FORMOST FUJI

High-Speed Horizontal Form-Fill-Seal Wrapper

Instruction Manual

Read and store this manual within easy reach

α8

FW3400/B series

-00 / -01 / -10 / -80

FW3700/B series

-00 / -01 / -10 / -80

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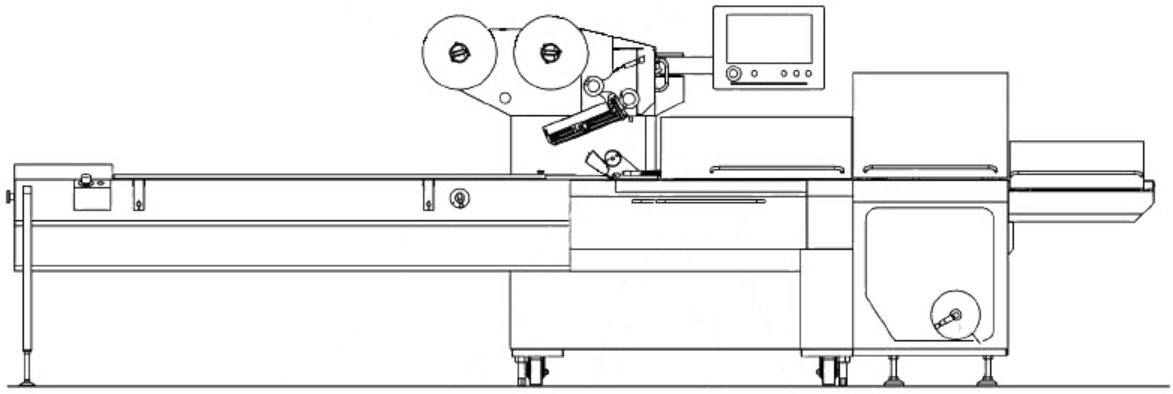
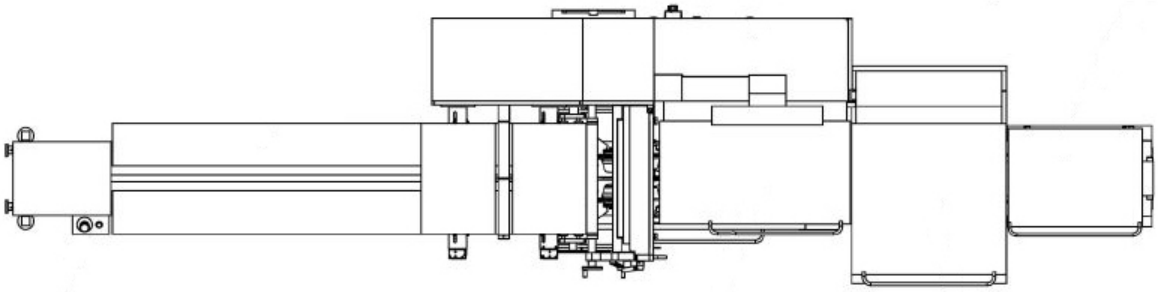
Introduction



Front View



Overhead View

Thank you for purchasing your new Alpha 8 High-Speed Horizontal Form-Fill-Seal Wrapper. We thank you for your support and we hope it brings you many years of dependable performance.

Instructions

For best and safest results, read this manual completely before beginning operation. Pay close attention to Chapter 1: Safety, as it lists all safety warnings, requirements, and instructions for this machine.

Please keep this manual near the machine and refer to it regularly for safe operation instructions, for maintenance information, and for training new operators.

Upon delivery, our service personnel will explain how to handle and inspect the machine and will supply information on the skills necessary to use the machine. Follow their instructions closely.

Professionals and specialists should be the only people performing maintenance on this machine, including but not limited to:

Mechanical Maintenance, such as:	Electrical Maintenance, such as:
• Repair, adjustment, and replacement of parts damaged by problems with the machine. • Replacement of consumable parts. • Daily, weekly, and other periodic inspections. • Other work concerning the moving parts of this machine.	• Any time someone opens the main electrical control box because of electrical trouble. • Replacement, alteration, and adjustment of electrical equipment. • Inspection and replacement of wiring. • Other work concerning the electrical components of this machine.

Introduction (continued)

Quality control and manufacturing management are necessary to prevent defective products.

We recommend:

- Start production only after testing that the machine wraps products correctly at full speed.
- Inspect product periodically during production to ensure continued performance.
- When wrapping a new product or using new film, increase the frequency of inspection sampling.

After delivery and setup, it is your responsibility to make sure your employees follow all local laws and regulations concerning good manufacturing practice, hazard analysis, and if applicable, food handling.

Notes

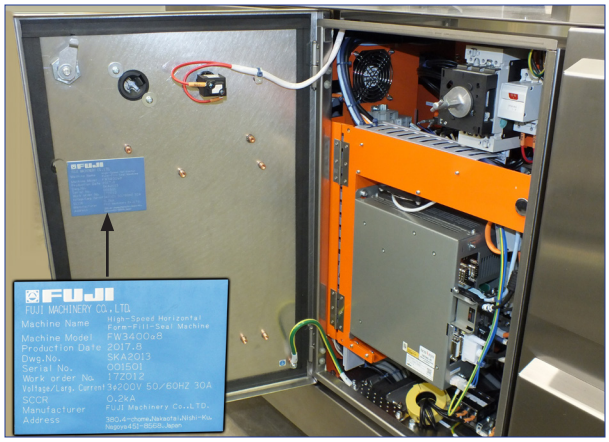
- The contents in this manual may vary slightly from your actual machine.
  - For example, all illustrations are for right-hand machines. If you have a left-hand machine, the images are reverse to your machine.
- Screens shown in this manual may not match those on your machine. These changes may be based on specific requirements for your machine or evolutions of the screen interface over time.

Exemption of Responsibility

Unless otherwise noted in your sales contract, the warranty period for this machine is one year from delivery. Please note that within the warranty period, we will charge you for repairs to the machine in the following cases:

1. Damage from earthquake, lightning, storm, flood, or arson, as well as intentional damage caused by operators or third parties, whether by mistake, abuse, or usage under other abnormal conditions.
2. Damage from incomplete or incorrectly performed maintenance.
3. Damage from modifications made to the machine or from combining this machine with devices or software over which we have no control or reference.
4. Wear of consumable or expendable parts.

Introduction (continued)



Contact Information

If you have any questions about machine operation or repairs, please contact us.

We will require the following information, most of which you will find on the blue plate inside the main electrical control box.

REMEMBER

The exact position of the plate will vary from machine to machine.

Your Company Name:	**Machine Model:**			
Production Date:	**Dwg. No.:**			
Serial No.:	**Work Order No.:**			
Voltage/Large Current:	**Ø**	**V**	**Hz**	**A**

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Introduction (continued)

Manual Conventions

1. All illustrations in this manual are for a right-hand machine. Illustrations will show the direction of product flow when orientation is not clear. Because of the many variables in machine construction, the examples and diagrams in this manual are for illustrative purposes only.
2. Pages shown in this manual may not match those on your machine exactly. These changes may be based on specific requirements for your machine or minor evolutions of the interface over time.
3. Every chapter in this manual begins with safety announcements for that chapter, followed by an introduction which lists important points found in that chapter. If there is no safety section, the chapter deals with the larger concepts of how the machine works. All safety guideance still applies when transferring that information to the actual use of the manual.
4. Cross-references begin with “See” and always include a page number. If the reference only lists the page number, it points to information in the same chapter. References outside the current chapter will include either the chapter or sub-chapter header as well as the page number.
5. The manual uses the following words to mean specific things or actions:

• Can	Capable to do something.
• Cannot	Incapable of doing something.
• Could	Possible
• May	Permitted or allowed.
• Must	Unavoidable, compulsory.
• Shall	Mandatory or required.
• Should	Recommended or advisory
• Should Not	Not recommended, advised against.

