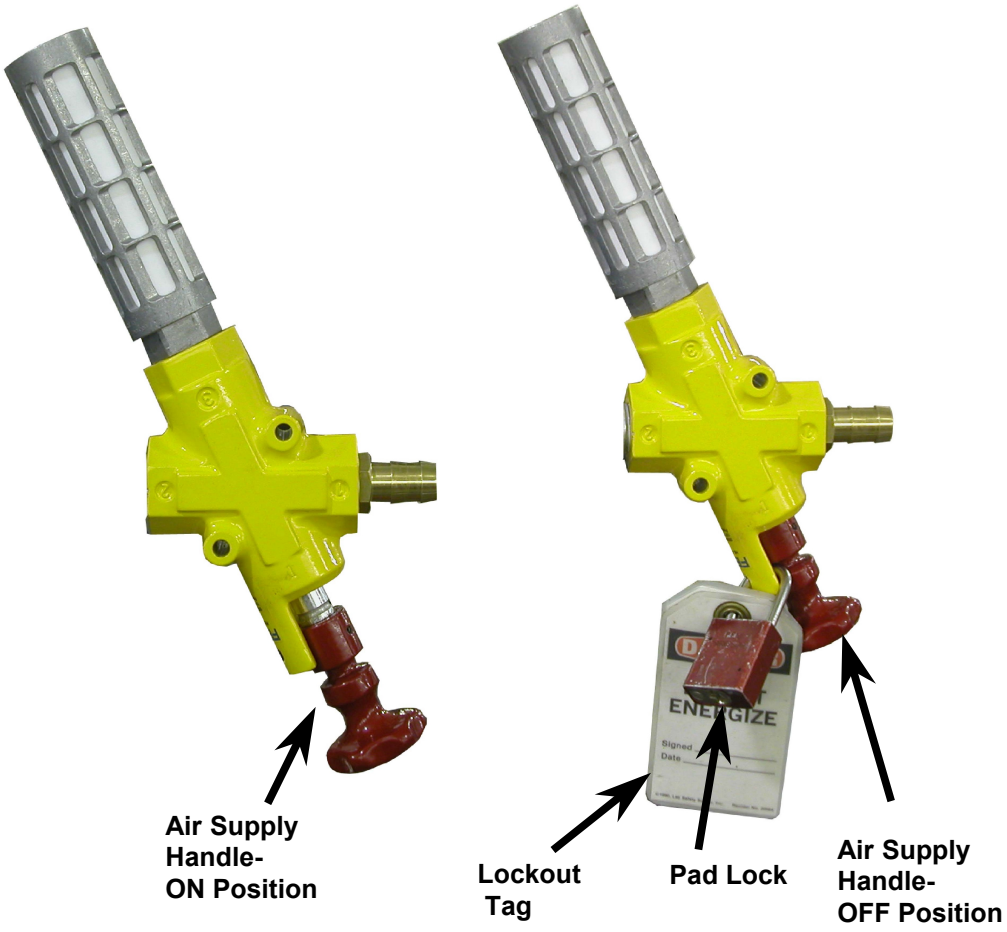


Figure 2.5
Shows the air supply handle in the On position and the Off position.

Lockout Procedures

Electrical Power Supply Lockout

Use the following procedure to lockout the electrical power supply:

1. Press the STOP push-button to halt the machine.
2. Move the Lockout Handle to the OFF position to disable electrical power to the machine
3. Place a lockout clamp through the lockout hole in the Main Disconnect Switch.
4. Place a Pad Lock (with a Lockout Tag) through one of the holes in the lockout clamp.
5. Attempt to move the Lockout Handle to the ON position.
6. If the MAIN DISCONNECT switch will not move to the ON position then the lockout procedure was successful. If the switch will move to the ON position then the lockout procedure was not successful and must be performed again.

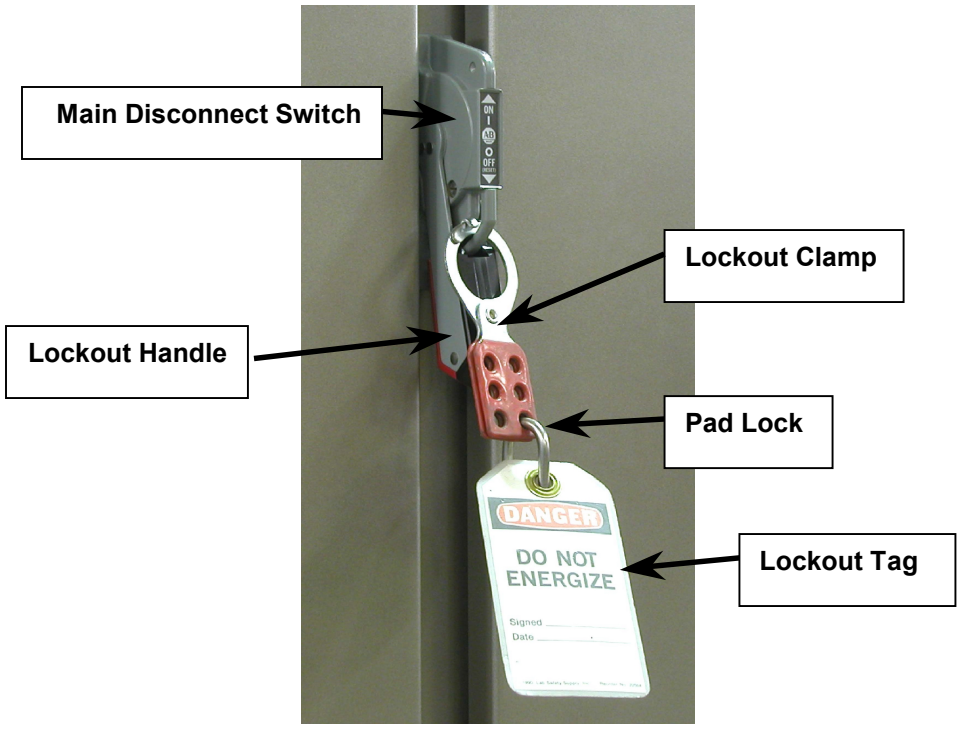


Figure 2.6
Shows how to lockout the electrical supply to the bagmaker.

Section 3: Installation Procedures

This section describes the recommended procedure to install the machine.

It is recommended that trained Rovema Technicians be present to install or assist in the installation of this machine.

Special conditions may require special considerations or modifications to these procedures. If there are any questions regarding the installation and set up procedures, contact the Rovema Service Department.

The general procedure involves:

- Machine Transportation
- Machine Placement
- Air Connection
- Electrical Connection

CAUTION! Only trained and qualified personnel should be allowed to operate machinery to move the packaging machine or any of the components. Improper techniques could cause damage to the machine and/or harm to personnel.

CAUTION! Only trained and qualified personnel should be allowed to make electrical connections. Improper techniques could cause damage to the machine and/or harm to personnel.

Machine Transportation

1. When first receiving the machine, remove any packaging material covering the machine.
2. Remove the bolts securing the machine to the transportation crate.

Note when lifting the machine: The side of the machine with the electrical cabinet adds additional weight to that side of the machine. Thus, care must be taken not to tip the machine in that direction especially on platforms that are not level or surfaces that are not solid.

3. Position the forks of a forklift device under the machine in the locations shown below. The front doors may need to be opened, and secured open, to avoid contact with the forks. Verify the forks do not contact other options on the machine such as the discharge chute.
4. When the forks are in proper position lift the machine slightly and verify that the machine is secure and not tilting.

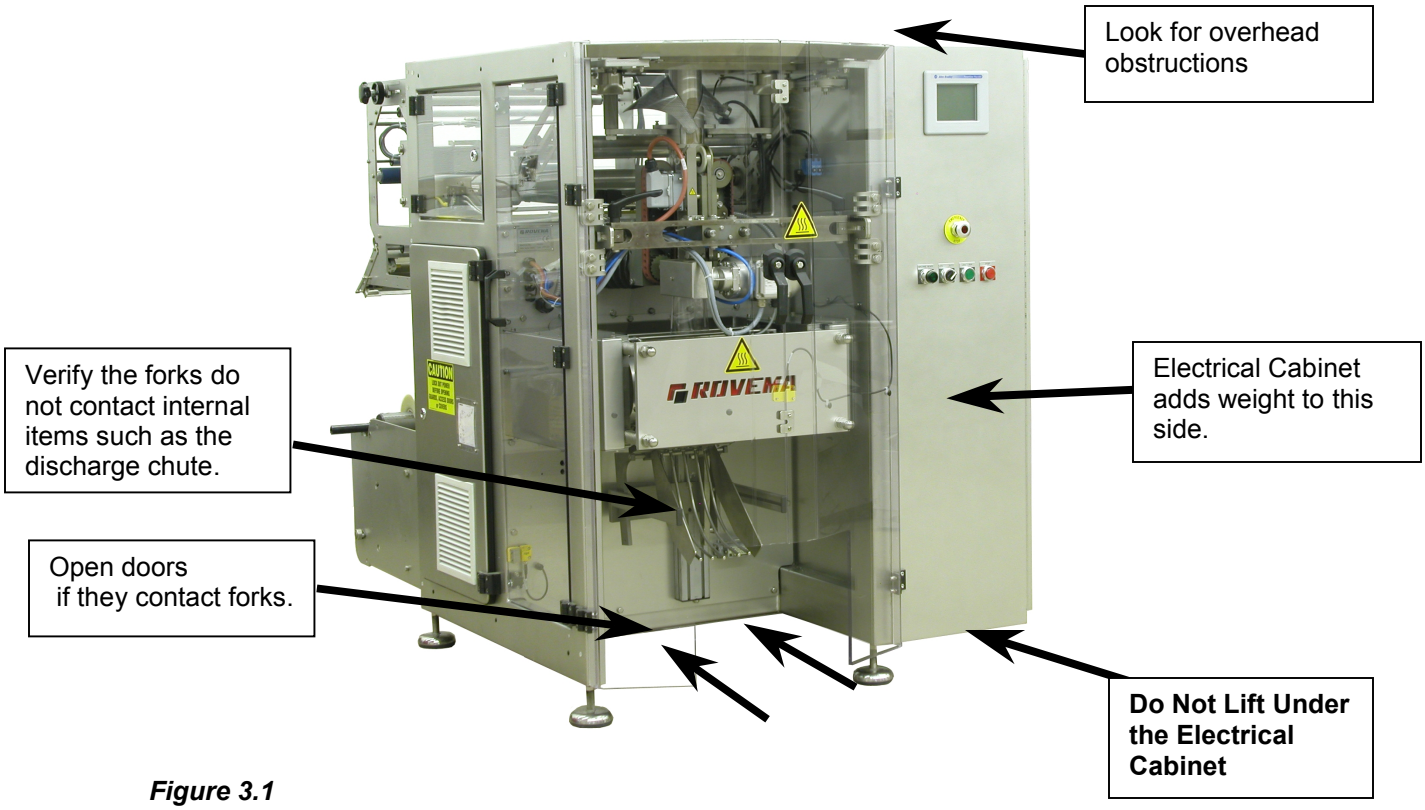


Figure 3.1
Shows the areas to position the forks of a fork-lift device, use extreme caution.

Machine Placement

1. The machine must only be located on surfaces that have sufficient bearing to support the weight of the machine and any optional equipment.
2. The installation location must be level.
3. The installation area must be large enough to allow safe operation and maintenance of the machine.
4. Use a level gauge, on the machine, to verify if the machine is level. If necessary, the support legs may be adjusted to level the machine. The machine may need to be lifted with a fork - lift device to adjust the leg height.

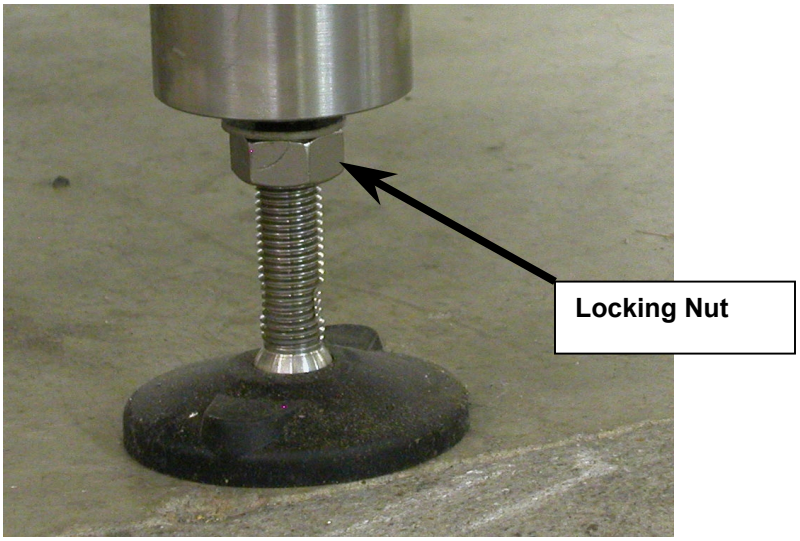


Figure 3.2
Shows the adjustable support legs.

Air Connection

1. Connect the machine to the compressed air system. Note: The bagmaker typically requires 85-120 PSI of air pressure for normal machine operation.
2. Verify that the main supply valve on the machine is in the off position.
3. Connect the hose to the machine and secure all connections.
4. Verify all connections remain secure when the air supply is turned on.

CAUTION! : Unsecured air hoses could blow off the connection causing the hose to spray high-pressure air in the environment that could be dangerous to the machine and/or personnel.

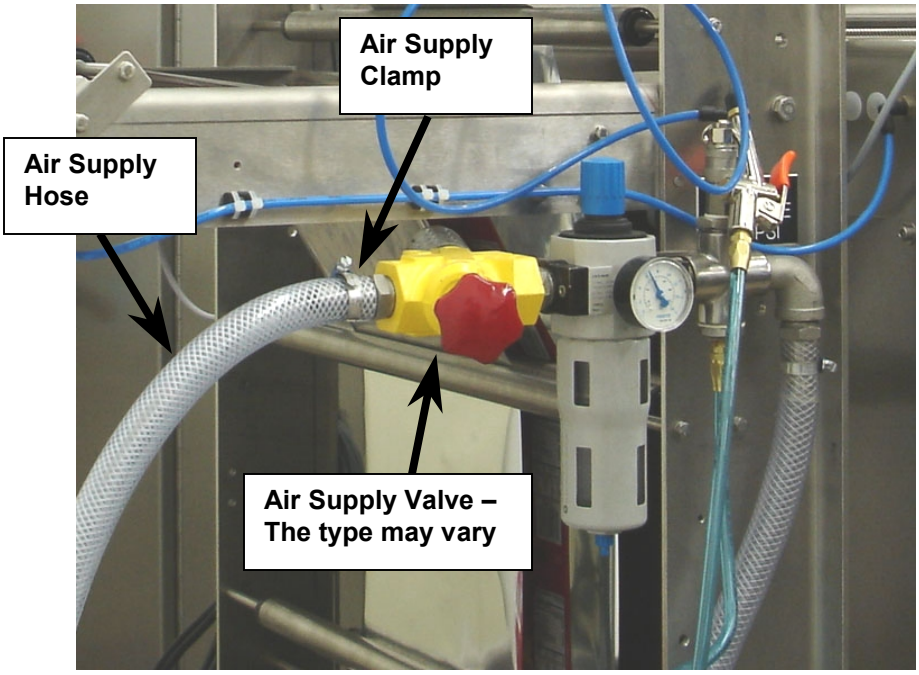
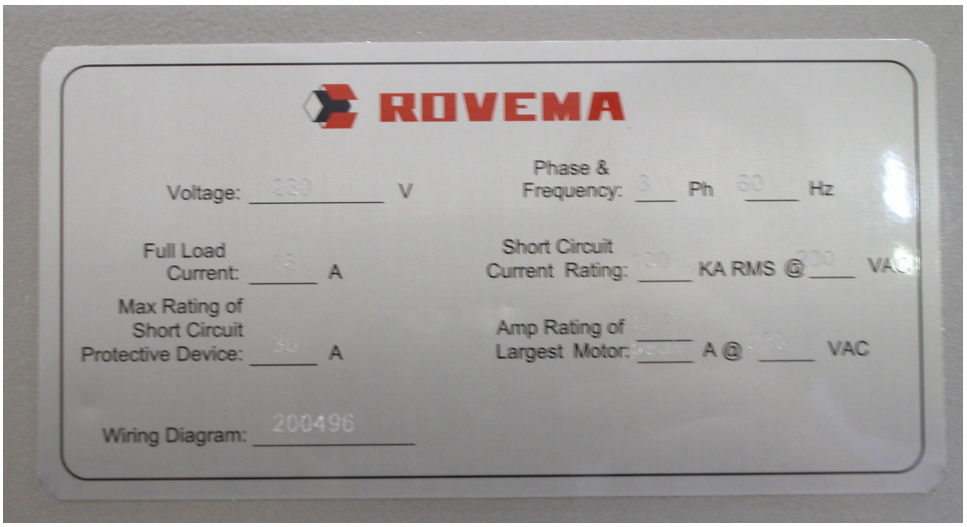


Figure 3.3
Shows the main air supply.

Electrical Connection

1. The electrical connections must be made per the Rovema supplied electrical drawings.
2. Verify the supply power is Locked Out and Tagged Out.
3. Verify all connections are secure.
4. Contact the Rovema Service Department with any questions.

CAUTION! Only trained and qualified personnel should be allowed to make electrical connections. Improper techniques could cause damage to the machine and/or harm to personnel.



Section 4: Parts and Functions

This section describes the major parts and functions of the VPR vertical bagmaker. These parts include the:

- Film Feeding Device
- Forming Set
- Vertical Sealing Device
- Horizontal Sealing Device
- Registration Sensor
- Film Carriage
- Pneumatics System
- Optional Equipment

Film Feeding Device

The film feeding device pulls film from the film carriage and pushes it down the forming tube and past the sealing devices. It includes two belt assemblies, a drive system, an engage/retract device, and touchscreen controls.

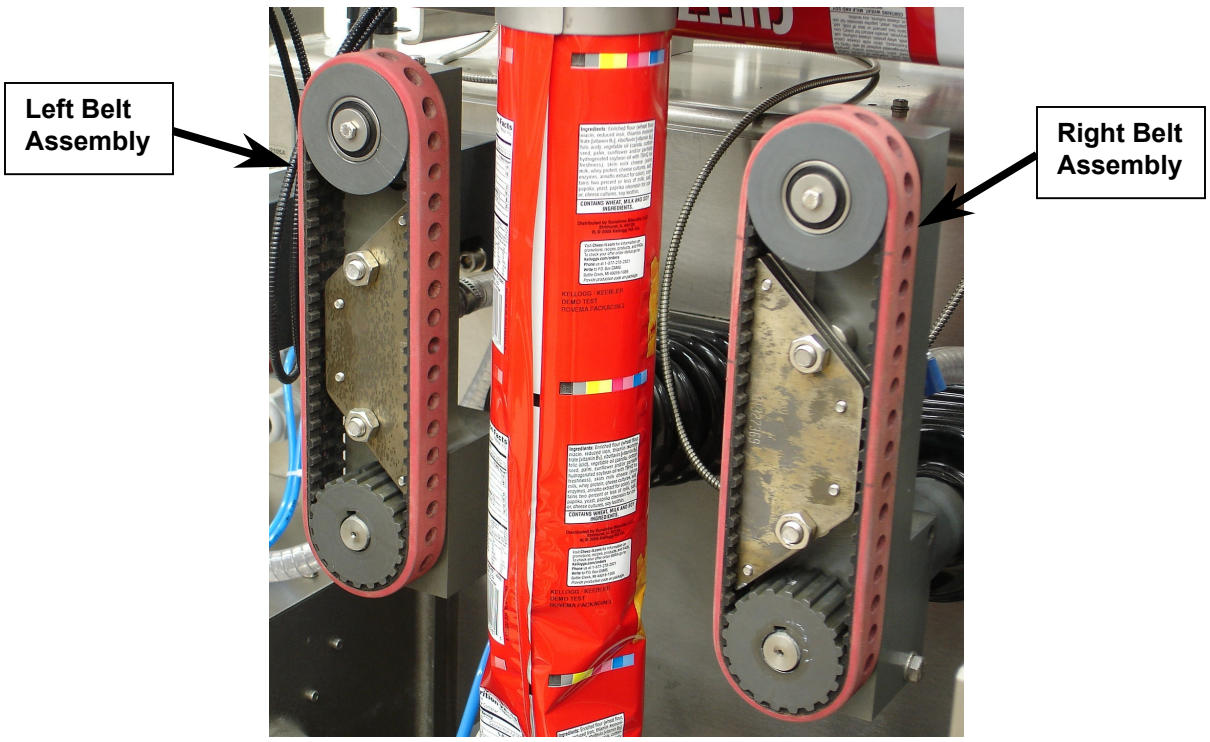


Figure 4.1
Shows the film feeding device.

Film Feeding Device

Belt Assemblies

The belt assemblies grip the film and push it down the forming tube. They are equipped with vacuum assist. The vacuum pulls the film to the belts and makes it easier for the feeding device to move the film. A venture type vacuum generator located inside of the machine housing generates the suction: The air from the vacuum is filtered and exhausted into the machine house.

The vacuum amount is controlled through a pressure regulator (located inside of the machine housing). The regulator determines the amount of compressed air that the vacuum generator has to create suction.

The amount of pressure that the belts apply against the forming tube to gain traction against the film is adjustable. The pressure regulator for the film feeding device is located inside of the machine housing as well.

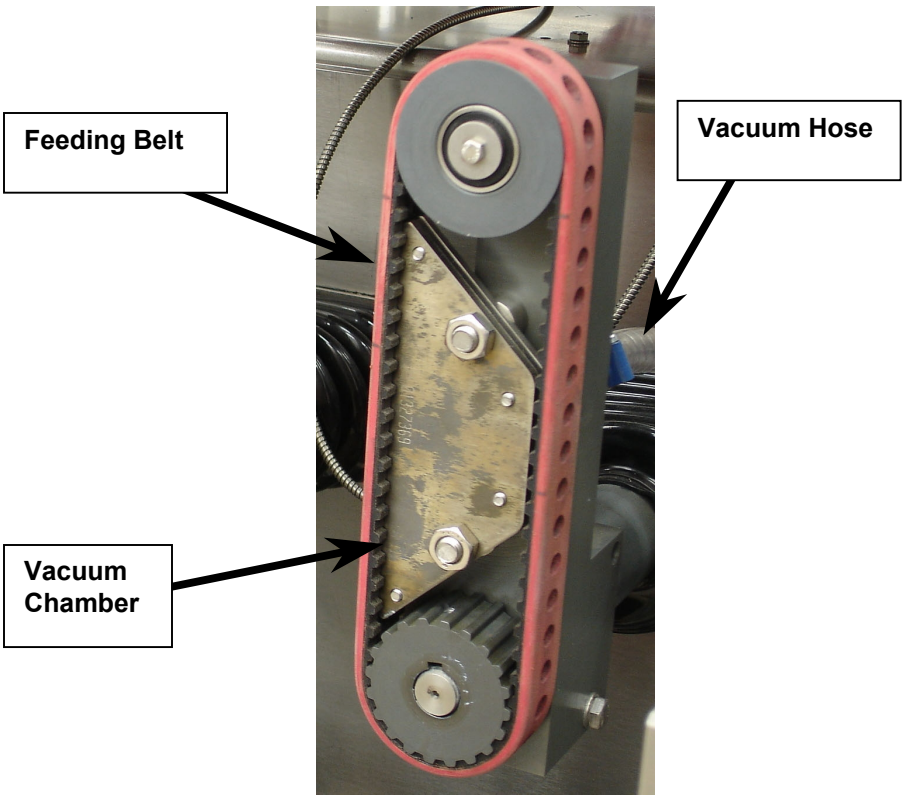


Figure 4.2
Shows a belt assembly.

Film Feeding Device

Drive System

The Film feed drive system turns the film feed belts to push the film down the forming tube. The system includes two AC drive motors (one for each belt assembly) and a variable frequency drive controller (also referred to as the VFD controller). The VFD controller receives two signals from the programmable logic controller. One signal tells it when to start and stop the film feeding belts. The second signal determines it how fast the motors operate. The HMI touchscreen parameters (*Bag Length* and *Machine Speed)* parameters determine the operation of these motors.

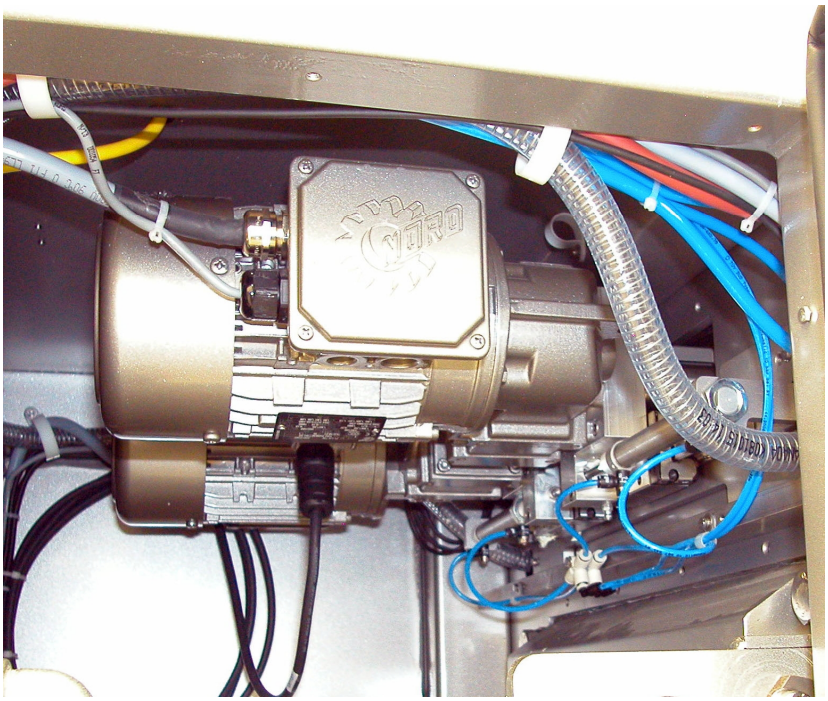


Figure 4.3
Shows the film feeding motors in the machine housing.

Film Feeding Device

Engage/Retract Device

The engage/retract device moves the film feeding belts to and from the forming tube. It also maintains belt pressure against the tube. The device consists of two pneumatic cylinders, a pressure regulator, and a pressure gauge. Use the pressure regulator and the pressure gauge to adjust and monitor the belt pressure. They are located just inside of the machine housing.

You will retract the filmfeeding device before you thread film through the bagmaker, or, before you remove the forming set. You will engage the device when you want to form bags or simply advance film down the forming tube.

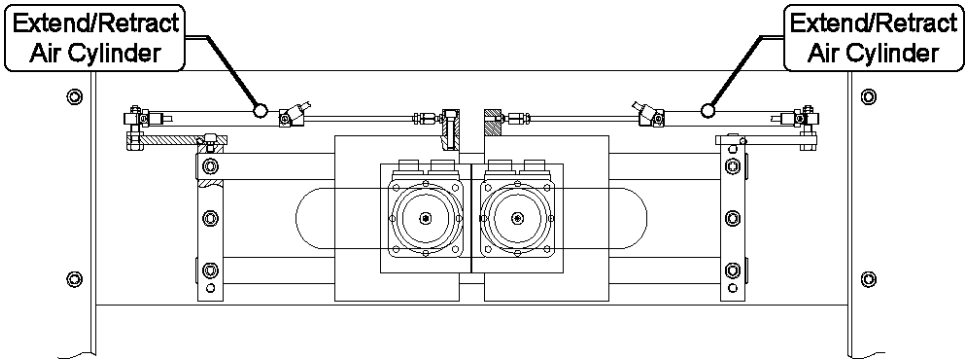


Figure 4.4
Show the engage/retract air cylinders.

Film Feeding Device

Film Feed Belts Screen

The film feeding device has one control on the touchscreen display. The *Film Feed Belts* button controls the engage/retract device. When this button is toggled to OPEN (Arrows pointing out), the belts move away from the forming tube. When the button is toggled to CLOSE (Arrows pointing towards each other), the belts move against the forming tube.

You will need to open the belts to remove the forming set or thread film past the belts. You will need to close the belts when you want to jog the machine or forming bags.

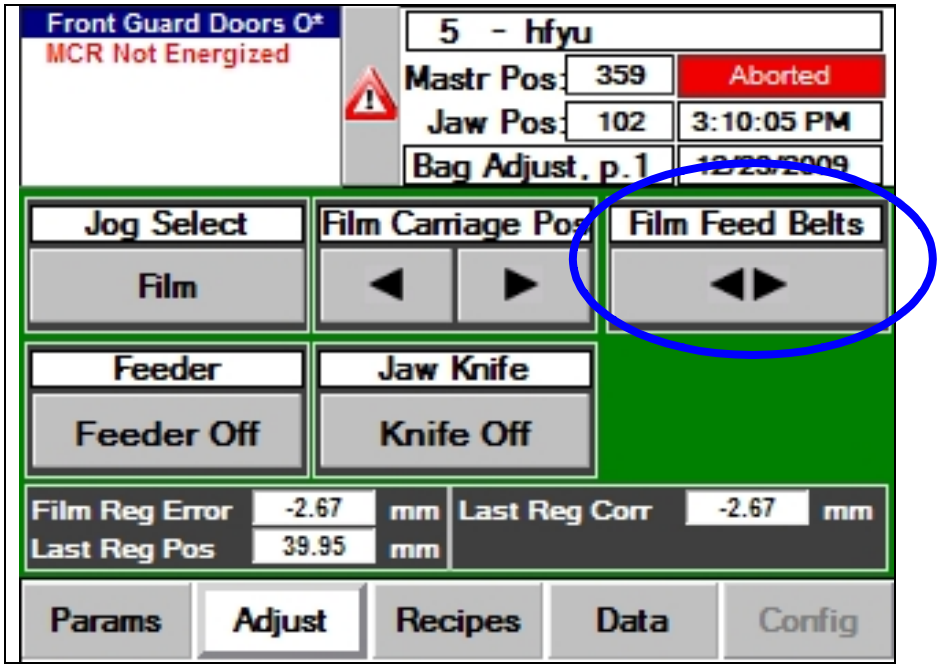


Figure 4.5
Shows the button used to open or close the film feeding belts.

Forming Set

The forming set shapes the flat film into a tube and guides product into the bags. It consists of a forming collar, a forming tube, and securing knobs. The forming collar folds the film into a tube. While doing so, it folds one edge of the tube inside out and lays the opposite edge over it. The forming tube maintains the shape of the folded film and guides product into the bags. Embedded in the center of the forming tube is a silicon strip. The strip ensures that the vertical sealing band makes full contact with the film. Covering the strip is a piece of Teflon tape. The tape isolates the forming tube from the heat of the vertical sealing device. The securing knobs hold the forming set to the machine frame.

The forming set is a changeover item. Each bag style requires a different forming set. The forming set can be identified by the number stamped on the forming collar mount. The number indicates the flat bag width.

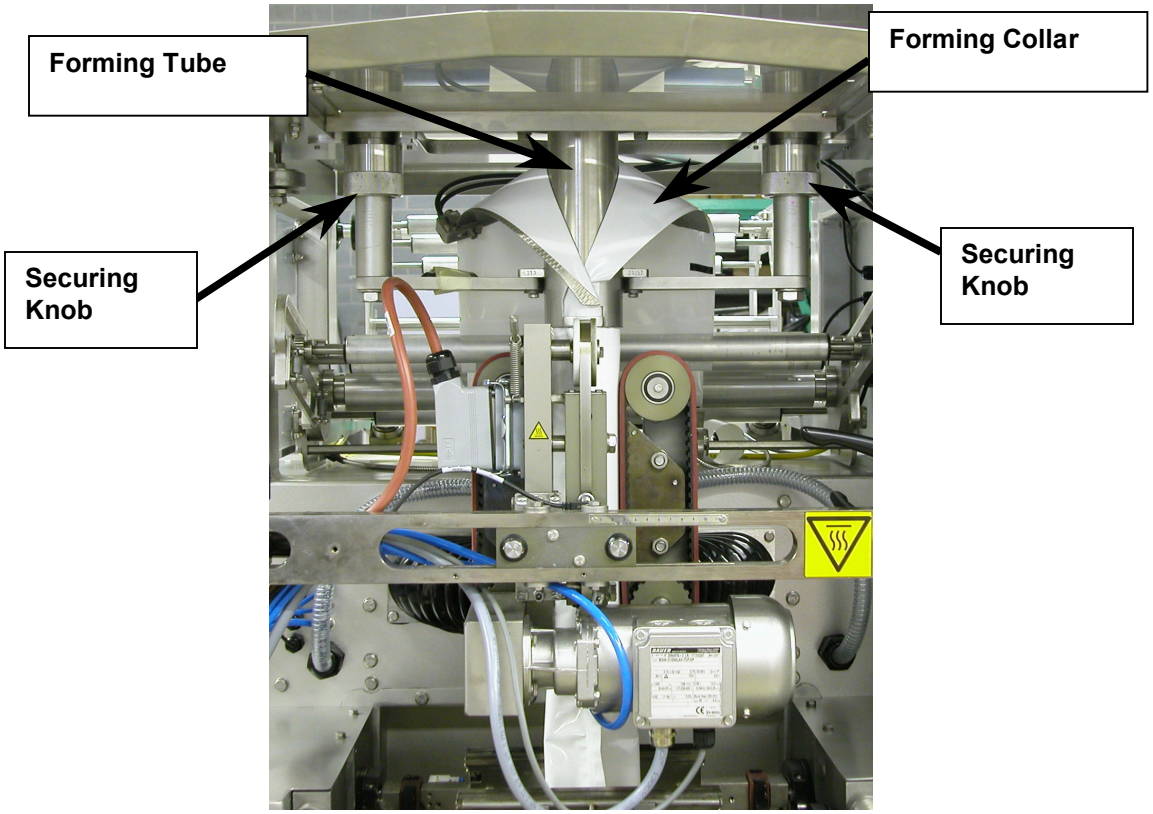


Figure 4.6
Shows a forming set installed on the machine.

Optional Equipment

Gas Flushing

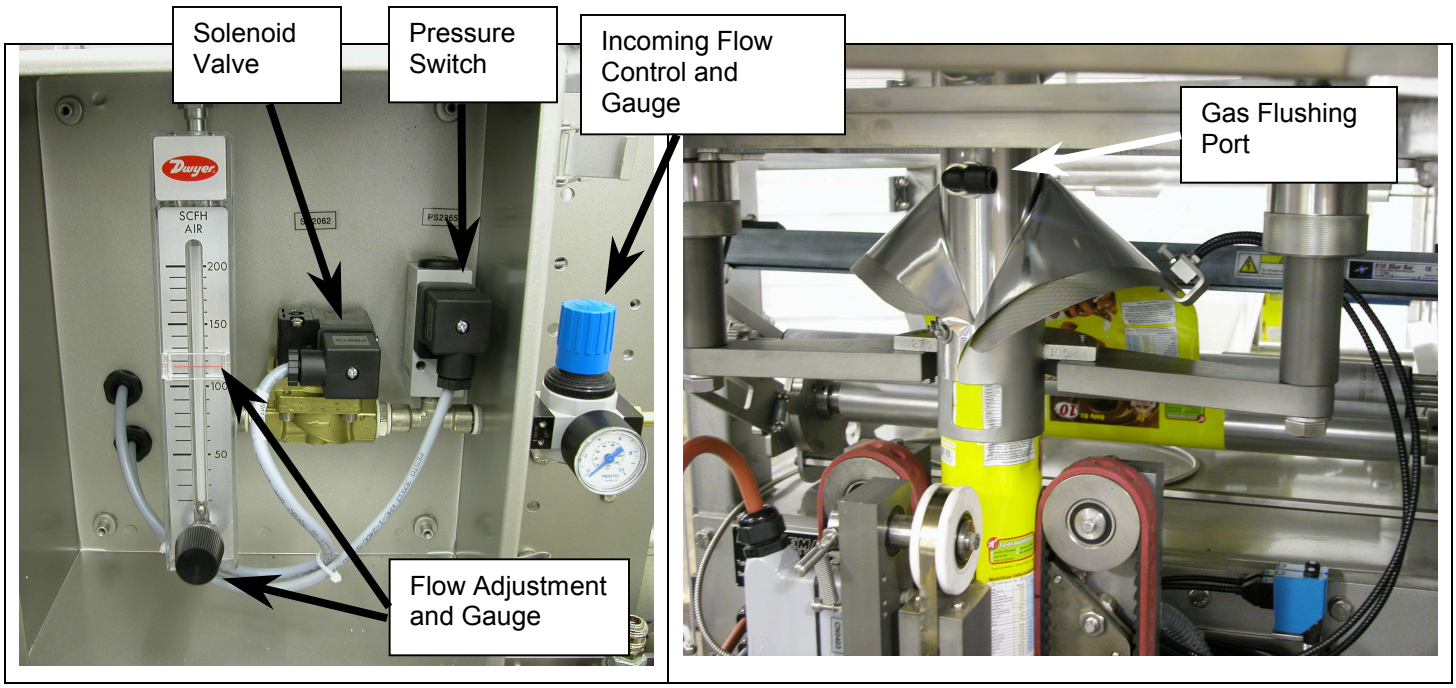
The gas flushing control monitors and controls the flow of nitrogen gas into the system. The *Options* submenu, on the HMI touchscreen, determines if gas flushing will be used.

The flow adjustment knob is used to adjust the flow of gas into the system. They may be turned to increase or decrease the flow of gas into the system.

The flow gauge has a ball in the tube that moves up or down, monitoring the flow of gas. The higher the ball move up indicates more gas is entering the system. Too much gas may cause product to be blown into the seals of the bags.

The solenoid valve starts and stops the flow of supply gas into the system. This valve will open, to allow gas to flush air out the system, prior to bagger operation.

The pressure sensor monitors the pressure of the supply gas. If the supply gas pressure falls below the set limit, an alarm will be activated and the bagger will stop.



`Figure 4.7
Shows an example of the gas flushing control and ports.

Vertical Sealing Device

The vertical sealing device includes: a seal band unit, a drive system, an engage/retract device, and the seal band support.

Seal Band Unit

The seal band unit joins the edges of the film tube together by melting the inner film layer to itself. When the forming set folds the film into a tube, it turns a small portion of one edge inside out and lays the opposite edge over it. When heat and pressure are applied to the overlapping sections for a certain amount of time, they stick together. Only the area under the sealing band is joined.

The seal band unit consists of a heating bar, a sealing band, a band sensor, and a band release lever.

Danger: Wear protective gloves and verify that the sealing band is cool when working in this area. **The Sealing Band becomes very hot!**

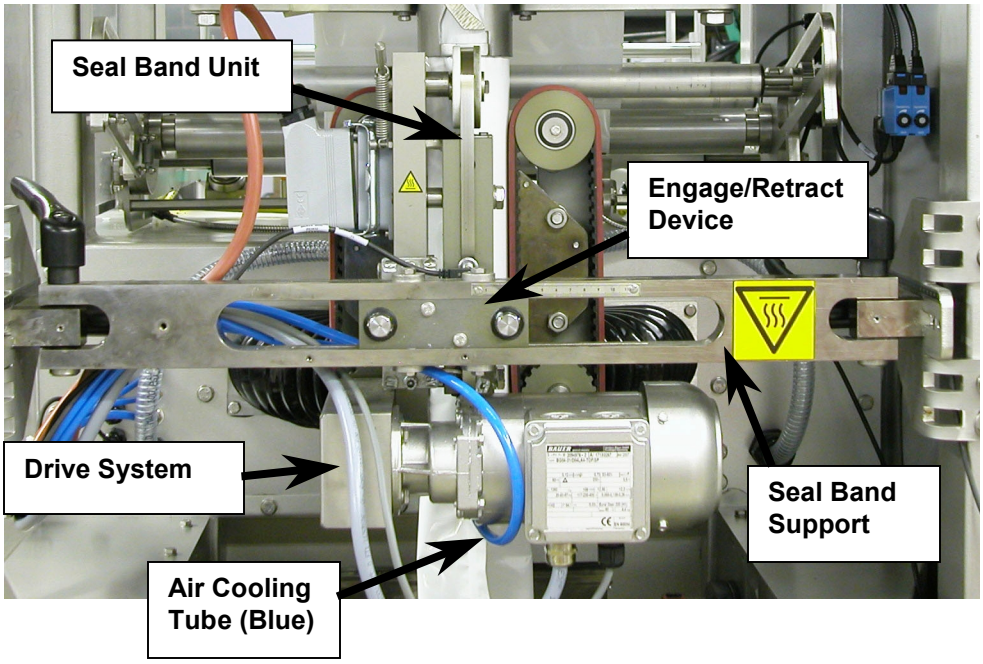


Figure 4.8
Shows the vertical sealing device.

Vertical Sealing Device

Sealing Band, Band Sensor, and Band Release Lever

The sealing band transfers heat from the heating bar to the film tube. The band sensor causes the bagmaker to stop forming bags if the band breaks. The band release lever removes tension from the band so that it can be removed.

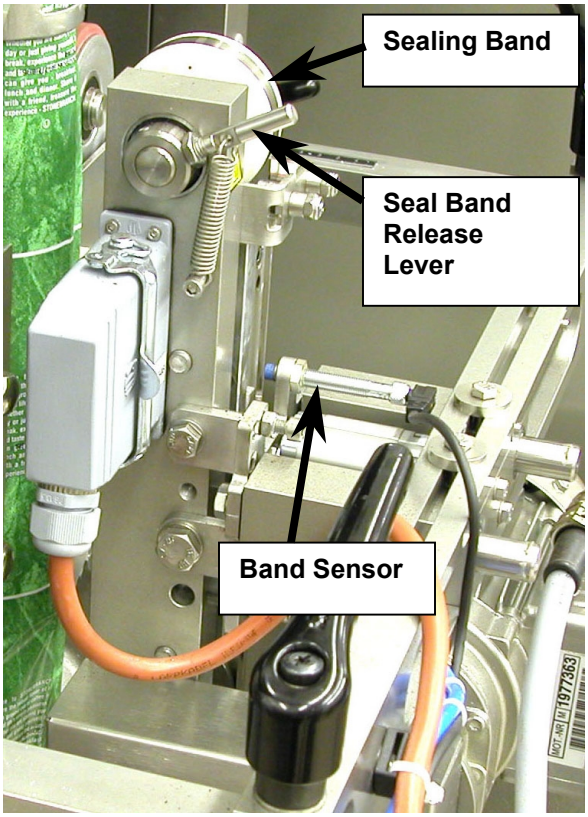


Figure 4.9
Shows the sealing band, the band sensor, and the band release lever.

Vertical Sealing Device

Heating Bar

The heating bar creates the heat needed to melt the inner film layer. Within the bar are replaceable heating Elements and a replaceable temperature probe. A heat control screen on the bagmaker's control panel controls the heating of the bar.

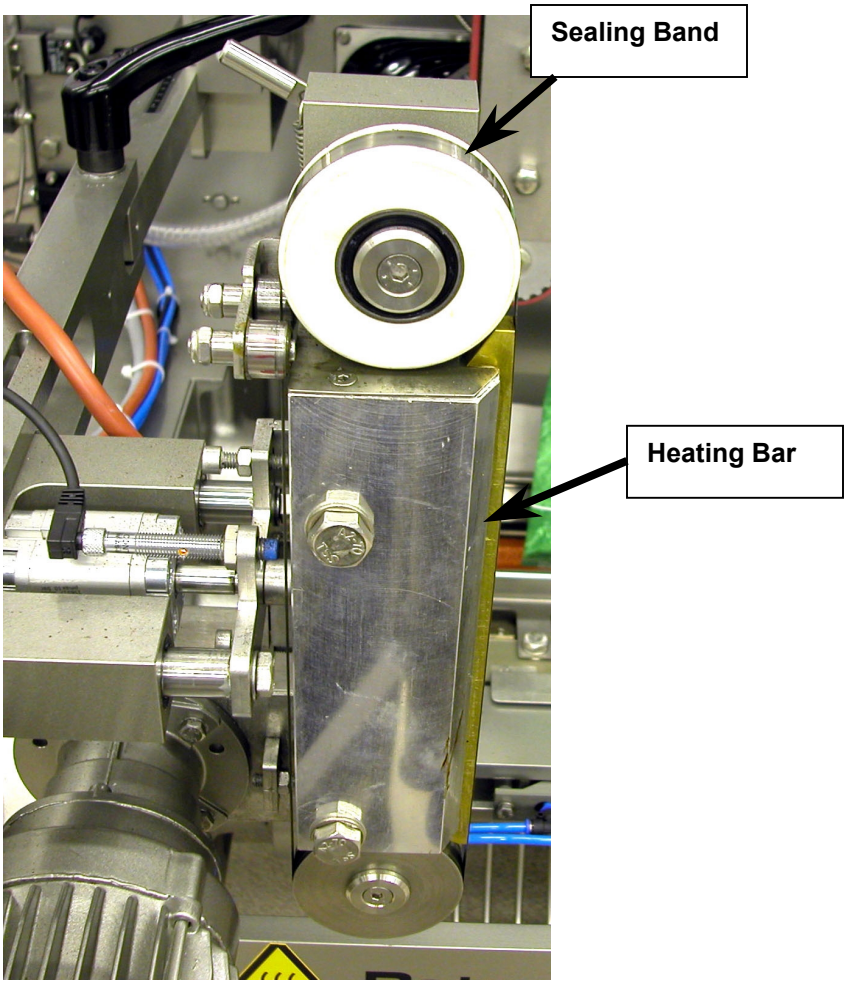


Figure 4.10
Shows the heating bar.