• Film	The protective outer covering of a product.
• Product	The object wrapped in film.
• Package	The completed combination of a product wrapped in film.

• Page	A group of data, images, and touchable areas related to a function.
• Screen	An electronic device which displays pages.
• Panel	A flat surface on which both push buttons and a screen are attached.
• Control Panel	A specific page containing on/off buttons for different Wrapper functions.
• Display	This manual only uses “display” as a verb meaning “to show.”

• Part	The smallest individual piece of the Wrapper.
• Component	A group of parts for a specific purpose.
• Assembly	A group of components which work together to perform a function.
• Unit	The largest group for the Wrapper. A group of assemblies

• You	The company who uses the machine and also the person reading this.
• We	The Formost-Fuji Corporation.

Chapter 1 Safety

1.1 Introduction

This chapter covers the safe use of your Wrapper. It is an overview of the potential hazards associated with using the machine and exactly what those hazards can mean to you physically..

Safety is the cornerstone of any successful operation. Our most important considerations are ensuring the machine is as safe as possible and ensuring that all operators are trained in the machine's hazards as well as its safe operation. To that end, every chapter and sub-chapter will begin with a listing of all applicable safety announcements for that section.

- For an explanation of our Safety Policy, see page 3.
- For the Wrapper's noise levels, see page 3.
- For an explanation of hazard terms, symbols, and stickers, see page 4.
- For a full list of all Danger, Warning, and Caution hazard flags in this manual, see page 6.

1.2 Safety Policy

Throughout the design process, we take every measure to remove foreseeable hazards.

1. We study measures and international safety standards to remove hazards (ISO 13849).
2. We install safety devices including door switches which shut the machine off if the door opens while the machine is running.
3. We document remaining hazards with warning stickers on the machine and call outs in the instruction manual.

However, no machine is perfectly safe, and some hazards will always exist due to the nature of the machine's function. Exercise caution and common sense to avoid injury while running this machine. Formost-Fuji expects you to train your employees in safety and machine handling before they use the machine. Note that this manual does not cover state and local regulations.

An example of a power switch lockout device.

Safety Lockout

Several sections of this manual refer to disconnecting the power before repair or maintenance. Find the main breaker at the rear of the machine on the door of the main control box. Turn the breaker OFF and lock it to prevent accidental restarting of the machine (see image at left).

When locking out the system power, follow all local safety guidelines and only use compliant lockout devices and/or tags.

1.3 Noise

This machine emits a quasi-steady impulsive noise which ranges between 70 to 85 decibels (dB). Certain optional devices and parameters may increase the noise to over 85 dB.

- **Over 85 dB**, make ear plugs and other hearing protection available to workers in the area.
- **Over 90 dB**, require personal protective devices.

1.4 Explanation of Warning Symbols

Hazard Alert Symbols in this Manual

These symbols appear throughout this book. They draw your attention to various hazards to your health and to the safe operation of the machine. Pay close attention to these warnings.

DANGER	**DANGER** safety messages signal a hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	**WARNING** safety messages signal a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	**CAUTION** safety messages signal a hazardous situation which, if not avoided, could result in minor or moderate injury.

In addition to the three physical safety warnings shown above, there are two other banners in this manual:

NOTICE	**NOTICE** flags address practices not related to physical injury and mostly deal with preventing damage to the machine.
REMEMBER	**REMEMBER** flags give detailed information on a subject. These flags are not related to safety or accident prevention.

Explanation of Warning Symbols (continued)

Hazard Alert Symbols on the Machine

Stickers on the machine supply easy-to-understand warnings for workplace hazards. Inspect the machine and find these alerts. If the hazard's source is not obvious, ask your installation technician.

	Indicates a general hazard.		Indicates a high voltage electrical hazard.
	Indicates a hot area which may burn, scald, or singe clothing or unprotected skin.		Indicates a cutting or shearing hazard. This includes knives, sharp edges, or other moving parts.
	Indicates a catching hazard which can pull hands or clothing into the machine.		Indicates a pinching or crushing hazard.
	Indicates a hot cutting or shearing hazard. It may cut and burn at the same time.		

1.5 Danger

DANGER

These safety messages indicate hazardous situations which, if not avoided, *will* result in death or serious injury.

► HIGH VOLTAGE

• Lock out and tag out the electrical supply during setup,maintenance, or repair.

• Grounding wires reduce the risk of electric shock.

• When the machine is energized, touch nothing inside the Main Control Box except the keys of the Inverter keypad.

► MAGNETIC FIELD HARMFUL TO PACEMAKERS

• Inductive Heater coils emit an electromagnetic field which can damage or disable a pacemaker.

• Persons with pacemakers or other medical implants must stay back three (3) feet.

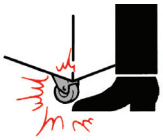
1.6 Warning

⚠ WARNING

These safety messages indicate hazardous situations which, if not avoided, *could* result in death or serious injury.

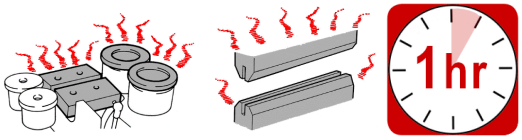
► TIPPING HAZARD
- Do not move this machine alone.
- Use at least three (3) people.

► CRUSHING HAZARD
- Your feet can get caught under casters when moving the machine.



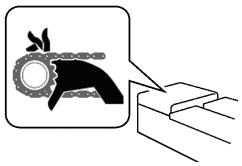
► PRESSURIZED AIR
- Flying debris can injure your eyes.
- Wear safety goggles when using pressurized air or when working on the air supply.
- Disconnect air supply before setup or repair.

► BURN HAZARD
- Center sealers and end sealers are hot.
- Sealers can remain hot for up to sixty (60) minutes after disconnecting power.



► BURN RISK
- Wear gloves when maintaining hot sealers.

► CATCHING AND CRUSHING HAZARD
- Moving parts can catch and crush.
- Keep hands away from sprocket and chains when they are moving.



► CRUSHING HAZARD
- Center Seal Unit and Transfer Brush Units are heavy.
- Hold the unit firmly to prevent dropping it.

►RESIDUAL SHOCK RISK
- Electrical parts can remain charged up to five (5) minutes after disconnecting power.

► Alert all people nearby and announce that the machine is starting.

► Keep area around the wrapper clear of loose tools or other hazards.

1.7 Caution

⚠ CAUTION

These safety messages indicate hazardous situations which, if not avoided, could result in minor or moderate injury.

► PINCH HAZARD

• Keep hands and fingers away from pinch points near the safety cover or the component you are adjusting.

► FILM ROLLS ARE HEAVY.

• Be careful when handling and loading film rolls.

► SHARP KNIVES

• Keep hands out from between the end sealers, even when the power is turned off.

Chapter 2 Installation

2.1 Safety

DANGER

► HIGH VOLTAGE

• Lock out and tag out the electrical supply during setup,maintenance, or repair.

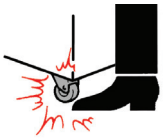
• Grounding wires reduce the risk of electric shock.

WARNING

► TIPPING HAZARD

Do not move this machine alone.
Use at least three (3) people.

► CRUSHING HAZARD



Your feet can get caught under casters when moving the machine.

► PRESSURIZED AIR

• Flying debris can injure your eyes.
Wear safety goggles or similar eye protection when working on the air supply.
• Disconnect air supply before setup or repair.

NOTICE

• Install this machine on a flat and level surface.

• Avoid very dusty areas or areas with direct sunlight or high humidity.

• All wiring should be performed by a licensed electrician.

• Always confirm electrical specifications for your machine on the blue plate found in the main electrical controls box.

2.2 Introduction

This chapter explains how to move and position your Wrapper. Most companies receive their Wrapper, position it once, and bolt it to the floor. We make other Wrappers that can move from production line to production line. In either case, this is several hundred pounds of metal so it requires your care and attention when it is moving.

- For site selection and preparation, see page 12.
- For machine movement basics, see page 12.
- For electrical and wiring requirements, see page 14.
- For air supply requirements, see page 15.

2.3 Machine Movement

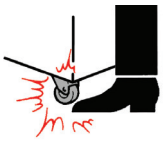
⚠ WARNING

► TIPPING HAZARD

Do not move this machine alone.
Use at least three (3) people.

► CRUSHING HAZARD

Your feet can get caught under casters when moving the machine.



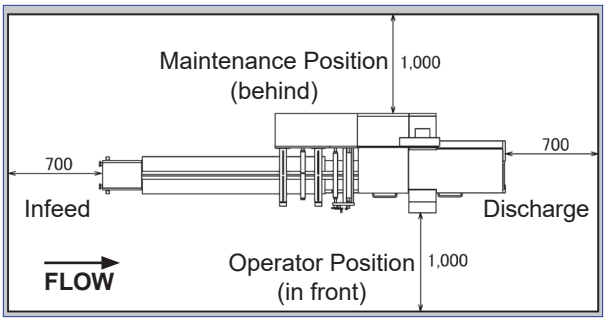
Before Moving the Machine

Refer to the layout image in the appendix for the installation layout designed for your machine.

Clear an area around the intended location. The area should be solid, level, and capable of bearing the machine's weight.

Clear an area:

- At least 3 feet (1 meter) of permanent clearance in front and behind the machine. This will allow access both during installation and after production begins.
- At least 28 inches (700 mm) of temporary clearance on the infeed and discharge ends of the machine.
  - This area is for access during installation only.

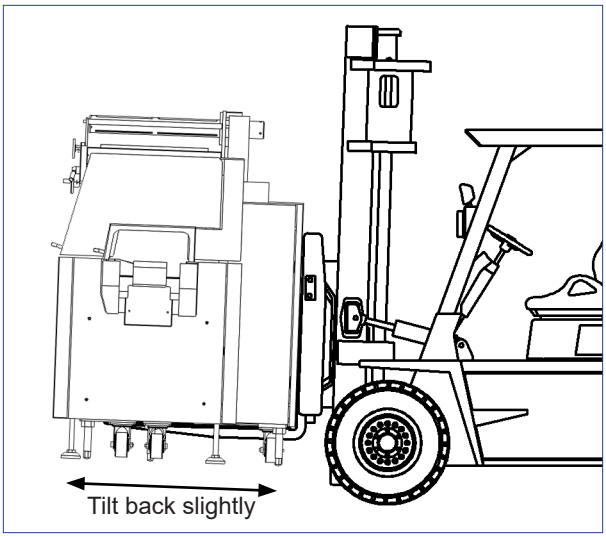


Moving the Machine

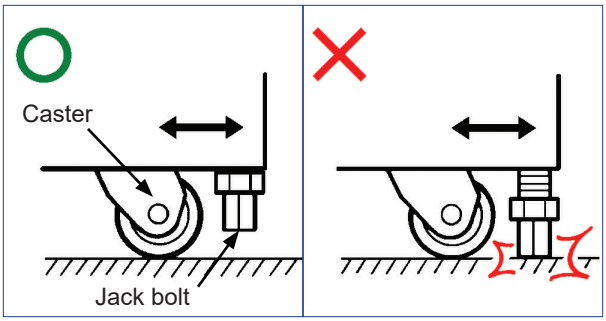
Some Wrappers have casters for easy movement, some have fixed feet and require a forklift. Check your machine and confirm which you have.

When Using a Forklift

- Use best safety and operation practices.
- Lift from the rear of the machine.
- The machine can be top-heavy. Tilt the machine back slightly to prevent tipping.
- Secure forks before using the forklift.
- Position forks to balance the load evenly before lifting.
- Use padding and load-securing straps where needed.

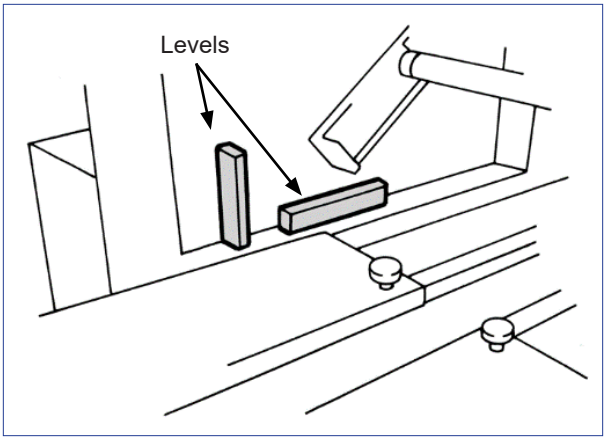


Machine Movement (continued)



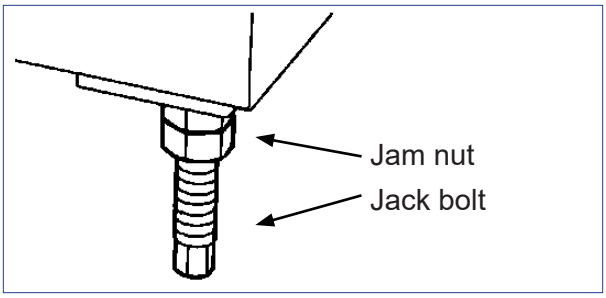
When Using Casters

- If your machine has casters, raise the jack bolts before moving the machine.
- For better control, use at least three (3) people.
- Do not remove machine legs or other supports.
- Pay attention to your feet. The Wrapper is very heavy and requires extra care and attention while moving.