Vertical Sealing Device

Drive System

The drive system turns the sealing band in synch with the film feeding belts. This keeps the band stationary with respect to the film and prevents the band from wrinkling the film. The system includes an AC drive motor, a speed controller, and a gear box. The speed controller receives a signal from the motion controller to synchronize the movement of the sealing band to the movement of the film feeding belts.

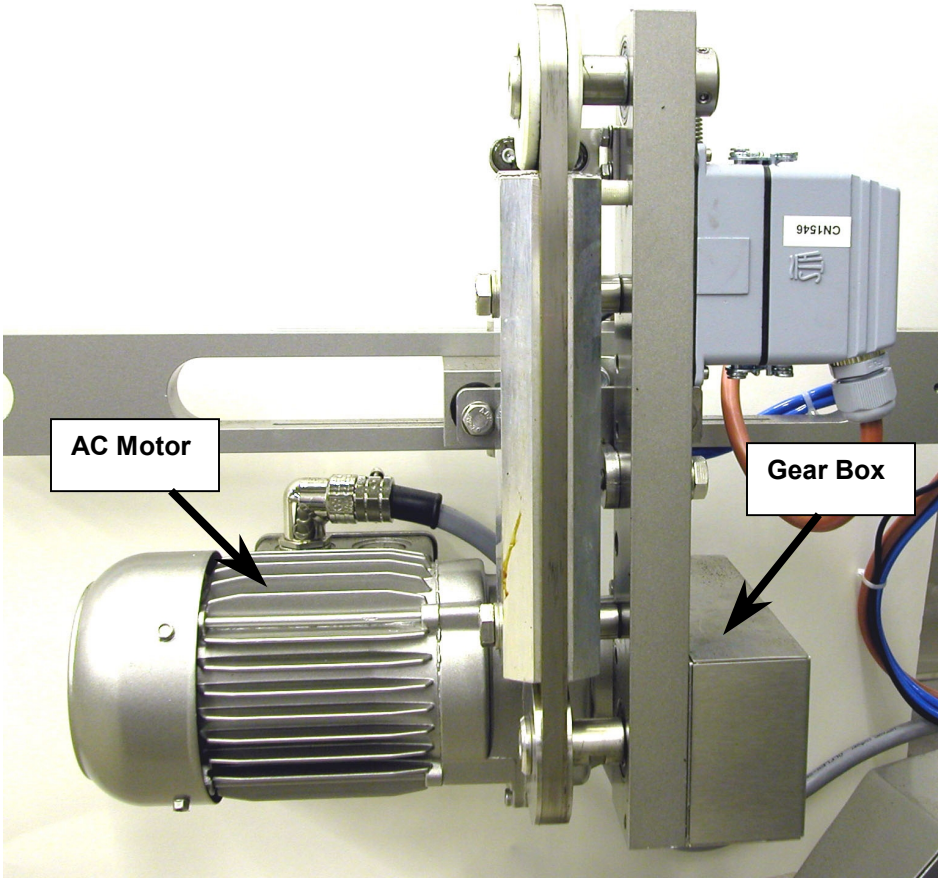


Figure 4.11
Shows the vertical sealing drive system.

Vertical Sealing Device

Engage/Retract Device

The engage/retract device moves the seal band unit against and away from the forming tube. The device uses a pneumatic cylinder to perform the engage and retract movements. Settings on the touchscreen control the timing of the movements. A pressure regulator and gauge (located inside of the machine housing) control the sealing pressure produced by the device. The tilt adjustment screws adjust the sealing band unit parallel to the forming tube.

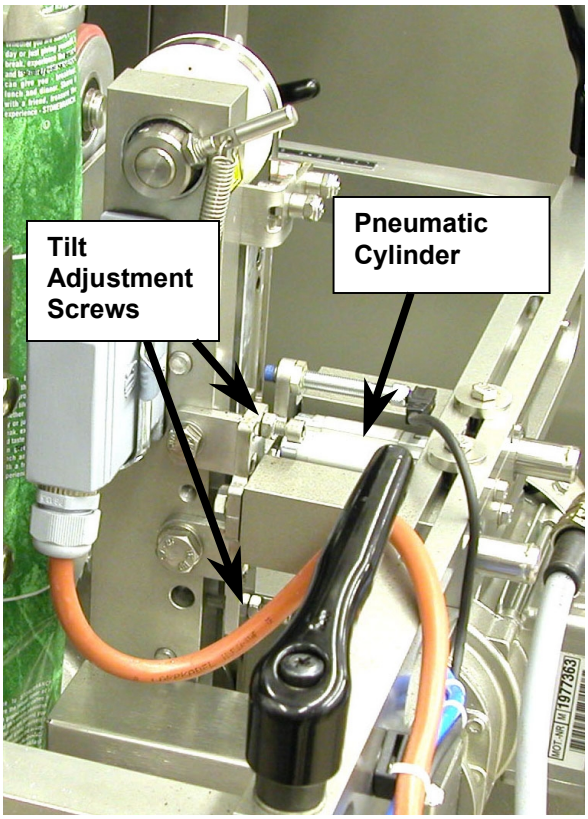


Figure 4.12
Shows the engage / retract device.

Vertical Sealing Device

Seal Band Support

The seal band support holds the seal band unit and positions the unit, as required, relative to the forming tube

Use the positioning scales to make adjustments and record the location of the vertical sealing assembly for future reference. The vertical sealing assembly may be rotated away from the forming tube by loosening the Pivot Locking Levers and swinging the unit away.

Note: Use Caution, while working around the vertical sealing assembly after it is rotated open, as the bar sticks out from the machine.

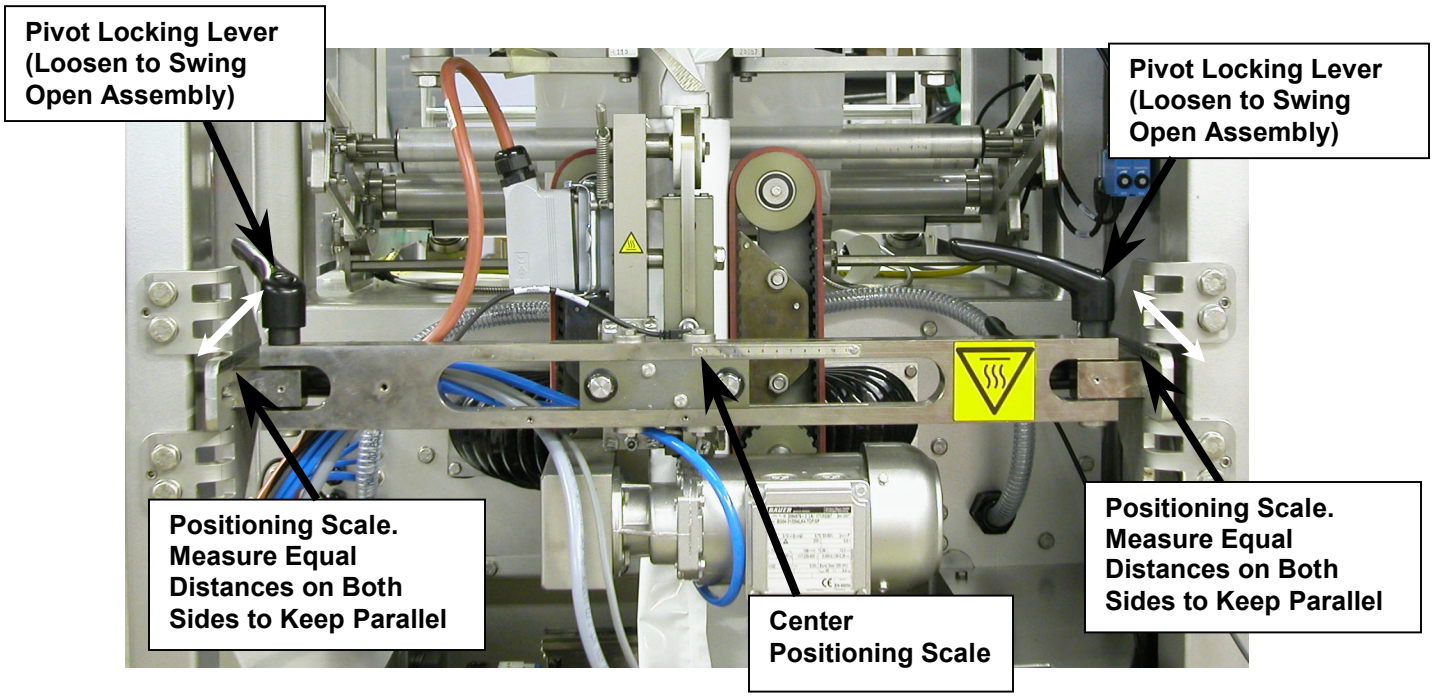


Figure 4.13
Shows the seal band support.

Horizontal Sealing Device

The horizontal sealing device creates the top and bottom seals in a bag and cuts the bag from the film tube. Top and bottom horizontal seals are created by applying heat and pressure for a certain amount of time. The heat and pressure are created by the sealing jaws. The time is controlled by the speed of the drive system.

The horizontal sealing device consists of two front jaws and two rear jaw assemblies that rotate, in a motion as determined by the cam assembly, to create the horizontal seal. Controls for the horizontal actions are accessed through the touchscreen display.

Danger: Wear protective gloves and verify that the jaws are cool when working in this area. **The Sealing Jaws become very hot!**

Danger: **The knife is very sharp** and may cut the operator. Wear gloves and use proper tools while working on (or near) the knife assembly.

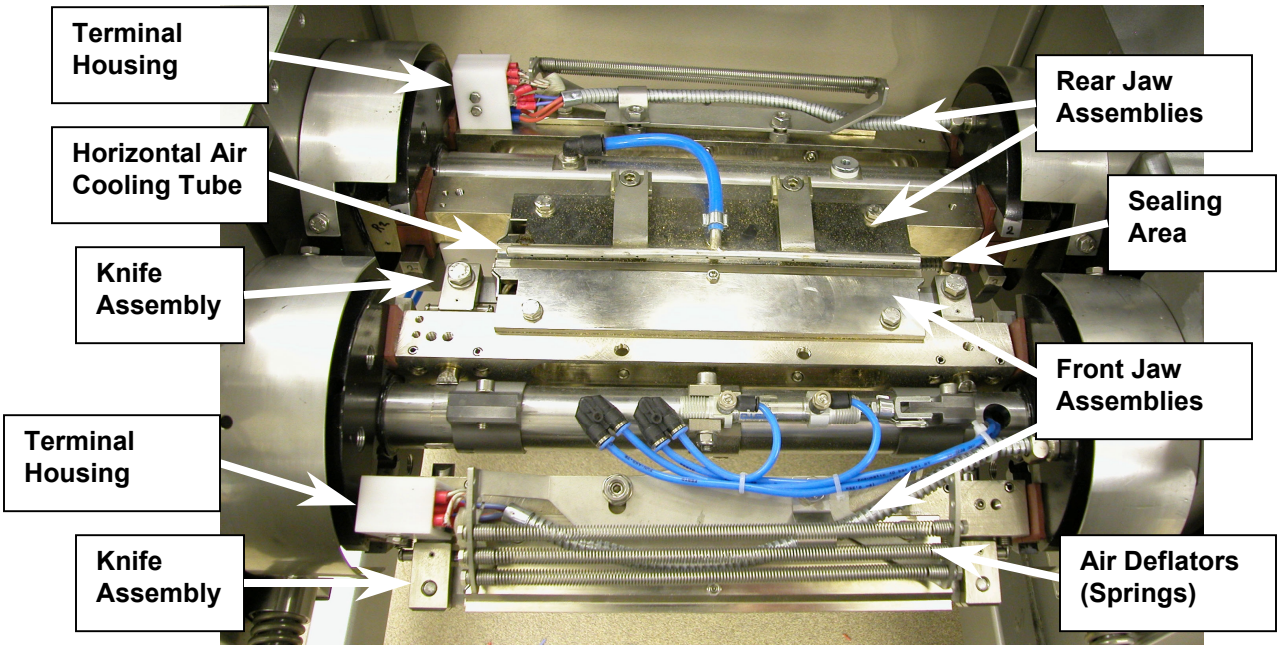


Figure 4.14
Shows the components of the horizontal sealing device.

Horizontal Sealing Device - Sealing Jaws

Jaw Body

The jaw bodies create the heat needed to melt the inner film layer. They consist of two halves. The upper half creates bottoms seals while the lower half creates top seals. Within each of the four jaw bodies are replaceable heating cartridges. There is a replaceable temperature sensor in one of the front jaw bodies and one of the rear jaw bodies.

The face of the jaw body shows the jaw body profile. The profile is the impression that the jaw leaves in the film. The profile increases the strength of the seal and improves its appearance.

Note: Remove the terminal housing cover to expose the replaceable heating cartridges and the temperature probe.

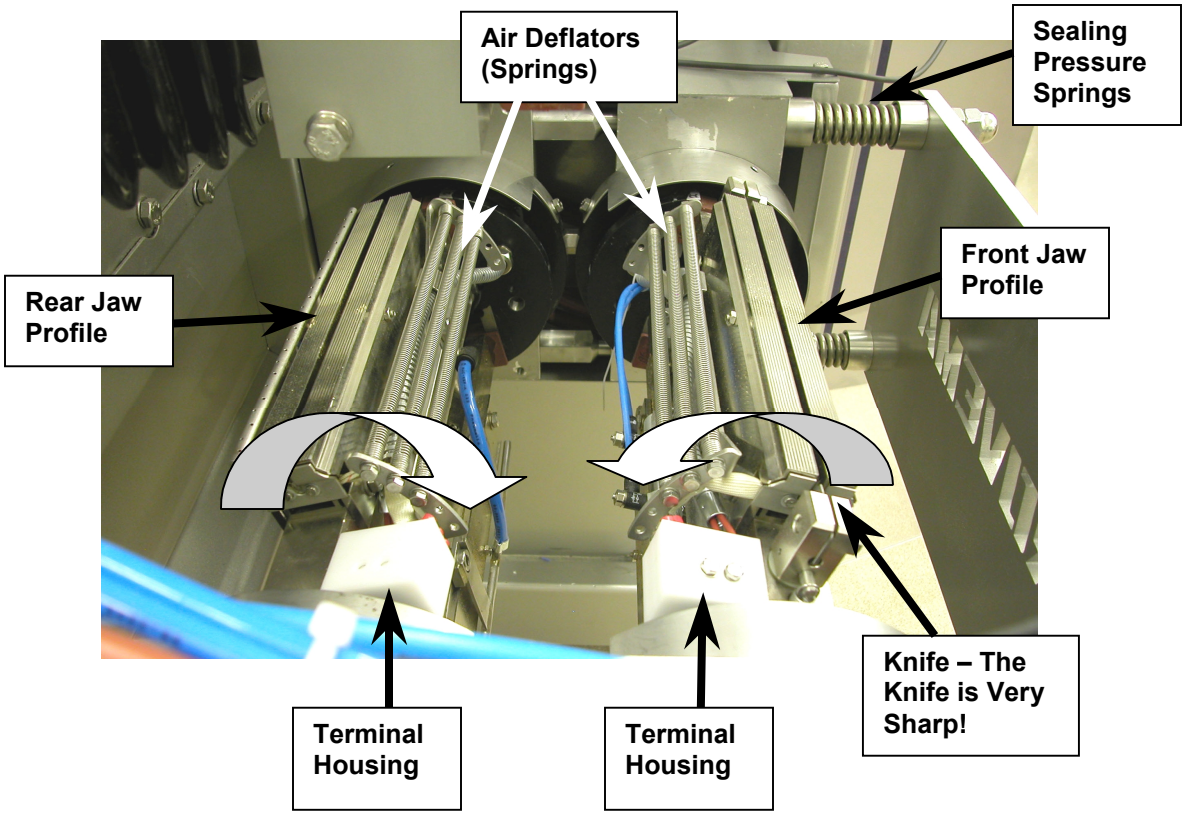


Figure 4.15
Shows the front & rear jaw bodies.

Horizontal Sealing Device – Air Deflator

Air Deflators

The jaws rotate to seal the bags and the spring air deflators contact the bag prior to the jaws to push the air out of the bags, to remove excess air and help prevent them from bursting when sealed.

1. Jaw Carrier
2. Air Deflator Side Bracket
3. Air Deflator Springs
4. Air Deflator Attachment Nut

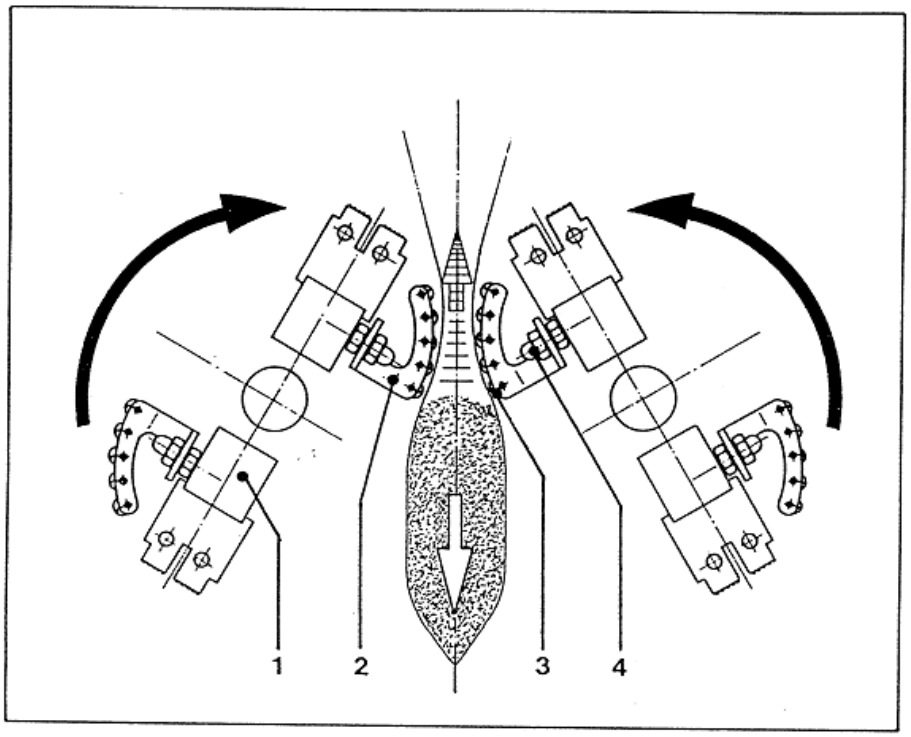


Figure 4.16
Show an illustration of how the air deflators operate.

Horizontal Sealing Device

Jaw Setup Screen

Sealing time is determined by the speed of the horizontal sealing device. Settings on the touchscreen display control the speed of the device. These settings affect the jaw profile. The jaw profile describes the speed of the sealing jaws at various points in the "D-Motion". The seal time setting determines how fast the jaws move through the sealing portion of the "D-Motion" path.

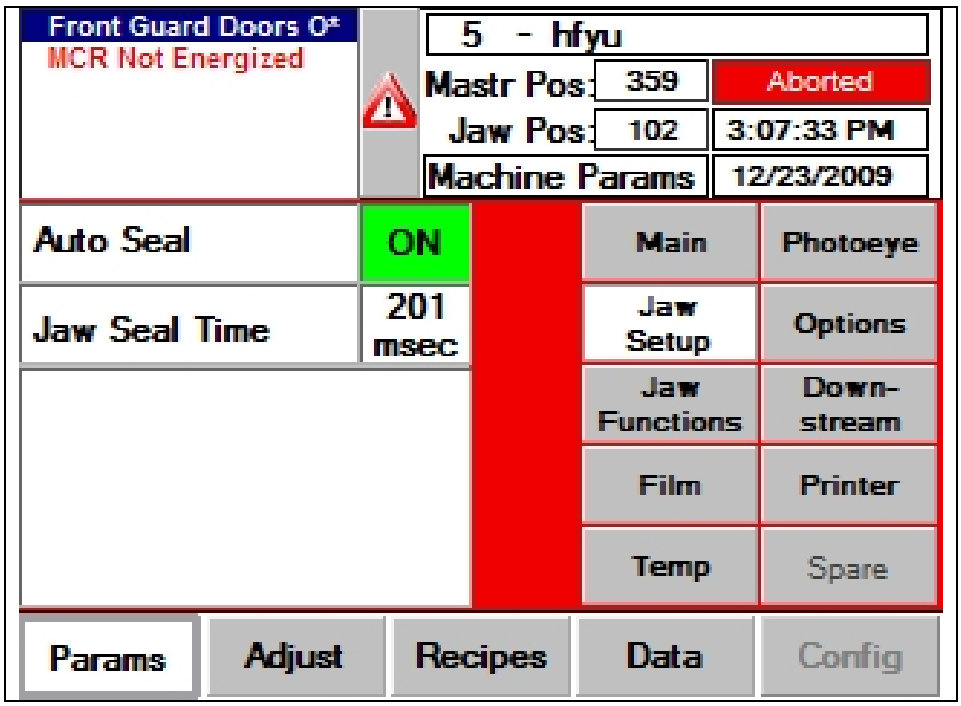


Figure 4.17
Shows the Jaw Setup screen.

Horizontal Sealing Device

Knife Assembly

The knife assembly cuts (or perforates) the bags after they have been filled with product. It is housed between the upper and lower sections of the front jaw assemblies. The knife may either cut or perforate (make a line of holes) in the film. When the sealing jaws close, the knife rod will be pushed out by either the cutting notch or the perforation notch on the actuating cam. The operator determines which actions will be performed by setting the appropriate parameters on the touchscreen display.

Danger: The knife is very sharp and may cut the operator. Wear gloves and use proper tools while working on (or near) the knife assembly.



Figure 4.18
Shows the knife removed from the jaws.

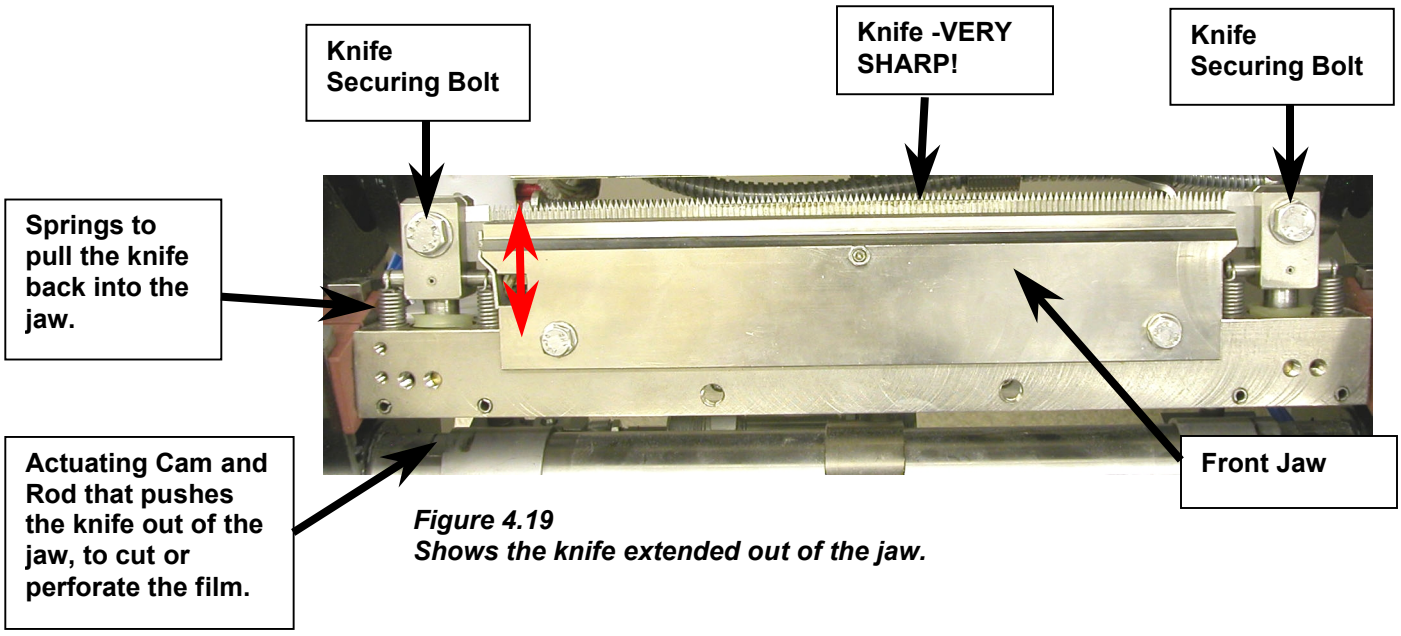


Figure 4.19
Shows the knife extended out of the jaw.

Horizontal Sealing Device

Knife Assembly - Continued

The knife air cylinder actuator will be in the extended position when the knife will cut the film. The knife air cylinder will be retracted when the knife will perforate the film (the knife will be slightly pushed out by the ridge on the actuating bar).

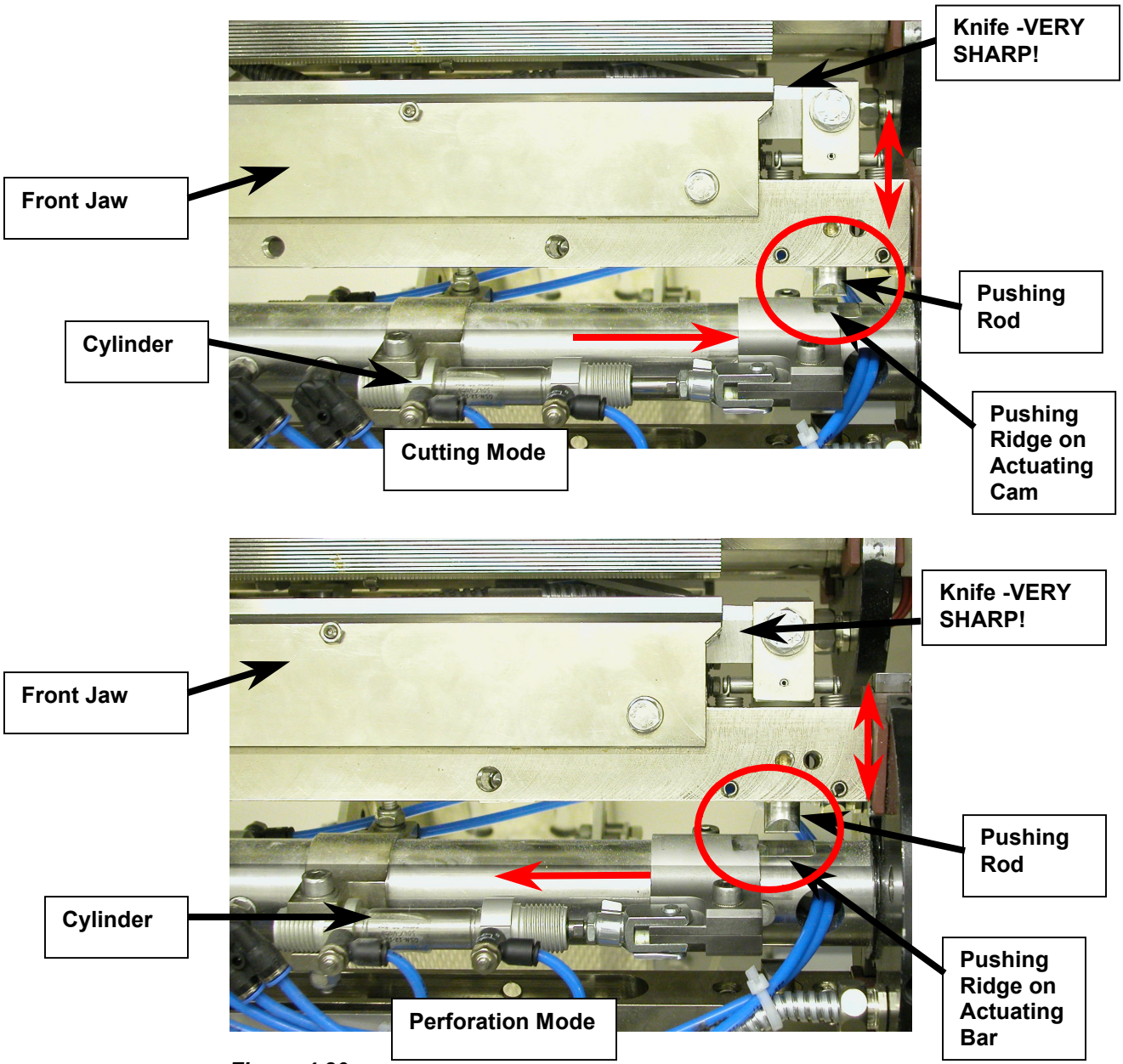


Figure 4.20
The top photo is cutting mode, the bottom photo is perforation mode. (This example is before the rotation causes contact to the pushing rod.)

Horizontal Sealing Device

Jaw Function Screen

The controls on the *Jaw Functions* screen control the horizontal sealing options. These controls may include the cutting knife, and/or horizontal cooling. These options must be toggled ON to operate, the ON and OFF values determine when the item will be activated and then deactivated during the forming operation.

Note: Setting the Knife parameter to OFF during bag production creates a continuous string of bags. This is useful during machine setup procedures.

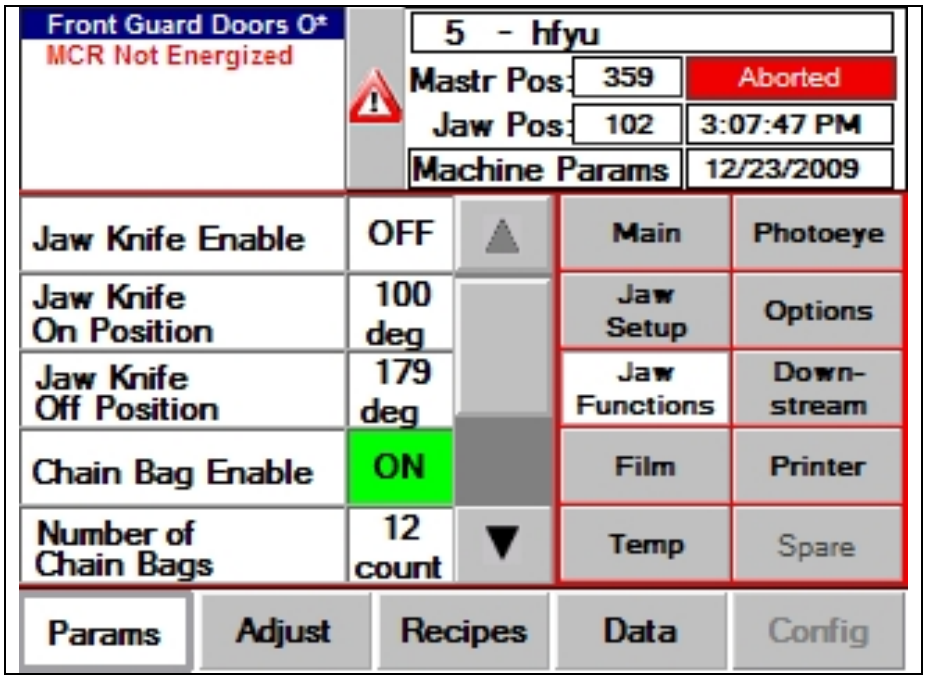


Figure 4.21
Shows the Jaw Functions screen 1 of 2.

Registration Sensor

The registration sensor allows the bagmaker to use registered film. Registered film is designed to be sealed at a specific location. To use registered film, the bagmaker must detect this location and then position the film for sealing.

The bagmaker detects this location by detecting marks (registration marks) printed at the edge of the film. Once the bagmaker has identified one of these evenly spaced marks, it can create horizontal seals at any location relative to these marks.

To identify the marks, the bagmaker uses a sensor (registration sensor) which detects the color contrast between the film and the marks. Any evenly spaced, high contrast marking on the film can serve as a registration mark.

To detect marks, the sensor must be positioned in their path. This is accomplished by using the photoeye adjustment assembly.

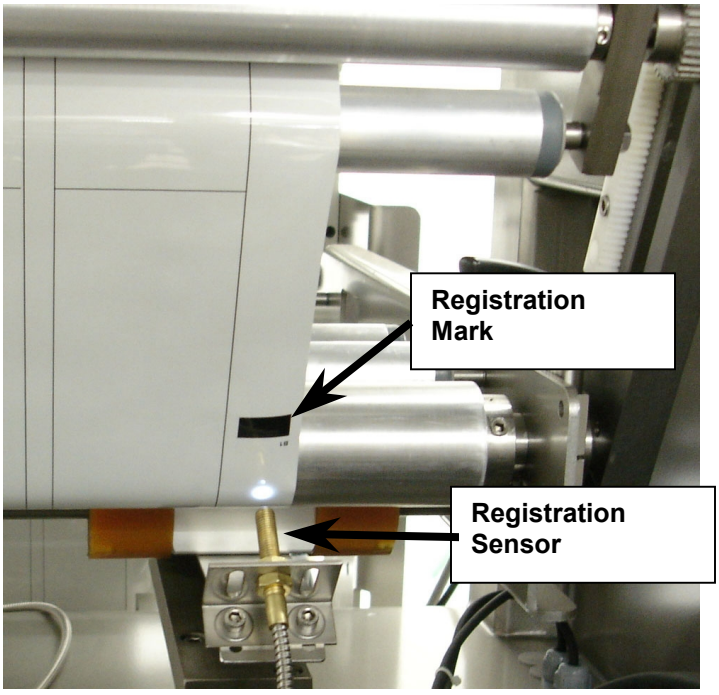


Figure 4.22
Shows the registration sensor.

Registration Sensor

Registration Photoeye Screen

The registration sensor has three settings that control its operation; the *Film Registration Enable* setting, the *Film Photoeye Offset Distance* setting, and the *Film Registration Detect Window* setting.

The *Film Registration Enable/Disable* setting determines whether film registration will be used during bag production. The *Film Photoeye Offset Distance* setting changes the sealing and cutting location based on the positions of the registration marks. The *Film Registration Detect Window* setting determines when the bagmaker will examine the signal from the sensor; it's used to avoid false reading generated by artwork printed around the registration marks.

Note: The Film Registration Enable/Disable setting must be set to DISABLED when the bagmaker is using non-registered film.

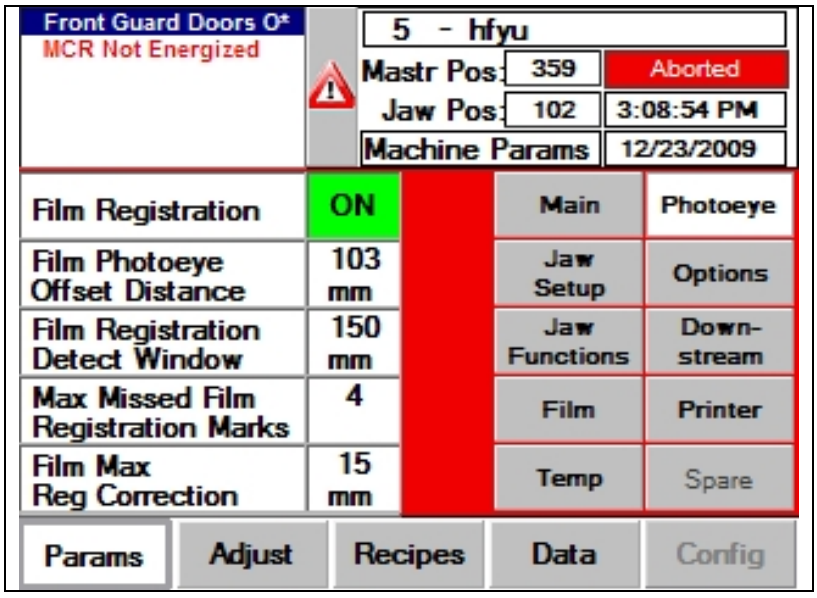


Figure 4.23
Shows the Registration Photoeye screen.

Film Carriage

The film carriage controls the supply of packaging material that the bagmaker uses to form bags. It includes a:

- Film Spindle
- Dancer Assembly
- Power Unwind Assembly
- Film Tracking Assembly
- Out of Film Sensor Assembly
- Guide Rollers

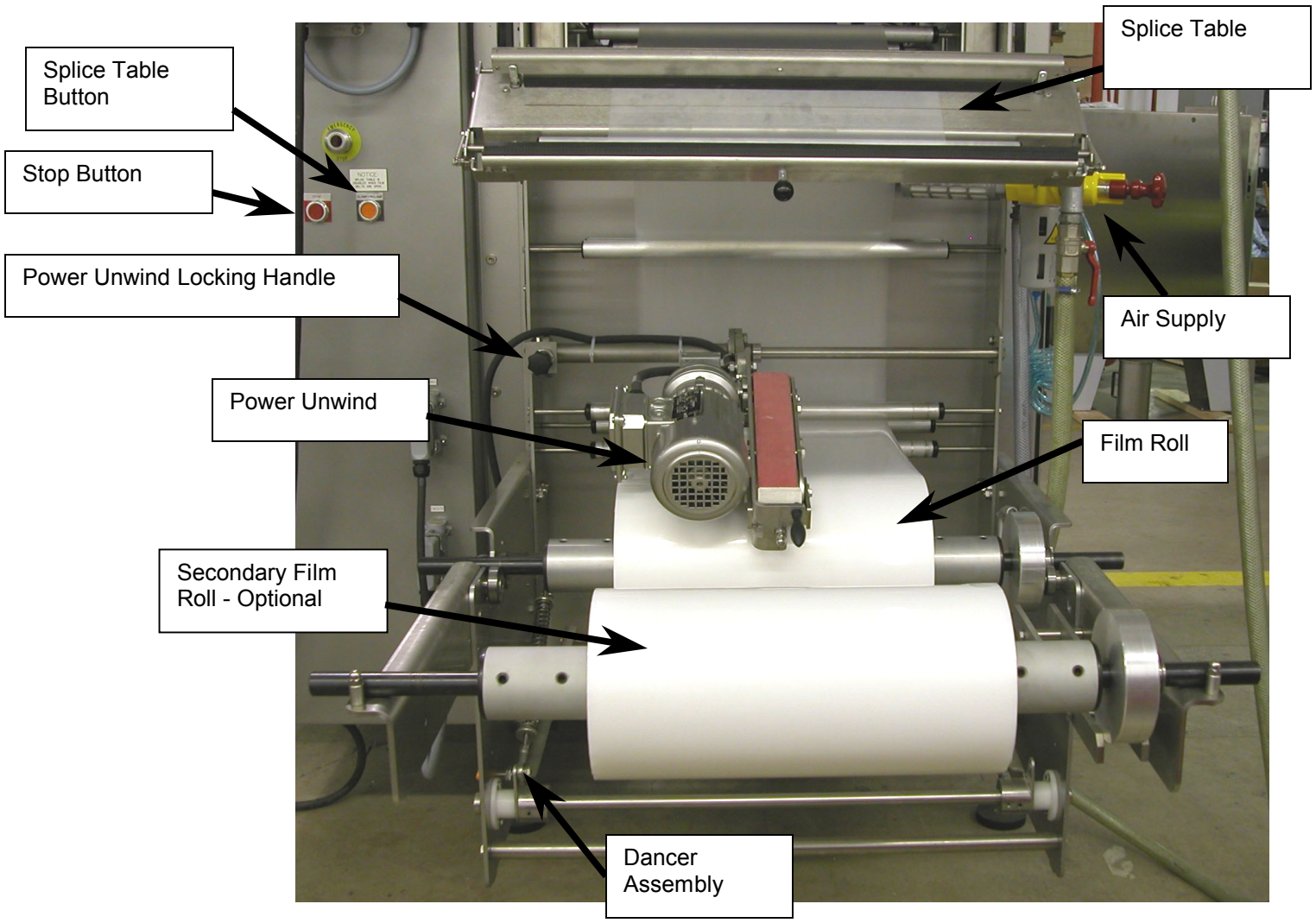


Figure 4.24
Shows the basic components of the film carriage, some options may vary.

Film Carriage

Film Spindle

The film spindles hold the film rolls on the film carriage. It includes an air bladder that is enclosed within a metal housing. The housing has slots that allow sections of spindle clamps to protrude through it. When the bladder is inflated, the spindle clamps press against the inside of the film core, holding the film on the spindle. The bladder is inflated and deflated through an air valve located in the end of the spindle. Inflate the spindle so that it securely holds the film roll, in most cases 80-100 PSI is recommended.

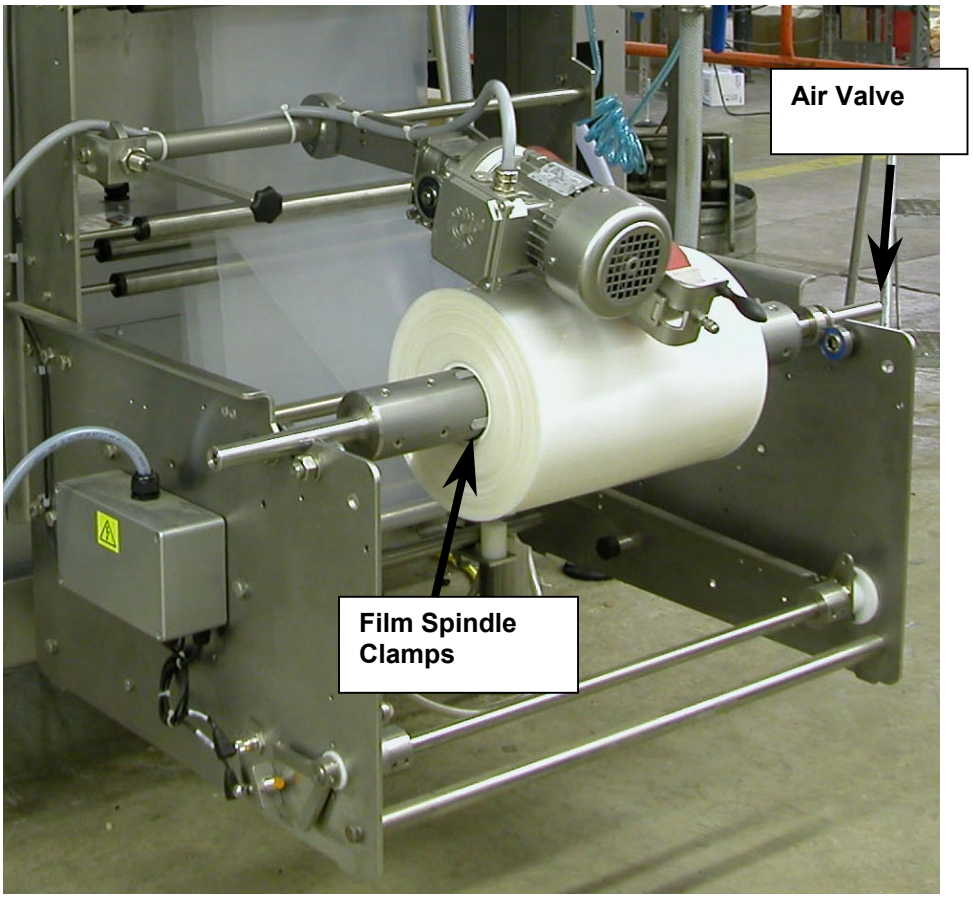


Figure 4.25
Shows the film spindle and air valve.

Film Carriage

Dancer Assembly

The dancer assembly maintains tension on the film web. It includes one fixed roller and a dancer arm assembly.

When film is threaded through the bagmaker, a film loop forms between the fixed roller and the floating rollers of the dancer assembly. As film is pulled out of the film carriage during bag forming, the film loop pulls the dancer arms upward and tensions the arm springs. The tensioned springs cause the dancer arm assembly to push downward on the film loop. This prevents any slack from forming in the loop.

Note: Slack in the film web causes film registration and film tracking problems.

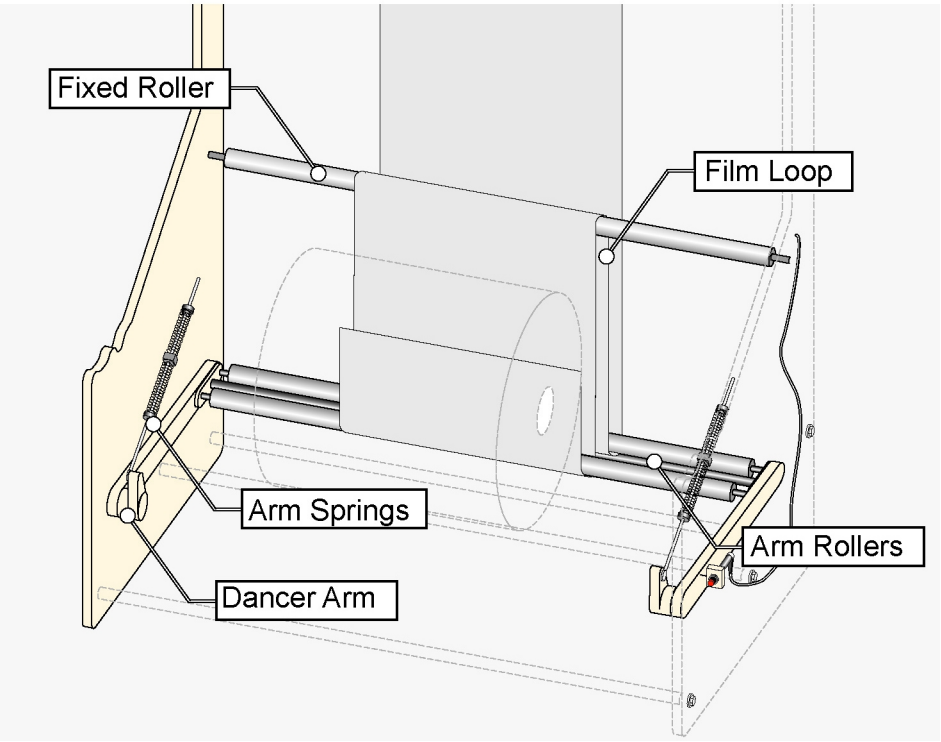


Figure 4.26
Shows how the dancer assembly functions.