Once the machine is in position

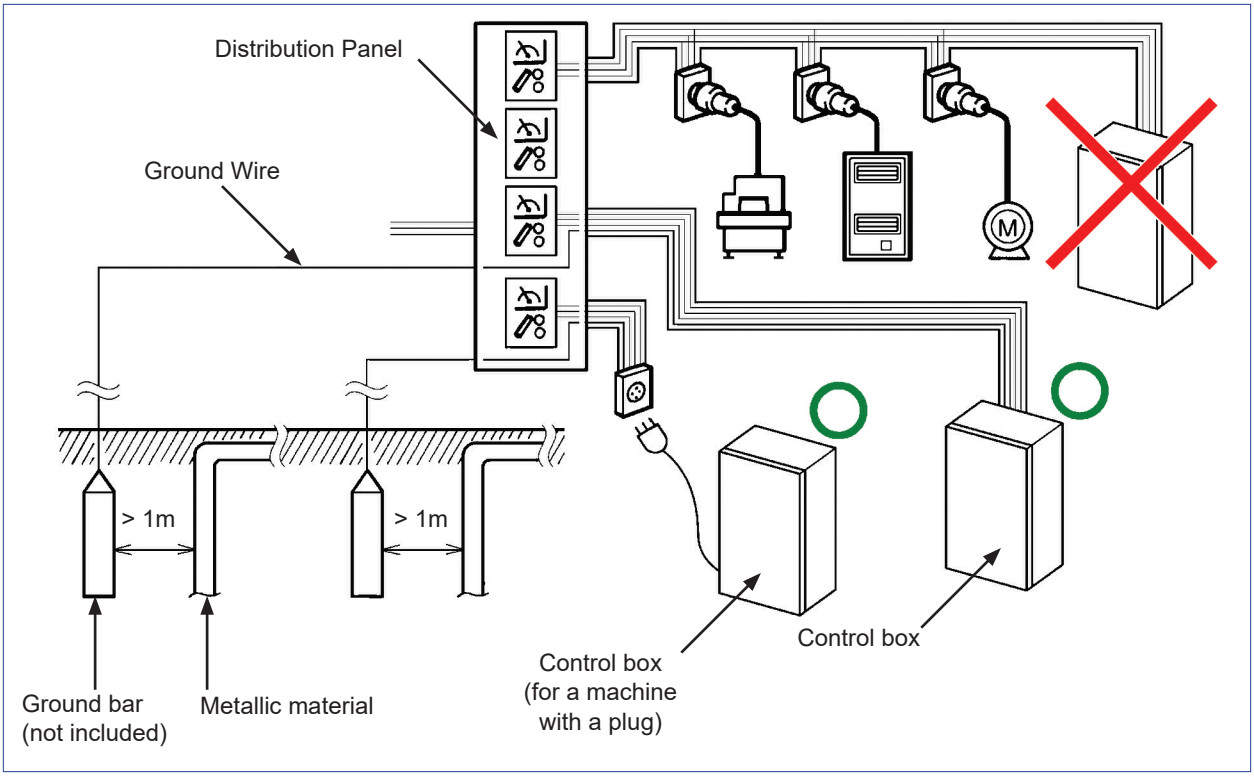
1. Place spirit levels on the Wrapper both length-wise and width-wise.
2. Raise the jack bolts until the Wrapper is level in all directions. When complete, secure the jack bolts with the jam nuts.
3. Place the levels in the same way on the infeed conveyor. Adjust the feet or casters until the conveyor is level and the decks are 5/16” (8mm) above the center sealer decks.
4. Connect the conveyor frame to the main body.
5. Secure the conveyor feet or casters with the jam nuts.



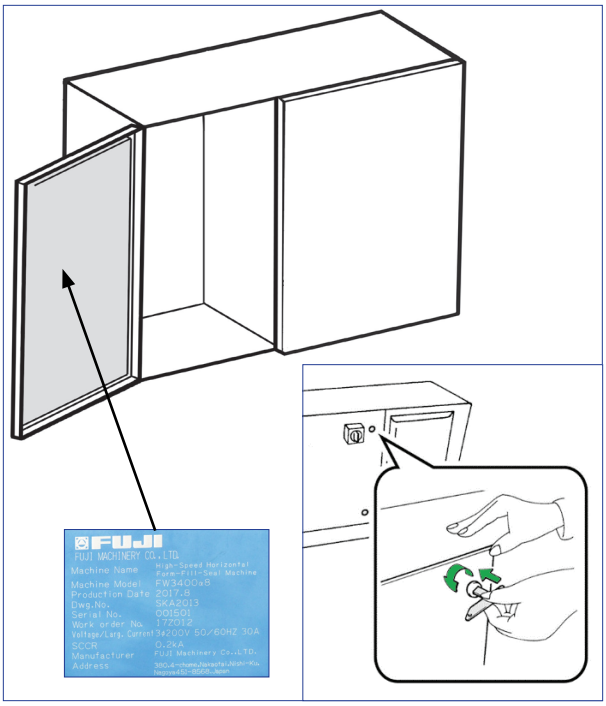
2.4 Power Supply

DANGER ► **HIGH VOLTAGE**

- Lock out and tag out the electrical supply during setup,maintenance, or repair.
- Grounding wires reduce the risk of electric shock.



Always confirm electrical specifications for your machine before beginning electrical work. A blue plate in the main electrical box lists the power supply requirements.



Connection Notes:

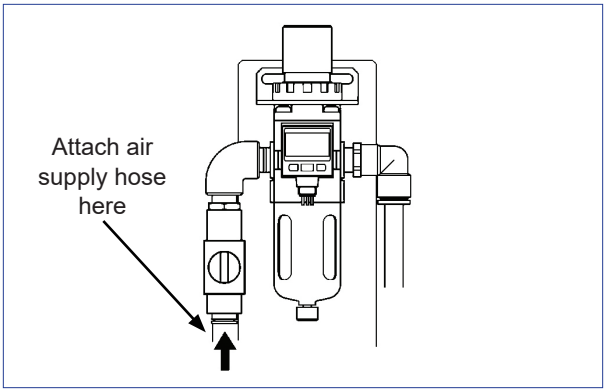
- Connect a cable to E, R, S, and T on the terminal block in the control box.
- Connect this machine to an independent branch of your distribution panel.
- Use a dedicated earth wire for this machine.
- When using a machine with a standard electrical plug, the plug rating should be Ground 3P, 30 amps and 250 volts. For regions with non-standard power supply, use a plug conforming to local source capacity.
- The connecting cable should be a 4-core cable, 600 volts pressure-resistant with allowable current of 30 amps or higher.

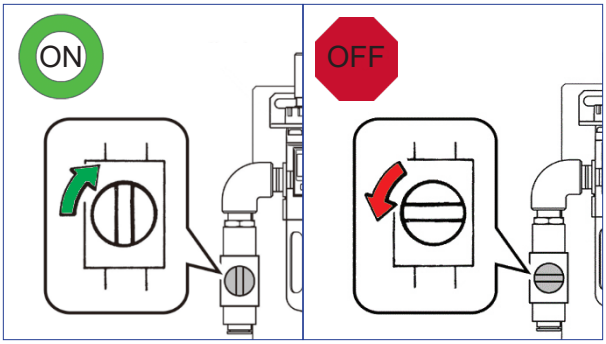
2.5 Air Supply

⚠ WARNING **PRESSURIZED AIR**

• Disconnect and lock out the air supply upstream before installing or repairing the air connection.

• Flying debris can injure your eyes.
Wear safety goggles or similar eye protection when using or installing the air supply.





Your machine may require pressurized air. Refer to the layout image in the appendix for the location of the air regulator and the air supply requirements.

If required, connect the air supply to the filter regulator mounted on the Wrapper.

- The hose mount is 10mm in diameter.
- Only use hoses and fittings rated for this pressure and rate of flow.
- Do not supply lubricated air.

Chapter 3 Machine Overview

3.1 Introduction

This chapter covers the Wrapper's components including some basic functions of the touch panel, and how they work together to wrap a product.

Use the terms and names in this chapter for clarity and consistency when communicating with the Wrapper installation team and with our service department. Miscommunication could lead to improper information, which may injure employees, delay production, or damage the machine.

Please read this chapter carefully before using the Wrapper and keep it nearby for easy reference.

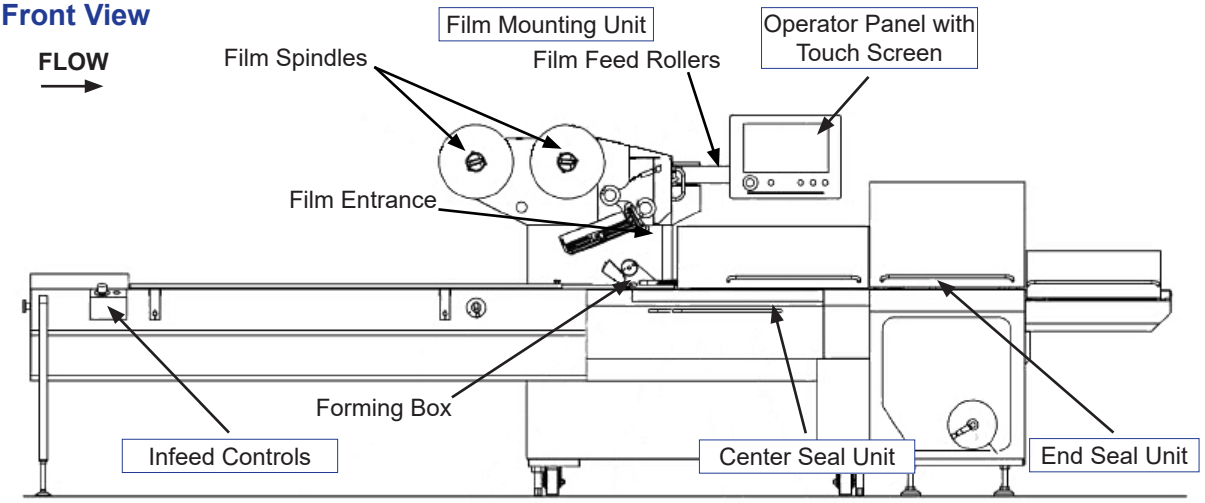
Images in this manual may differ slightly from your actual machine. Not all items shown on pages are available to all users. Some optional equipment or functions may alter or override the items shown in this chapter.

- For the basic machine layout and theory of operation, see page 20 and page 21.
- For operational units and components, see page 22.
- For power and operational controls, including the operator panel (HMI), see page 26.
- For a brief introduction to the Home Page, see page 29.

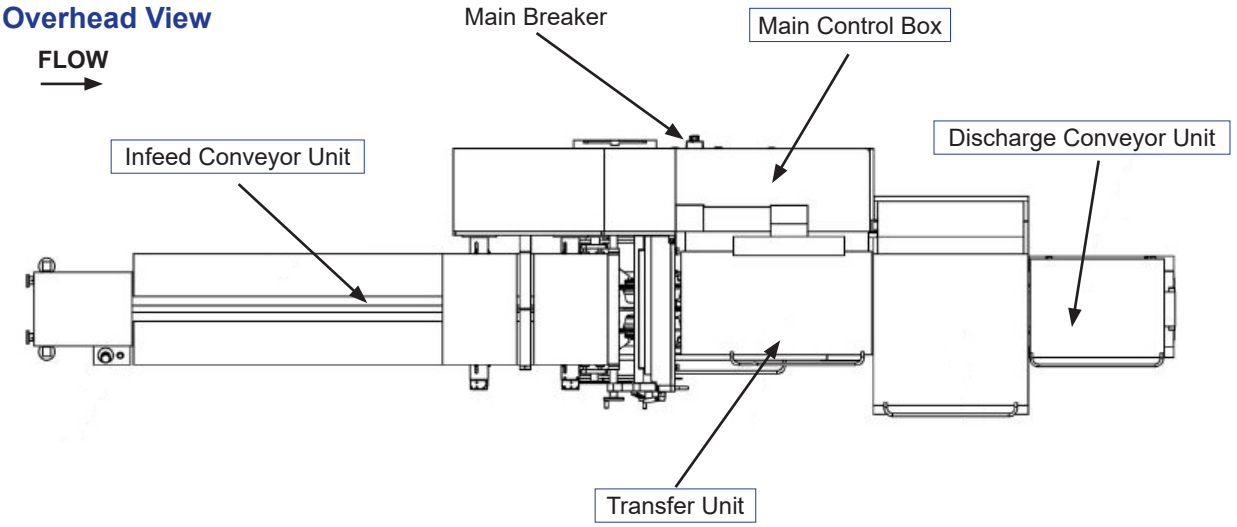
3.2 Wrapper Layout

Boxed items in the illustrations below refer to the sub-sections of Chapters 3.4 and 3.5.