Film Carriage

Power Unwind Device

The power unwind device unwinds the film roll. The speed of the device is controlled by the height of the dancer arms. As the arms rise, the unwind device turns faster to put film in the loop. As the arms lower, the device slows to prevent too much film from being unwound. The position of the arms are detected by an unwind sensor.

The locking handle holds the power unwind unit up when changing rolls.

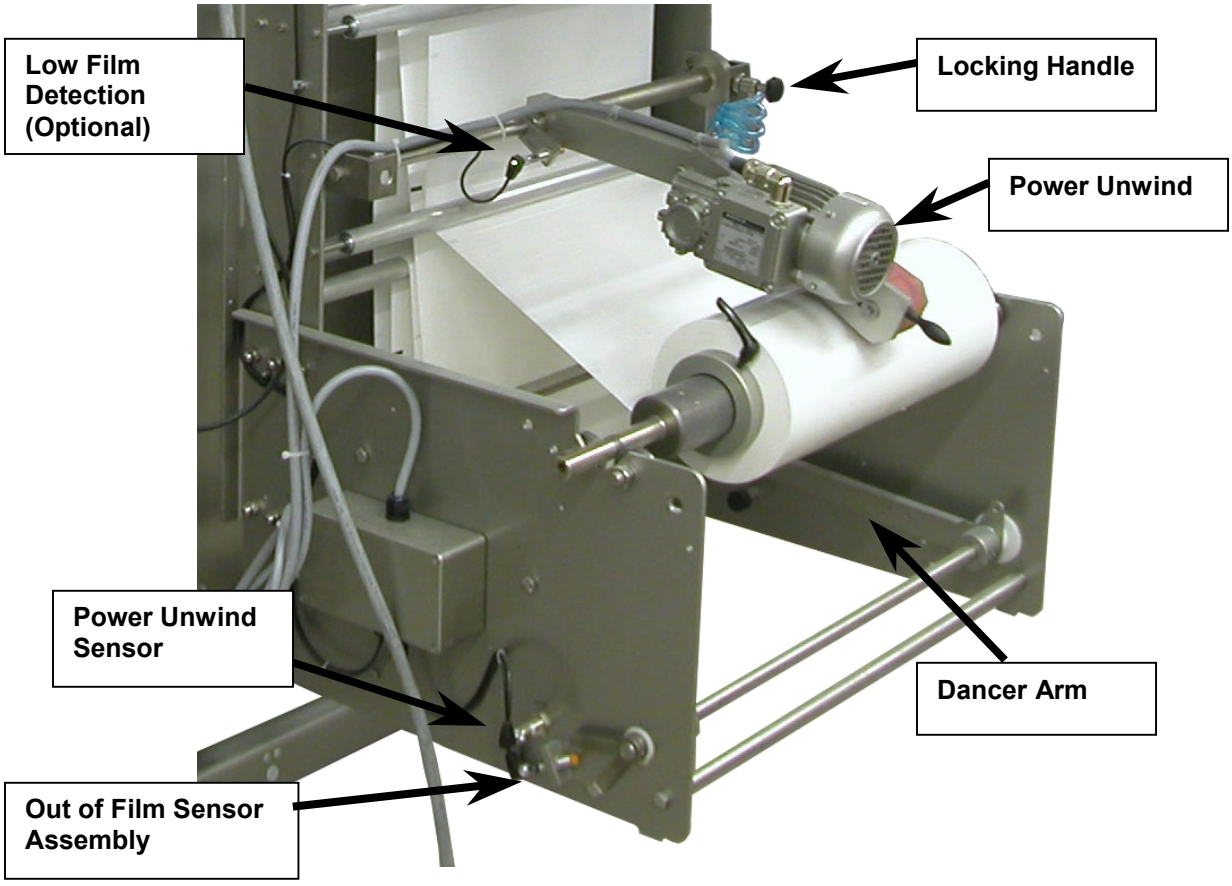


Figure 4.27
Shows the power unwind device.

Film Carriage

Splice Table - Optional

The splice table is used to attach the beginning of a full film roll to the end of an exhausted film roll. When the bagmaker runs out of film, the out of film sensor causes the bagmaker to stop forming bags and it triggers the automatic clamping bar to grab the film end before it leaves the film carriage. Once a new roll of film is loaded on the film carriage and threaded up to the splice table, the manual clamping bar is used to hold the end of the new film roll while the two film ends are taped together.

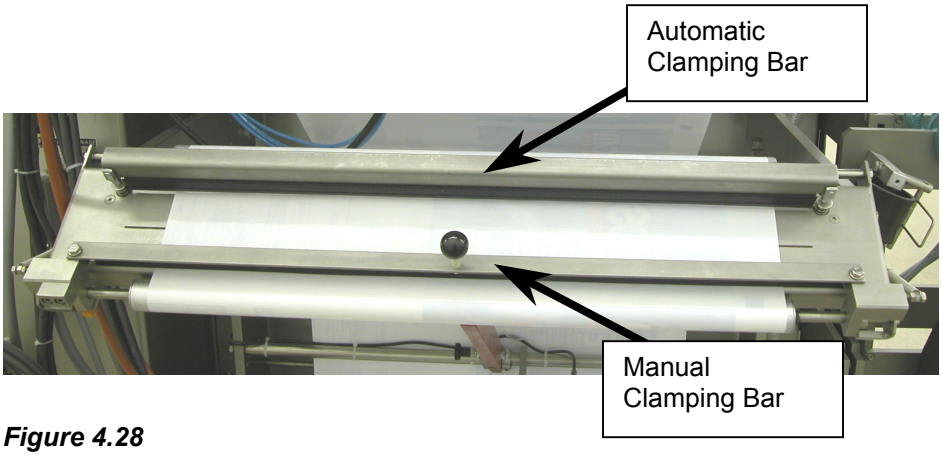


Figure 4.28
Shows the splice table.

Clamp/Unclamp Push-Button

This push-button clamps or unclamps the automatic clamping bar on the splice table. Press and release this push-button to clamp or unclamp the clamping bar.



Figure 4.29
Shows the CLAMP/UNCLAMP push-button.

Film Carriage - Optional

Thermal Ribbon Printer - Optional

The Thermal Ribbon Printer will print a bar code on each bag. This allows the customer to track the product and other information. The printer is enabled on the HMI touchscreen. Refer to the documentation from the manufacturer for specific information on the printer.

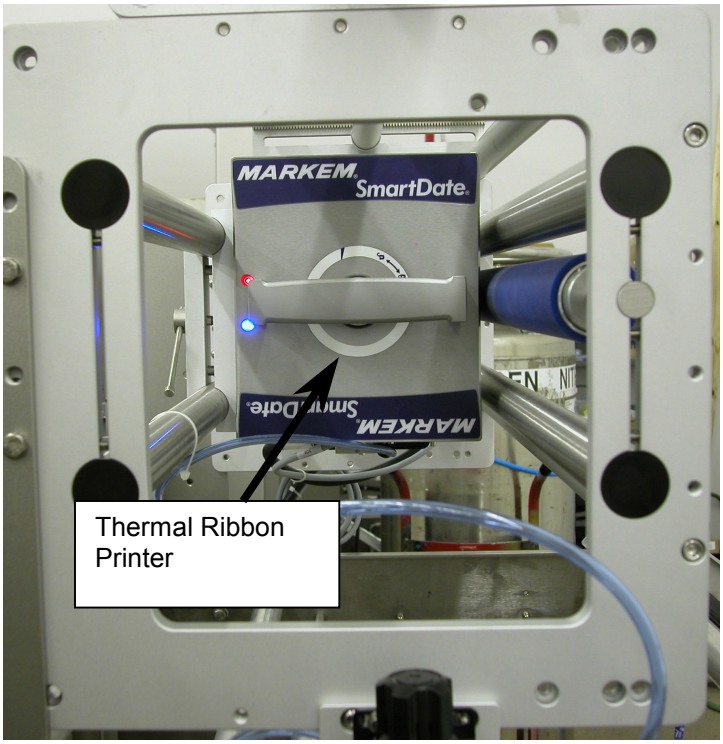


Figure 4.30
Shows a Thermal Ribbon Printer Located in the Film Carriage.

Film Carriage - Optional

Thermal Ribbon Printer Controls - Optional

The Thermal Ribbon Printer has controls on the Film Carriage and on the HMI Touchscreen Display (Printer Parameters Screen). The HMI determines if and when the printer will be used while the controls on the carriage manage its operation. Refer to the documentation from the manufacturer for specific information on the printer.

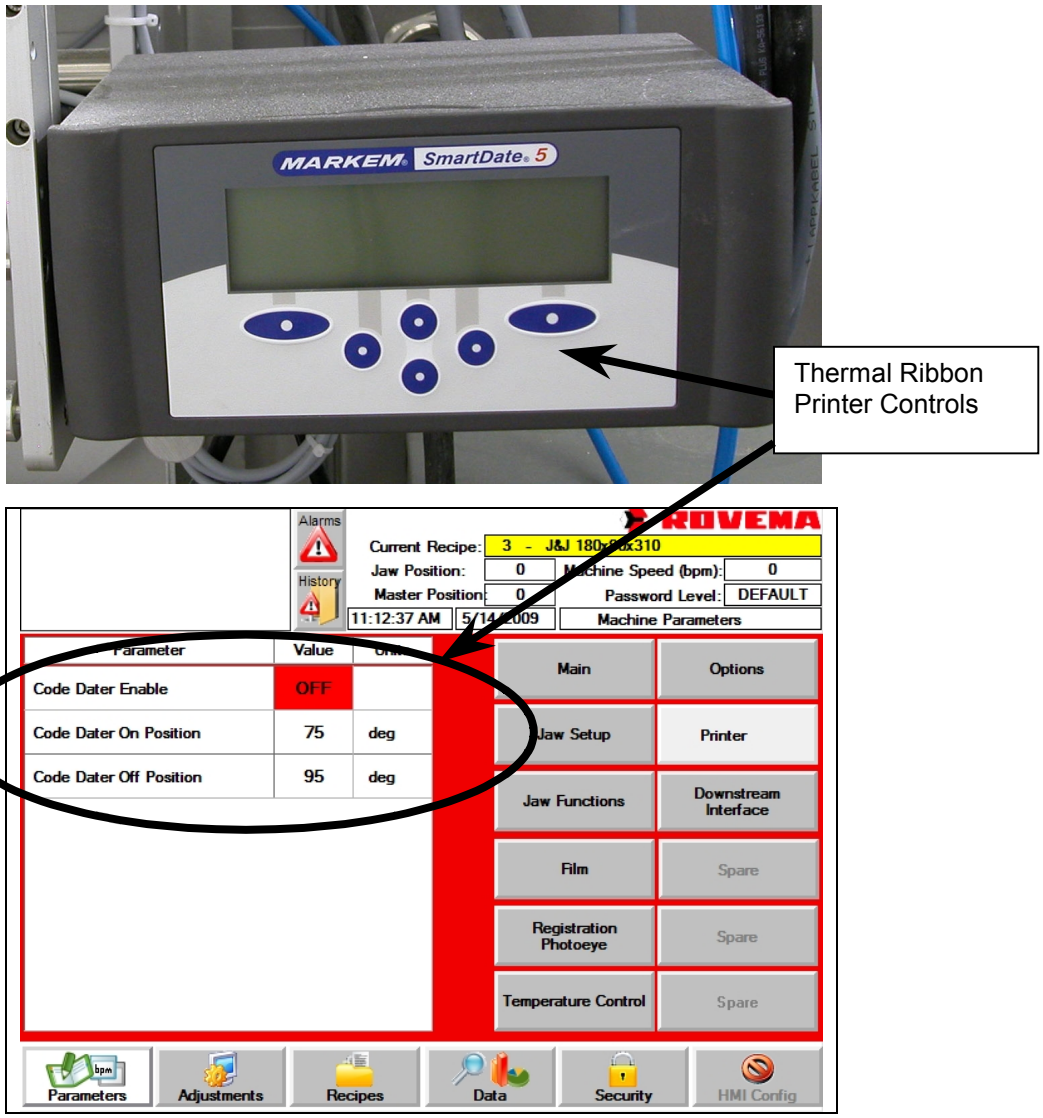


Figure 4.31
Shows the controls for the Thermal Printer.

Film Carriage

Film Tracking Assembly

The film tracking assembly controls the position of the film carriage relative to the forming collar; thus controlling the alignment of the vertical seal. The assembly includes a DC drive motor and two limit switches. The drive motor moves the upper and lower sections of the film carriage towards either side of the forming collar. The limit switches limit the movement of the film carriage to just a few inches.

You will make film tracking adjustments to align the edges of the film tube (vertical seal). It is best if you make your adjustments while jogging the film feeding device or while running the bagmaker in automatic mode. This will allow the film web to slide across the guide rollers and the forming collar with ease.

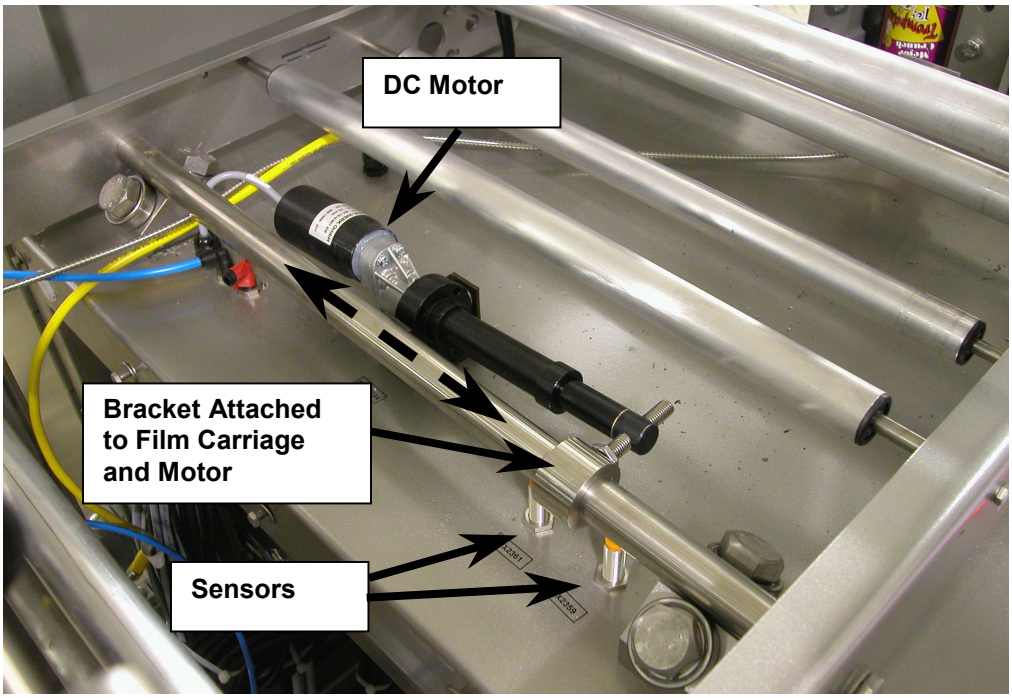


Figure 4.32
Shows the film tracking assembly.

Film Carriage>Film Tracking Assembly

Film Carriage Position

The film carriage movements are controlled by two buttons on the touchscreen display. Whenever the bagmaker is turned on, pressing either of these switches will cause the film carriage to move in the direction of the arrow (except when the E-STOP button is depressed). The movements will be slow yet steady.

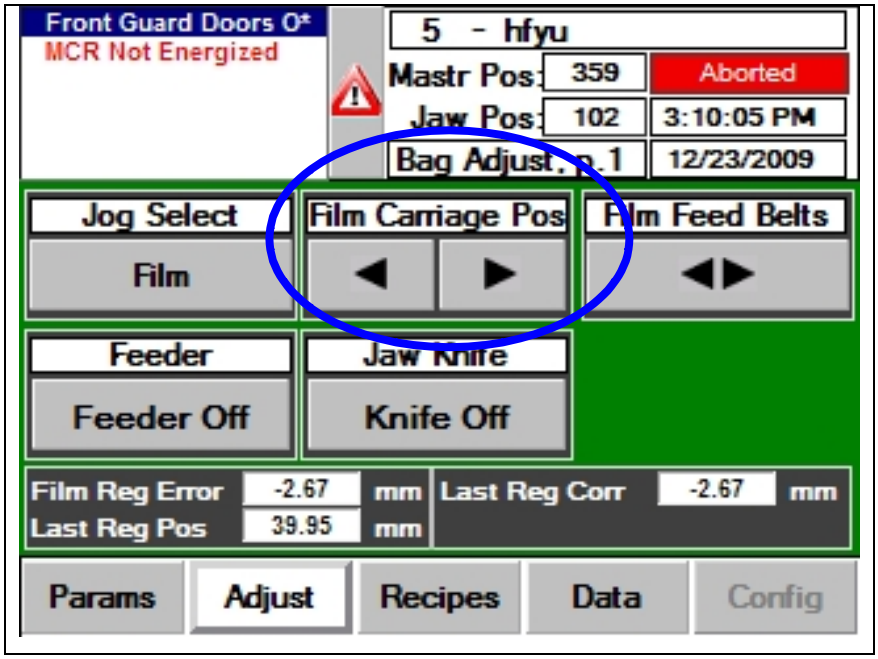


Figure 4.33
Shows the buttons that control film tracking.

Film Carriage

Out of Film Sensor Assembly

The out of film sensor assembly causes the bagmaker to stop forming bags when the film roll runs-out or when the roll cannot unwind. It includes a proximity sensor and two metal limits that are connected to the dancer arms.

When the film roll runs-out, the dancer arms fall to the bottom of the film carriage and rotates the upper limit in front of the proximity sensor: This signals the bagmaker to stop forming bags.

When the film roll cannot unwind, the film loop pulls the dancer arms to the top of the film carriage and rotates the lower limit in front of the sensor: This also signals the bagmaker to stop forming bags.

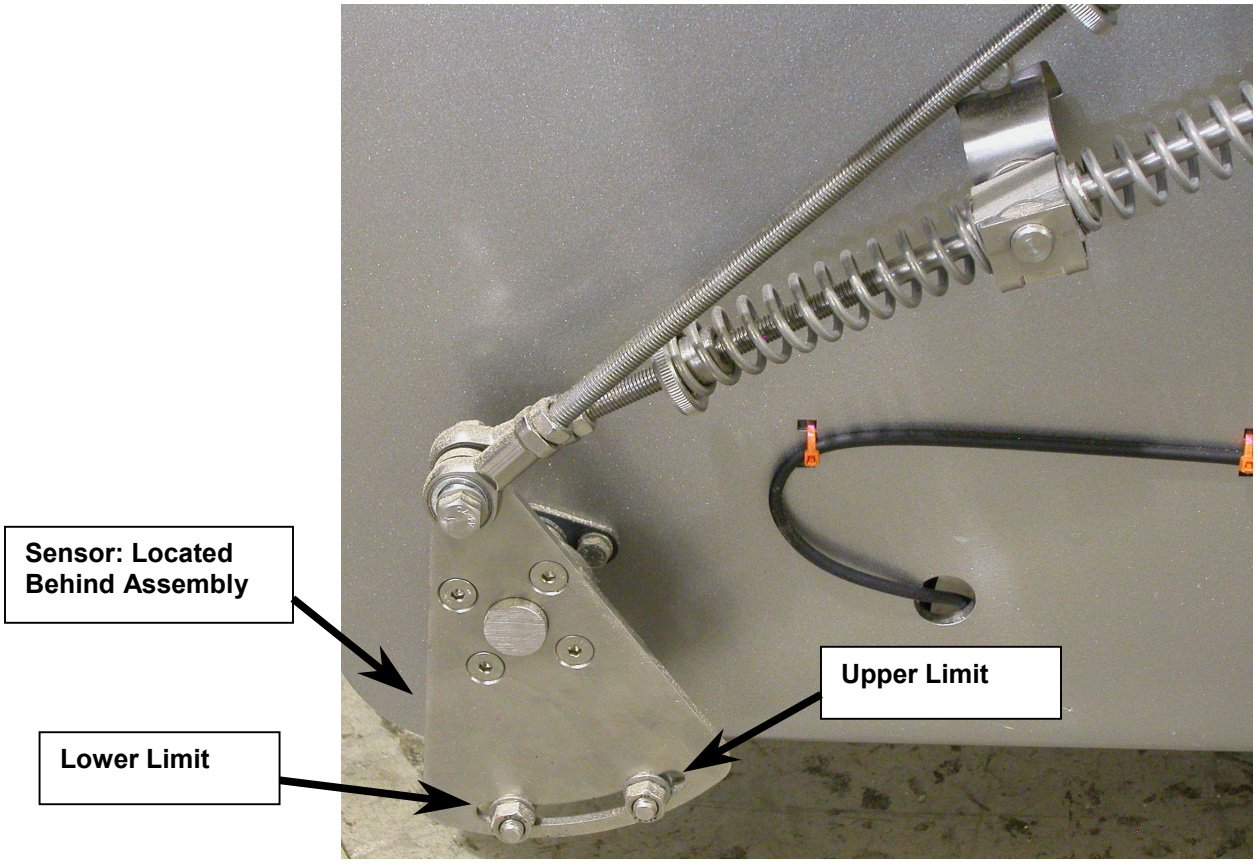


Figure 4.34
Shows the out of film sensor assembly.

Pneumatics System

The pneumatics system controls the compressed air supply to the bagmaker. The system distributes compressed air to the bagmaker's pneumatic cylinders, the vacuum generator, and the cooling devices. The system includes a primary manifold and an air filter/regulator.

The pictures in this section are for illustration purposes. The controls included on each machine may vary depending on the machine's specific options. The controls are labeled.

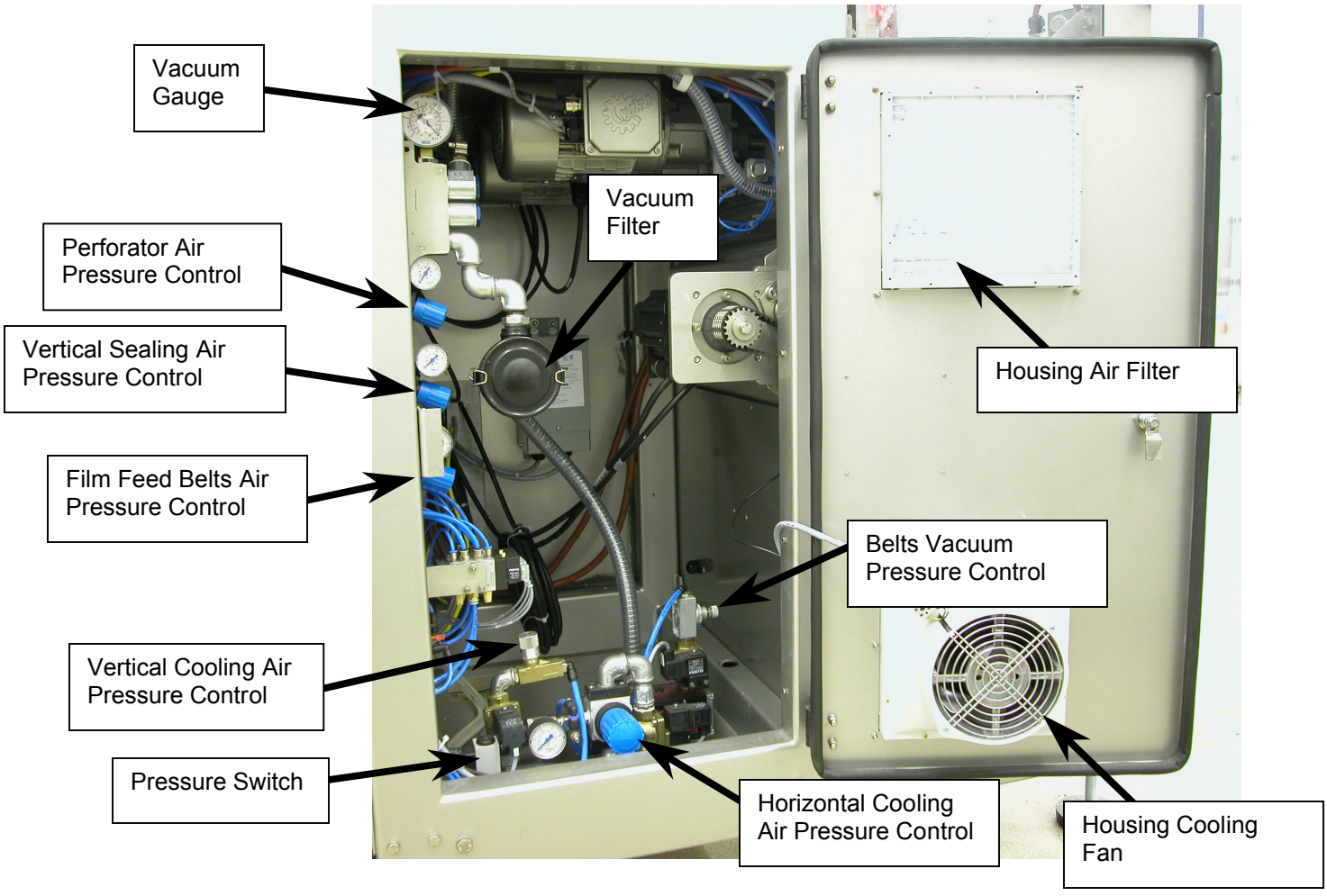


Figure 4.35
Shows the pneumatic system.

Pneumatics System

Pressure Switch

The pressure switch monitors the available air pressure in the primary manifold. If the pressure falls below the preset limit, the switch signals the bagmaker to stop forming bags and to display the "LOW AIR PRESSURE" alarm message on the touchscreen. Once the air pressure is restored and the ALARM RESET switch is pressed (on the touchscreen) the alarm will be cleared.

The low air pressure limit is typically set to around 60 PSI before the alarm will activate. The limit is set using the knob on top of the pressure switch.

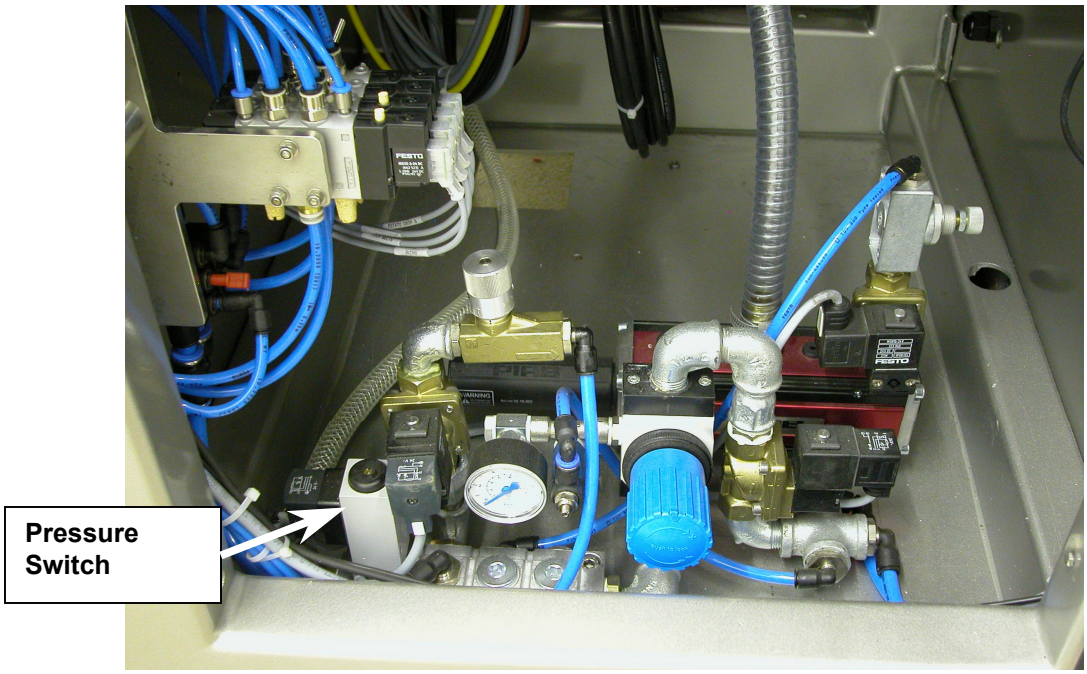


Figure 4.36
Shows the pressure switch.

Pneumatics System

Horizontal and Vertical Cooling Devices

The horizontal and vertical cooling devices release compressed air onto the horizontal and vertical seals. These devices direct compressed air from the primary manifold, through valves, through air lines, to cooling wands. The valve for the horizontal cooling device is a pressure regulator with a pressure gauge. The amount of horizontal cooling is set using the regulator's adjustment knob. The pressure gauge allows for precise adjustments. The valve for the vertical sealing device is a flow control valve. The amount of vertical cooling is set using the valve's adjustment knob.

Note: There is no pressure gauge for the vertical cooling device because the amount of airflow is not as critical as it is for the horizontal cooling device.

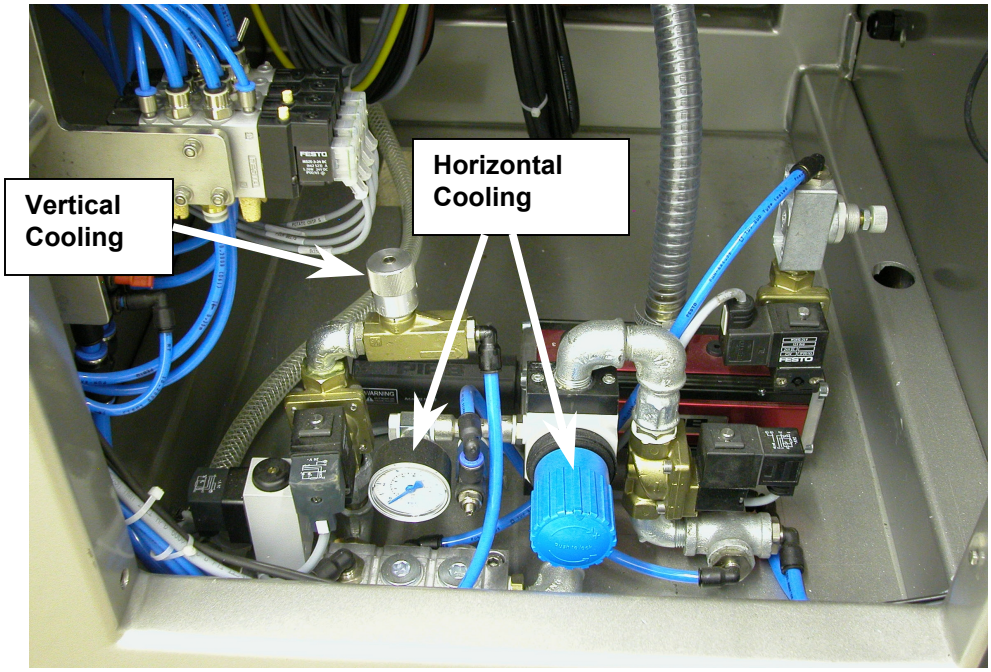


Figure 4.37
Shows the horizontal cooling device controls.

Pneumatics System

Solenoid Bank

The solenoid bank supplies compressed air to all of the bagmaker's pneumatic cylinders. The PLC activates each solenoid valve in the bank at a specific time to perform various operations.

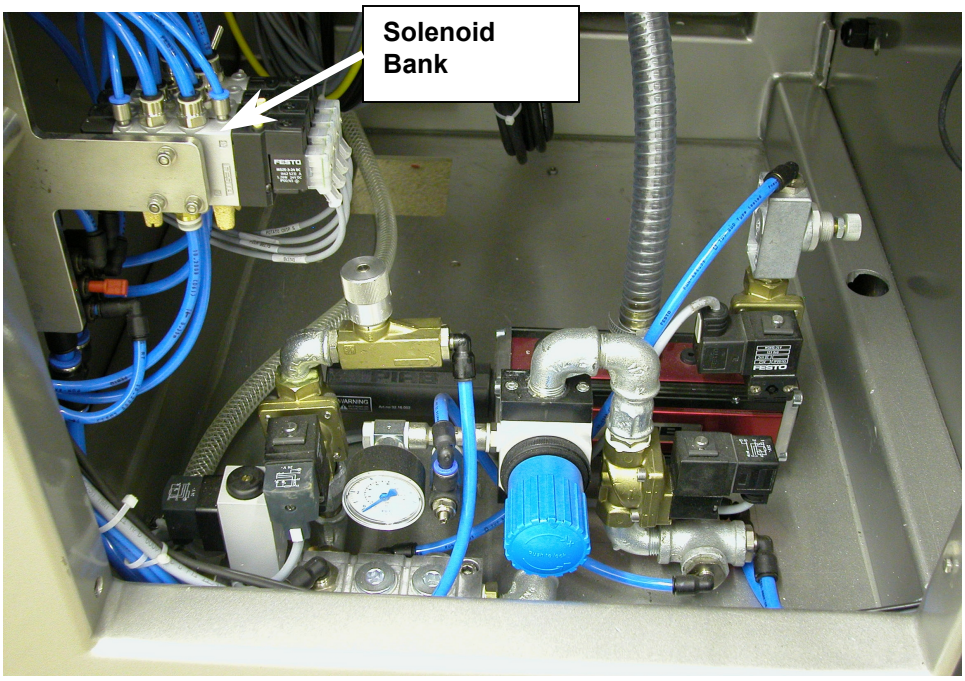


Figure 4.38
Shows the solenoid bank.

Pneumatics System

Vacuum System

The vacuum system creates the suction for the film feed belt assemblies. The system includes a vacuum generator, an air filter, and a vacuum gauge. The vacuum generator uses compressed air to generate a vacuum. The vacuum is directed through the air filter, past the vacuum gauge, and to the film feed belt assemblies. The air filter removes film debris from the system. The gauge is used to verify that the system is functioning properly. When the system is functioning properly, the gauge should read above 10 Hg for VPR-180 models.

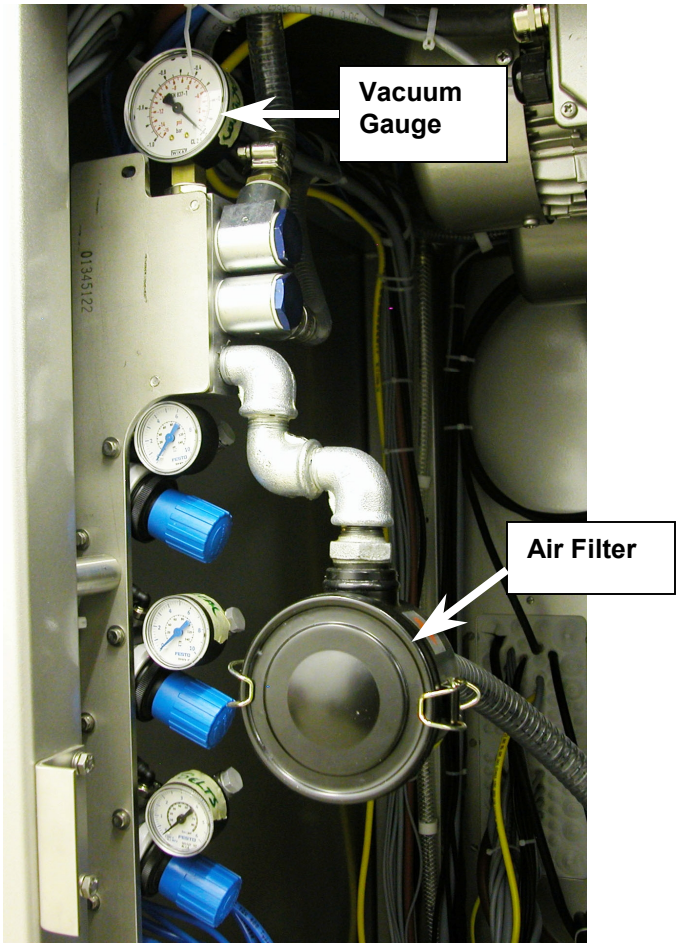


Figure 4.39
Shows the vacuum system.

Optional Equipment

Automatic Film Tracking System

The automatic film tracking system automatically keeps the edges of the vertical seal aligned. There are two sensors; one positioned just inside of the film web (inner sensor) and one positioned just outside of the film web (outer sensor). The inner sensor should always remain blocked by the film web and the outer sensor should always remain unblocked by the web. If the outer sensor becomes blocked, the bagmaker moves the film carriage until it becomes unblocked. If the inner sensor becomes unblocked, the bagmaker moves the film carriage until it becomes blocked.

Once you have the edges of the vertical seal aligned, you can position the sensors around the film web and enable the automatic film tracking system. The system will maintain the alignment of the vertical seal edges.



Figure 4.40
Shows the collar mounted automatic film tracking sensor.

Optional Equipment

Discharge Area

The lower discharge area may include several optional devices. The devices used depend on the type of product and the type of bag being produced.

The discharge cute allows the finished bags to be transitioned from the bagger to downstream equipment.

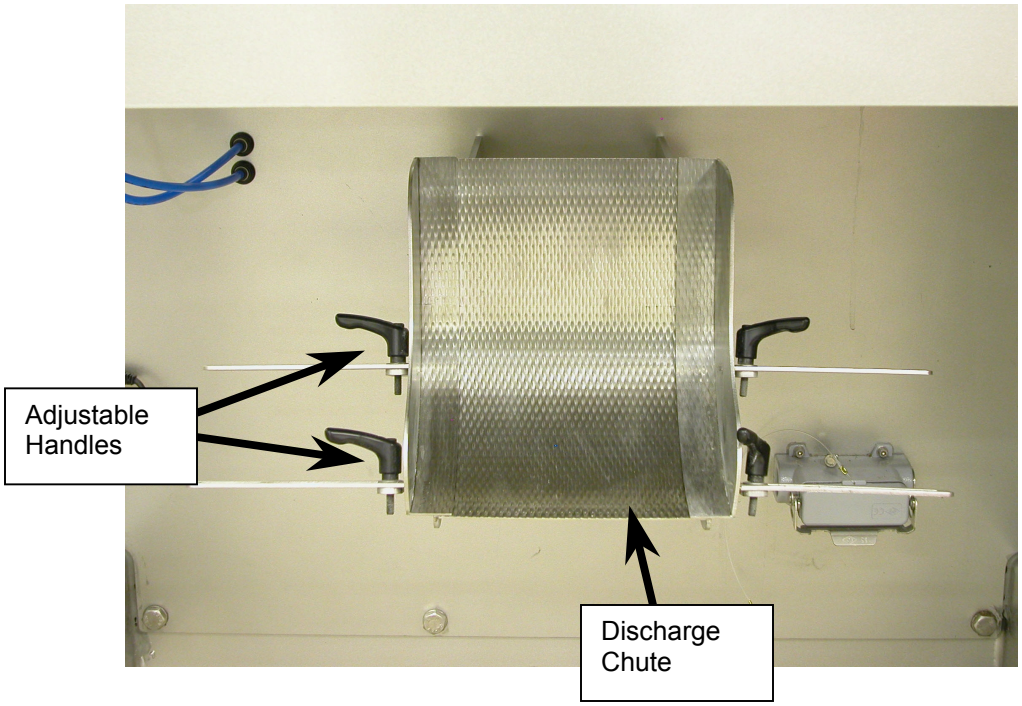


Figure 4.41
Shows the discharge area.

Section 5: Operator Controls

The operator controls allow you to setup and run the bagmaker. These controls include push buttons, switches, and a touchscreen display (HMI) Human-Machine-Interface.

The HMI (Human-Machine-Interface) allows you to load, modify, and save product recipes; a product recipe holds all of the forming parameters necessary to create a particular bag style. When a recipe is loaded, all of the necessary forming parameters (such as bag length, machine speed, and etc.) are automatically loaded. Once a recipe has been loaded, all that remains before starting bag forming is to setup the bagmaker's mechanical devices.



Figure 5.1
Shows the operator controls on the electrical enclosure.

HMI (Human Machine Interface)

Touchscreen

The touchscreen shows a series of screens. Each screen is a collection of touch sensitive cells that initiate machines functions, change program values, activate additional screens, or display information.

Menu Tree

The sections of the HMI are as follows:

- Parameters
- Adjustments
- Recipes
- Data
- HMI Config

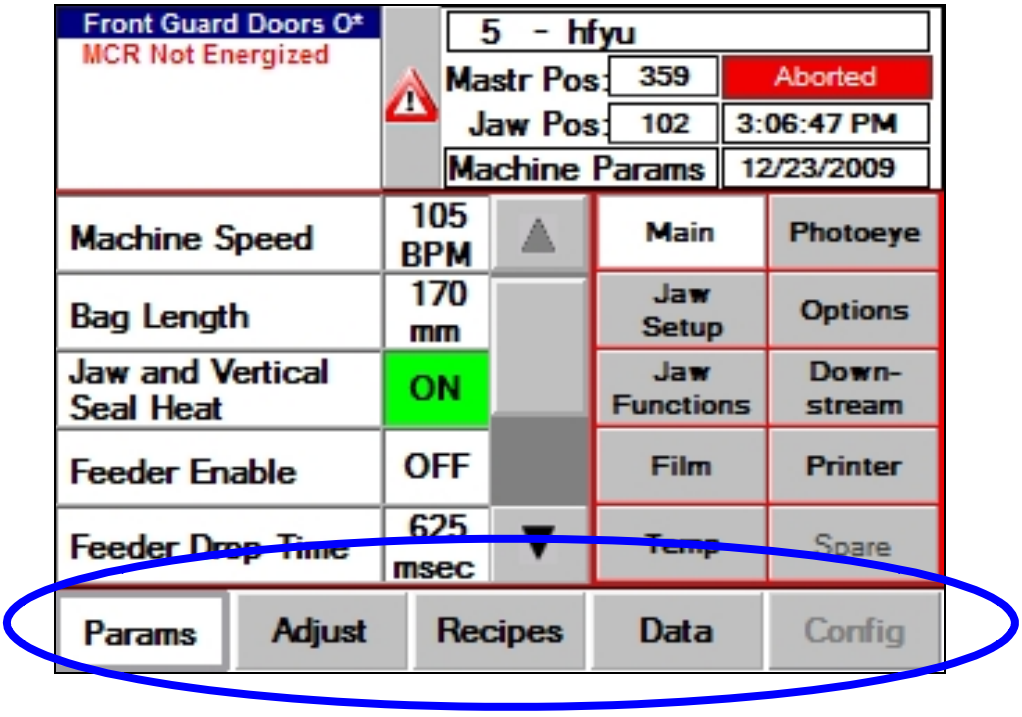


Figure 5.2
Shows the items on the Menu Tree.

HMI (Human Machine Interface)

Machine Details Header

The settings displayed in the header area of the screen contains information important during the production cycle.

On the left side of the screen are the machine alarms. To the right of that are the *Alarms* buttons and these take you to more detailed Alarms pages.

The current recipe loaded, current jaw position, current machine speed, current password level, current date and time are displayed on the right.

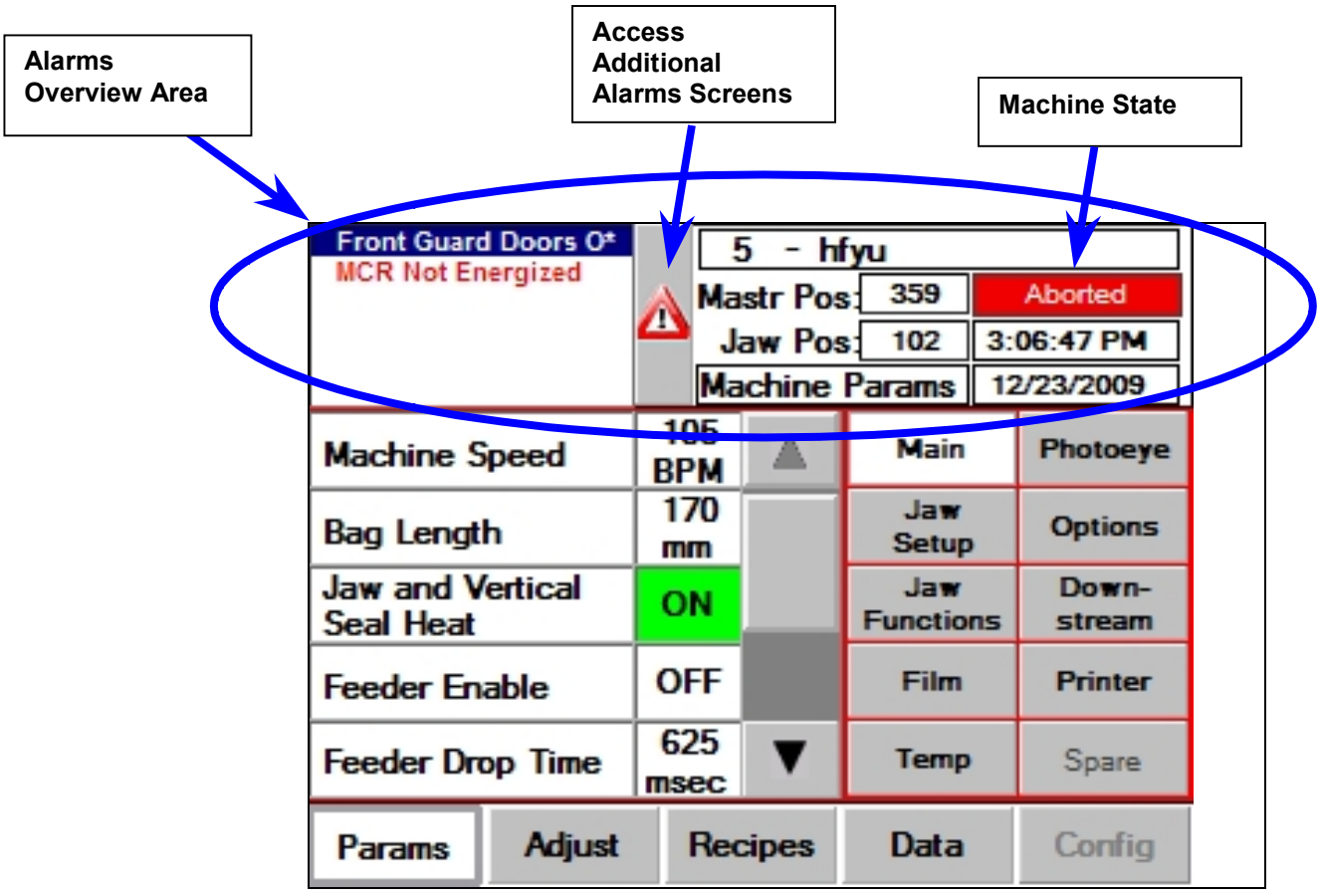


Figure 5.3
Shows the items in the header.

HMI (Human Machine Interface)

Parameters and Submenus

The settings under the *Parameters* screen control all of the bagmaker's forming operations; horizontal sealing, code dating, product settling, and etc. Some of the parameters enable or disable a forming operation. Others determine when a forming operation will occur during the bag forming cycle.

The parameter descriptions of each submenu are described on the following Parameters Charts.

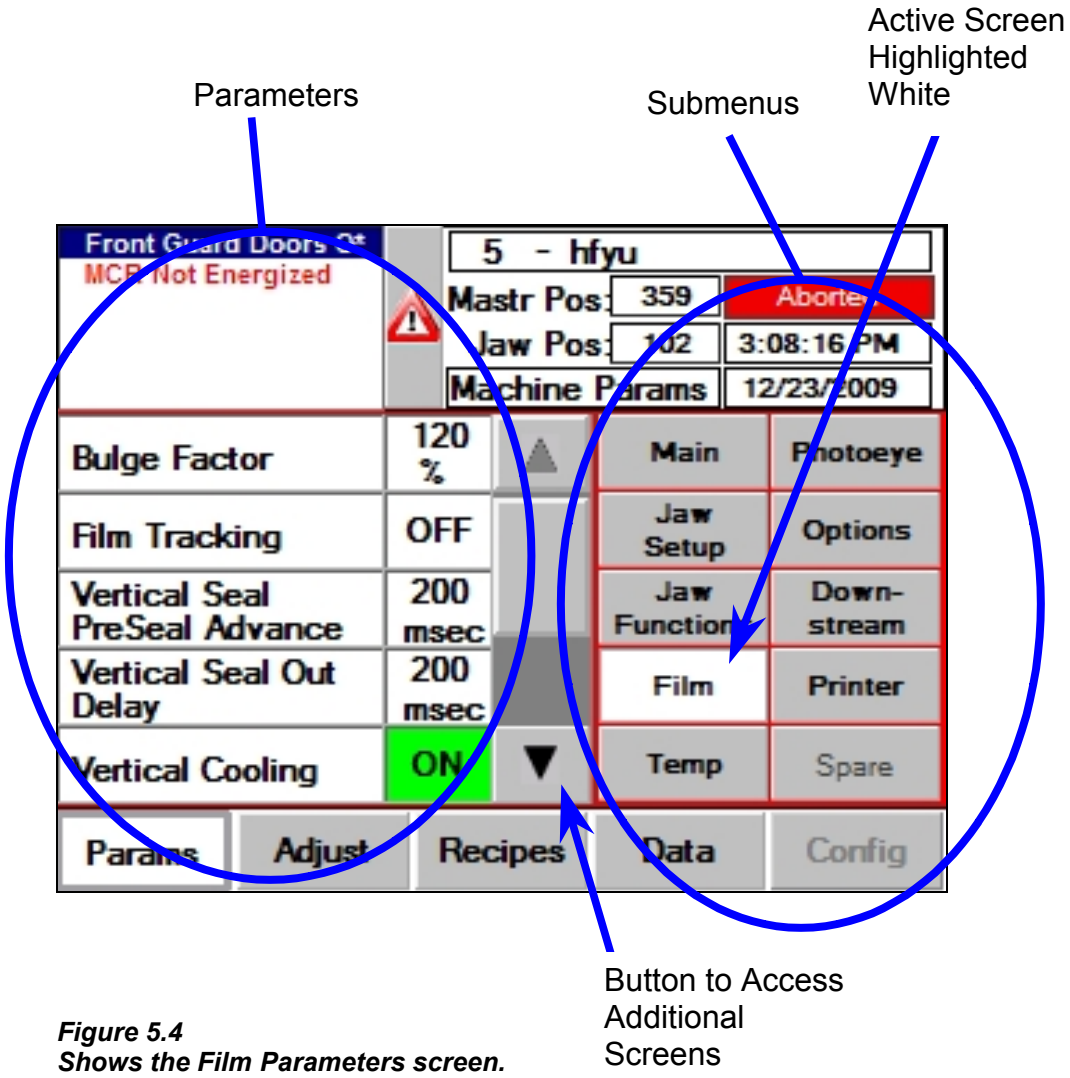


Figure 5.4
Shows the Film Parameters screen.

Parameters Values

Some parameters will have a pop up box, as shown below, to enter a numeric value. The top left corner will list the range of values that may be entered for the specific parameter.

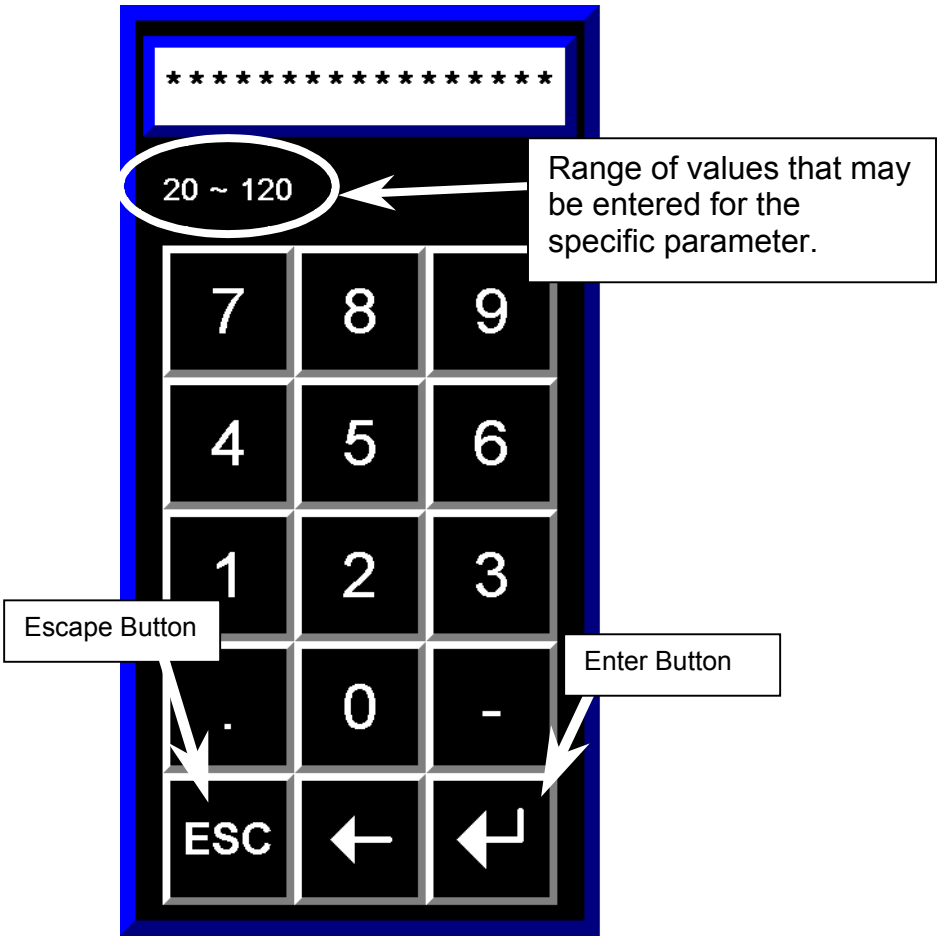


Figure 5.5
Shows a numeric pop up box

HMI (Human Machine Interface)

Parameter Descriptions

The following charts describe the parameters under the submenus of the *Parameters* screen.

Parameter Chart	
Main Submenu	
Parameter(s)	**Parameter Description**
Machine Speed	Determines the number of bags that the bagmaker will produce in one minute.
Bag Length	Determines the length of the bags that the bagmaker will produce during bag production.
Jaw and Vertical Seal Heat Enable	Turns the power to the horizontal and vertical sealing device temperature controllers on and off. When set to On, the sealing devices will heat to the set sealing temperatures. When set to Off, the sealing devices will begin to cool to room temperature.
Feeder Enable	Determines whether the product feeder will deliver product to the bagmaker during bag production.
Feeder Drop Time	This is the amount of time it takes for the product to fall from the feeder device into the bag.
Drop Time Confirmation Delay	In Master-Slave mode, this is the amount of time after the "dump request signal" that the bagmaker will wait for the "dump confirmation signal". In Stroke-On-Demand mode, this is the duration of the "dump request signal".

Figure 5.6
Describes the settings under the Main submenu.

HMI (Human Machine Interface)

Parameter Chart	
Jaw Setup Submenu	
Parameter(s)	**Parameter Description**
Auto Seal	Toggles the bagmaker between automatic and manual jaw profiling modes. When set to On, the bagmaker automatically calculates the postseal time, the postseal angle, and the preseal time values. When set to Off, these settings must be determined by the operator.
Jaw Seal Time	Determines how long the sealing jaws should remain closed to create a seal. It is also the amount of time that the horizontal sealing jaws have to move through the jaw seal angle—which controls the speed of the jaws during the sealing portion of the forming cycle.

Figure 5.7
Describes the settings under the Jaw Setup submenu.

HMI (Human Machine Interface)

Parameter Chart	
Jaw Functions Submenu	
Parameter(s)	**Parameter Description**
Knife Enable	Determines whether the knife will be used during bag production. When set to Off, the bagmaker will create a continuous string of bags.
Knife On Position Knife Off Position	These parameters determine when the knife will extend and retract during the forming cycle. When using the constant-heat sealing technique, the knife should cut the film just before the jaws touch. When using the heat-seal sealing technique, the knife should extend after the jaws have touched.
Chain Bag Enable	This determines if chain bags will be produced. Chain bags are a string of bags that are not cut completely apart, at each bag. Instead of completely cutting through each bag, the knife extends slightly, to perforate the separation between each bag.
Number of Chain Bags	This determines how many bags will be produced before they are cut apart by the knife.
Jaw Seal Cooling Enable	Determines whether intermittent horizontal cooling will be used during the forming cycle.
Jaw Seal Cooling On Position Jaw Seal Cooling Off Position	These parameters determine when the intermittent horizontal cooling device will be activated to cool the horizontal seal.
Jaw Jog Speed	This is a variable that determines the speed that the horizontal sealing jaws will operate in jog mode. This is a percentage of the maximum allowable jog speed. For example, at 100%, the jaws would jog at the maximum allowable jog speed. A value of less than 100% would cause the jaws to jog slower.

Figure 5.8
Describes the settings under the Jaw Functions submenu.

Parameter Chart	
Film Submenu	
Parameter(s)	**Parameter Description**
Bulge Factor	Bulge factor sets the film feeding speed as a percentage of the jaw drive speed. Bulge factors between 80% and 100% cause the bags to stretch during filling. Bulge factors between 100% and 120% cause the bags to expand during filling.
Film Tracking Enable	Determines whether automatic film tracking will be used during bag production.
Vertical Seal PreSeal Advance	When the bagmaker start button is pressed to begin bag production, the vertical sealing bag immediately moves in to contact the film. This setting determines how long after the vertical seal is triggered until the film actually begins to move. With certain types of film this is necessary to ensure good vertical seals on startup.
Vertical Seal Out Delay	Determines how long after the film stops until the vertical seal will wait to move away from the film. With certain types of film this is necessary to ensure good vertical seals on machine stop.
Vertical Cooling Enable	Determines whether vertical cooling will be used during bag production.
Film Feed Belts Jog Speed	This is a variable that determines the speed that the film feed belts will operate, as related to production speed, while in jog mode.
Vertical Seal Scale Factor	This is a variable that will slightly speed up or slow down the speed of the Vertical Band Seal in relation to the speed of the film. This allows the speed to be adjusted so that the speed of the seal band is equal to the speed of the film.

Figure 5.9
Describes the settings under the Film submenu.

HMI (Human Machine Interface)

Temperature Control Submenu	
Parameter(s)	**Parameter Description**
Jaw Front Temperature	Sets the sealing temperature for the front horizontal sealing jaw assembly, it should equal the rear temperature setting.
Jaw Rear Temperature	Sets the sealing temperature for the rear horizontal sealing jaw assembly, it should equal the front temperature setting.
Vertical Band Temperature	Sets the sealing temperature for the vertical sealing device; typically set slightly lower than the jaw temperature.

Parameter Chart	
Registration Photoeye Submenu	
Parameter(s)	**Parameter Description**
Film Registration Enable	Determines whether film registration will be used during bag production. If the bagmaker is using registered film, this parameter must be set to On. If the bagmaker is using non-registered film, this parameter must be set to Off.
Film Photoeye Offset Distance	Changes the horizontal sealing/cutting location. Makes the bagmaker advance ###mm of additional film so that the horizontal sealing jaws land at the desired location on the film tube.
Film Registration Detect Window	Determines when the bagmaker will read the signal from the film registration photoeye. Allows the bagmaker to avoid reading signals generated by film markings other than registration marks.
Max Missed Registration Marks	When operating with film registration enabled, this is the number of consecutive cycles the bagmaker will run without detecting a registration mark on the film. The bagmaker will cycle stop and display the appropriate alarm if this number is exceeded.
Max Film Registration Correction	When operating with film registration enabled, this is the maximum correction that will be applied to the film in one cycle.

Figure 5.10
Describes the settings under the Temperature and Photoeye submenus.

HMI (Human Machine Interface)

Options Submenu	
Parameter(s)	**Parameter Description**
Metal Detect Enable	Determines whether the metal detector will be used during bag production.
Metal Detect Mode	When operating with Metal Detect Enable *On*, this determines the actions of the bagmaker when metal is detected. If metal is detected, the machine will stop, to allow the user to research the problem and discard the bag.
Gas Flushing Enable	Enable and disable the Nitrogen Gas Flushing option.
Gas Flushing On Position Gas Flushing Off Position	These parameters determine when gas flushing will be on during the forming cycle.

Figure 5.11
Describes the settings under the Options submenu.

HMI (Human Machine Interface)

Downstream Interconnect Submenu	
Parameter(s)	**Parameter Description**
Downstream Interconnect	When enabled, the bagmaker will monitor the "downstream ready signal", of equipment located downstream, before starting to produce bags.

Printer Submenu	
Parameter(s)	**Parameter Description**
Code Dater Enable	Determines whether the code dater (printer) will be used during bag production.
Code Dater On Position Code Dater Off Position	These parameters determine when the code dater will start and stop printing during the forming cycle.

Parameter Chart	
Critical Parameters	
Parameter(s)	**Parameter Description**
Dual Jaw Mode	This indicates if both sets of horizontal jaws will be used during production. If only one jaw set is to be used, there must be additional mechanical adjustments to be made to the drive system. If a single jaw set is to be used, it is recommended that a Rovema service technician assist with this modification.
Jaw Seal Angle	Determines the angle in the forming cycle where the jaws are in the closed position. The radius of the crank arms determines this value. Only Rovema service technicians or engineers should adjust this setting.

Figure 5.12
Describes the settings under the Printer, Downstream and Critical submenus.

HMI (Human Machine Interface)

Adjustments Screen

The buttons on the *Adjustments* screen allow you to perform the most common machine adjustments during bag production. The following paragraphs provide a description of the buttons on this screen.

Jog Select Button

The *Jog Select* button allows you to select the machine jogging mode. Pressing this button toggles its state between *Jog Jaws Forward* and *Jog Film*. Once the jogging mode has been selected and the JOG/AUTO selector switch has been set to JOG, press and hold the JOG/RUN push button to jog bagmaker.

Film Carriage Position Buttons

The *Film Carriage Position* buttons allow you to move the film carriage left or right to align the edges of the vertical seal. Press and hold one of these buttons to move the film carriage. When the button is released, the film carriage will stop moving.

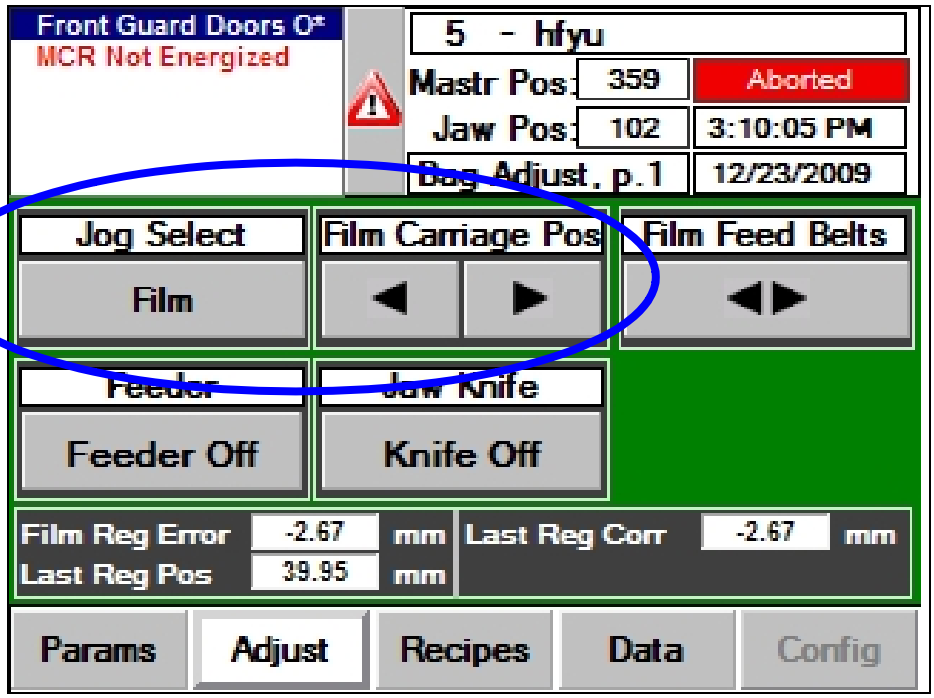


Figure 5.13
Shows the Adjustments screen 1 of 2.

HMI (Human Machine Interface)

Film Feed Belts Button

The *Film Feed Belts* button allows you to open and close the film transport belts. Press and release this button to open or close the film transport belts, as indicated by the direction of the arrows.

Knife Enable Button

The *Knife* button determines whether the knife will be used during bag production. When set to OFF, the bagmaker will create a continuous string of bags.

Feeder Enable Button

The *Feeder* button determines whether the product feeder will deliver product to the bagmaker during bag production.

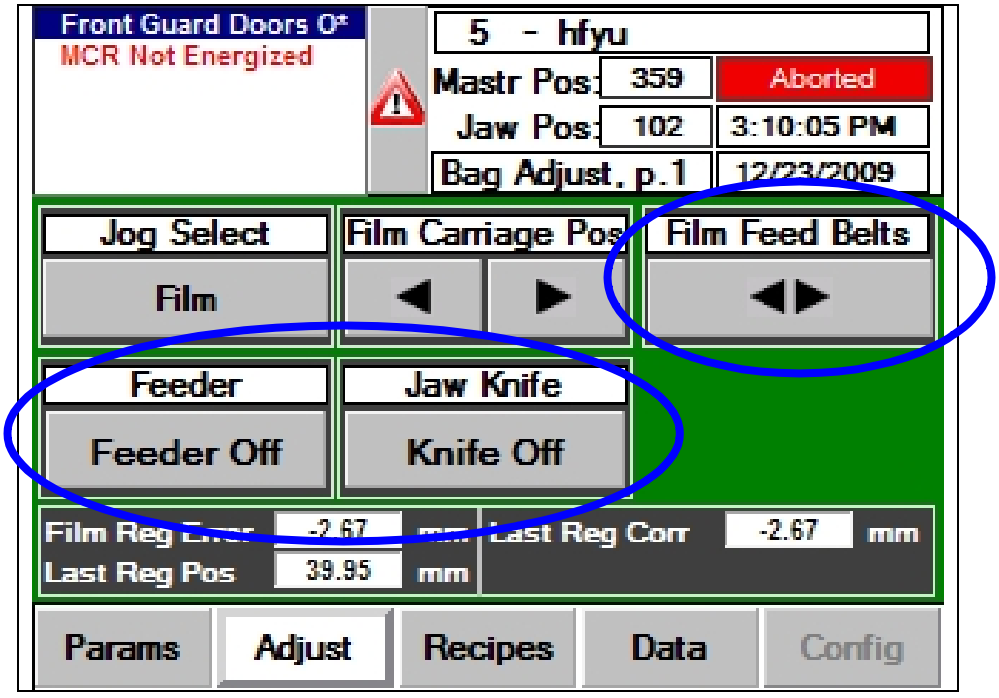


Figure 5.14
Shows the Adjustments screen1 of 2.

HMI (Human Machine Interface)

Film Registration Error

The *Film Registration Error* indicates the difference, in millimeters, between where the bagmaker detected the registration mark and where it should have been detected. This is used in order for the graphics to be aligned properly with the bag cut.

Last Registration Position

The *Last Registration Position* indicates the position of the last reading of the photoeye film registration position.

Last Registration Correction

The *Last Registration Correction* is the distance, in millimeters, of the last Registration Error correction. If this number is consistently negative, then the Bag Length is set too long. If this number is very inconsistent then the bag length is not set correctly. The bagger will run most accurately with a small, fairly consistent positive error correction value. The bag length should always be set to the actual pitch length of the film registration marks.

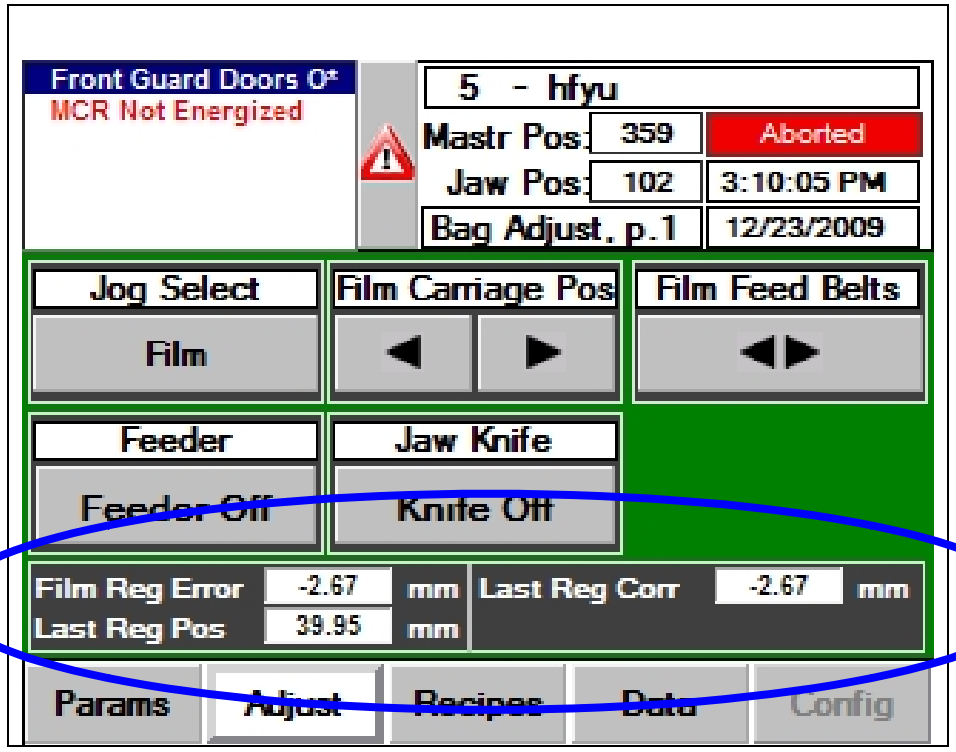


Figure 5.15
Shows the Adjustments screen 1 of 2.

HMI (Human Machine Interface)

Phase State

The *Phase State* indicates the status of the machines operation mode.

The header indicates the status of the machine. The below table indicates the Status Name and Description.

STATUS Box	DESCRIPTION
Aborted	The E-Stop sequence has been completed for this machine section.
Aborting	The machine section is initiating the Abort (E-Stop) sequence.
Held	The machine is waiting for some other machine/process to complete before it can start.
Holding	This machine is preparing to move to the "Held" state.
Idle	The machine is ready to be run.
Resetting	The machine section is being initialized.
Re-Start	The machine section is being re-started.
Running	This machine section is currently cycling with product
Stopped	The Cycle Stop sequence has been completed for this machine section.
Stopping	The machine section is initiating the Stop sequence.

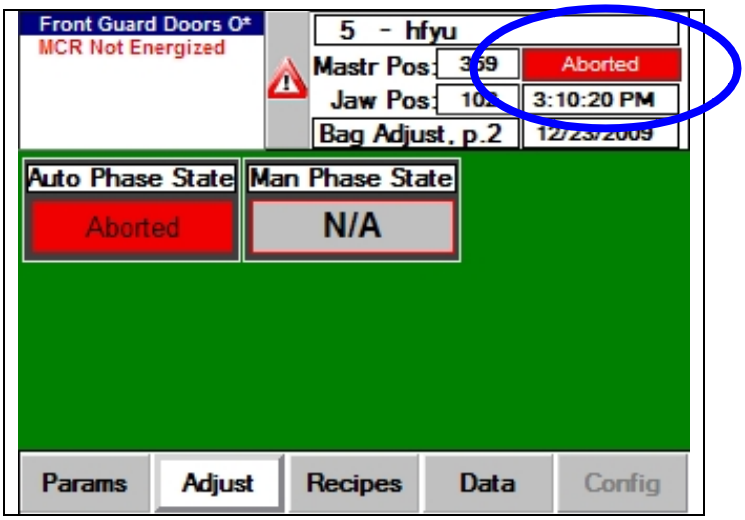


Figure 5.16
Shows the Adjustments screen 2 of 2.

HMI (Human-Machine-Interface)

Production Data Screen

The Production Data screen can be accessed from the Data button on the Main Menu Tree bar. The Production Data screens show Bags Produced, Run Time and Idle Time. The information may be reset to track data for a certain period of time, such as per shift or per week.

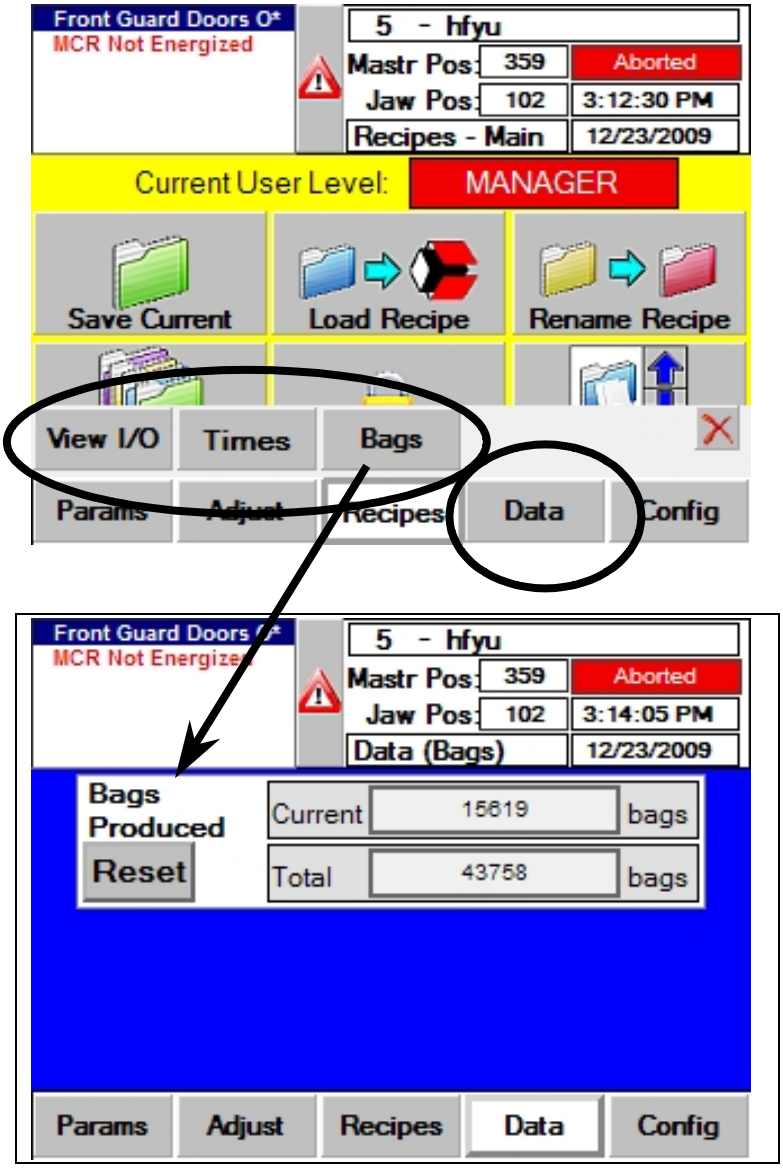


Figure 5.17
Production Data Screen

HMI (Human Machine Interface)

View I/O Screen

The *View I/O* screen is used to troubleshoot the bagmaker. It displays the same information that can be obtained by looking at the L.E.D. indicators on the programmable logic controller (located inside of the electrical enclosure). The screen shows the status of the various bagmaker input and output signals.

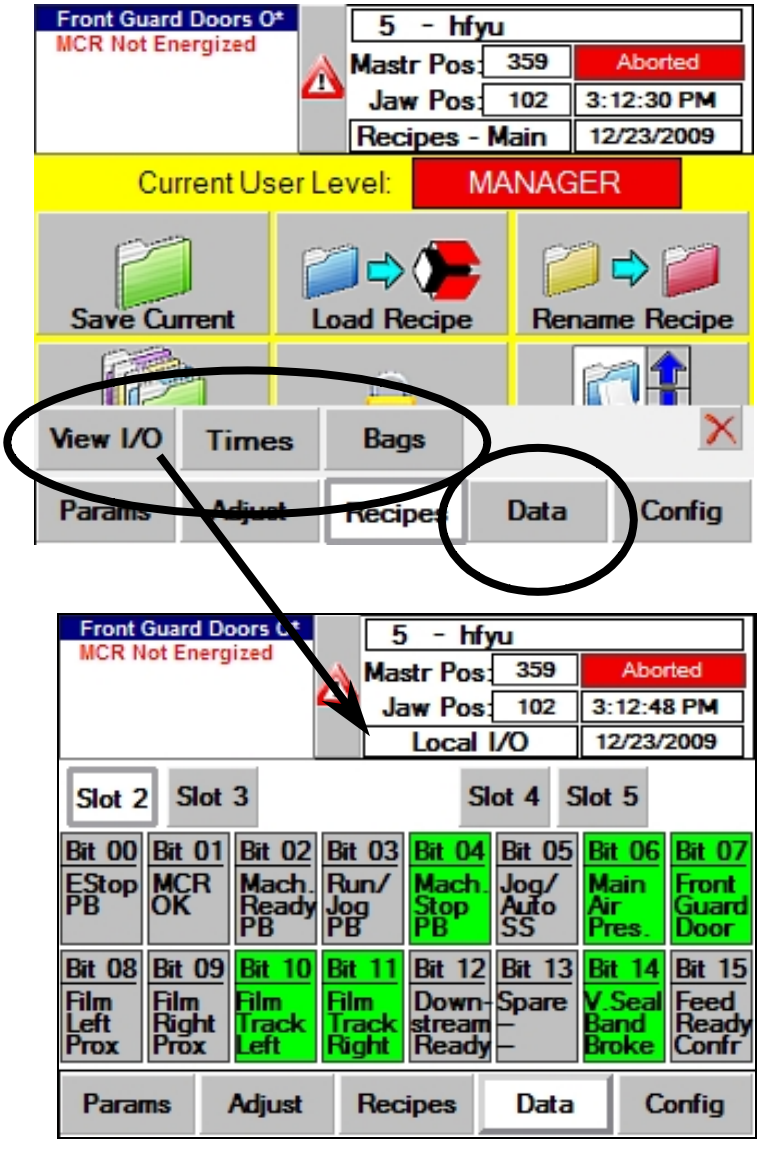


Figure 5.18
Shows the View I/O screen.

HMI (Human Machine Interface)

Alarms

The *Alarms* screen displays any malfunction that the bagmaker has experienced since it was turned on. The alarms screens may be access by pressing the Alarms button at the top of the HMI.

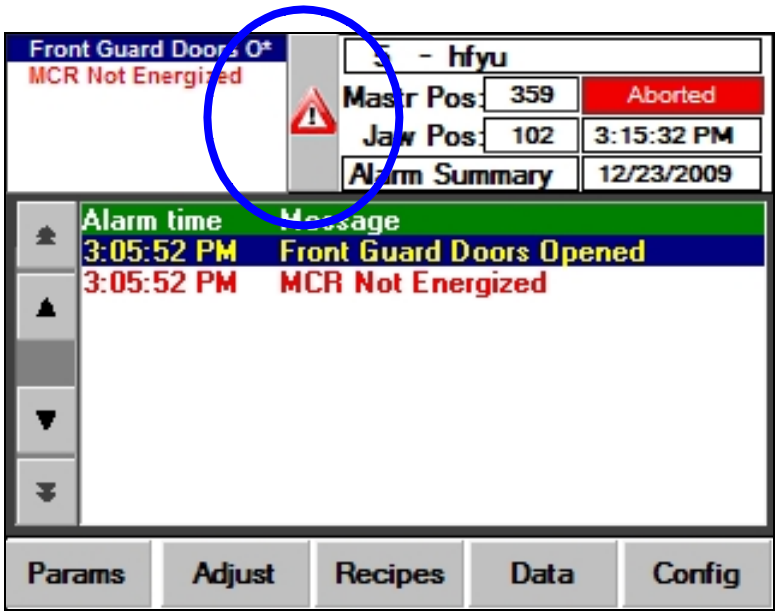


Figure 5.19
Shows the Alarms screen.

HMI (Human Machine Interface)

Recipe Management Screen

The *Recipes Management* screen helps you manage up to 100 product recipes. It allows you to save all of the forming parameters for the current recipe under the same name or under another existing recipe name. It also allows you to load or rename any of the recipes.

In order to work with recipes the user will first need to log in.

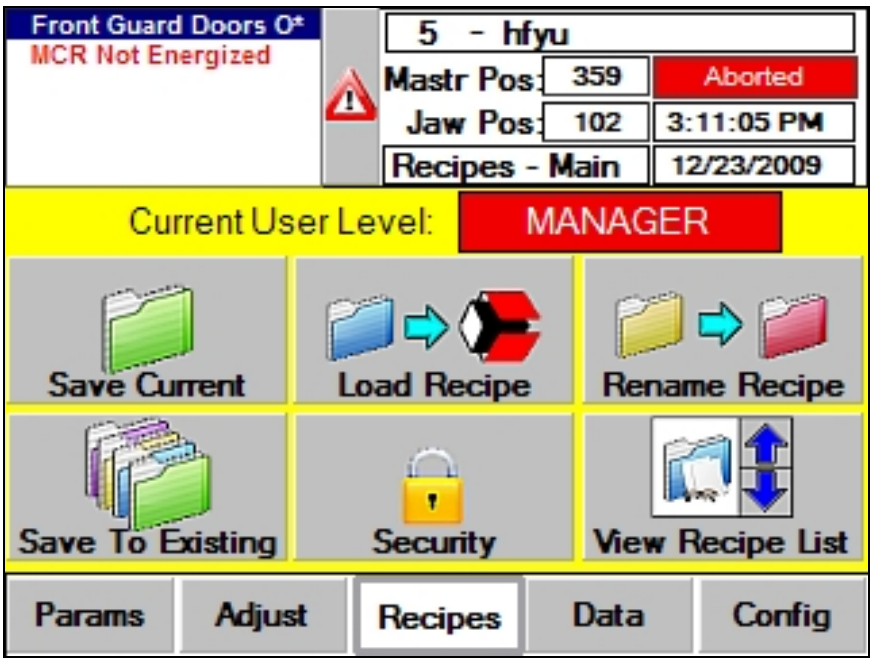


Figure 5.20
Shows the Recipes Management screen.

Log In Procedure

This procedure describes how to log onto the HMI as a manager, supervisor, or an operator. At this point, the bagmaker should be turned on but not running.

To log onto the HMI:

1. From the Menu Tree, press the Security button. This will display the Login screen.
2. From the Login screen, type in the desired access level: manager, supervisor, or operator.
3. Enter the Password and then press the ENTER key.
4. Confirm the access level by looking at the "Password Level" text box on the status display.

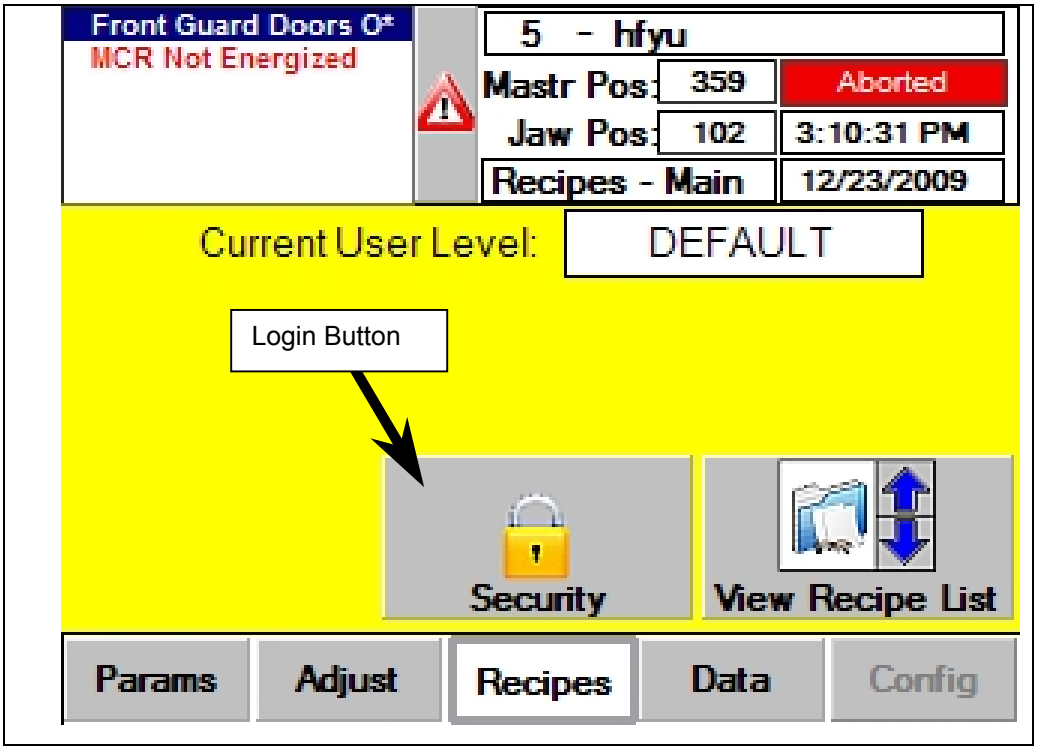


Figure 5.21
Shows the Login Button.

Login Screen

Login Screen

The Login screen controls access to the items on the Menu Tree. There are four access levels; manager, supervisor, operator, and log off.

The operator must be logged into the machine to be able to do anything with the recipes. Here is how the recipes correspond to the password level:

Password Level: (No Password): User can view recipes from the "Show Recipe List" button. All other buttons are disabled.

Password Level: Operator(1st Level): User can view recipes from the "Show Recipe List" button. User can load recipes from the "Load Recipes" button. All other buttons are disabled.

Password Level: Supervisor(2nd Level): User has access to all Recipe functions. However, the Supervisor password will automatically time-out after 2 minutes. The user can extend this time by going back to the Login screen and pressing the "Extend Privileges" button (this button is only visible while under the Supervisor Access level).

Password Level: Manager(3rd Level): User has access to all Recipe functions. This Access level will not log out automatically.

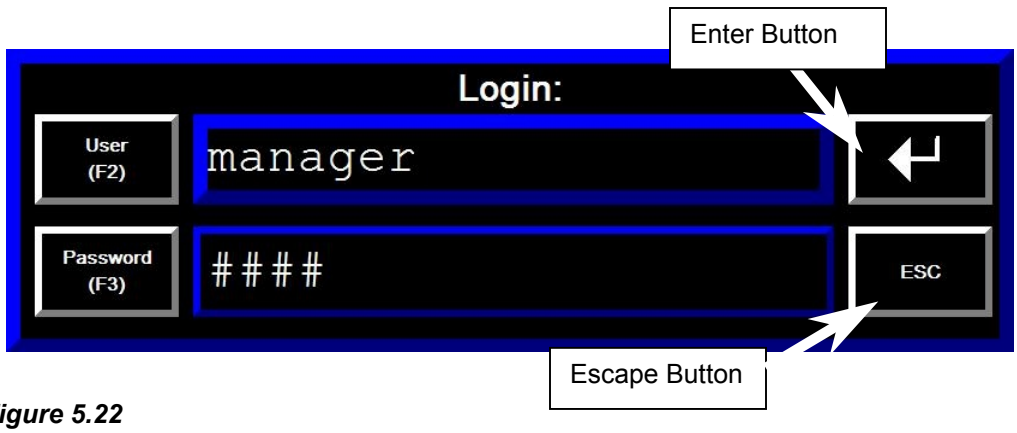


Figure 5.22
Shows the Login screen

HMI (Human Machine Interface)

Loading a Recipe

Loading a recipe is one of the first tasks that you will perform before setting up or running the bagmaker. You can load any of 100 recipes. The following procedure describes how to load a recipe.

To load a recipe:

1. From the *Menu Tree*, press the *Recipes* button to display the *Recipe Management* screen.
2. From the *Recipe Management* screen, press the *Load* button to display the *Recipe Load* screen.
3. From the recipe list on the *Recipe Load* screen, use the Up and Down arrow keys to select the desired recipe.
4. From the *Recipe Load* screen, press the *Load Selected Recipe* button to load the recipe.
5. From the Recipe Load screen, press the Exit button to exit the Recipe Load screen.

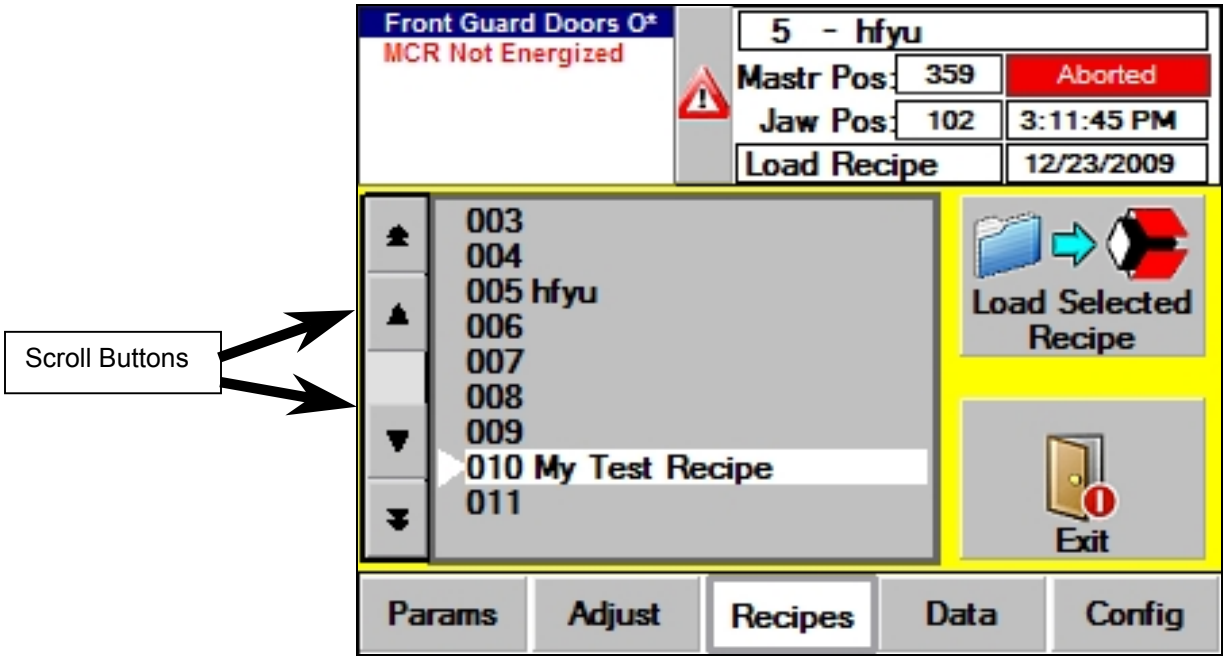


Figure 5.23
Shows the Load Recipe screen.