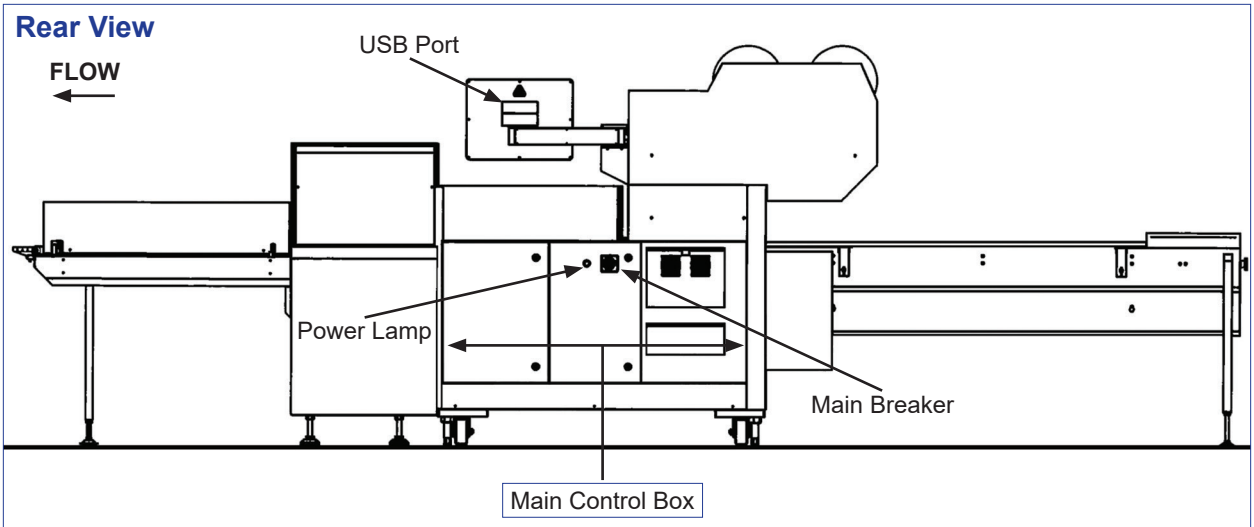
Front View



Overhead View

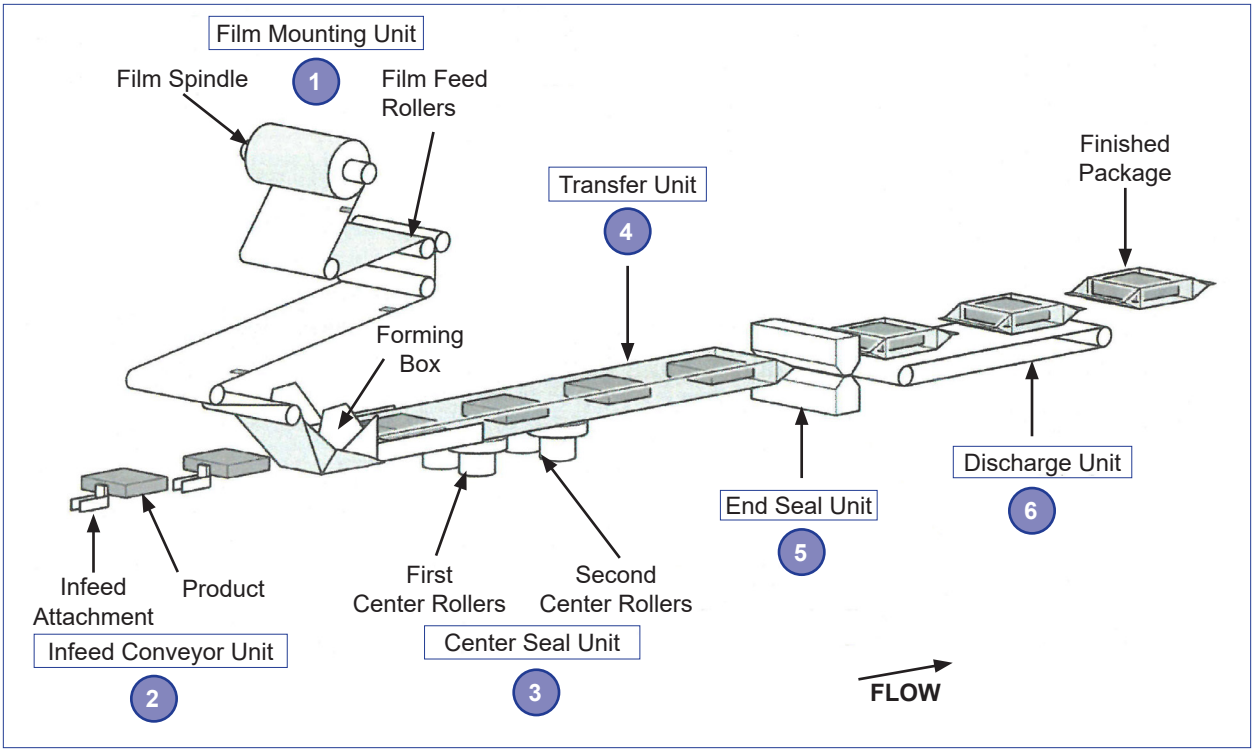


Rear View



3.3 Theory of Operation

Boxed items in the illustration below refer to the sub-sections of Chapter 3.4.



REMEMBER

All Wrappers have two film spindles. The diagram shows one spindle for simplicity.

1. In the Film Mounting Unit, the film feed rollers pull film from the film spindle and guide it into the forming box. The shape of the forming box curls the film into a tube.
2. In the Infeed Conveyor Unit, evenly spaced attachments push products downstream and deposit them inside the film tube created by the forming box.
3. Together, the product and the film tube move into the Center Seal Unit which creates the center (or “fin”) seal.
   - The first center rollers are cold and control film position and tension.
   - The second center rollers are hot and fuse the edges of the film together.
4. The Transfer Unit moves the product and the film tube from the Center Seal Unit to the End Seal Unit.
5. The heated End Seal Unit components open and close between the products. When the end sealers connect, they crimp, seal, and cut the film tube into individual packages.
6. The Discharge Unit carries the finished package away from the Wrapper.

3.4 Wrapper Components

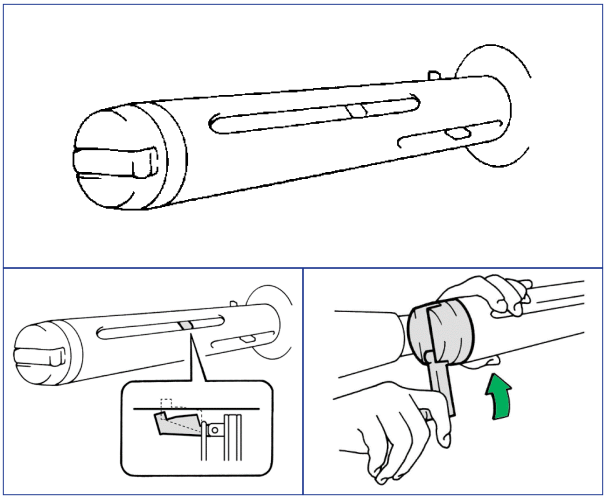
Film Mounting Unit

Film Spindles

Every Wrapper has two film spindles. This allows you to load a fresh roll of film on one spindle while the Wrapper uses film from the other spindle.

The spindle shafts are free to turn but they also supply some resistance to prevent the film from unravelling.

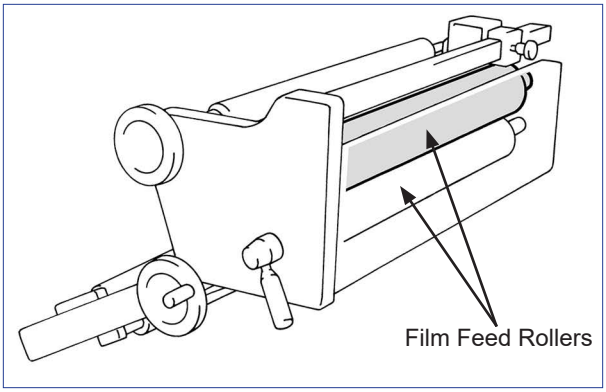
Each spindle has a series of adjustable stoppers controlled by the film fixing handle found at the end of the shaft. Retract these stoppers when removing a film roll and extend them after mounting the new roll.



Film spindle (above). Set the film stoppers (lower left) using the film fixing handle (lower right).

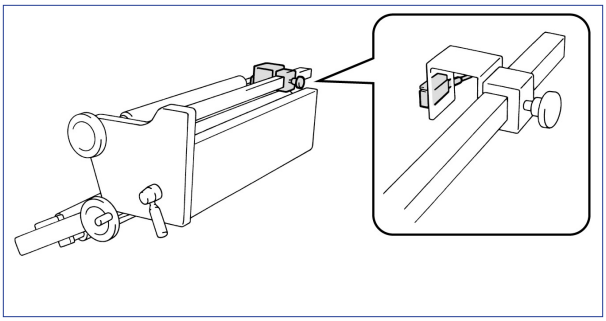
Film Feed Rollers

The film passes between two rollers – one metal and one rubber-coated. The rotation of these rollers pulls the film off the mounting shafts.



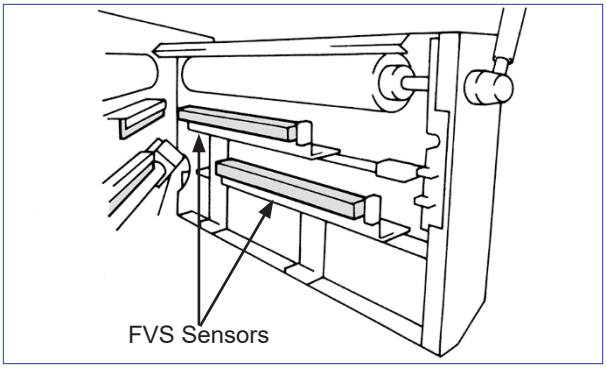
Regi-mark Sensor

A sensor detects printed registration marks (called “regi-marks”) on the film. These printed blocks help the system to measure film and to position a product within its film wrapping.

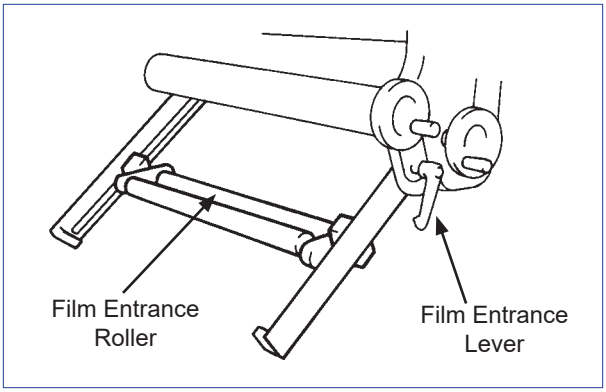


Fuji Vision System (FVS)

An optional series of sensors monitors film tracking to help maintain wrapping quality. Additionally, the system can detect film joints, labels, and print.