HMI (Human Machine Interface)

Changing Recipe Parameters

At some point, you will want to change the values for some or all of the parameters under the *Parameters* screen to fine-tune a product recipe or to create a new recipe. The follow procedure describes how to change a value.

To change a recipe:

1. From the *Parameters* screen, press the submenu button (*Main, Jaw Setup*, or etc.) that contains the parameter that you want to change.
2. For example, press the *Main* button to access the *Machine Speed* parameter.
3. Press the name of the parameter that you want to change; a numeric keypad will appear.
4. For example, press the *Machine Speed* parameter to change the number of bags that the machine creates per minute.
5. Use the keypad to input the desired parameter change, then, press the Enter key to set the value.

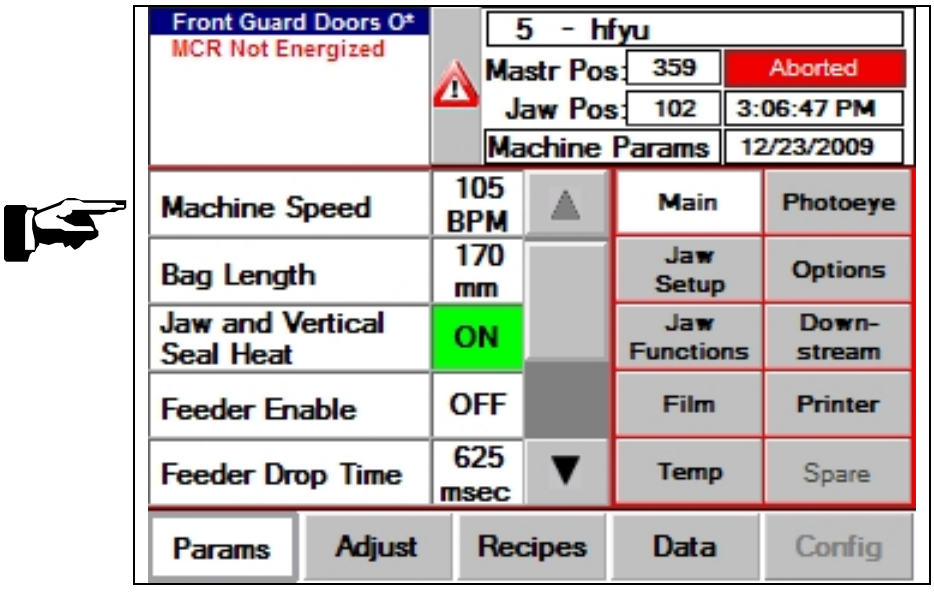


Figure 5.24
Shows a parameter with a value that may be adjusted.

HMI (Human Machine Interface)

Enabling/Disabling a Forming Operation

When a forming operation is disabled, it simply does not operate during bag forming. You can disable forming operations that you will not use during bag production or you can disable one forming operation to facilitate setting up another.

The following procedure describes how to enable or disable a forming operation. At this point, the bagmaker should be turned on but not running.

To enable/disable a forming operation, simply press the parameter name to toggle it between ON and OFF.

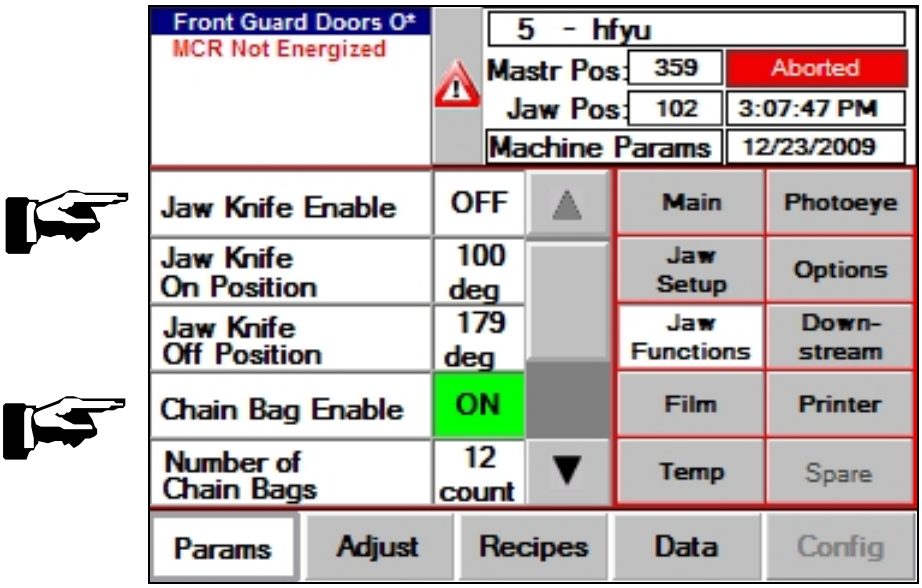


Figure 5.25
Shows parameters that may be toggled ON or OFF.

HMI (Human Machine Interface)

Saving a Recipe

Once you have changed recipe parameters, you must save them to a recipe or they will be lost when the bagmaker is turned off. You can save your changes to the current recipe and overwrite the old values, or, you can save them to another recipe and leave the current recipe unchanged. The following procedures describe how to save recipe changes. At this point, the bagmaker should be turned on but not running.

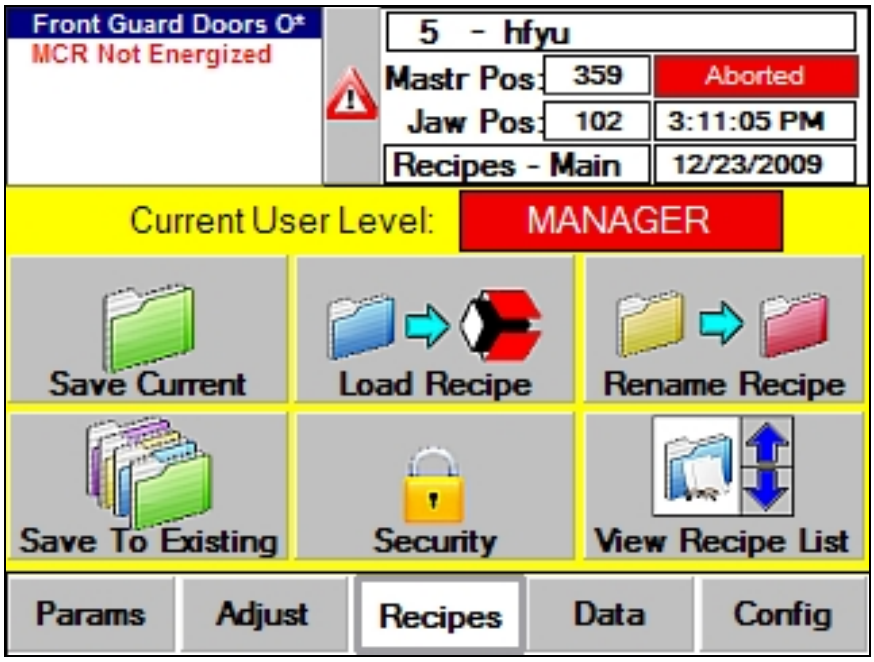


Figure 5.26
Shows the Recipe Management screen.

HMI (Human Machine Interface)

Save to Current

Use the following procedure to save your changes to the current recipe and overwrite the previously saved values.

To save your changes to the current recipe:

1. From the *Menu Tree*, press the *Recipes* button to display the *Recipe Management* screen.
2. From the *Recipe Management* screen, press the *Save to Current* button; a password dialog box will appear.
3. From the password dialog box, input the password and then press the *Enter* key to validate the password. Once the password has been validated, the *Save to Current Recipe* screen will appear.
4. From the *Save to Current Recipe* screen, press the *Save Parameters to Current Recipe* button to save your changes.

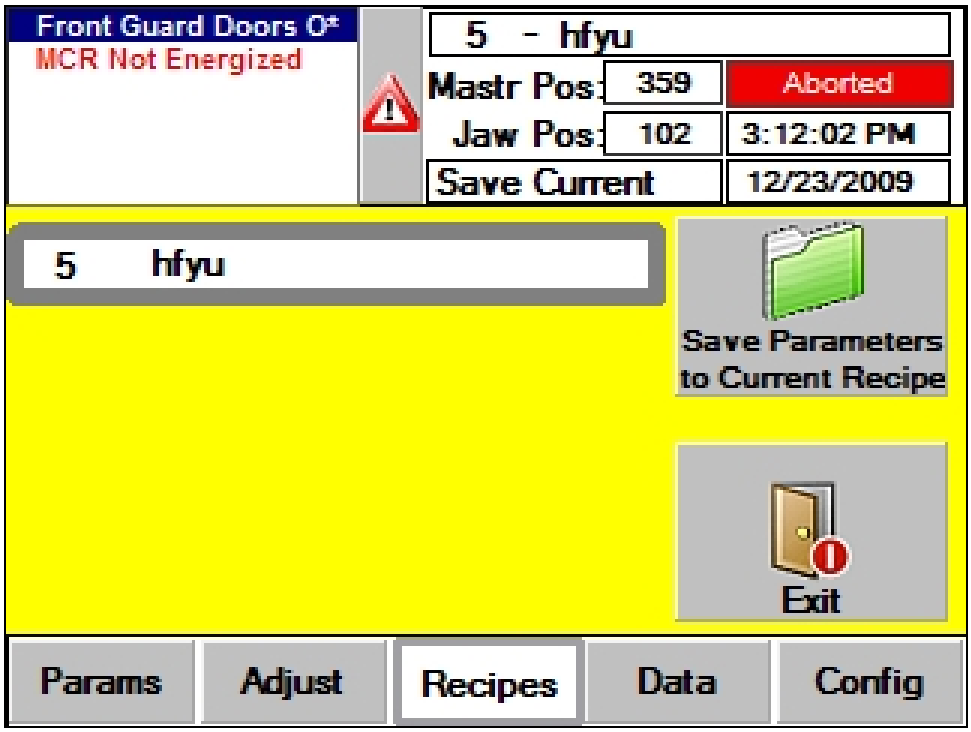


Figure 5.27
Shows the Save to Current Recipe screen.

HMI (Human Machine Interface)

Save to Existing

Use the following procedure to save your parameter changes to an existing recipe and leave the current recipe unchanged.

To save your changes to an existing recipe:

1. From the *Menu Tree*, press the *Recipes* button to display the *Recipe Management* screen.
2. From the *Recipe Management* screen, press the *Save to Existing Recipe* button; a password dialog box will appear.
3. From the password dialog box, input the password and then press the *Enter* key to validate the password. Once the password has been validated, the *Save To Selected Recipe* screen will appear.
4. From the recipe list on this screen, use the Up and Down arrow keys to select the desired recipe to overwrite.
5. From the *Save To This Recipe* screen, press the *Save to Selected To This Recipe* button to save your changes.

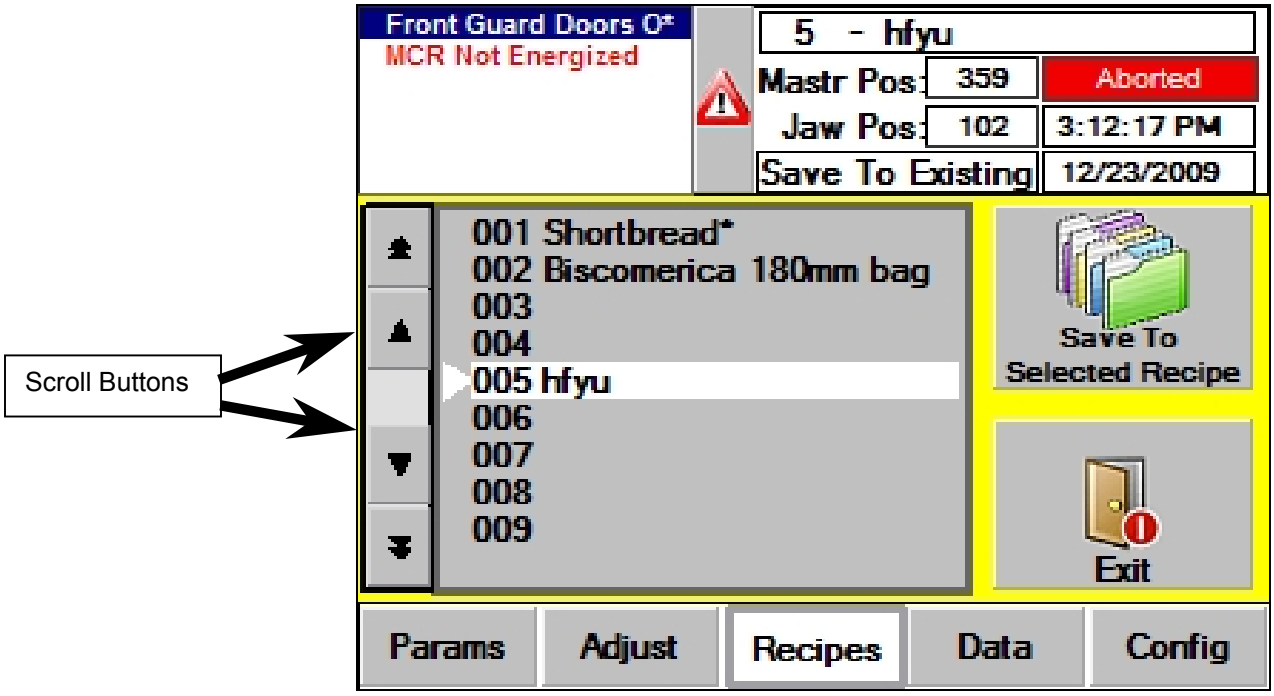


Figure 5.28
Shows the Save Recipe screen.

HMI (Human Machine Interface)

Renaming a Recipe

The HMI can store 100 recipes. To better manage the recipes you can give them names that describe the bag styles that they create. Use the following procedure to rename a recipe.

To rename a recipe:

1. From the *Menu Tree*, press the *Recipes* button to display the *Recipe Management* screen.
2. From the *Recipe Management* screen, press the *Rename* button to display the *Rename Recipe* screen.
3. From the recipe list on the *Rename Recipe* screen, use the Up and Down arrow keys to select the desired recipe to rename.
4. From the *Rename Recipe* screen, press the *Rename this Recipe* button to display an alpha/numeric keypad.
5. Use the keypad to input the characters for the new name and then press the *Enter* key on the keypad to set the name change.

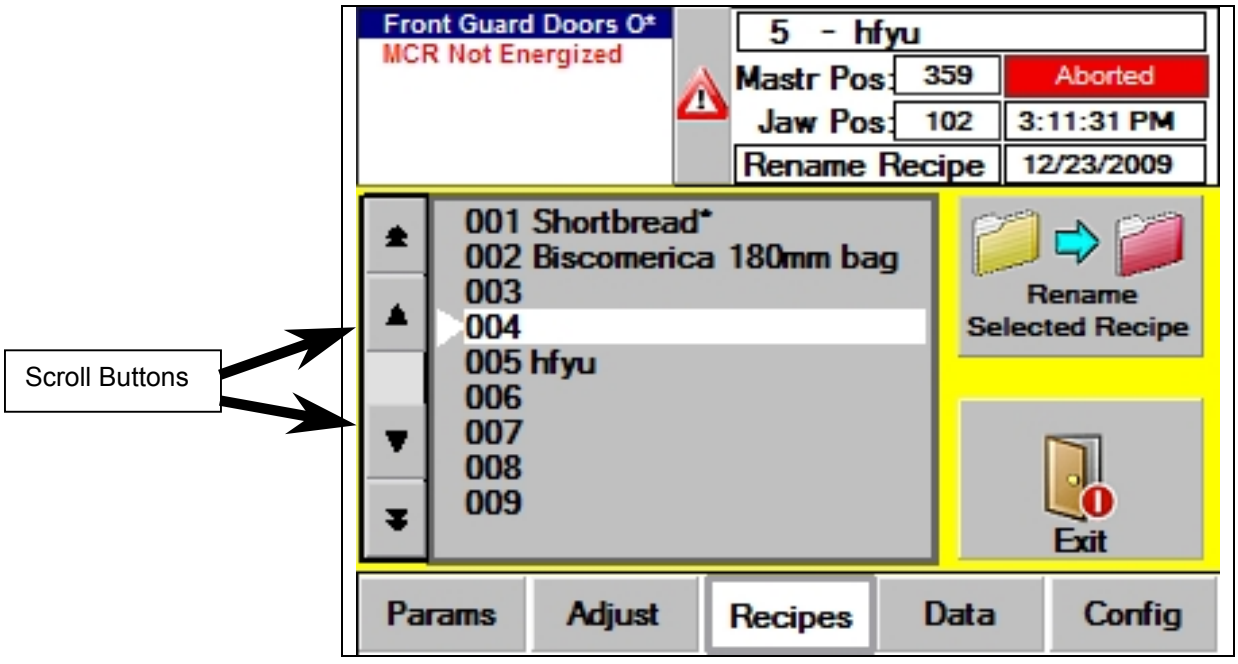


Figure 5.29
Shows the Recipe Rename screen.

SCONNECT Switch

Buttons and Switches

The push buttons and switches on the bagmaker are the:

- MACHINE READY Push-Button
- JOG/AUTO Selector Switch
- JOG/RUN Push-Button
- STOP Push-Button
- EMERGENCY STOP Push Button

Buttons and Switches

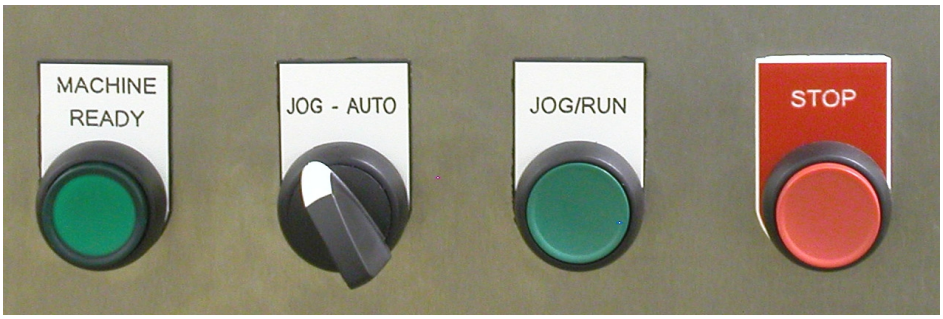


Figure 5.30
Shows the buttons on the front of the machine.

MACHINE READY Push-Button

This lighted push-button indicates the operating status of the machine. When this button is lit, it indicates that the machine is ready to create bags. When the button is flashing, it indicates that the machine is homing the horizontal sealing jaws and registering the film. When the button is not lit, it indicates that there is an active alarm present.

JOG-AUTO Selector Switch

This two-position selector switch determines the bagmaker's operating mode. When this switch is set to the JOG position, device jogging (film feeding device or horizontal sealing device) can be performed. When this switch is set to AUTO, automatic bag forming can be performed.

JOG/RUN Push-Button

The JOG/RUN push button runs the bagmaker in the JOG or AUTO mode. When the JOG/AUTO selector switch is set to JOG, press and hold the JOG/RUN push-button to jog the film feeding or horizontal sealing device. When the JOG/AUTO selector switch is set to AUTO, press and release the JOG/RUN push-button to start automatic bag forming.

STOP Push-Button

The STOP push-button ends automatic bag forming once the current bag has been made. Press and release this push-button to end bag forming under normal circumstances.

EMERGENCY STOP Push-Button

The EMERGENCY STOP push-button immediately halts bag forming regardless to whether or not the current bag has been made. Press this button to immediately stop all moving parts of the machine.

This button should be used whenever there is perceived or actual damage occurring to personnel or to the machine. (To release the button after it has been pushed in, turn the button in the direction of the arrows, and pull the button out.)



Figure 5.31
Shows the EMERGENCY STOP push-button.

Section 6: Machine Setup Procedures

This section describes procedures that can be used to prepare the bagmaker to form bags. These procedures include:

- Installing the Forming Set
- Loading a Film Roll
- Threading a Film Roll
- Vertical Seal Setup
- Temperature Settings
- Pneumatic Pressure Settings
- Setting the Film Tension
- Setting the Film Tracking Position
- Positioning the Automatic Film Tracking Sensors
- Registration Sensor Setup

Installing the Forming Set

The first step in preparing the bagmaker for production is to install the forming set. Each bag style requires a different forming set. Each forming set can be identified by the number stamped on its forming collar mount; the number represents the flat bag width.

To install the forming set:

1. Remove the machine cover. (The machine will not operate with the cover removed due to the safety switch being disengaged).

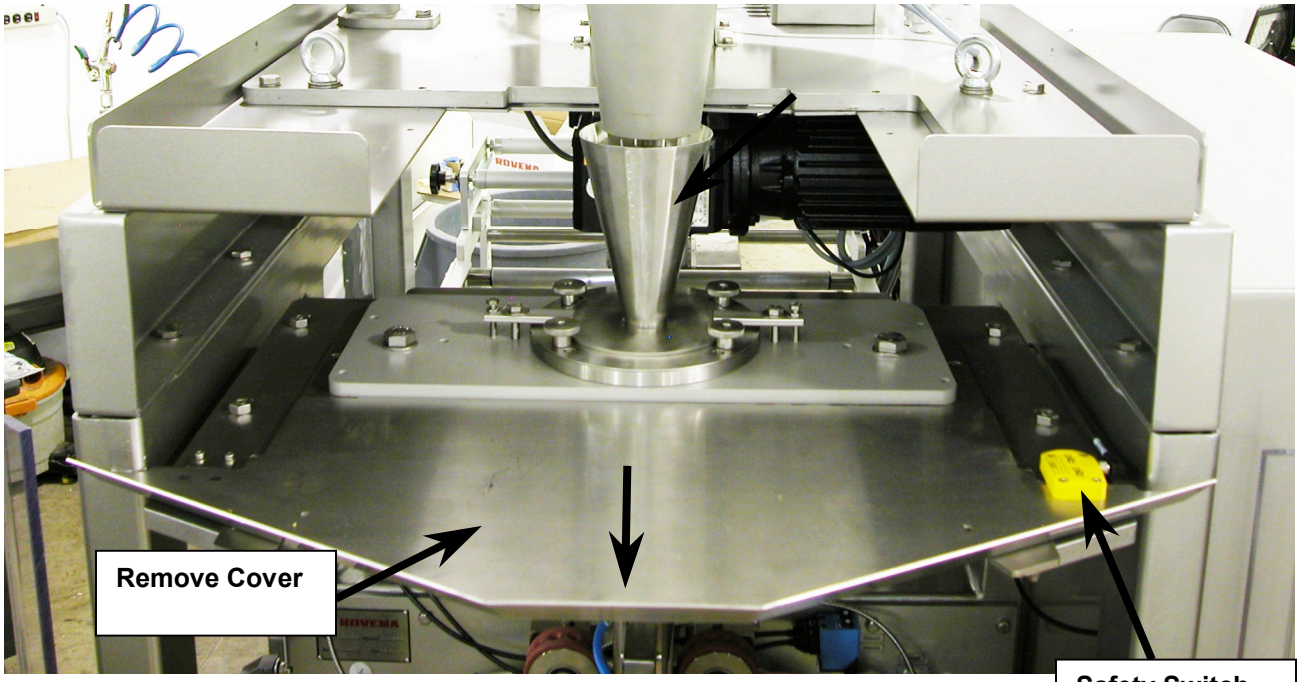


Figure 6.1
Shows the machine cover to remove.

Installing the Forming Set

Each bag style requires a different forming set. The forming set for the desired bag style should be installed before the film is threaded through the machine. This procedure describes how to install a forming set.

To install a forming set:

1. Choose the desired forming set. The number on the forming collar mount identifies the forming set.
2. Lift the forming set into the forming set mount.

Warning: Forming sets can be very heavy. Use safe lifting techniques when placing the forming set on its mount.

3. Tighten the forming set securing knobs to hold the forming set to the machine frame.

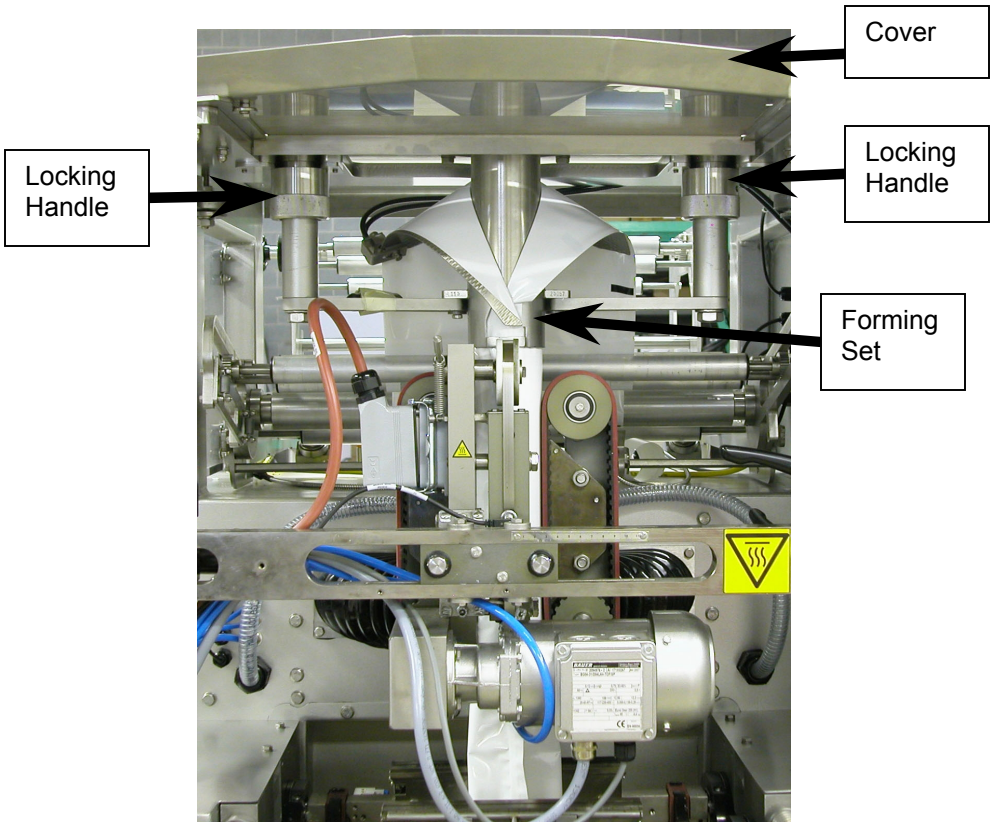


Figure 6.2
Shows a pillow forming set installed.

Loading a Film Roll

Once the forming set has been installed, the film roll can be loaded onto the film carriage.

To load a film roll:

1. Remove the film spindle form the film carriage.
2. Slide the spindle through a new roll of film.
3. Inflate the spindle so that it securely holds the film roll; inflate the spindle to 80-100 PSI.
4. Place the spindle on the film carriage as shown below.

Warning: Film rolls can be very heavy. Use safe lifting techniques when placing the roll and spindle on the film carriage.

5. Once the roll and spindle are on the film carriage, deflate the spindle to free the roll.
6. Use a tape measure to center the film roll between the walls of the film carriage.
7. Once the roll is centered in the film carriage, inflate the spindle to 80-100 PSI.

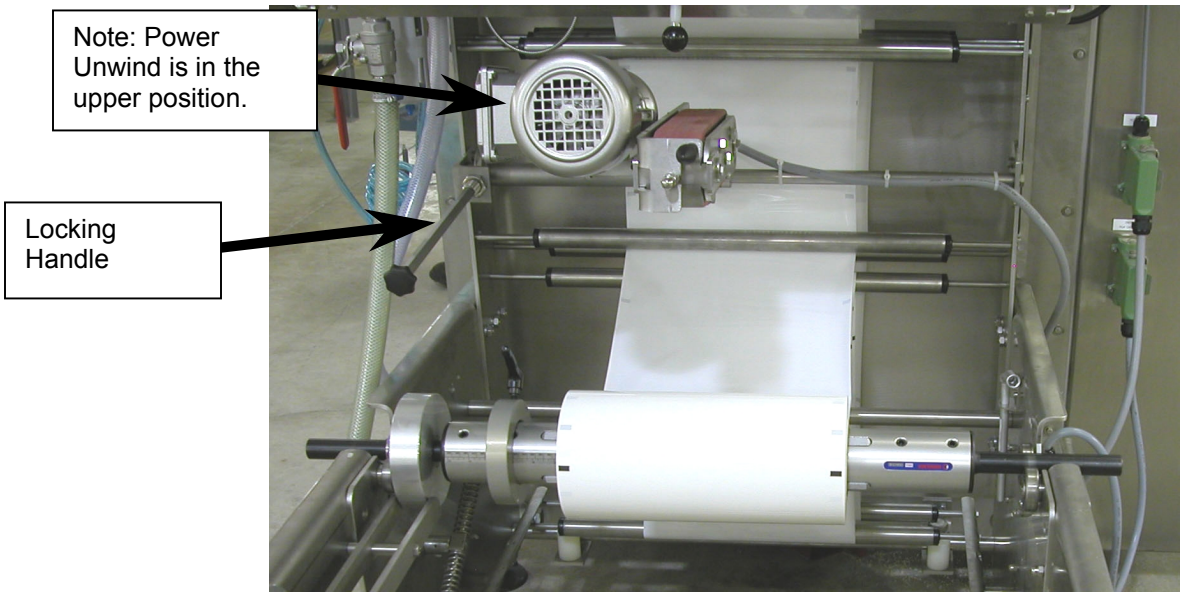


Figure 6.3
Shows how to place a film roll on the film carriage.

Film Routing Label

Use the film routing label (also referred to as the Film Unwind Diagram), located on the side of the bagmaker, to pull the film through the film carriage and up to the forming collar.

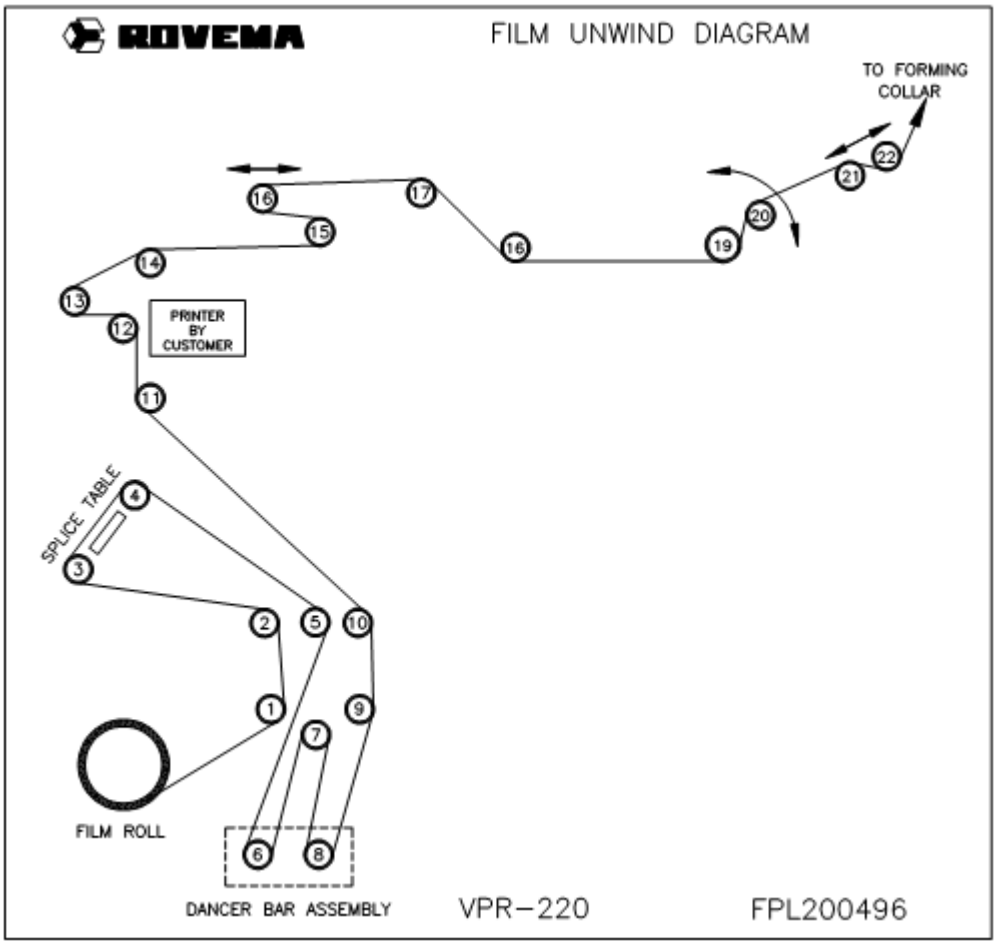


Figure 6.4
Shows the Film Unwind Diagram.

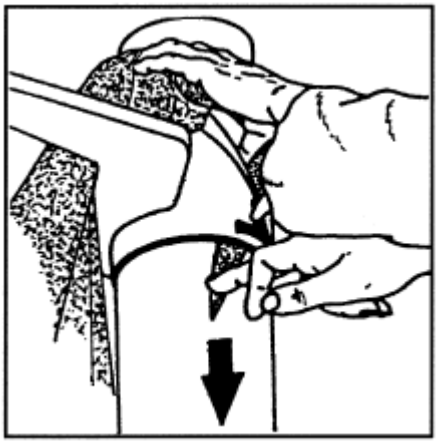
Threading a Film Roll

After the film roll is loaded on the film carriage, it can be threaded through the bagmaker.

To thread the film:

a. After using the film routing label to pull the film through the film carriage and up to the forming collar.

b. Cut the film at a 45 degree angle ands slide the pointed end of the film between the forming collar and the forming tube. (Note: Some forming tubes may require an adjustment to the slit angle, to feed the film.)



c. Work the film around the forming collar and down the forming tube.

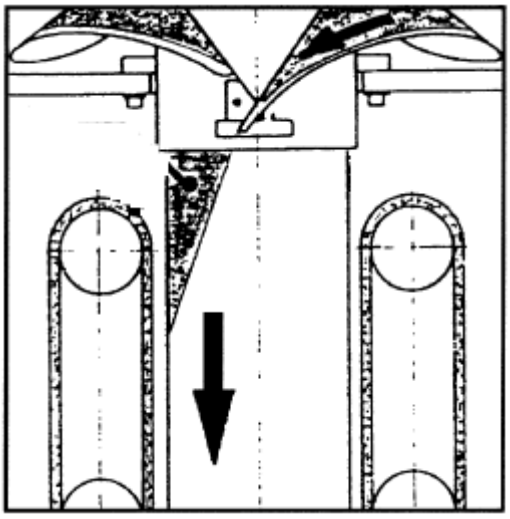


Figure 6.5
Shows the steps used to thread film on the tube.

Guide Rollers Set Up

The film web should lie flatly against the forming collar. If it does not, you may encounter bag-forming problems like wrinkles in the film or misaligned vertical seals. To prevent these problems, the angle of the film as it leaves the film carriage must match the angle at the back of the forming collar, allowing the film to lie flatly against the forming collar.

1. Loosen the setup roller pivot locking lever
2. Pivot the assembly so that the film web is close to lying flatly against the forming collar, then, tighten the locking levers so that the setup roller assembly maintains this position.

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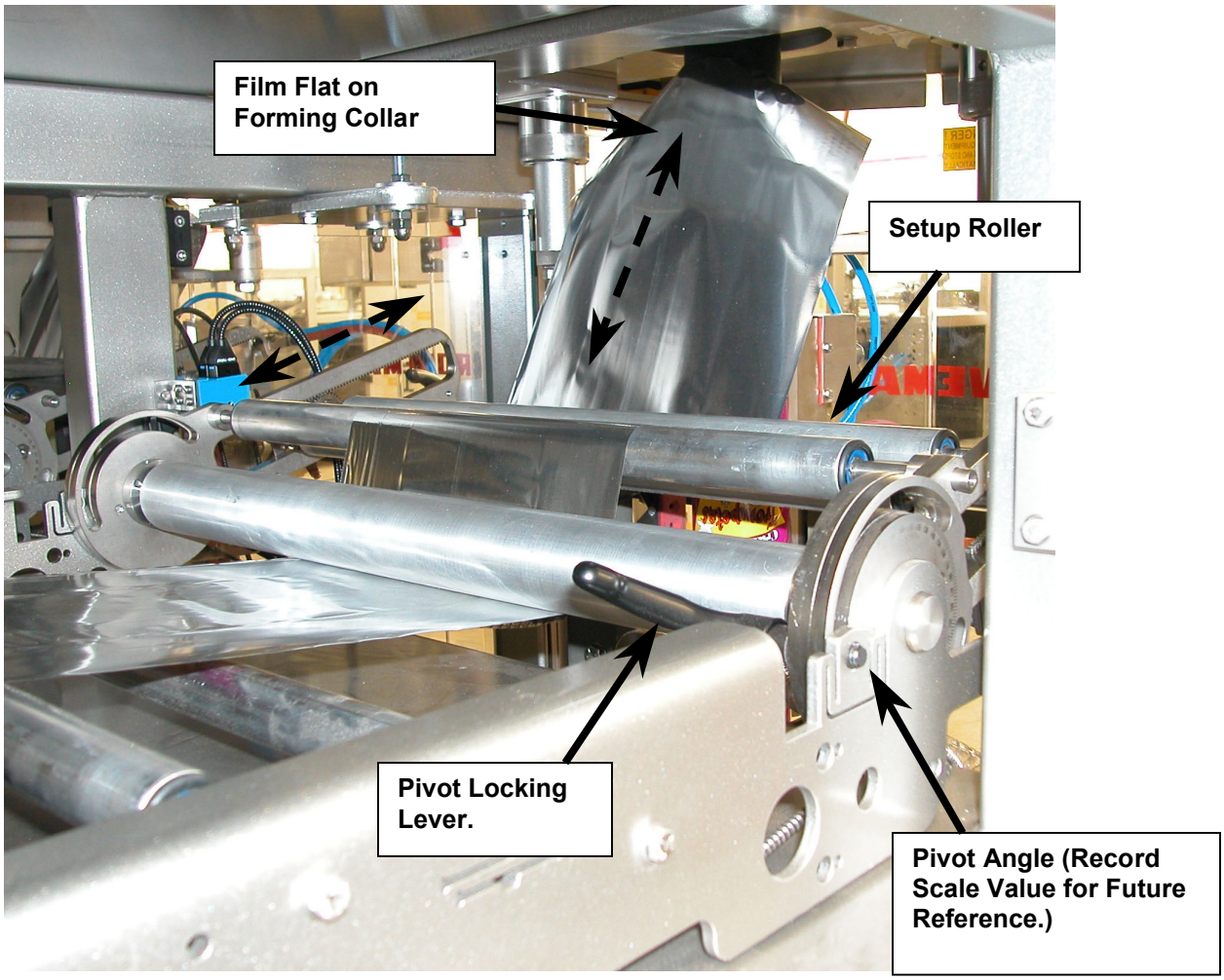


Figure 6.6
Shows an example of the setup rollers adjusted to the angle of the film to match the angle of the forming collar.

Guide Rollers Set Up - Continued

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3. Fine tune the film web angle by pulling down the locking handle and move the setup roller until the film web conforms to the shape of the forming collar, and then releasing the locking handle.

Note: Laying a straight edge on the forming collar, to the set up roller will help in making the correct angle setting. If there are still problems with the film lying on the forming collar, try moving the setup roller further away form the forming collar, while maintaining the same angle. After setup is complete, record the value of the Position of the Roller Arm and the Angle of the Rotation of Roller Arm, for future use.

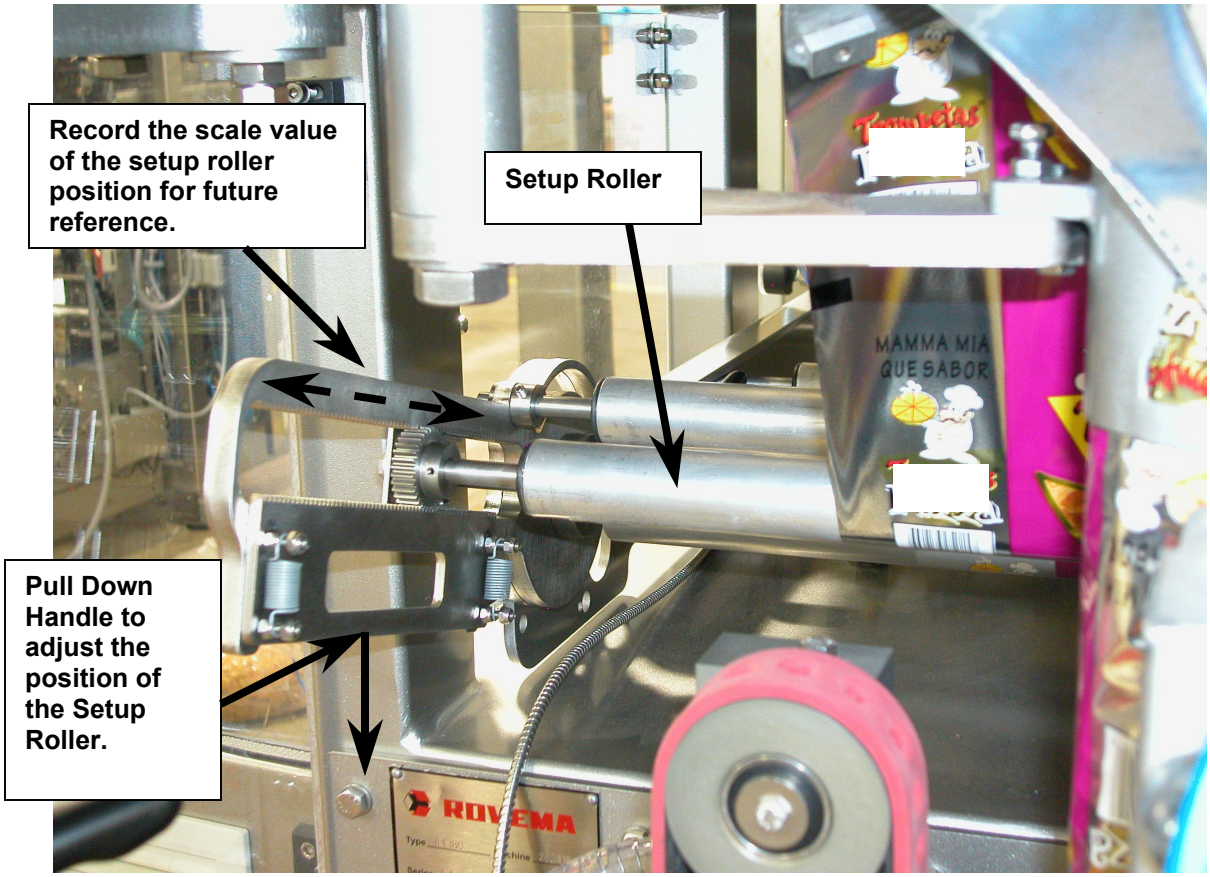


Figure 6.7
Shows an example of the setup roller position adjustment.

Vertical Seal Setup

The vertical sealing device must be positioned relative to the forming tube before it can create vertical seals. Setting up the vertical sealing device consists of moving it within striking distance of the forming tube and centering the vertical sealing band on the desired sealing location.

The stroke of the vertical engage/retract device is 20mm. In order for the vertical sealing device to produce adequate sealing pressure, the vertical sealing band must be 18mm away from the forming tube when the vertical sealing device is in the retracted position.

The position of the vertical sealing device can be adjusted laterally to accommodate different forming sets. When positioning the vertical sealing device laterally, the vertical sealing band must be centered over the silicon strip in the forming tube.

Vertical Seal Setup

To position the device:

1. Loosen the position locking levers.
2. Slide the vertical sealing device towards the forming tube until the sealing band is flush against the film and forming tube in the extended position.
3. Use the positioning scales to ensure that both sides of the device are the same distance from the tube.
4. Tighten the locking levers.
5. Loosen the lateral adjustment bolts.
6. Slide the vertical sealing device until the vertical sealing band is centered in the sealing position on the forming tube
2. Tighten the lateral adjustment bolts.