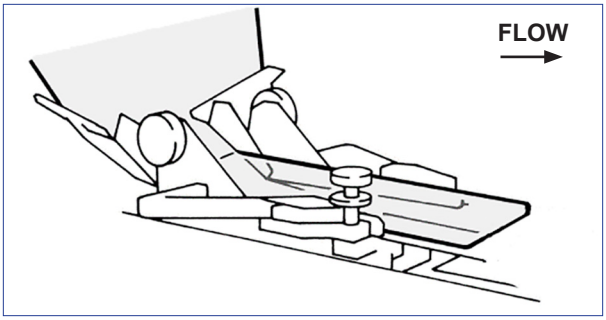
Wrapper Components (continued)



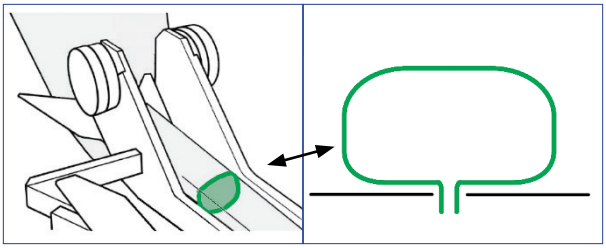
Film Entrance

A lever and an adjustable roller work together to adjust the film's angle of approach into the forming box. That angle controls film tension, which is a critical factor in the film's performance as it passes through the sealers.

When changing between two different products, you may need to change the lever and roller settings to accommodate the new product.



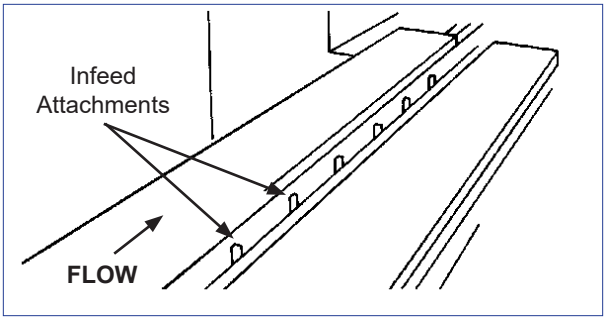
This is an example of one type of forming box. The forming box on your machine may look different.

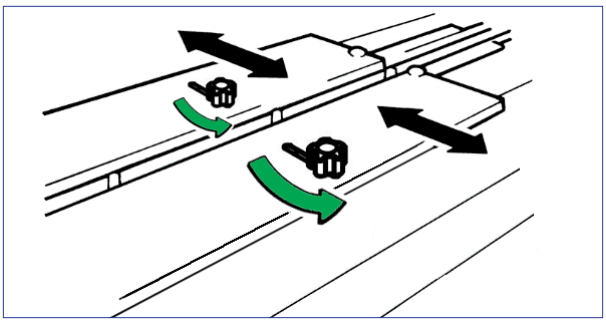


Forming Box

The forming box is an angular metal part located where the infeed conveyor meets the film's path of travel. The film wraps around the forming box's wings to create a tube. Each product arriving on the infeed conveyor lands inside this film tube.

When changing between two different products, you may need to change the forming box's position, or the position of its sub-components to accommodate the new product.





Infeed Conveyor Unit

The infeed conveyor delivers products into the forming box. The two main types of infeed are:

- **Chain-driven conveyors** are "flighted," meaning there are regularly-spaced infeed attachments that push the product downstream and into the tube of film created by the forming box. One "flight" is the space between two attachments.
- **Belt-driven conveyors** (also called "attachless" conveyors) use sensor eyes and variable-speed belts to position the product as it enters the forming box.

Both types of conveyors have adjustable side guides that keep the product centered on the belt.

Wrapper Components (continued)

Center Seal Unit

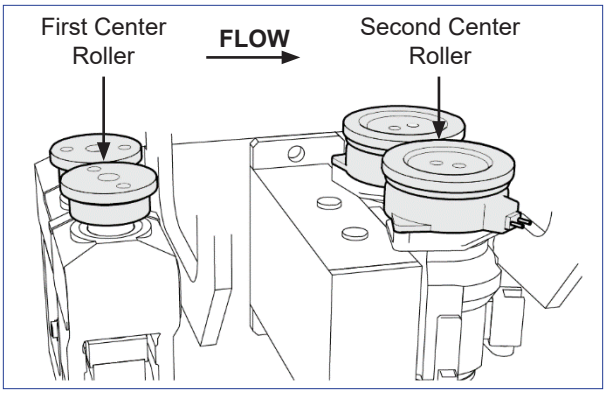
Two pairs of grooved metal wheels sit below the path of the film tube.

First Center Rollers

The first rollers pull the film from the film feed rollers and around the forming box. These cold rollers control film position and tension. You can open the first center rollers manually when loading film.

Second Center Rollers

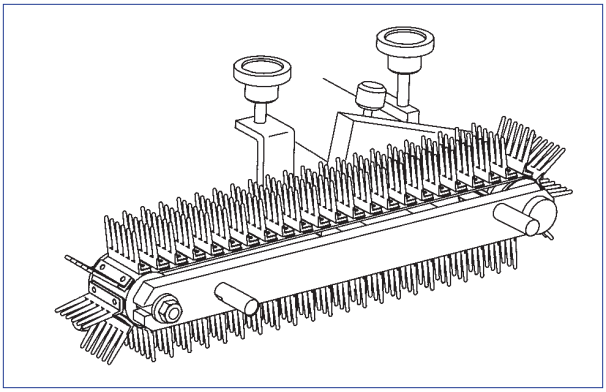
The heat and pressure of the second rollers fuse the two sides of the film, creating the package's center seal (also called the "fin seal.") When the machine stops, the second center rollers automatically open to prevent film burning.



Transfer Unit

The soft bristles of the transfer brush help to move the product between the center seal unit and the end seal unit. The brush also keeps the product spaced to prevent the product from running into the end sealers.

Adjust the height of the brush to control the amount of pressure on the product.

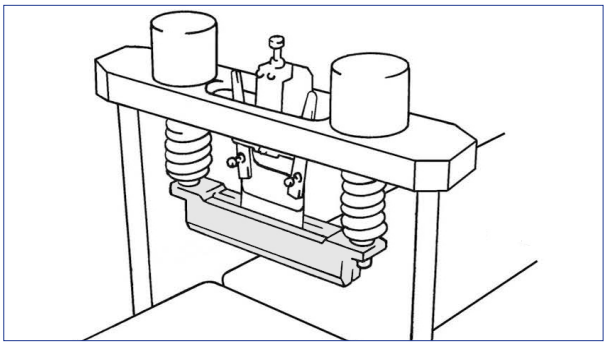


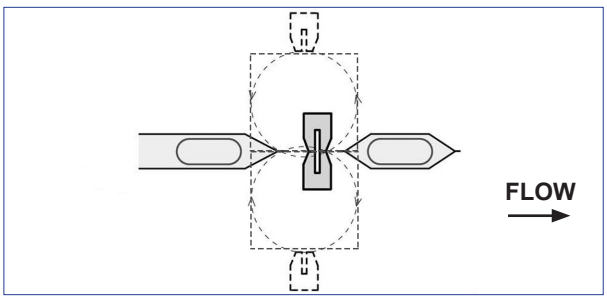
End Seal Unit

Your machine has a Box Motion End Seal Unit which has only one set of sealing units and a single blade. The primary motion of the sealer is up/down. However, the entire box motion unit - including the conveyor - also moves upstream and downstream, creating what looks like a box shape. This extra motion allows the sealer more time to fuse and split the film.

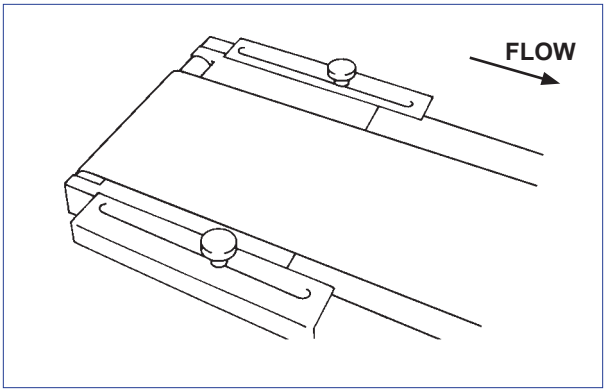
The "dwell time" is the time between when the end sealers connect to when they disconnect. Dwell time and sealer temperature control end seal quality.