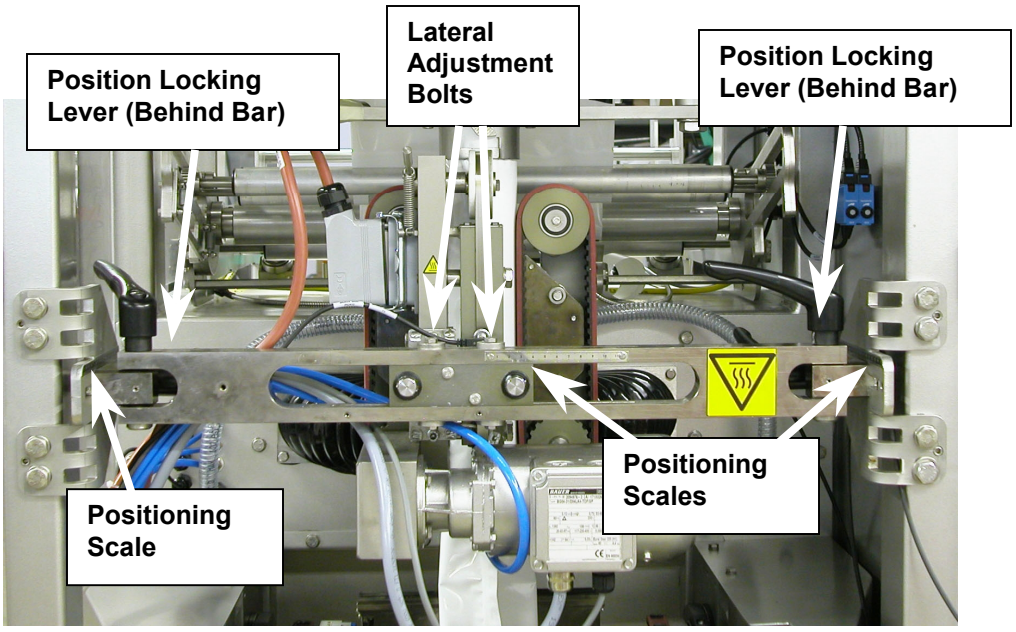


Figure 6.8
Shows the vertical sealing device and its positioning devices.

Temperature Controls

Temperature Controls

The temperature controls monitor and adjust the sealing temperatures. There is one control for each jaw assembly. The controllers apply full voltage to the heating cartridges until the desired sealing temperature is reached, then, they cut the power to the cartridges. While the controllers are turned on, they continually toggle the power to the heating cartridges on and off to maintain the sealing temperature.

The controls monitor the sealing temperatures with the temperature probes. When a control detects that the sealing temperature is a certain number of degrees above or below the desired temperature, it causes the bagmaker to stop forming bags, or, prevent it from starting to form bags. The *Jaw / Vertical Seal Heat* button must be set to ON to heat the horizontal and vertical sealing devices.

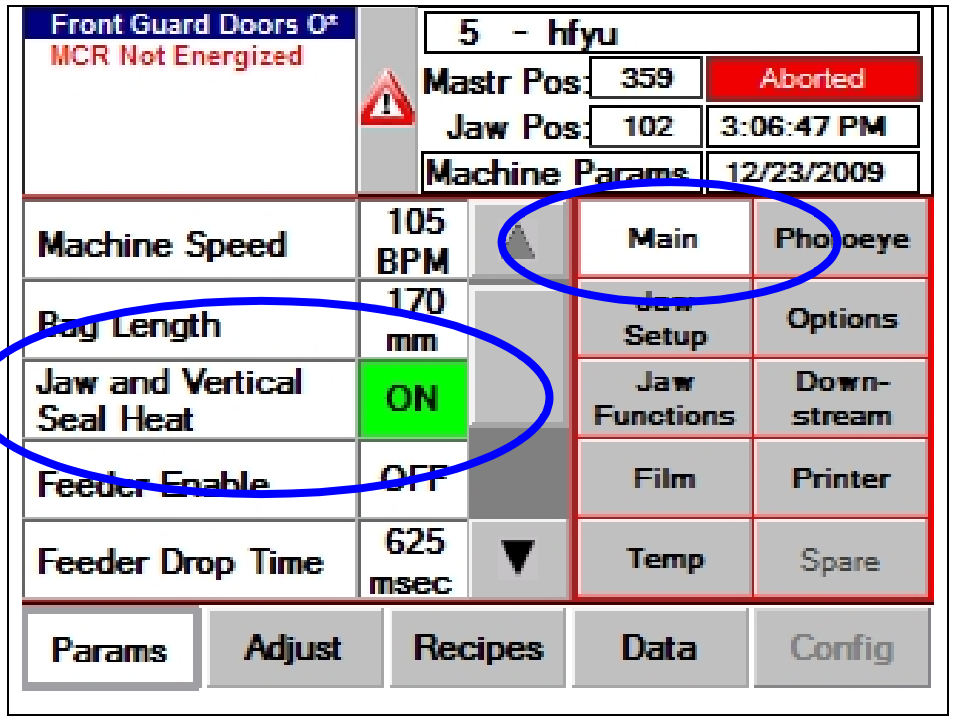


Figure 6.9
Jaw / Vertical Seal Heat must be toggled to ON to heat the horizontal and vertical sealing assemblies.

Temperature Controls

Temperature Controls

Use the following procedure to set the sealing temperatures. The *Jaw Seal Heat Enable* button on the *Main* parameters screen must be set to *ON*.

To set the vertical sealing temperature:

1. From the *Parameters* screen, press the *Temperature Control* button to display the *Temperature Control* screen.
2. From this screen, press the *Temperature* parameter you want to adjust; a keypad will appear.
3. Use the keypad to enter the desired sealing temperature and then press the *ENTER* key on the keypad to set the temperature.

A good starting temperature is 280 Degrees Fahrenheit. You may need to increase or decrease this value to obtain the optimal sealing temperature for your film.

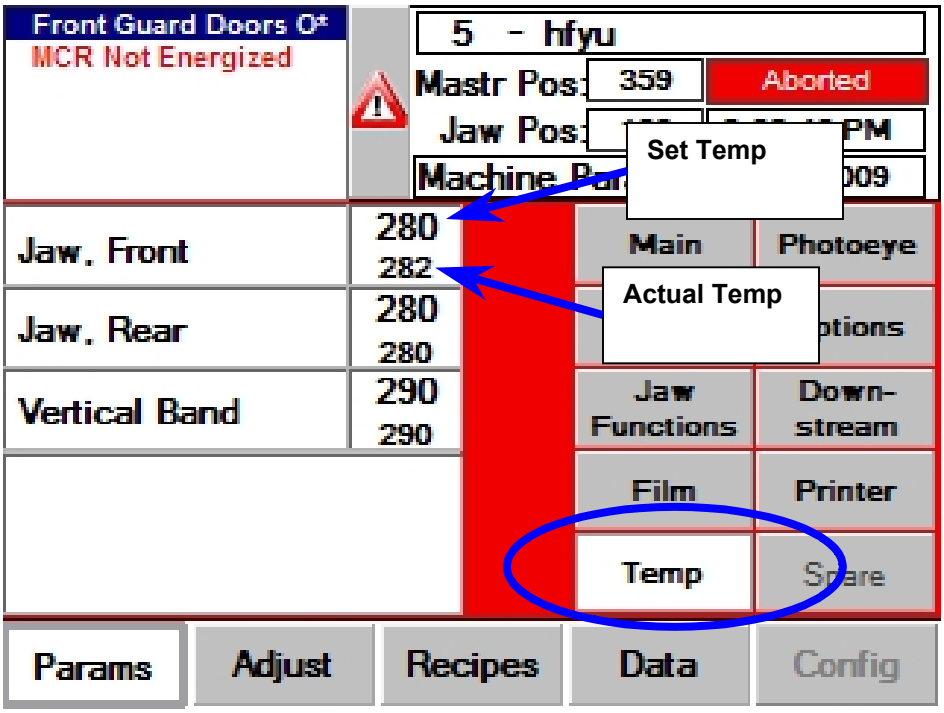


Figure 6.10
Shows the Temperature Control screen used to set the sealing temperatures.

Pneumatic Pressure Settings

The pressure settings for the engage/retract devices and the cooling devices will depend on the production environment. Ambient temperature, component wear, and other factors effect the pressure settings for these devices. However, as a starting point, set the pressure for the vertical seal engage/retract device, the belt assemblies, and the horizontal cooling device to approximately 32 PSI.

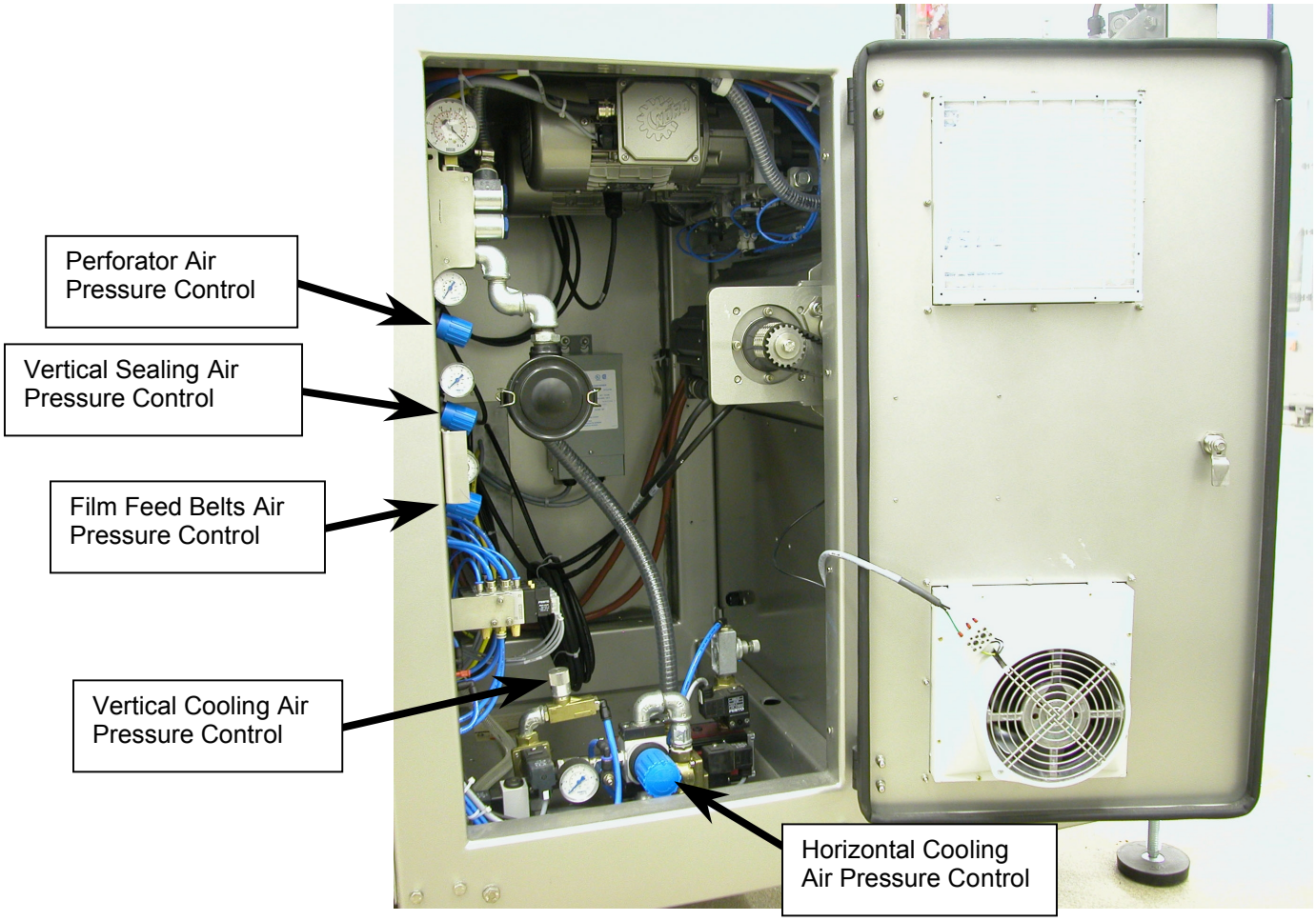


Figure 6.11
Shows the pneumatic pressure regulators.

Setting the Film Tensions

Once the film has been loaded and threaded, the dancer assembly can be setup to maintain tension on the web. Proper film tensioning prevents slack from forming in the web.

Note: Slack in the film web causes film tracking and vertical seal alignment problems.

To setup the dancer assembly and tension the film web:

1. Push the dancer assembly down onto the rubber stops at the bottom of the film carriage and hold it there.
2. Adjust the left and right upper spring tensioners so that they just touch the tops of their respective springs, without compressing them.
3. Next, pull the dancer assembly upwards as far as possible (top of stroke) and hold it there.
4. Adjust the left and right lower spring tensioners so that they just touch the bottoms of their respective springs, without compressing them.

Normally, this setup produces sufficient film tension. However, you can increase the film tension by turning the upper spring tensioners so that they compress the upper springs, or, you can decrease the film tension by turning the lower spring tensioners so that they compress the lower springs.

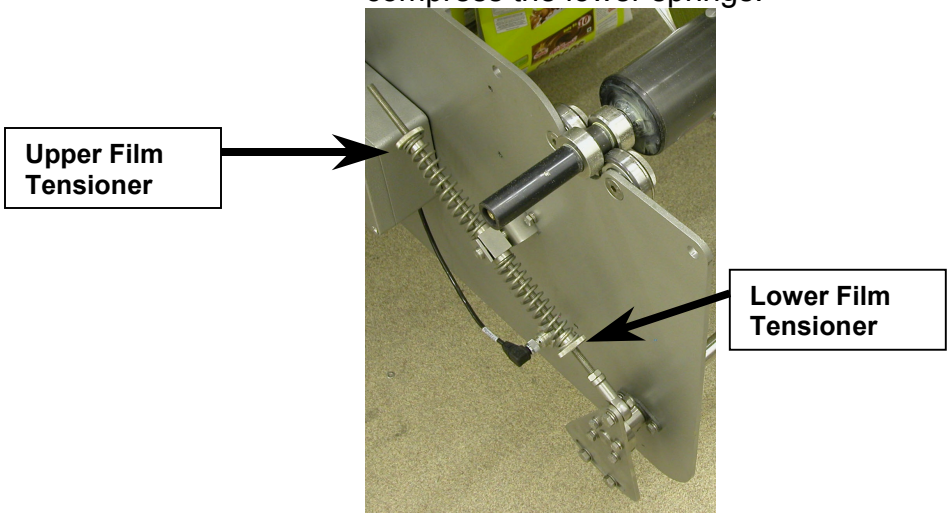


Figure 6.12
Shows the spring tensioners.

Setting the Film Tracking Position

Film tracking controls the alignment of the vertical seal. You will want to set the film tracking position so that the edges of the film tube are even with one another or so that the outer edge slightly overlaps the inner edge. The process of setting the film tracking position is also referred to as "establishing a film tracking path".

To establish a film tracking path:

1. Start the bagmaker and allow it to form bags.

Note: At this point, it is not important whether or not the horizontal and vertical seals are forming correctly; only that you can see how the edges of the film tube are aligned.

2. While the bagmaker is running, use the MOVE FILM CARRIAGE switch on the main menu screen to adjust the position of the film web. Adjust the film tracking until the edges of the film tube are even or until the outer edge slightly overlaps the inner edge.

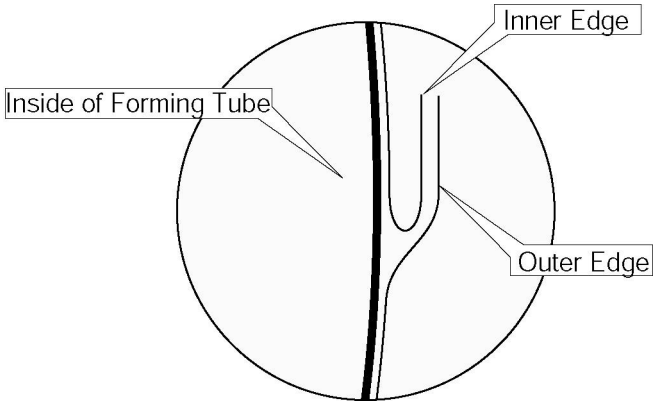


Figure 6.13
Shows how to align the edges of the film tube.

Positioning the Automatic Film Tracking Sensors

Automatic film tracking automatically keeps the edges of the film tube even. In order for automatic film tracking to work effectively, the automatic film tracking sensors must be positioned relative to the film web after the film tracking path has been established.

This procedure describes how to position the automatic film tracking sensors relative to the position of the film web. At this point, the film tracking path should have been established.

To position the sensors, loosen the adjustment bolt to move the sensors so that the inner sensor is blocked by the film web and the outer sensor is not blocked by the film web. The sensor cords are held in place with white plastic holding screws.

Note: Each sensor is equipped with a status LED (mounted on the film carriage frame or inside of the electrical cabinet).

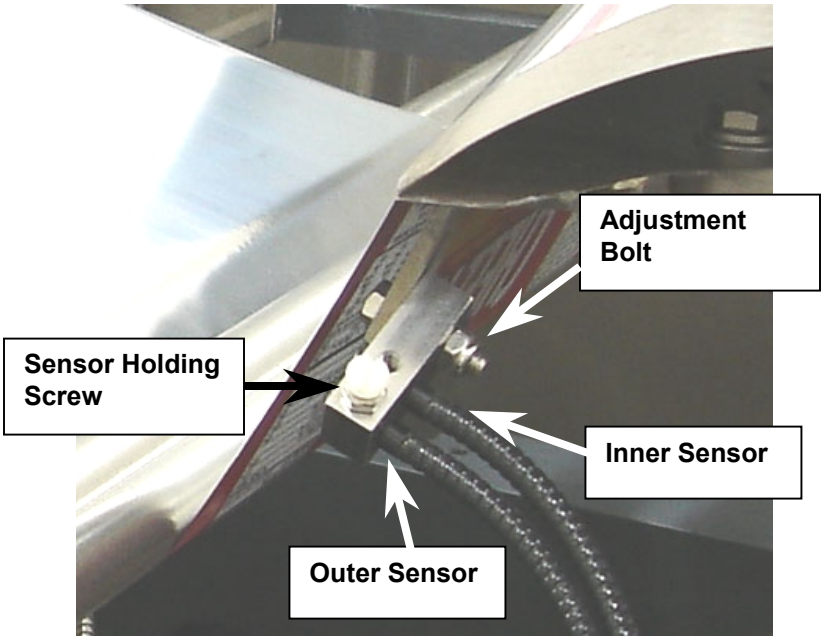


Figure 6.14
Shows how to position the automatic film tracking sensors.

Registration Sensor Setup

The registration sensor must be setup according to the film type. If the bagmaker is using nonregistered film, the sensor must be disable or it will cause registration errors. If the bagmaker is using registered film, the sensor must be positioned relative to the registration marks, enabled, and the photoeye window and photoeye correction values must be set.

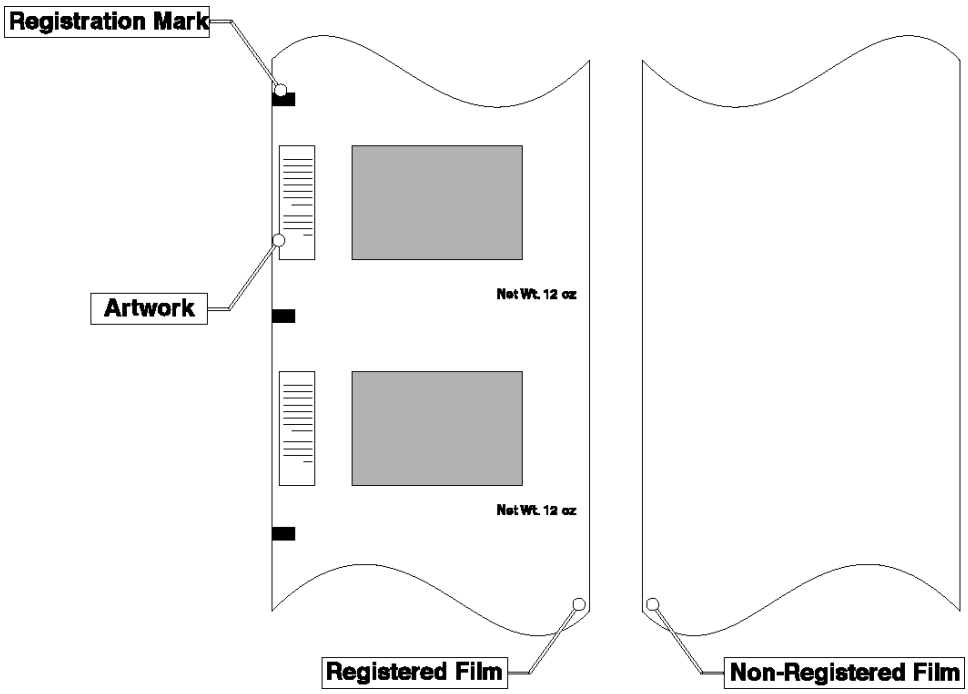


Figure 6.15
Shows a piece of registered film and a piece of nonregistered film.

Registration Sensor Setup

Sensor Setup for Non-Registered Film

If the bagmaker is using nonregistered film, the only setup task that needs to be performed is to disable the sensor. To disable the sensor, set the *Film Registration* button to *OFF*.

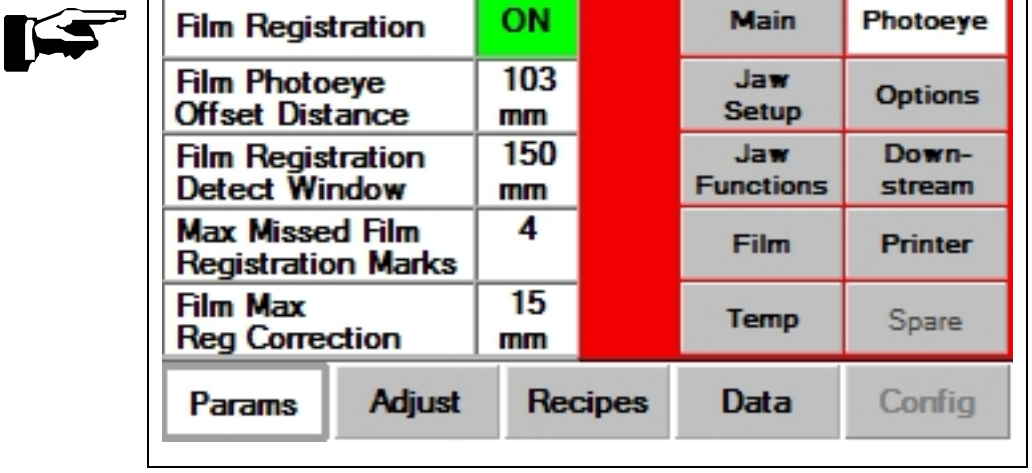


Figure 6.16
Shows the Registration Photoeye screen

Registration Sensor Setup

Sensor Setup for Registered Film

When the bagmaker is using registered film, the registration sensor must be positioned relative to the registration marks, enabled, and the photoeye window and photoeye correction values must be set.

To position the sensor:

1. Loosen the position adjustment lever.
2. Slide the sensor until its lens is in the path of the registration marks.
3. Tighten the position adjustment lever.

To enable the sensor:

1. From the main menu screen, press the SETTINGS menu switch to display the settings menu screen.
2. From the settings menu screen, press the PHOTOEYE switch to display the photoeye screen.
3. From the photoeye screen, set the FILM REGISTRATON ENABLE switch to ON.

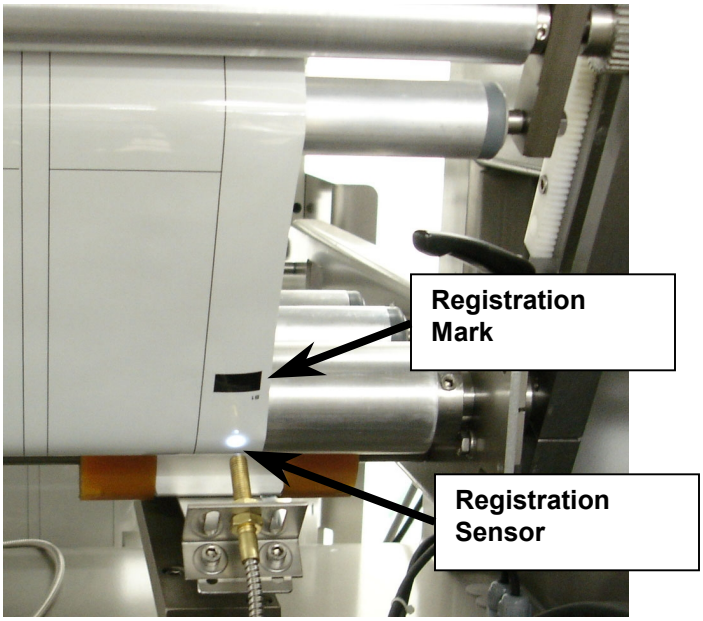


Figure 6.17
Shows how to position the film registration sensor.

Sensor Setup for Registered Film

Photoeye Window and Photoeye Correction Settings

The values for the photoeye window and photoeye correction settings will depend on the film layout. The photoeye window setting tells the bagmaker when to look for the registration marks. If there is artwork printed in the registration field that could generate false signals, the photoeye window setting can prevent the bagmaker from examining the signal until the artwork has passed.

The photoeye correction setting offsets the cutting and sealing location. It makes the bagmaker feed more film so that the desired sealing location is centered on the sealing jaws.

The following procedures describe how to determine the values for the photoeye window and the photoeye correction settings.

Sensor Setup for Registered Film

Determining the Photoeye Window Value

If there is no artwork printed in the registration field, set the photoeye window setting to zero (0). This allows the bagmaker to continually look for the registration marks.

If there is artwork printed in the registration field, set the photoeye window setting to prevent the bagmaker from looking for a mark until just before the expected position of a mark.

If you set the window to 40mm, the bagmaker will ignore any input from the registration sensor until the film has moved to within 20mm of where it expects to see the mark. The bagmaker will continue to examine the signal until it detects a mark or has moved the film to a point 20mm past where it expects to see the mark.

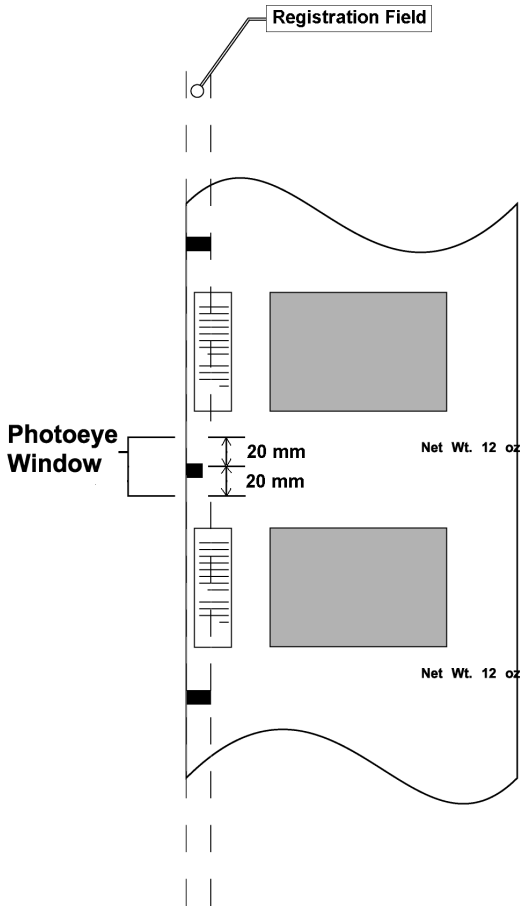


Figure 6.18
Shows how to determine the photoeye window setting.

Sensor Setup for Registered Film

Determining the Photoeye Correction Value

To determine the photoeye correction value, you must create a few empty bags so that you can see where the bagmaker is creating the horizontal seals. Then, you must determine how much additional film needs to be advanced to position the seal in the desired location. Use the following procedure to determine the Film Photoeye Correction value.

To determine the photoeye correction value:

1. From the *Main* submenu of the *Parameters* screen, check that the *Feeder Enable* button is set to *Off*. From the *Jaw Functions* submenu of the *Parameters* screen, check that the *Knife Enable* button is set to *Off*.

   You want to make a continuous string of empty bags with this procedure.

2. From the *Photoeye* submenu of the *Parameters* screen, check that the *Registration enable* is set to *On* and check that the *Film Photoeye Offset Distance* is set to *20mm*.

3. Start the bagmaker and allow it to form five or six bags.

4. If the horizontal seal is not in the desired location on the film, measure the distance from the seal upstream to the desired location. Add that distance to the 20mm and this should be the *Film Photoeye Offset Distance*.

Note: If your machine is equipped with a film registration adjustment roller. You should adjust the roller so that the Film Photoeye Offset Distance is approximately 25-35% of bag length. A larger offset could allow more error in bag length. An offset less than 20mm is not allowed because the bagmaker would not have time to detect the mark and stop at the proper location.

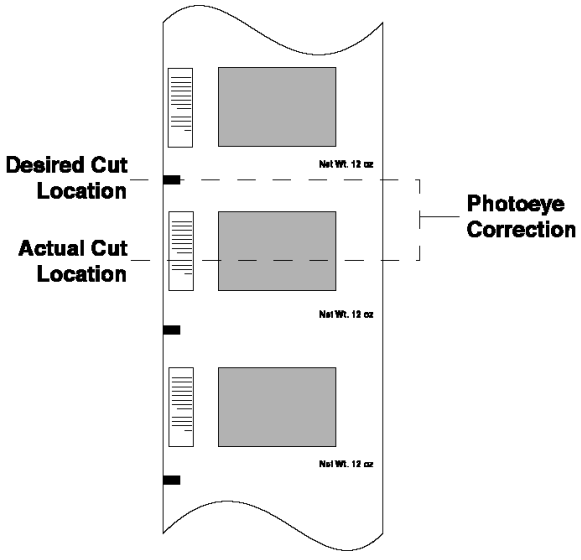


Figure 6.19
Shows how to determine the Photoeye Correction value.

Section 7: Operating Procedures

This section describes procedures that may be used on a daily basis when operating the bagmaker. It describes how to:

- Start a Production Run
- Shut Down the Bagmaker
- Restart the Bagmaker after and E-Stop
- Jog the Bagmaker

Start-Up

Use the following procedures to start-up the bagmaker. At this point, the forming collar should be installed in the machine and the film should be loaded and thread down past the film transport belts.

The start-up procedures are:

- Preparing the Bagmaker
- Making Empty Bags
- Checking Empty Bags
- Making Filled Bags
- Check Filled Bags
- Starting Production

Preparing the Bagmaker

Use the following procedure to prepare the bagmaker to form empty bags.

To prepare the bagmaker to form empty bags:

1. Check that the machine is powered up. If it is not, refer to the Machine Setup Procedures section.
2. Check that the desired product recipe is loaded. If it is not, refer to the Machine Setup Procedures section.
3. Check that the desired bag length and machine speed are set. If they are not, refer to the Machine Setup Procedures section.
4. From the Main Parameters screen, set the JAW SEAL HEAT switch to ON to allow the sealing devices to heat.
5. From the Main Parameters screen, set the FEEDER ENABLE switch to OFF to prevent product drops during empty bag production.
6. Check that the sealing temperature for all sealing devices is correct for the film type.
7. Check that there are no active warnings or alarms.

Making Empty Bags

Empty bag production will indicate whether adjustments need to be made to the sealing devices, to the film tracking, to film feeding, or to film registration (if using registered film).

Use the following procedure to make empty bags:

1. Set the JOG/AUTO selector switch to AUTO.
2. Press the MACHINE READY push-button.

   If the button does not stay lit, there is an alarm condition present. Correct the alarm condition, clear the alarm from the screen, and press the MACHINE READY push-button again.
3. Press the JOG/RUN push-button to begin empty bag production.
4. Allow the bagmaker to form a few empty bags.
5. Press the STOP push-button to stop empty bag production.

Checking Empty Bags

Use the following procedure to check the empty bags:

1. Squeeze the bags to check the integrity of the seals.

   If the seals leak air, check the sealing temperature.

2. Check that the edges of the vertical seal are even.

   If the edges of the vertical seal are not even:

   a. Adjust the film tracking (left or right).

   b. Check that the film moves over the forming collar smoothly.

3. Check that the bags are cut to the desired length.

   If the bags are not cut to the desired length:

   a. Check the bag length setting on the operations screen.

   b. If using registered film, check the settings on the photoeye screen.

   c. Check the film tension.

   d. Check that the belts are not slipping on the film.

Making Filled Bags

Once the bagmaker is producing empty bags, it is ready to produce filled bags. Filled bag production will indicate whether adjustments need to be made to the product drop timing or product drop quantity.

Use the following procedure to make filled bags:

1. From the Main Parameters screen, set the FEEDER ENABLE switch to ON to allow product drops.
2. Set the JOG/AUTO selector switch to the AUTO position.
3. Press the MACHINE READY push-button.

   If the button does not stay lit, there is an alarm condition present. Correct the alarm condition, clear the alarm from the screen, and press the MACHINE READY push-button again
4. Press the JOG/RUN push-button to begin filled bag production.
5. Allow the bagmaker to form a few filled bags.
6. Press the STOP push-button to stop filled bag production.

Checking Filled Bags

Use the following procedure to check the quality of the filled bags:

1. Check the amount of product in the bags.

   If the bags do not have the correct amount of product in them, check the product feeder.

2. Check that there is no product trapped in the horizontal seals.

   If there is product trapped in the seals, adjust the product drop timing.

3. Check that the desired amount of air is trapped in the bag.

   If there is too little or too much air in the bags, adjust the position of the foam deflators.

Starting a Production Run

Once the bagmaker is producing quality filled bags, start the normal production run.

To start the normal production run:

1. Set the JOG/AUTO selector switch to the AUTO position.
2. Press the MACHINE READY push-button.

   If the button does not stay lit, there is an alarm condition present. Correct the alarm condition, clear the alarm from the screen, and press the MACHINE READY push-button again.
3. Press the JOG/RUN push-button to begin normal filled bag production.

Shut Down the Bagmaker

Use the following procedures to stop or shut down the bagmaker in normal and emergency situations.

Emergency Stop

Press the EMERGENCY STOP push-button to stop the bagmaker in an emergency situation.

Normal Stop

Press the STOP push-button to halt the bagmaker under normal conditions.

Extended Shutdown

Use the following procedure to shut down the bagmaker for extended periods of time.

1. Press the STOP push-button to halt bag production.
2. Turn the MAIN DISCONNECT switch to the OFF position.
3. Raise the AIR DISCONNECT lever to shut off the air supply to the machine.
4. Clean the machine by following the maintenance procedure outline in the Maintenance Procedures section.

Restart the Bagmaker After an E-Stop

Use the following procedure to restart the bagmaker after an EMERGENCY STOP.

1. Use the alarms screen to help resolve the problems that caused the emergency stop.
2. Pull out the EMERGENCY STOP push-button.
3. Press the MACHINE READY push-button.

   If the button does not stay lit, there is an alarm condition present. Correct the alarm condition, clear the alarm from the screen, and press the MACHINE READY push-button again.
4. Press the JOG/RUN push-button to resume bag production.

Jog the Bagmaker

Jogging the bagmaker means to operate it at a slow steady pace. Both the film feeding device and the horizontal sealing device can be jogged independent of one another. Use film feed jogging to advance film down the forming tube. Use jaw jogging to open or close the sealing jaws.

Film Feed Jogging

Use the following procedure to jog the film feeding device.

To jog the film feeding device:

1. From the operations screen, set the JOG SELECT switch to FILM JOGGING.
2. From the bagmaker control panel, set the JOG/AUTO selector switch to JOG.
3. Press and hold the JOG/RUN push-button to jog the film feeding device. When the JOG/RUN push-button is released, the film feeding device will stop.

Jaw Jogging

Use the following procedure to jog the horizontal sealing jaws.

To jog the horizontal sealing device:

1. From the operations screen, set the JOG SELECT switch to JAWS FORWARD or JAWS REVERSE.
2. From the bagmaker control panel, set the JOG/AUTO selector switch to JOG.
3. Press and hold the JOG/RUN push-button to jog the horizontal sealing device. When the JOG/RUN push-button is released, the horizontal sealing device will stop.

Section 8: Maintenance Instructions

This section describes procedures that can be used to replace or realign components. These procedures include:

- Replacing the Vertical Sealing Band
- Replacing the Vertical Sealing Insert
- Replacing Heater Cartridges and Probes
- Replacing the Feeding Belts
- Replacing the Cutting Knife
- Aligning the Forming Collar
- Aligning the Film Feeding Belt Assemblies

Replacing the Sealing Band

Removing and Replacing the Vertical Sealing Band

Use the following procedures to remove and replace the vertical sealing band.

Before starting this procedure, make sure that the bagmaker is locked-out and that the seal band unit is cool.

1. Rotate the vertical sealing assembly away from the forming set, as shown below.
2. To remove the sealing band, push up on the sealing band release lever and pull off the sealing band. (Use Caution! Do not pinch fingers)
3. To install the sealing band, push up on the release lever and slide the sealing band over the upper and lower wheels.
4. Verify that the sealing band is in the center of the grooves on the upper and lower wheels.

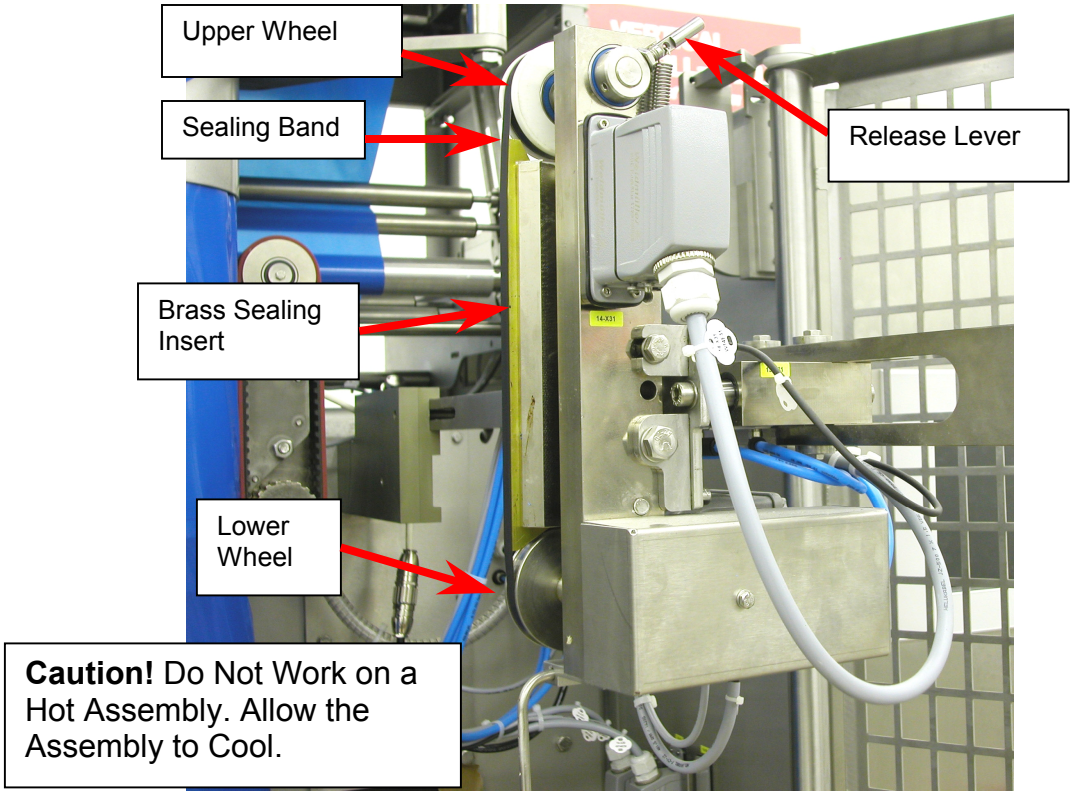


Figure 8.1
Shows the vertical assembly rotated open.

Replacing Brass Sealing Insert

Removing and Replacing the Vertical Sealing Insert

If replacing the vertical sealing brass insert, the sealing band must first be removed.

1. Remove the sealing band as previously described.
2. Move the vertical sealing assembly towards the forming set to access the two securing screws on the rear of the assembly.
3. Remove the brass insert by removing the two securing screws. Hold onto the brass insert before removing the last screw, as this will allow the insert to be released and possibly fall.
4. Install the new brass insert. The alignment screws may be adjusted to ensure the insert is parallel to the forming tube. Tighten the securing screws.
5. Install the sealing band. Push up, on the release leaver, and slide the sealing band over the upper and lower wheels. (Use Caution! Do not pinch fingers)
6. Verify that the band is in the center of the grooves on the upper and lower wheels.

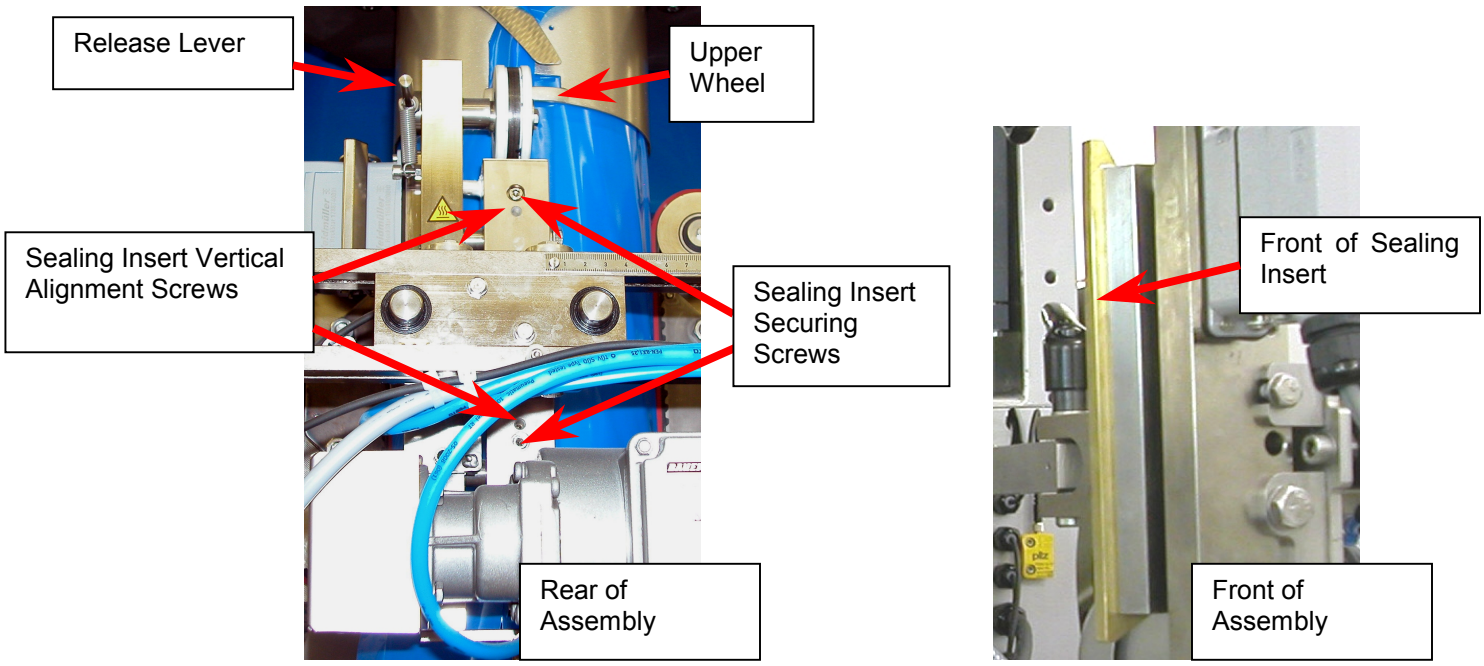


Figure 8.2
Shows the vertical sealing assembly, with the sealing band removed.

Replacing Heater Cartridges and Temp Probes

Vertical Sealing Device

At some point, the heating cartridges and the temperature probe inside of the seal band unit must be replaced. Use the following procedure to replace these items.

Before starting this procedure, make sure that the bagmaker is locked-out and that the seal band unit has cooled.

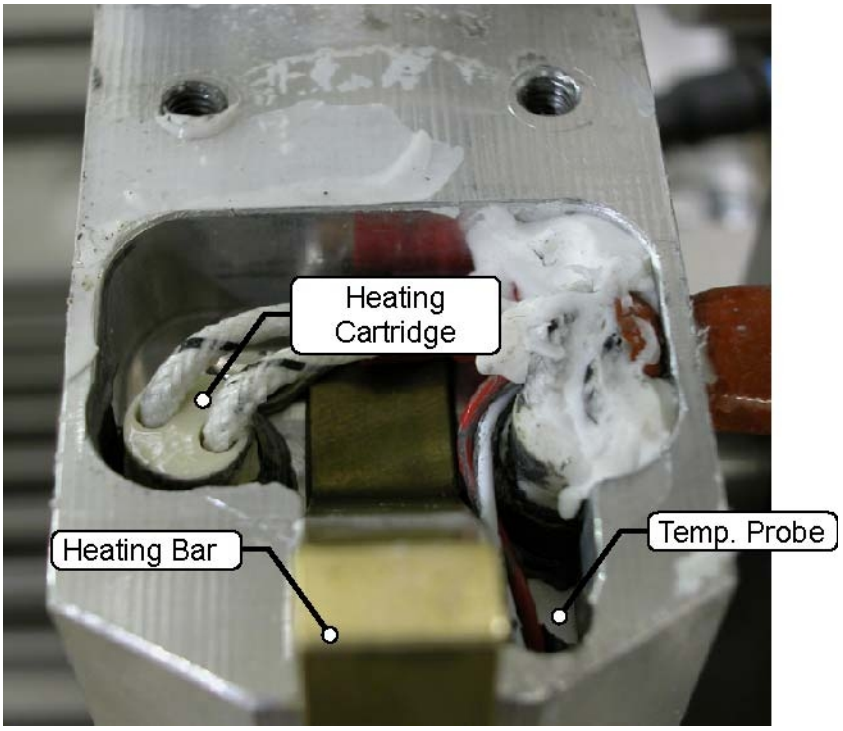
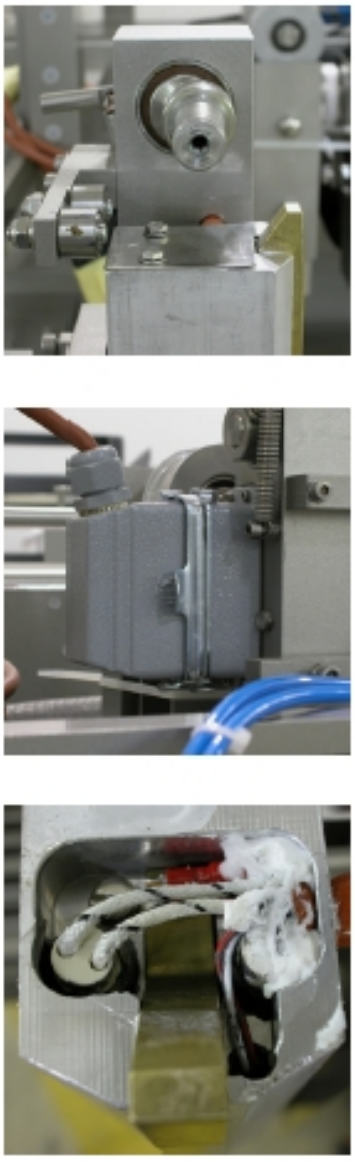


Figure 8.3
Shows the heating bar assembly.

Replacing Heater Cartridges and Temp Probes – Vertical Sealing

NOTE: Before starting this procedure, make sure that the bagmaker is locked-out and that the seal band unit has cooled.



To replace the vertical sealing unit heating cartridges and the temperature probe:

1. Turn the band release lever and remove the sealing band.
2. Remove the upper wheel from the seal band unit.
3. Remove the heating bar cover.
4. Remove the seal band cable connector base from the sealing band unit.
5. Disconnect the heating cartridge and temperature probe leads from the base.
6. Remove the heating cartridges and the probe from the heating bar.
7. Install two new heating cartridges and a new temperature probe in the heating bar.
8. Route the leads from the cartridges and the probe through the red sleeve and to the cable connector base.
9. Connect the leads to the cable connector base.
10. Install the heating bar cover.
11. Install the upper wheel.
12. Turn the band release lever and install the sealing band.

Figure 8.4
The top picture shows the upper wheel removed.
The middle picture shows the cable connector base.
The bottom picture shows inside of the heating bar.

Replacing Heater Cartridges and Temp. Probes

This section describes how to replace the heating cartridges and the temperature probes in the horizontal sealing jaws.

Horizontal Sealing Jaws

At some point, the heating cartridges and the temperature probes inside of the horizontal sealing jaws must be replaced. Use the following procedure to replace the heating cartridges and the temperature probe in the front jaw assembly. The same procedure can be applied to replace the heating cartridges and the temperature probe in the rear jaw assembly. Before starting this procedure**, make sure that the bagmaker is locked-out and that the sealing jaws have cooled.**

Note: There are heating cartridges in each of the four horizontal sealing jaws. There is a temperature probe only in Jaw Assy # 1 of the front sealing jaws and Jaw Assy #1 of the rear sealing jaws.

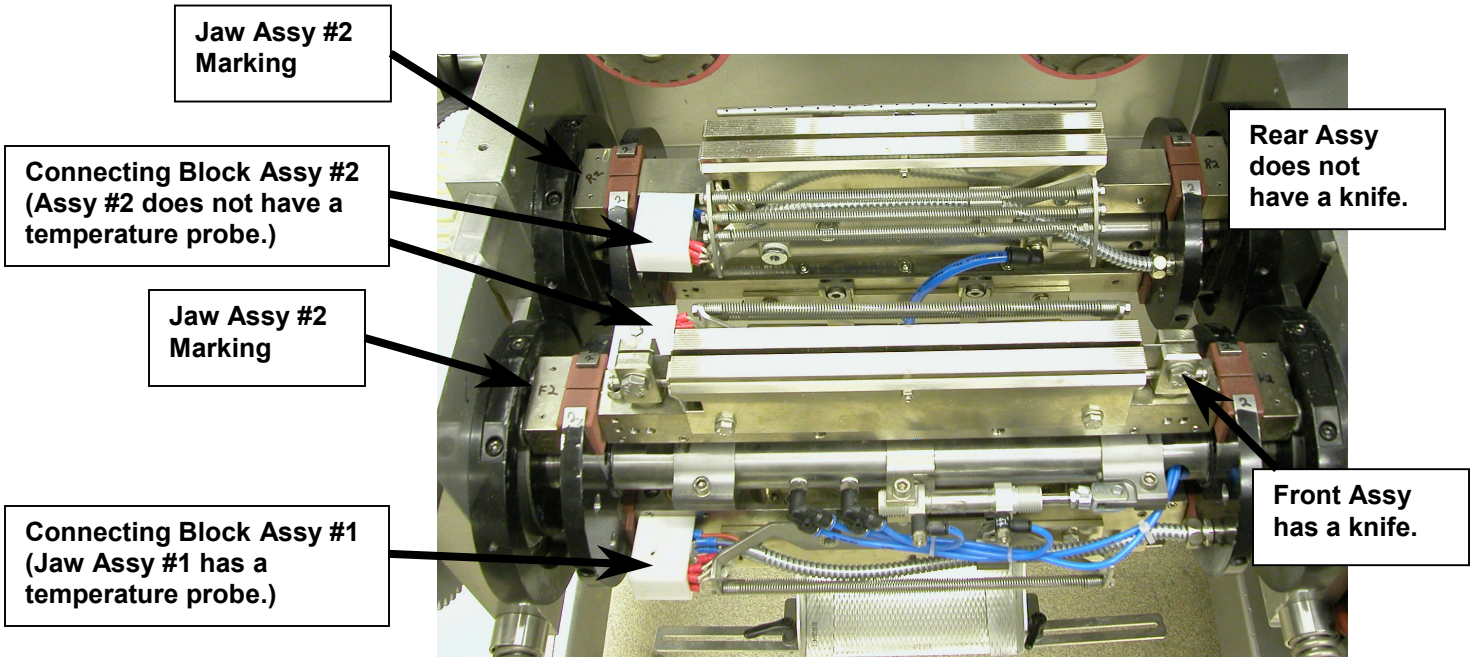


Figure 8.5
Shows the horizontal assemblies and the connecting blocks for the heating cartridges and temperature probes.

To replace the heater cartridges and the temperature probes:

1. On the Front Jaw assembly, remove the cutting knife. Wear gloves and use pliers, as the knife is very sharp. (The rear jaw assemblies do not have a knife.)
2. It may be necessary to remove the horizontal cooling tube and the air deflators to access some of the screws and bolts.

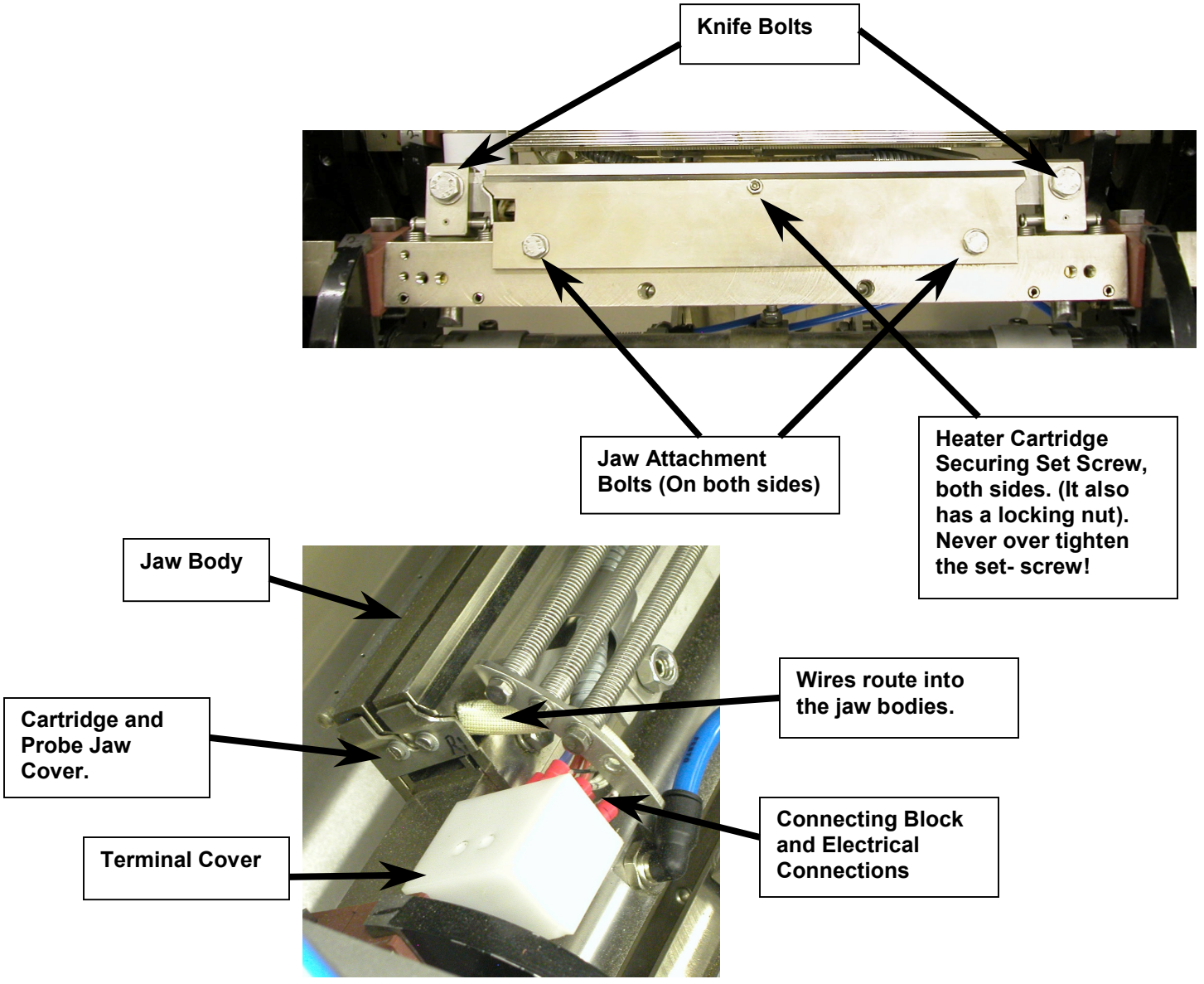


Figure 8.6
Shows the areas that must be accessed to replace the heating cartridges and temperature probes.

Replacing Heater Cartridges and Temp Probes

Horizontal sealing Jaws - Continued

3. Remove the terminal cover and disconnect the heater cartridge and temperature probe connections.
4. Remove the jaw by removing the jaw attachment bolts.
5. Loosen the locking nut on the heater cartridge set screw and loosen the set-screw with a hex wrench. Note: The set-screw should never be screwed in too tight (only until it touches the cartridge, to keep it secure. If over tightened, the set-screw could screw into the heating cartridge and damage the cartridge.
6. Remove the terminal housing cover over the heater cartridge and temperature probes.
7. Remove the heater cartridge and/or temperature probe.
8. Install the new heating cartridges and the new temperature probe in the jaw body. (Note: Verify that the voltage on the heater cartridge is the correct voltage. Some machines use 220V and some machines uses 110V, refer to the electrical drawings for your machine.)
9. Snug tighten the hex set screw and then the locking nut on the heater cartridge. Note: The set-screw should never be screwed in too tight (only until it touches the cartridge, to keep it secure. If over tightened, the set-screw could damage the heating cartridge.
10. Connect the heating cartridges and the temperature probe to the ceramic connectors.
11. Reassemble the jaw and make necessary connections.

Replacing the Film Feed Belts

Over time, the film feed belts will begin to loose traction against the film because of wear. At that point, it is time to replace the belts. Use the following procedure to replace them. **Before starting this procedure, make sure that the bagmaker is locked-out.**

To replace a film feed belt:

1. Loosen the securing nut that holds the upper belt pulley in place.
2. Loosen the belt tensioner until there is enough slack in the belt to remove it from around the belt pulleys.
3. Install the new belt.
4. Tension the belt using the belt tensioner.
5. Tighten the securing nut that holds the upper belt pulley in place.

Note: Always replace both belts at the same time.

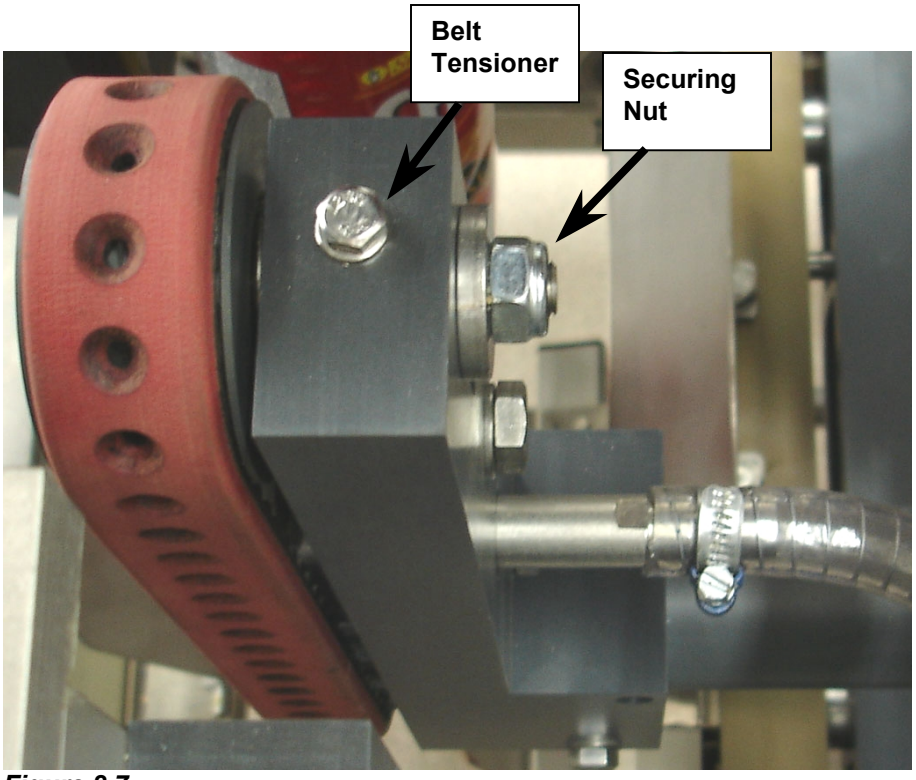


Figure 8.7
Shows a top view of a film feed belt.

Replacing the Cutting Knife

When the cutting knife consistently fails to produce a crisp cut it is time to replace it. Use the following procedure to replace the knife. **Before starting this procedure, make sure that the bagmaker is locked-out.**

To replace the knife:

1. Locate the knife securing bolts shown below.
2. Remove the bolts to remove the knife. Use a pair of pliers and wear gloves to remove the knife.

Warning: Use a pair of pliers and wear appropriate gloves to install and remove the knife. Knives are very sharp and may cut the operator.

3. Insert and secure the new knife into the knife assembly.
4. If the springs must also be replaced, the pins must be punched out to remove the springs.

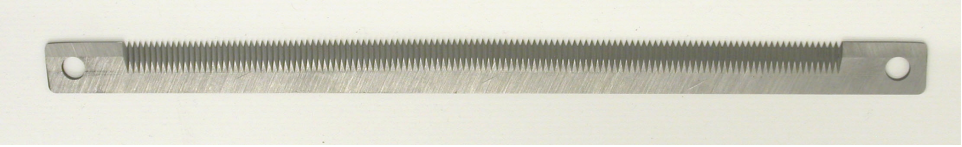


Figure 8.8
Shows the knife removed from the jaws.

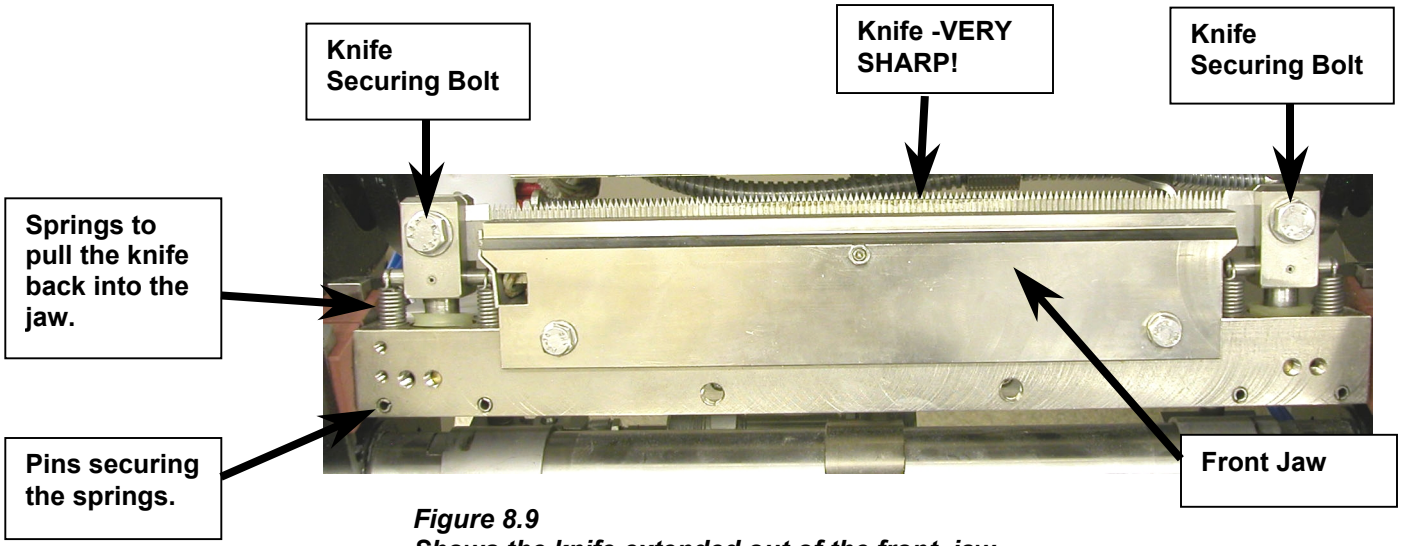


Figure 8.9
Shows the knife extended out of the front jaw.

Aligning the Forming Set

Forming set alignment is critical to bag forming. If the forming set is not properly aligned, the vertical seal may not form or the bags may appear twisted. The forming set alignment positions the forming tube so that it is square with the machine frame and so that there is equal clearance between the forming tube and the forming collar on all sides.

To align the forming tube to the machine frame, adjust the height of the standoffs so that the forming tube is square with the machine frame.

To align the forming collar to the forming tube, loosen the forming collar securing bolts and slide the collar until there is equal clearance (on all sides) between the forming collar and the forming tube.

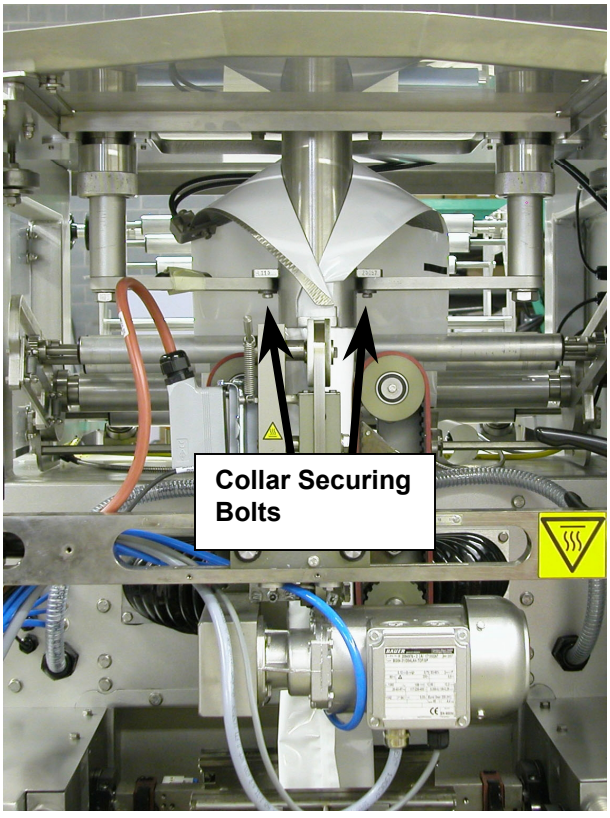


Figure 8.10
Shows the forming set collar securing bolts.

Aligning the Belt Assemblies

Whenever the belt assemblies are removed from their drive shafts, they must be aligned to the flat surfaces on the forming tube when they are reinstalled. The following procedure describes how to align the belt assemblies to the forming tube.

To align a belt assembly to the forming tube:

1. Loosen the collar bolt on the belt assembly.
2. Rotate the assembly away from the tube and then back to the tube until it is flush with the flat surface on the side of the forming tube; let the forming tube align the belt assembly.
3. Tighten the collar bolt.

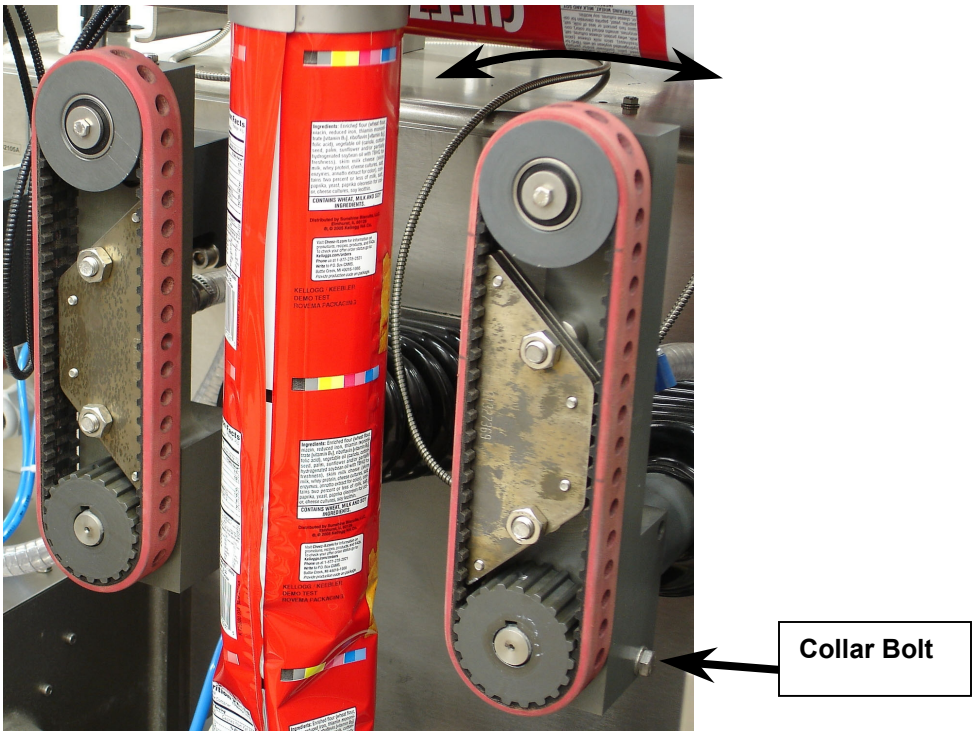


Figure 8.11
Shows the bolt used to align the belt assembly to the forming tube.

Horizontal Sealing Jaws Alignment

NOTE: Work with cold sealing jaws only!

The following procedure may be used to check the alignment of the horizontal sealing jaws. This is known as the carbon paper test.

1. Remove the knife for this test.
2. Obtain white paper, carbon paper and scotch tape.
3. Place the coated side of carbon paper on the white paper and fold it, as shown in the figure below.

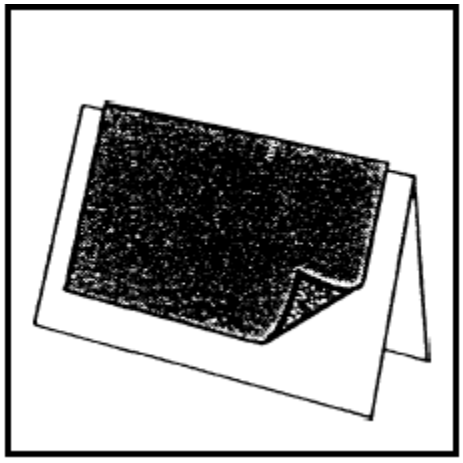


Figure 8.12
Shows the carbon and white paper folded.

How to Check Alignment - Continued

4. Open the protective doors.
5. Place the carbon and white paper between the sealing jaws and fasten them to the front jaw using scotch tape. As shown in the figure below.

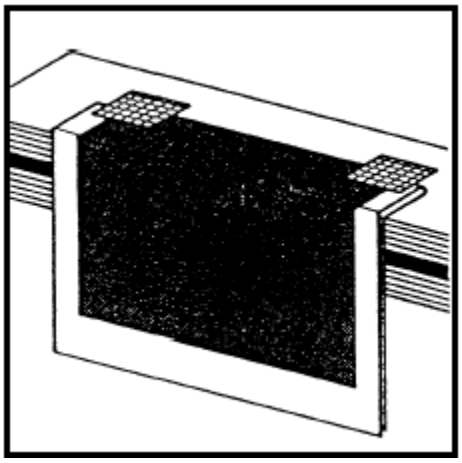


Figure 8.13
Shows the paper taped to the sealing jaws.

6. Close the protective doors.
7. Access the JOG MENU on the HMI of the machine and close the horizontal jaws in the jogging mode.
8. Open the horizontal jaws, open the protective doors, lift off the carbon paper and inspect the prints on the white paper.

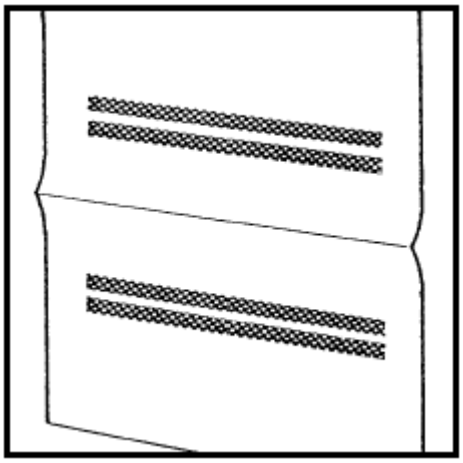


Figure 8.14
Shows an example of the sealing profile.

Seal Pressure Adjustment

To adjust the Seal Pressure:

1. Unscrew the nut caps.
2. Adjust the sealing pressure equally. (Measure the distance adjusted. Record the distance for future reference.)
3. To increase the pressure, turn the adjusting screws clockwise.
4. To decrease the pressure, turn the adjusting screws counterclockwise.
5. Retighten the nut caps and perform the carbon paper test again. Repeat if necessary.

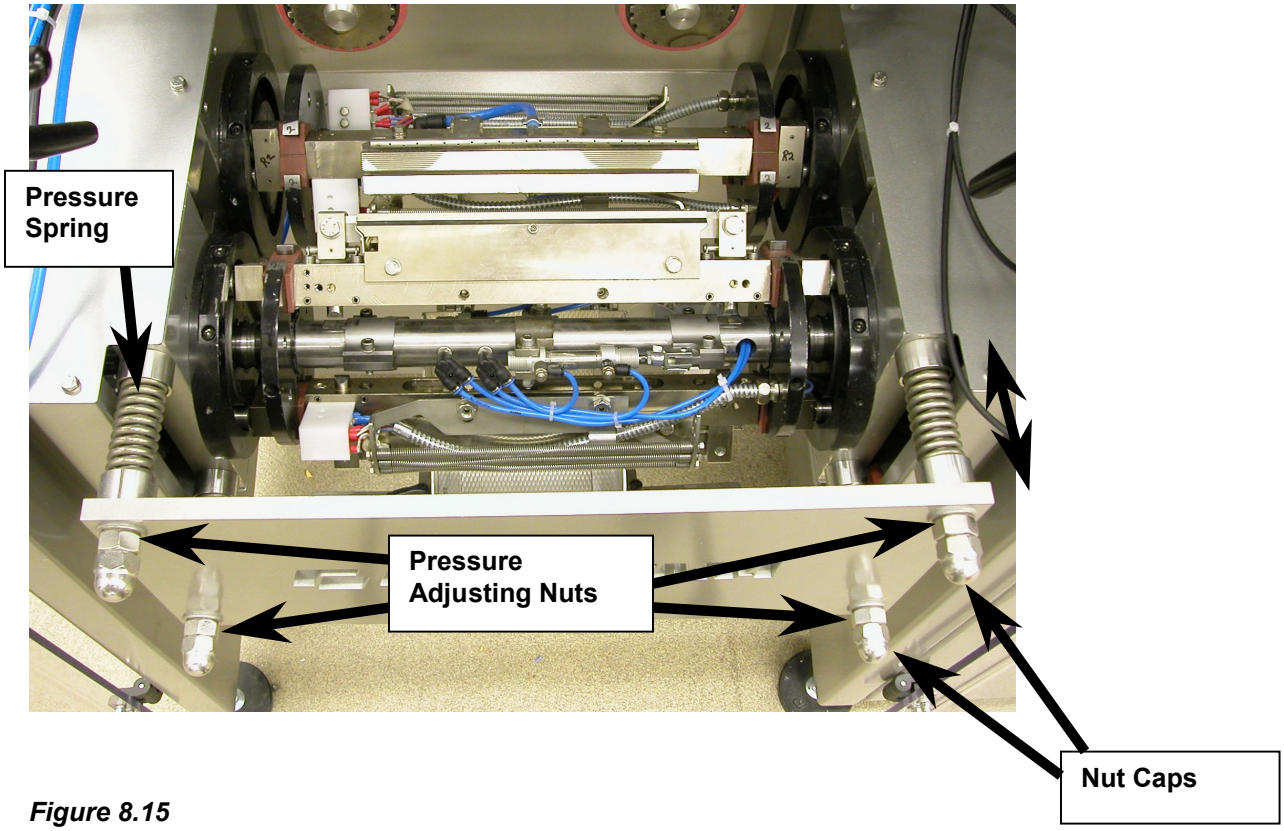


Figure 8.15
Shows the bolts used to adjust the seal pressure.

Adjust the VPR Pressure Distribution

Note: If satisfactory results were not obtained on the carbon paper test, change the pressure distribution by following these procedures.

1. Close the horizontal jaws until they are touching flush against each other.
2. Loosen the jaw carrier securing bolts in order to turn the adjustment screws.
3. To obtain an equal pressure distribution, tighten or loosen the appropriate adjusting screws, per the results from the carbon paper test.

   Note: The table on the next page shows examples of how to adjust the pressure distribution.
4. To increase the pressure, turn the adjusting screws clockwise.
5. To decrease the pressure, turn the adjusting screws counterclockwise.
6. Retighten the jaw securing bolts and perform the carbon paper test again. Repeat if necessary.
7. If the desired results cannot be obtained by making these adjustments, a Rovema Service Technician may be required to make internal cam adjustments.

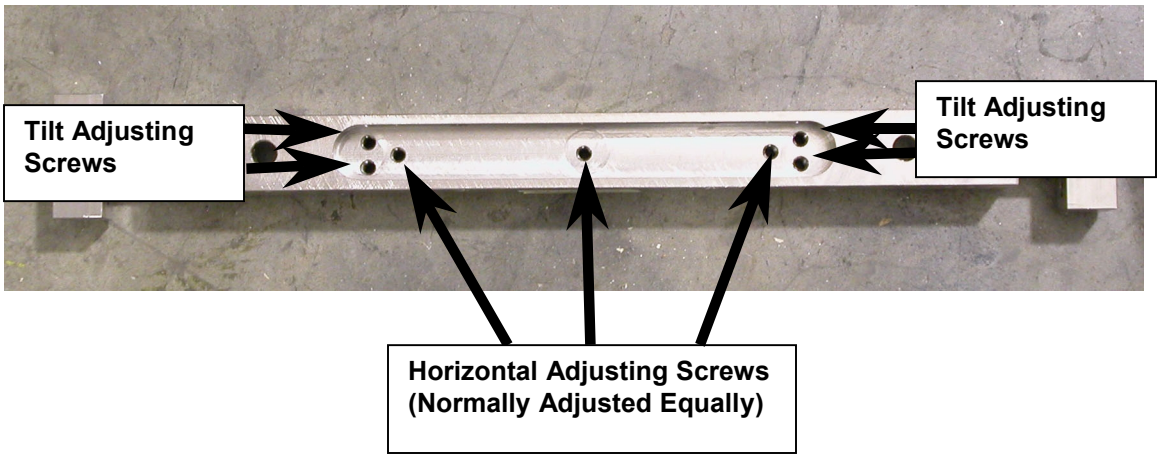


Figure 8.16
Shows the jaw carrier adjustment locations.

Adjusting Pressure Distribution		
Pressure displacement on the bottom seal.	Loosen the two upper setting screws. Or Tighten the two lower setting screws.	
Pressure displacement on the top seal.	Loosen the two lower setting screws. Or Tighten the two upper setting screws.	

Figure 8.17
Shows an example of pressure adjustment options.

After the setting procedure is complete, retighten the two loosened bolts in the jaw carrier.

Repeat the carbon paper test. (It may be necessary to repeat these steps to obtain the desired results.)

Section 9: Maintenance Procedures

Rovema bagmakers are built to last and therefore require very little maintenance. Maintenance consists mostly of daily cleaning and component inspection. The following procedures describe how to clean and maintain the bagmaker. The scheduling of maintenance procedures is based on the bagmaker running one shift per day, eight hours per shift. If the machine is run for more or fewer hours, adjust the cleaning and maintenance schedule accordingly.

Note: Before performing any cleaning or maintenance procedures on the bagmaker, ensure that the electrical power and pneumatic supplies are properly locked-out and tagged-out (refer to the Safety Instructions Section: Lock-Out Procedures).

Daily Cleaning

Food Contact Surfaces

Proper sanitation of food contact surfaces is of the utmost importance. It will help prevent contamination of your bagged product. There are three bagmaker surfaces that contact the product; the product funnel, the filling tube, and the bag spreaders. These parts must be removed from the machine and sanitized in accordance with all Federal, State, and Local regulations.

Warning: The food contact surfaces must not be reinstalled until they are clear of product debris and the disinfectant used to sanitize them.

If you need assistance in determining how to sanitize the food contact surfaces for your particular application, please contact the Rovema Service Department.

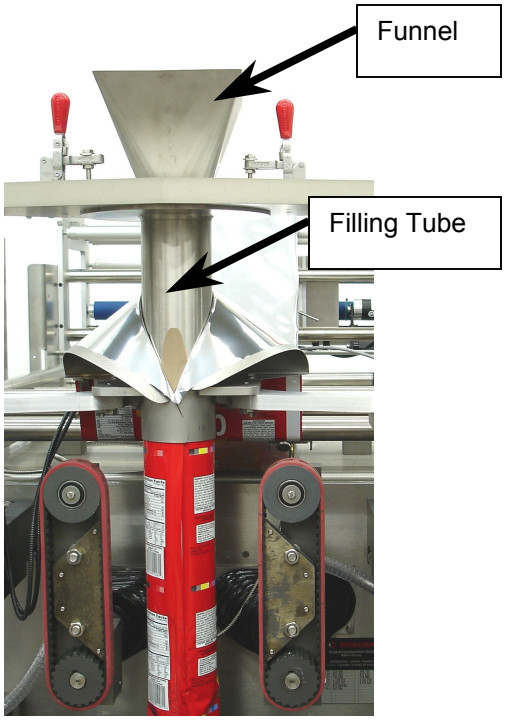


Figure 9.1
Shows the food contact surfaces.

Daily Cleaning

Machine Housing

Cleaning the machine housing will help prevent sanitation problems. Remove product debris by vacuuming or sweeping it from the horizontal surfaces of the machine.

When cleaning painted surfaces, commercially available cleaning and polishing agents can be used. In addition, commercial available mild household cleaners may be applied using a moist cloth.

When cleaning plastic protective coverings, we recommend that you use an antistatic cleanser or a mild cleansing agent.

When cleaning the touchscreen display, use only a moist cloth. Do not use any cleaners; they may damage the surface of the touchscreen.

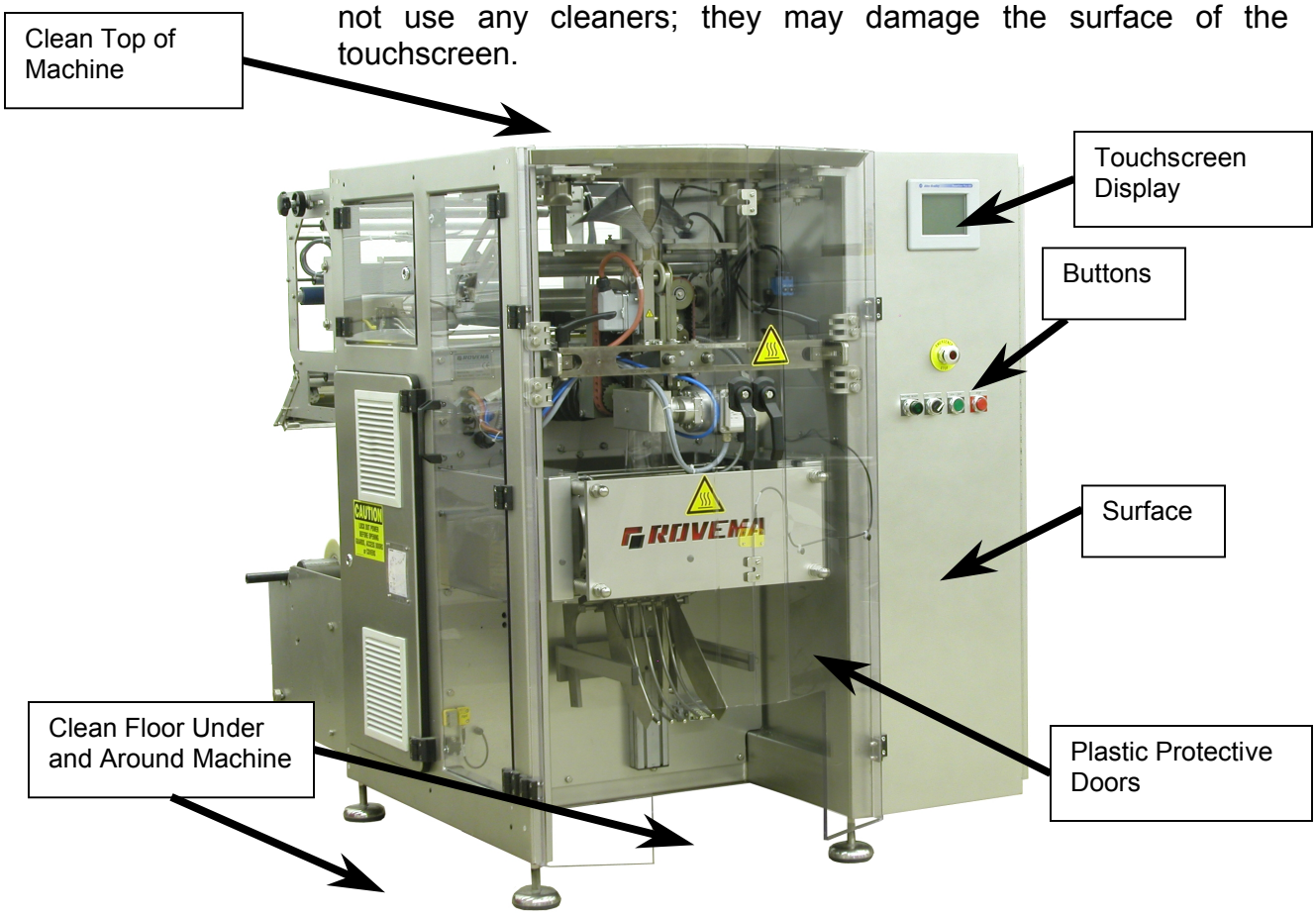


Figure 9.2
Shows the areas of the housing to clean.

Daily Cleaning

Sealing Surfaces

Film residue will buildup on the sealing surfaces; especially when using printed film. Excessive buildup will make it more difficult to create good seals. To remove the residue, use a brass bristle brush to scrub it away. The sealing surfaces are on the faces of the horizontal sealing jaws and the vertical sealing bar. This should be done just after the machine is locked-out and tagged-out, while the sealing tools are still warm.

Danger: Be sure to wear appropriate protective gloves when working around the sealing tools. The gloves must protect your hands from the hot sealing jaws and from the sharp serration of the cutting knife.

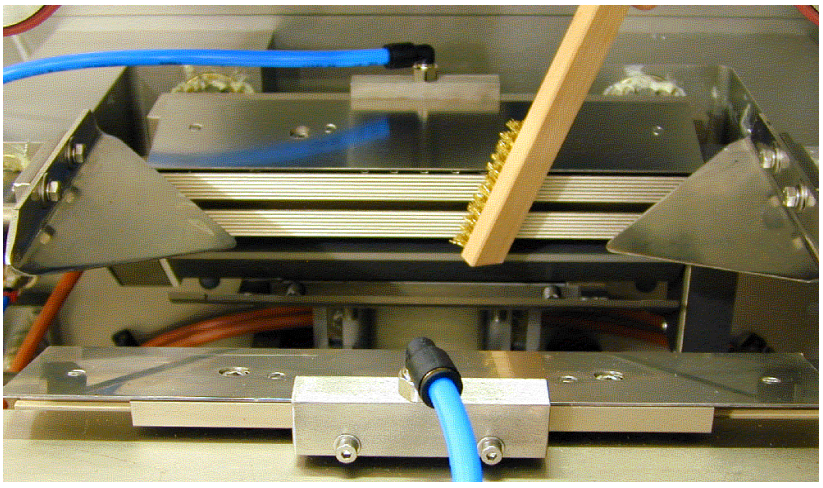




Figure 9.3
Shows the sealing surfaces to clean with a brass bristle brush.

Daily Cleaning

Air Filter/Regulator

The air filter/regulator removes condensation from the air supply. Depending on the quality of your air supply, water can accumulate in the bowl of the regulator very quickly. Use the following procedure to drain the bowl.

To remove water from the bowl:

1. Enable the air supply to the air filter regulator.
2. Set the regulator pressure to about 5 psi.
3. Open the drain at the bottom of the regulator bowl.
4. When the bowl is empty, close the drain.



Figure 9.4
Shows the air filter/regulator.

Daily Lubrication

Knife Bolts and Knife Cam Lubrication

Apply #2 Food Grade grease to the knife rod bolt and the cam contact ledges, with a brush, on a daily basis.

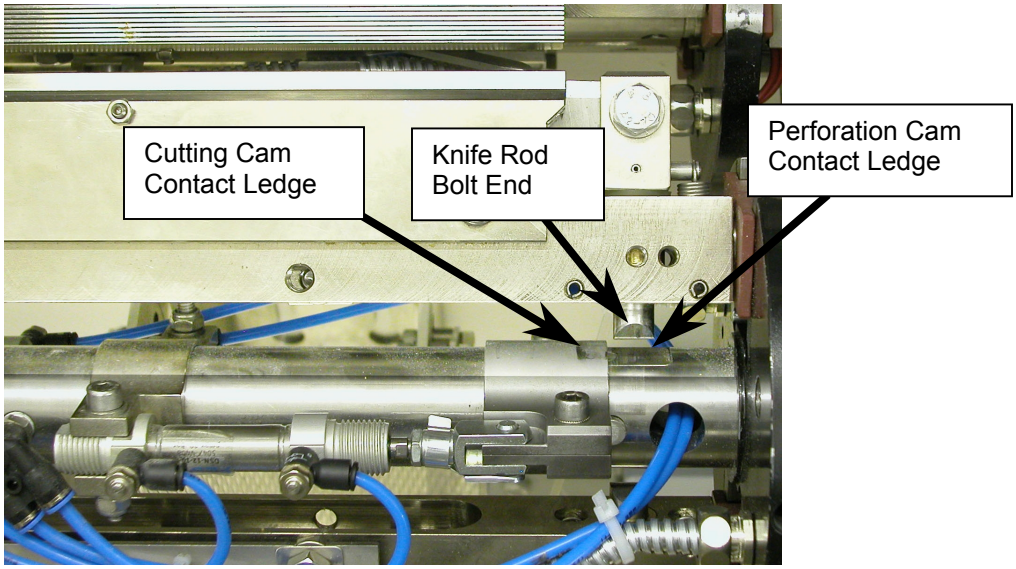


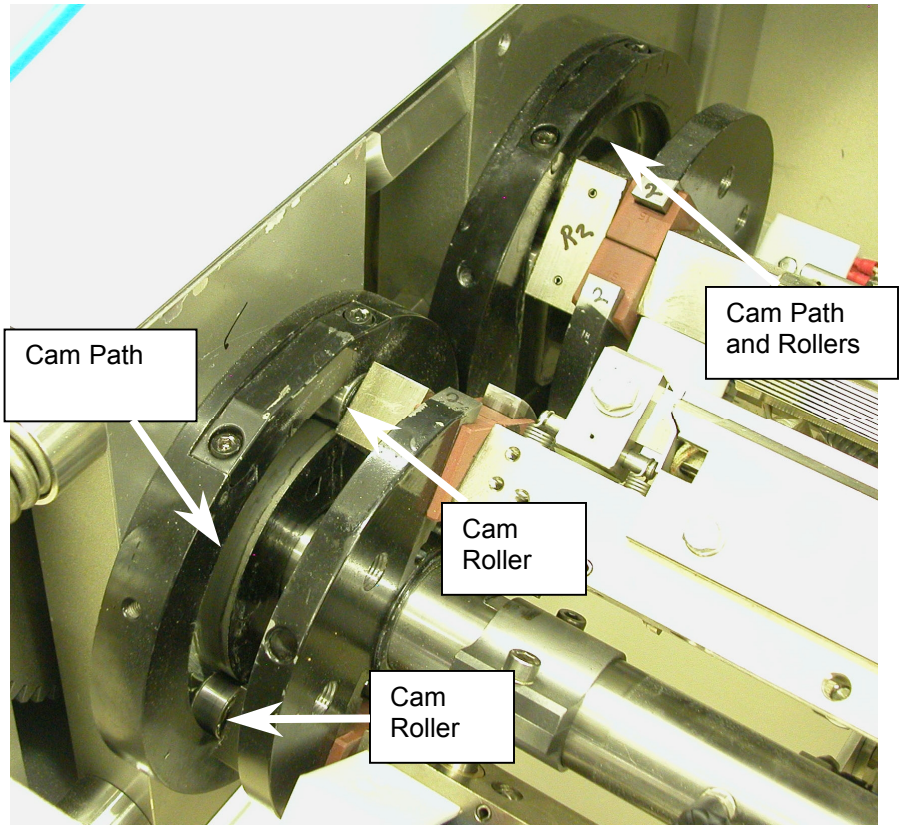
Figure 9.5
Shows one of the knife areas that needs grease applied daily.

Daily Lubrication

Cam Paths and Cam Rollers Lubrication

Clean and Apply #2 Food Grade grease to the cam path and rollers, with a brush, on a daily basis.

Note: The cam rollers should be removed and lubricated internally every 3-4 months.



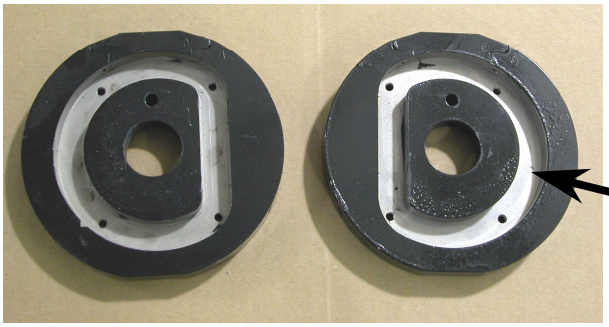


Figure 9.6
Shows the cam path that needs grease with a brush applied daily.

Weekly Inspection

Weekly inspection of your machine will help prevent mechanical malfunctions. When inspecting your machine, you should look for component wear and check for proper component operation. This section indicates which components should be inspected and what to look for during the inspection.

Knife Actuation

Check that the cutting knife extends and retracts smoothly. The knife may need to be removed and cleaned. Use caution as the knife is very sharp.

Examine some of the bags from the last production run to see if the knife is cutting cleanly through the packaging material. If it is not, replace the knife.

Clean and Grease the push ridges on the actuating cam rod. (Use a number #2 food grade grease.)

Clean the Push Rods, (the bushings are sealed and do not require grease).

If the retract springs do not provide sufficient tension, replace them.

Danger: Be sure that you hands are clear of the cutting area when extending the cutting knife, and, wear protective gloves.

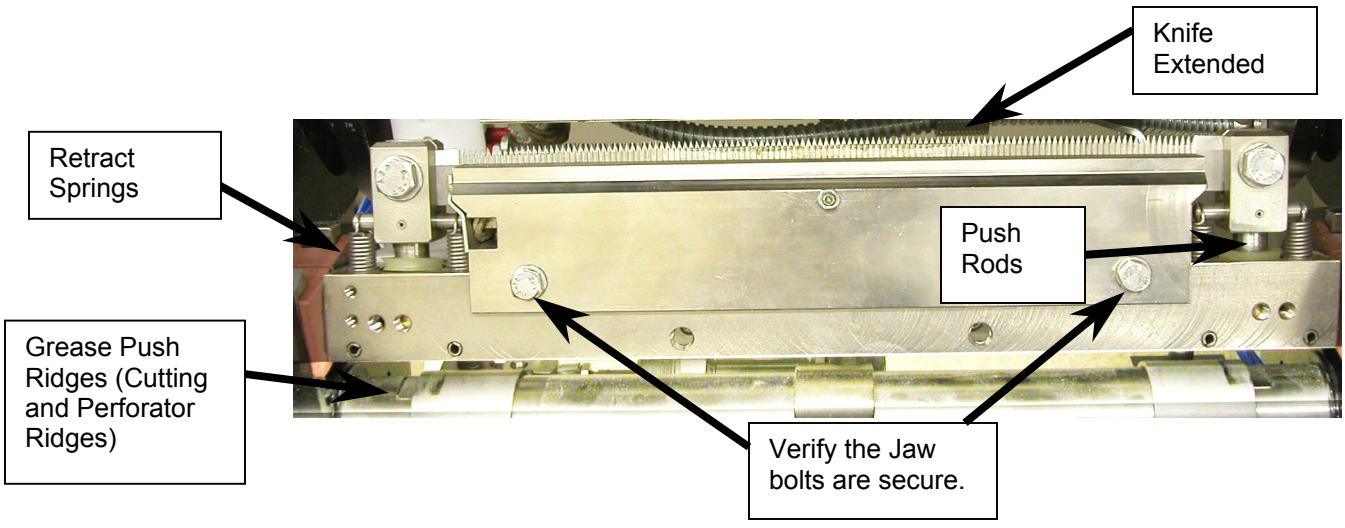


Figure 9.7
Shows the knife assembly.

Weekly Inspection

Film Transport Belts

Check the surfaces of the film transport belts for excessive wear. Replace them if necessary.

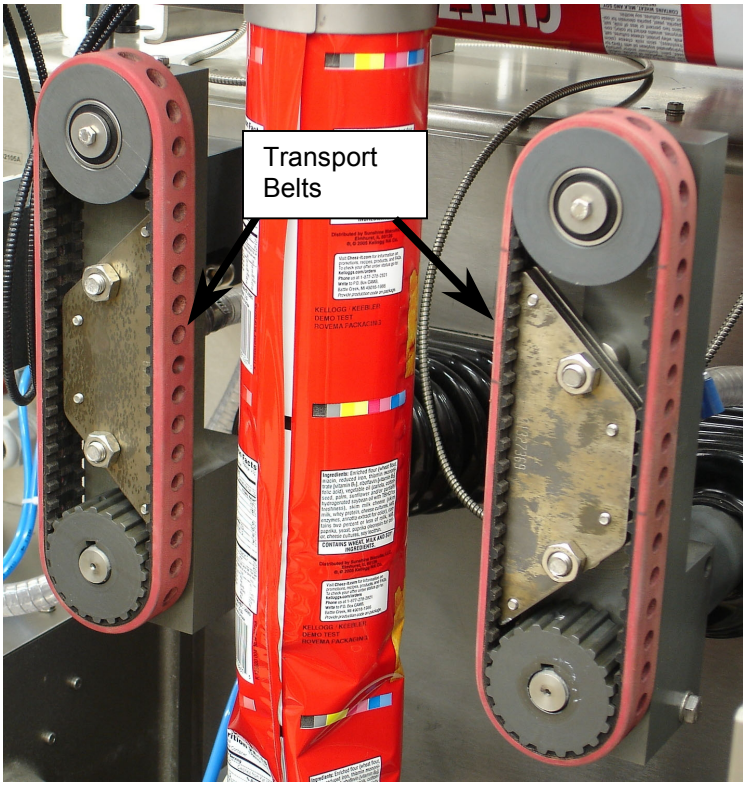


Figure 9.8
Shows the film transport belts.

Weekly Inspection

Forming Tube Tape

Check the condition of the Teflon® tape on the forming tube. If there are holes or tears in the tape, replace it.

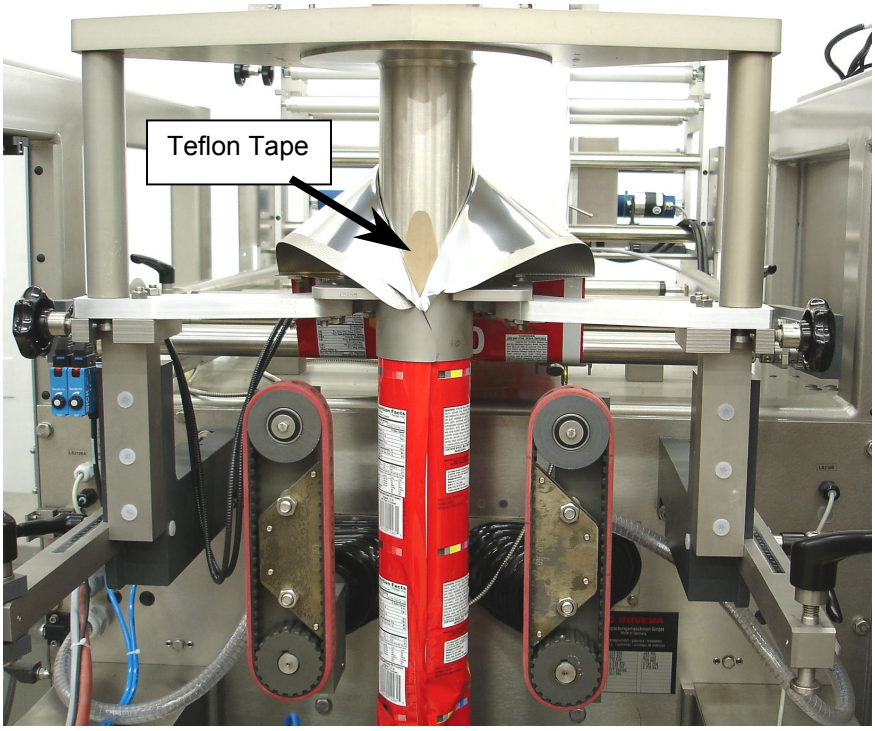


Figure 9.9
Shows the Teflon® tape on the forming tube.

Weekly Inspection

Guide Rollers

Check that the guide rollers from the dancer assembly up to the setup roller assembly spin freely. If a roller spins sluggishly, repair or replace it.

Vacuum System

Check the condition of the vacuum system by reading the vacuum gauge. This should be done during normal bag product, while the vacuum system is active. If the vacuum gauge reads below 10 Hg. for VPR-220 models, replace the filter.

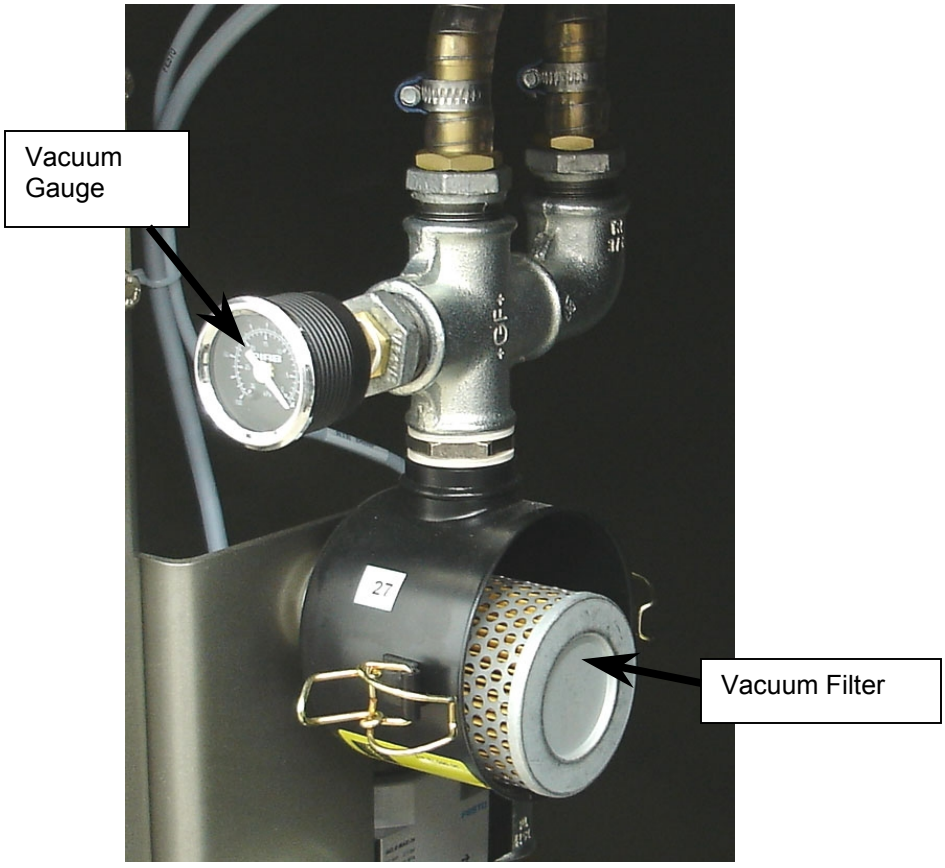


Figure 9.10
Shows the vacuum filter.

Weekly Inspection

Machine Housing Filter

Check the filter on the machine housing. Clean or replace it if necessary. The frequency of inspection and/or replacement is dependent on the ambient conditions.



Figure 9.11
Shows the housing filter

Monthly Inspection

Monthly inspection consists of checking components of the horizontal sealing device and components of the emergency stop circuit. To check the horizontal sealing device components, remove the jaw drive covers and check the timing belts for cracks and other signs of wear, and, check them for adequate belt tension.

Check the gear teeth for signs of wear or breakage and replace if necessary.

To check the components of the safety circuit, check that the bagmaker stops when the front and side guard doors are opened, and, that the bagmaker stops when the EMERGENCY STOP push-button is pressed. If any of the guard door switches or emergency stop push-buttons do not work, replace them immediately.

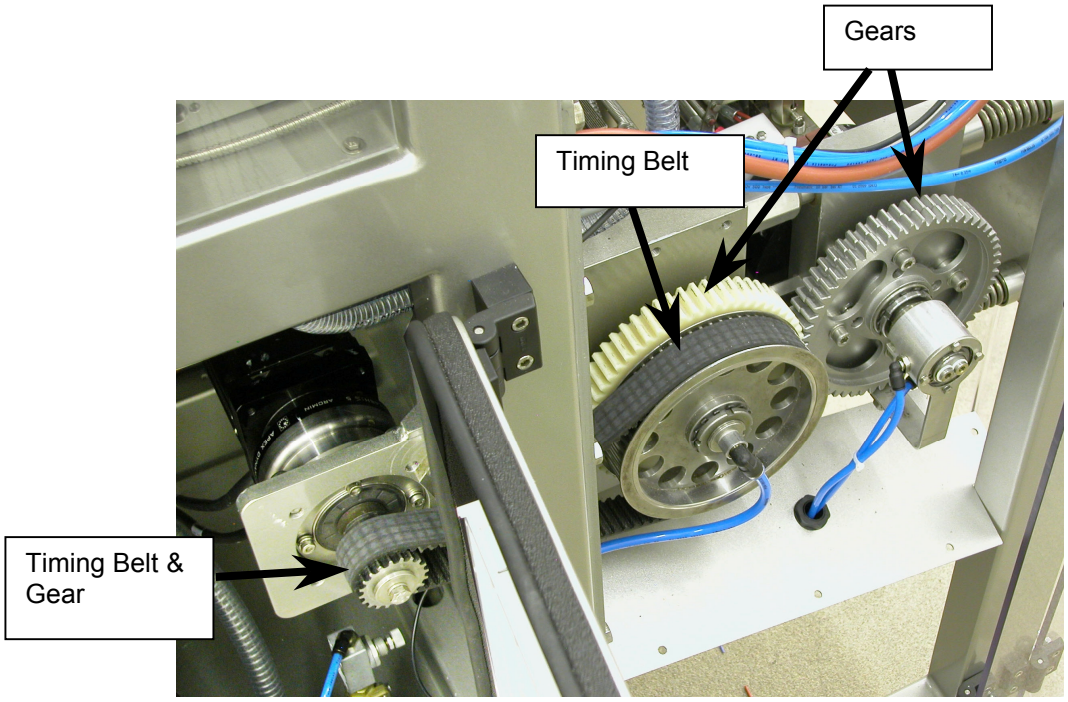


Figure 9.12
Shows the horizontal drive timing belt and gears to be inspected.

Monthly Inspection

The double gear may be adjusted to mesh the drive gear by loosening the adjusting bolts and rotate the gears so the teeth are the proper width.

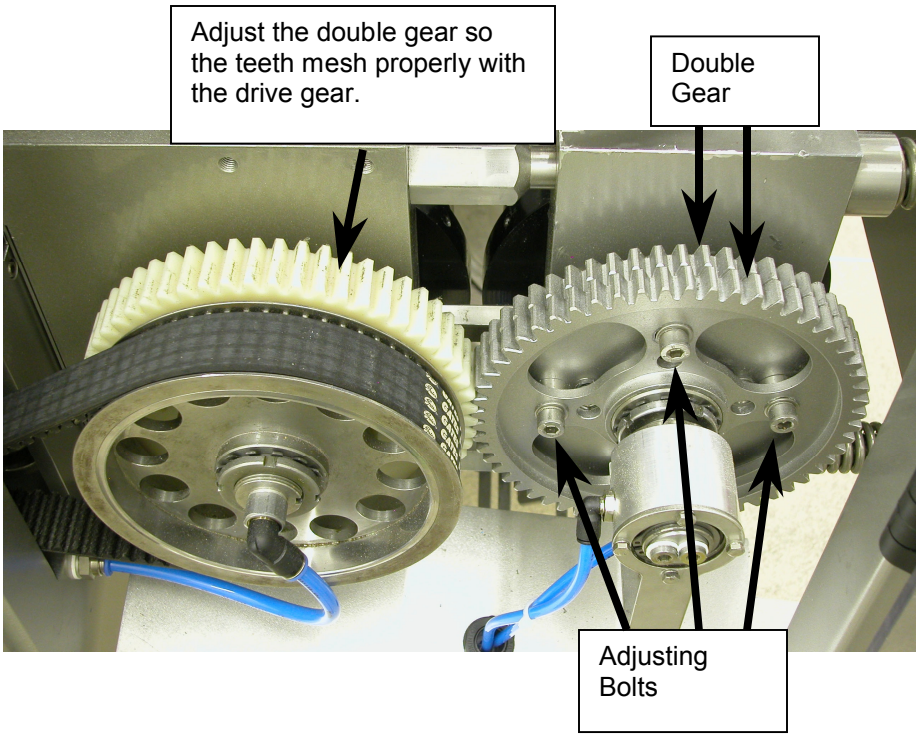
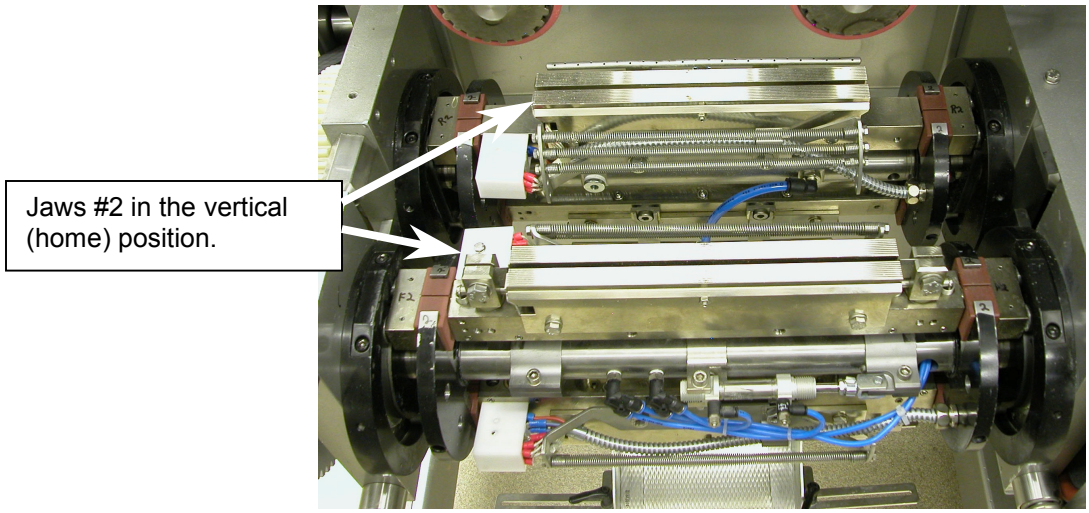


Figure 9.13
Shows the gear that may be adjusted.

Home Position

There are two pins behind the drive gear that are used to determine the home position. They are marked home position #1 and home position #2. In the example below, home position #2 is when sealing jaws #2 are in the vertical position.



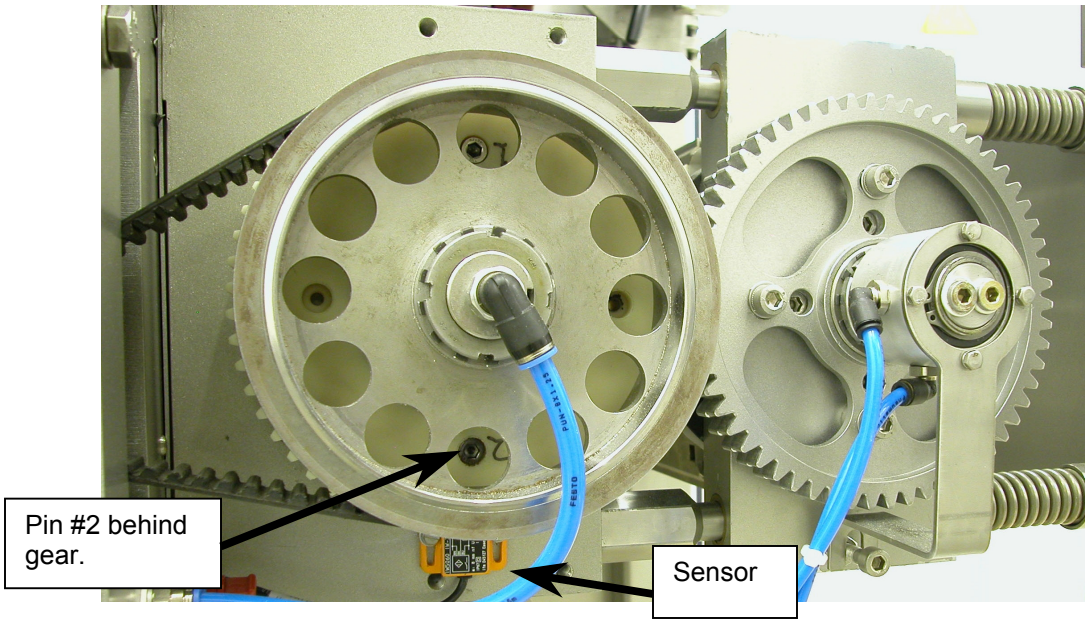


Figure 9.14
Shows the jaws and gears in Home Position #2.

Quarterly Maintenance

Cam Rollers and Bushing Maintenance

Every 3-4 Months, depending on the environmental conditions, the Cam Rollers should be lubricated internally and the red Bushings should be replaced. Removing the horizontal assemblies allows access to perform both procedures at the same time.

To access these assemblies, removing the upper cam segment allows the horizontal sealing assemblies to be removed.

To lubricate the cam rollers internally, grease may be inserted with a pin needle grease nozzle. It is recommended to use #2 food grade grease.

Note: The Cam Rollers have a serviceable life of approximately 4500 hours after which they should be replaced.

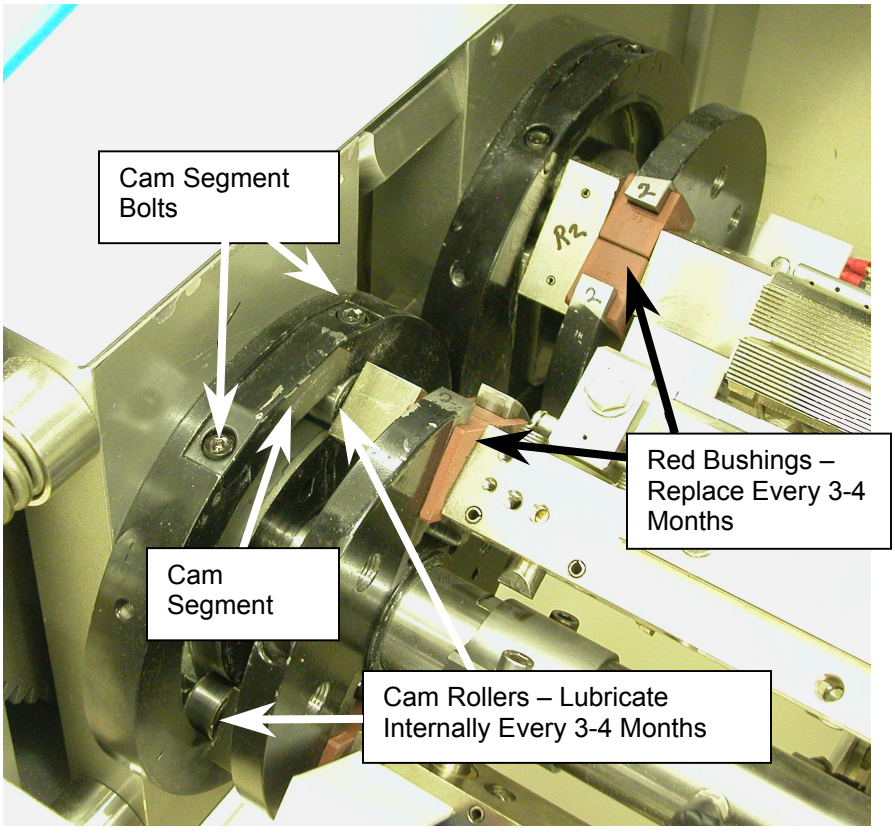


Figure 9.15
Shows the items that should be serviced every 3-4 months.

Maintenance

Estimated Scheduled Maintenance (Replacement) Intervals

All Intervals will need to be modified for the specific product, production material (film type), operating conditions and environmental conditions. These are in addition to the other maintenance procedures / recommendations in this manual. These are estimated intervals and they are not guaranteed and they cannot be used for warrantee claims.

Scheduled / Actual Maintenance Replacement Record

Item	Estimated Replacement Interval - Hours	Actual Replacement Date-Hours / Remarks:	Actual Replacement Date-Hours / Remarks:	Actual Replacement Date-Hours / Remarks:
BAGGER AREA				
Cutting Knives (Horizontal Sealing Unit)	360 Hours – 720 Hours			
Sealing Band (Vertical Sealing Units)	360 Hours – 720 Hours			
Heater Cartridges (Horizontal and Vertical Sealing Units)	2000 Hours – 3000 Hours			
Temperature Probes (Horizontal and Vertical Sealing Units)	2000 Hours – 3000 Hours			
Film Feed Belts	360 Hours – 720 Hours			
Vacuum Filter	120 Hours – 200 Hours			
VPR Horizontal Sealing Timing Belt	6000 Hours – 10000 Hours (Also: Inspect Every 160 Hours, Replace if needed)			
Bushings Cam Segments	2000 Hours – 3000 Hours			
Springs Knife	2000 Hours – 3000 Hours			

Scheduled / Actual Maintenance Replacement Record

Item	Estimated Replacement Interval - Hours	Actual Replacement Date-Hours / Remarks:	Actual Replacement Date-Hours / Remarks:	Actual Replacement Date-Hours / Remarks:
Other Items:				
General Pneumatic Equipment	Inspect Every 160 Hours. Replace Items as Needed			
General Mechanical Equipment	Inspect Every 160 Hours. Replace Items as Needed			
General Electrical Equipment	Inspect Every 160 Hours. Replace Items as Needed			
Other:				
Other:				
Other:				
Other:				

Section 10: Troubleshooting

This section describes the warning and alarm messages that may appear on the operator interface, their possible cause(s), and their possible solution(s). Generic alarms are listed first, followed by specific alarms (in alphabetical order). The *Warning Messages* and potential *Operation Issues* are described on tables at the end of this section.

Note: Always check signal wiring if the cause of the alarm cannot be determined.

Alarm Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Any Axis Drive Fault	1) This fault may sometimes accompany other faults such as *Any Axis* Feedback Fault, Feedback Noise Fault, or Position Error Fault. 2) This fault will usually be accompanied by an error code flashed on the servo drive itself.	1) Diagnose and correct the faults listed above first, if any are present. 2) Note the error code on the drive and refer to your Allen-Bradley Digital Servo documentation. 3) If Allen-Bradley documentation does not help to diagnose the problem, call the Rovema service department. 4) Call Allen-Bradley technical support directly.
Any Axis Feedback Fault	1) The servo feedback cable is loose, has a broken wire or is otherwise damaged. 2) The servo drive module is damaged. 3) The servo motor is damaged.	1) Tighten or replace the feedback cable. 2) Replace the servo drive. 3) Replace the servo motor.
Any Axis Feedback Noise Fault	1) Improper grounding often causes noise problems. 2) The servo motor encoder may be damaged.	1) Ensure that the servo feedback cable connections are secure. Check ground and shielding connections and wiring for the servo drive and other system components. 2) Replace the servo motor.

Alarm Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Any Axis Motor Overload Tripped	1) The overload device has tripped due to over current detection.	1) Open the main electrical enclosure and reset the overload device; if the condition recurs, check for proper wiring to motor, replace motor, and/or replace overload device.
Any Axis Motor Thermal	1) The motor has detected an over temperature condition.	1) Check for an overload condition being placed on the motor. Check the speed setting. If the load is not excessive, reduce the speed setting. If no problems are found, check the condition of the motor as it may be necessary to replace motor.
Any Axis Position Error Fault	1) There is a physical hindrance, which does not allow the servo axis to move properly. 2) The programmed acceleration or speed of the axis may be too high.	1) Visibly inspect the axis looking for problems such as obstructions, broken or misaligned drive trains, and improper lubrication. 2) Make sure that all HMI parameters are set correctly. Load an old program if necessary.
Any Axis Servo Configuration Fault	1) There is a problem with the program configuration of the servo controller module or one or more of the servo drives.	1) Diagnosing this problem requires being on line with the ControlLogix (CLX) processor. 2) Refer to CLX online help or Rockwell Software CLX documentation for instructions on diagnosing this fault. 3) Call the Rovema service department. 4) Call Allen-Bradley technical support.

Alarm Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Any Axis Servo Module Fault	1) This fault indicates a problem with the SERCOS motion controller module itself which controls all the servo drives.	1) Refer to Rovema documentation for the specific part number of the module used on this system. 2) Refer to Allen-Bradley documentation for instructions on diagnosing motion module problems. 3) Call the Rovema service department. 4) Call Allen-Bradley technical support.
Any E-stop Pressed	1) An EMERGENCY STOP push-button is depressed.	1) Pull out the EMERGENCY STOP push-button(s).
Any Guard Door Open	1) The MACHINE READY push-button was pressed while one of the guard doors was open.	1) Close all guard doors and press the MACHINE READY push-button again.
Air Pressure Fault	1) The pressure in the air manifold has dropped below the set limit. 2) The pressure switch has malfunctioned.	1) Check the pressure at the air filter/regulator. 2) Check and/or adjust the pressure switch.
Code Dater Fault	1) The printer (code dater) has experienced a fault.	1) Refer to the operator's manual for the code dater. Clear the code dater's fault, then press the MACHINE READY push-button to reset the machine.
E-stop Pressed	1) An EMERGENCY STOP push-button is depressed.	1) Pull out the EMERGENCY STOP push-button(s).
Film Belts Open	1) The MCR is energized but the film transport belts are open.	1) Close the belts with the BELTS OPEN/CLOSED switch on the Adjustments screen.
Film Left Axis Fault	1) The servo motor has experienced a fault.	1) Refer to the Ultra 3000 Series Drive Installation Manual for troubleshooting instructions.

Alarm Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Film Missed Registration Mark During Sync Fault	1) The registration sensor did not see the registration mark because of slack in the film web. 2) The sensor lens is dirty. 3) The sensor is not adjusted to distinguish between the marks and the film. 4) The film web has drifted away from the registration sensor. 5) The film registration detect window is not setup correctly. 6) Your using non-registered film but the registration system is turned on.	1) Eliminate the slack in the film web. 2) Clean the sensor lens. 3) Adjust the sensor's sensitivity. 4) Adjust film positioning manually using the MOVE FILM LEFT/RIGHT push-buttons on the Adjustments screen OR adjust the film tracking sensors on the machine. 5) Adjust the film registration detect window for proper sensing of the mark. 6) Turn off the registration system.
Film Right Axis Fault	1) The servo motor has experienced a fault.	1) Refer to the Ultra 3000 Series Drive Installation Manual for troubleshooting instructions.
Film Roll Empty Fault	1) The film roll is empty. 2) Too much slack in the film web has caused the dancer assembly to fall to the bottom of the film carriage triggering an out of film error.	1) If the film roll is empty, load a new roll of film onto the film carriage. 2) Turn the film roll by hand to rewind it and pull the dancer assembly to the level position.
Front Cabinet E-Stop Pressed	1) An EMERGENCY STOP push-button is depressed.	1) Pull out the EMERGENCY STOP push-button(s).
Guard Door Open	1) The MACHINE READY push-button was pressed while one of the guard doors was open.	1) Close all guard doors and press the MACHINE READY push-button again.
Jaw Axis Fault	1) The horizontal sealing jaw servo drive has experienced a fault.	1) Refer to the troubleshooting section of the servo drive operator's manual.
Jaw Front RTD Fault	1) The RTD device providing feedback to the temperature controller has failed.	1) Check the wiring. 2) Replace the RTD.
Jaw Rear RTD Fault	1) The RTD device providing feedback to the temperature controller has failed.	1) Check the wiring. 2) Replace the RTD.
Jaw Homing Failed Fault	1) The jaw home prox signal was not seen by the drive during the jaw homing sequence.	1) Refer to the drawings and check the jaw home prox wiring, including the 24v source voltage to the jaw drive.

Alarm Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Jog Mode Fault	1) If the machine is running and the AUTO/JOG selector switch is changed to JOG, this fault is generated.	1) Press the MACHINE READY push-button to clear the fault. Use the STOP push-button to initiate future cycle stops.
Left Film Axis Fault	1) The film feed servo drive has experienced a fault.	1) Refer to the troubleshooting section of the servo drive operator's manual.
Loss of Communications with PLC	1) The HMI has lost communication with the PLC.	1) Check the integrity of the Ethernet connection between the HMI and the Ethernet switch and between the switch and the PLC. 2) Ensure that the communication drivers are running with no errors. Powering the machine down for a minimum of 30 seconds and then back up may be the easiest way to do this. 3) Check the HMI, PLC or Ethernet hardware. 4) Call Rovema service.
MCR Not Energized	1) An emergency stop pushbutton has been pressed or a guard door has been opened and disabled the master control relay.	1) If no unsafe conditions exist, reset all e-stops and close all guard doors. Press the MACHINE READY push button to energize the MCR.
Missed Registration Marks Fault	1) The registration sensor did not see the registration mark because of slack in the film web. 2) The sensor lens is dirty. 3) The sensor is not adjusted to distinguish between the marks and the film. 4) The film web has drifted away from the registration sensor. 5) The film registration detect window is not setup correctly.	1) Eliminate the slack in the film web. 2) Clean the sensor lens. 3) Adjust the sensor's sensitivity. 4) Adjust film positioning manually using the MOVE FILM LEFT/RIGHT push-buttons on the Adjustments screen OR adjust the film tracking sensors on the machine. 5) Adjust the film registration detect window for proper sensing of the mark.
Right Film Axis Fault	1) The film feed servo drive has experienced a fault.	1) Refer to the troubleshooting section of the servo drive operator's manual.

Alarm Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Servo Not Ready	1) You pressed the MACHINE READY push-button after changing a touchscreen parameter but the motion controller is still assimilating the changes.	1) Wait for the motion controller to finish assimilating your parameter changes.
Temperature Jaw Front Fault	1) The sealing temperature is above or below the alarm value set for the temperature controller.	1) Allow the sealing device to reach the set point. Check that the heating cartridge and temperature probe are functioning correctly.
Temperature Jaw Rear Fault	1) The sealing temperature is above or below the alarm value set for the temperature controller.	1) Allow the sealing device to reach the set point. Check that the heating cartridge and temperature probe are functioning correctly.
Temperature Vertical Fault	1) The vertical seal device temperature is above or below the alarm value set for the temperature controller.	1) Allow the sealing device to reach the set point. Check that the heating cartridge and temperature probe are functioning correctly.
Vertical Band Seal Broken	1) The sealing band has broken. 2) The sealing band has come off track.	1) Replace the sealing band. 2) Put the sealing band back on track.
Vertical Seal Drive Fault	1) The speed controller for the vertical sealing device drive motor has experienced a fault.	1) Refer to the troubleshooting section of the 160 SSC Operator's Manual.
Vertical Seal Motor Fault	1) The vertical seal drive motor has over heated.	1) Allow the motor to cool. Check for excessive loading on the motor which could cause the overheating.
Vertical Seal RTD Fault	1) The RTD device providing feedback to the temperature controller has failed.	1) Check the wiring. 2) Replace the RTD.

Warning Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Warning- Code Dater Low Ribbon	1) The code dater (printer) is about to run out of ribbon.	1) Prepare to add more ribbon to the code dater.
Warning-Controller Low Battery	1) The battery that maintains the PLC memory is almost exhausted.	1) Replace the battery. Refer to the PLC operator's manual for battery installation instructions.
Warning-Downstream Not Ready	1) You have pushed the MACHINE READY push-button but the downstream equipment has not been enabled. 2) You have pushed the MACHINE READY push-button but the downstream equipment is experiencing a fault.	1) Enable the downstream equipment from the Adjustments screen. 2) Check why the downstream equipment is experiencing a fault.
Warning-Downstream Synchronization Signal Missing	1) You have pushed the MACHINE READY push-button but the downstream equipment is not sending a ready signal.	1) Troubleshoot the downstream equipment.
Warning-Feeder Not Ready	1) You have pushed the MACHINE READY push-button but the product feeder has not been enabled. 2) You have pushed the MACHINE READY push-button but the product feeder is experiencing a fault.	1) Enable the product feeder from the Adjustments screen. 2) Determine why the product feeder is experiencing a fault.
Warning-Feeder Wait Timer Expired.	1) The feeder was not ready for a period greater than 15 minutes.	1) Examine the product infeed system.
Warning-Film Carriage At Left Limit	1) The film carriage has reached the end of its leftward travel.	1) Use the FILM CARRIAGE POSITION button on the Adjustments screen to move the film carriage to the right.
Warning-Film Carriage At Right Limit	1) The film carriage has reached the end of its rightward travel.	1) Use the FILM CARRIAGE POSITION button on the Adjustments screen to move the film carriage to the left.
Warning-Film Roll Low	1) The film roll is almost exhausted.	1) Prepare to load a new film roll.

Warning Messages		
Message	**Possible Cause(s)**	**Possible Solution(s)**
Warning- Film Transport Not Complete	1) The film belts are still advancing the film when the bag maker reaches the Film Transport Off Position set on the HMI.	1) Change the film transport on and off positions on the HMI to create a longer window for moving the film.
Warning-Jaws Not Homed, Jog Failed	1) The jaw axis needs to be homed before the jog sequence will be active.	1) Switch the bag maker back to run mode and start it. Allow the jaws to home before switching back to jog mode.
Warning-Processor has loaded a program from nonvolatile memory	1) The processor battery failed to maintain the program when power was removed and the processor has loaded a program from the nonvolatile memory location when power was reapplied.	1) Replace the processor battery. NOTE: Recipe data saved after the last program store will be lost when a program load from nonvolatile memory occurs.

Operation Issues	
Issue	**Possible Cause and Solution**
Bag Length Inconsistent	1) The film is not threaded properly. 2) The film feed belts tension is improperly adjusted. 3) The film feed belts need to be cleaned.
Bag Length Is Too Long	1) Bag length is incorrectly set. 2) Reset bag length in control display. 3) Registration Photoeye not set correctly
Bags Not Cutting Or Only Partial Cut	1) Knife is broken. 2) Knife is dull. 3) Knife is improperly adjusted. Check the timing. 4) Knife is dirty. 5) Knife slot needs cleaning.
Bags Tear Next To Cross Seals	1) The sealing temperature is too high. 2) The cross-sealing jaws are out of alignment. 3) The sealing pressure is too high.
Cross Seals Are Not Sealed	1) The temperature of the cross-sealing jaws is too low. 2) The front and rear cross-sealing jaws do not properly mate when they are closed. (Check Jaw alignment) 3) The heating cartridge is defective. 4) The temperature probe is defective. 5) Check seal pressure. 6) Check for broken spring.
Cutting Knife Is Not Retracting	1) The knife slot may be clogged. Dismantle the cutting knife and clean the slot. 2) Clean front cross-sealing jaw knife slot. 3) Knife may be improperly located. 4) Check air pressure.
Film Feed Belts Slipping	1) Not enough pressure on film feed belts. 2) Belts are dirty. 3) Belts are worn. 4) Belts are misaligned to tube. 5) Vacuum filter or hoses clogged. 6) Vacuum turned off. 7) Film not properly threaded.
Film Feed Belts Will Not Move	1) Check for too much air pressure on belts. 2) Check the film drive gear boxes and couplings. 3) Check cables and drive for film feed motor. 4) Check the bearings in the belt drive shaft.
Film Jams at the Forming Tube	1) Vertical seal band too hot, causing film to stick. 2) Too much pressure on vertical seal band. 3) Film co-efficient of friction is too high.

Operation Issues	
Issue	**Possible Cause and Solution**
Film Runs Off-Center	1) The roll of film is not centered on the film carriage or spindle 2) The Film roll is improperly wound 3) Film roll is loose on Air Spindle. 4) Belts are misaligned to tube.
Film Shows Creases	1) Forming collar worn out. 2) Forming collar improperly adjusted. 3) Setup roller improperly adjusted. 4) Valve stuck on forming collar or rollers. 5) Contaminated roller in film path.
Film Sticking to the Cross-Sealing Jaws	1) Cross-sealing jaws need cleaning. 2) Heat set too high. 3) Too much pressure. 4) Vertical seal misaligned to expose sealant of inside of bag material to heated sealing jaws.
Film Sticking to the Vertical Seal Band	1) Heat set too high. 2) Too much pressure. 3) Vertical seal band needs cleaning. 4) Vertical seal misaligned to expose sealant of inside of bag material to heated seal band.
Guard Door Alarm Will Not Reset	1) Close guard doors completely. 2) Check limit switches for loose or broken bolts.
Jaw Overloads	1) Feed system drop time set too early or too late. 2) Cross-sealing jaw overload safety switch improperly set. 3) Foam Deflators set too close causing product to be pushed up into seal.
Machine Will Not Start	1) Guard doors are open. 2) EMERGENCY STOP switch locked in off position. 3) The high or low limit on the dancer bar is on. 4) Check all safety switches for improper settings. 5) Is power on and ready light illuminated (safety circuit)
Pulling Film Down Forming Tube is Difficult	1) Forming set is dirty 2) Film co-efficient of friction is too high. 3) Valve caught in collar. 4) Splice tape caught in collar. 5) Check guide rollers for foreign materials and free movement. 6) Forming collar not aligned properly to tube. 7) Contact pressure of the belts too high. 8) Setup Rollers out of alignment.
Sealing Pressure Is Incorrect	1) Clean cross-sealing jaws of all product and material. 2) Check the setup in the control display. 3) Check cross-sealing jaws for wear or bowing.

Operation Issues	
Issue	**Possible Cause and Solution**
Sealing Temperature Is Incorrect	1) Check temperature settings in the control display. 2) Check all plugs on heater cables. 3) Check overloads and fuses. 4) Heater cartridge or thermal probe may be defective.
Seals Are Not Strong Enough, Can Be Easily Opened	1) Heating cartridges of one sealing surface may be defective. 2) The sealing temperature is too low. 3) Too much dust or product in the sealing area. 4) Not enough seal pressure.
Vertical Seal Is Not Sealed	1) The temperature of the vertical seal bar is too low. 2) The overlap of the film is not correctly positioned under the vertical seal band. 3) The vertical seal band is not aligned properly with the forming tube. 4) The heating cartridge is defective. 5) The temperature probe is defective. 6) The sealing pressure is too low and must be readjusted. 7) Check air operation of vertical seal bar. 8) The film is not tracking properly.