Machines with box motion end sealers have the designation "B" after the model number (e.g., FW3400**B** or FW3400BS/**B**).





Wrapper Components (continued)



Discharge Unit

Discharge Conveyor

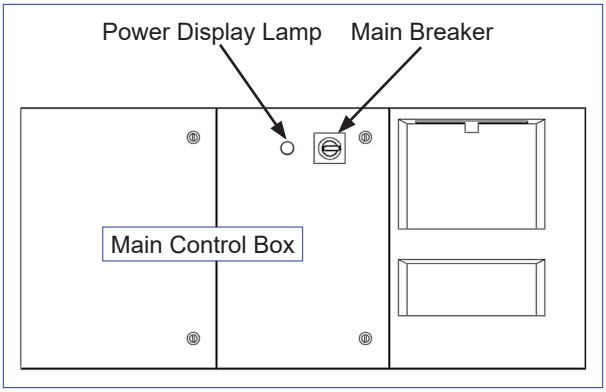
The discharge conveyor carries the finished sealed product away from the Wrapper and downstream to the next process.

Control the conveyor speed using options on the touch screen panel.

3.5 Power and Operational Controls

Main Control Box

At the rear of the machine, on the main control box door, you will find the following items:



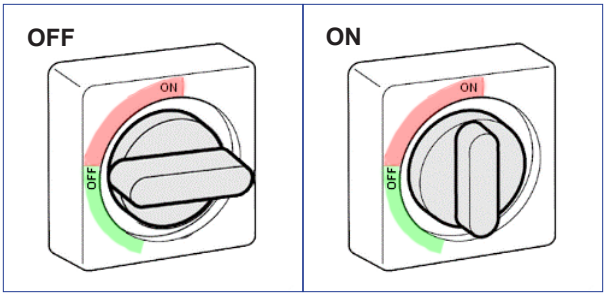
Power Display Lamp

Indicates the machine is receiving power, regardless of whether the machine is turned on.

To be clear: if the lamp is on, it only means that the machine is plugged in. Light from the lamp does not mean that the machine is turned on.

Main Breaker

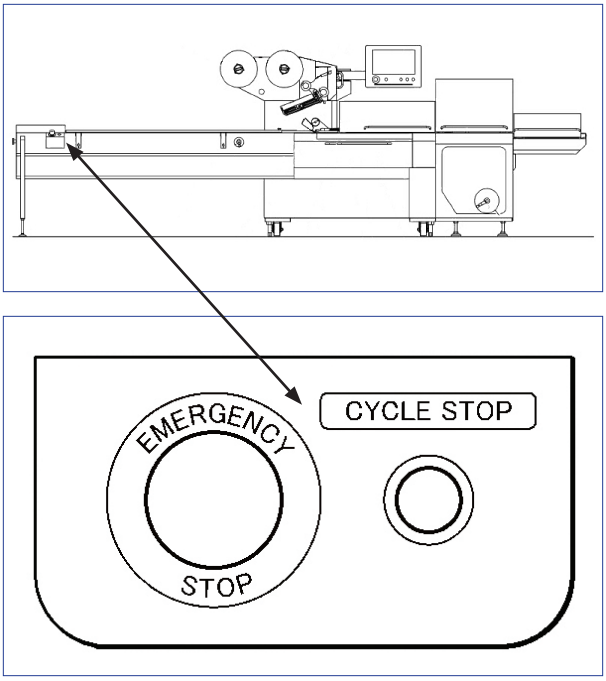
Turns the machine's power supply on or off.



- To turn the power on, turn the breaker knob clockwise to ON in the red section.
- To turn the power off, turn the breaker knob counterclockwise (anti-clockwise) to OFF in the green section.
- The knob requires some effort to turn it completely in either direction. It will make a loud "clunk" when complete.

Infeed Controls

The Infeed Buttons are located on a small panel at the upstream end of the infeed conveyor.



Emergency Stop Button

Press this button to prevent injury to a worker or damage to the machine. This stops all Wrapper functions at once and disconnects power to the machine controls.

The Wrapper cannot restart until you reset the button. To reset the button: turn the knob clockwise approximately ¼ turn until the button clicks and pops out.

An identical Emergency Stop button is located on the Operator Panel. Both buttons work the same way.

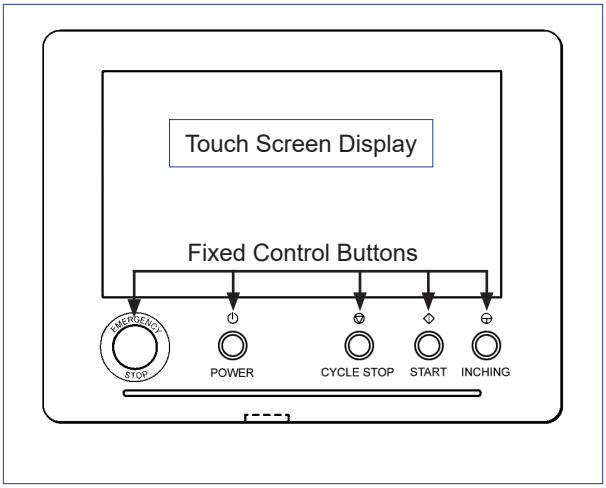
Cycle Stop Button

Press this button to stop the machine under normal non-emergency conditions, such as the end of a production run or problems with product or product supply. This stops the operation of the machine at the assigned natural pause in the Wrapping Cycle.

REMEMBER

Because of the delay, DO NOT use the Cycle Stop button in case of an emergency.

Power and Operational Controls (continued)



Operator Panel (HMI)

The Operator Panel is the main control panel for the Wrapper. It includes both basic operator functions and advanced supervisory and managerial controls. The operator panel is also called the HMI (Human-Machine Interface.)

The panel consists of:

- Five (5) fixed control buttons
- An LED status bar
- An alarm buzzer
- A USB port
- A touch screen display.

Fixed Control Buttons

Name	Color	Description
Emergency Stop	Red	Stops all Wrapper functions at once and disconnects power to the machine controls. Use this button for emergency situations. Use the Cycle Stop button to end production normally. To reset the switch, turn the knob clockwise approximately ¼ turn until the knob clicks and pops out.
Power	White	Starts the Wrapper's computer and begins startup processes (if the machine is plugged in and the main breaker knob at the rear of the machine is turned to the ON position.) Use this button only to turn on the Wrapper. Do not push this button to turn the Wrapper off. To turn the Wrapper off, touch the power icon located on the touch screen display in the top right corner. See "3: Turn power OFF" on page 58.
Cycle Stop	Red	Stops the Wrapper under normal conditions at the assigned natural pause in the Wrapping cycle. There is a slight delay between pressing this button and all moving parts stopping. In case of an emergency, do not use this button. Use the Emergency Stop button.
Start	Green	Begins film and product movement and begins a production run at the rate specified in the product setup. Before pressing this button, always be certain the area around the Wrapper is clear of product, tools, and other employees.
Inching	White	Push and hold this button to move the film and products through the normal Wrapping cycle at a slow speed. The machine will continue to advance at slow speed until you release the button. Use this function to simulate the Wrapper function in special cases, such as testing a new product setup or cleaning the machine.

Power and Operational Controls (continued)

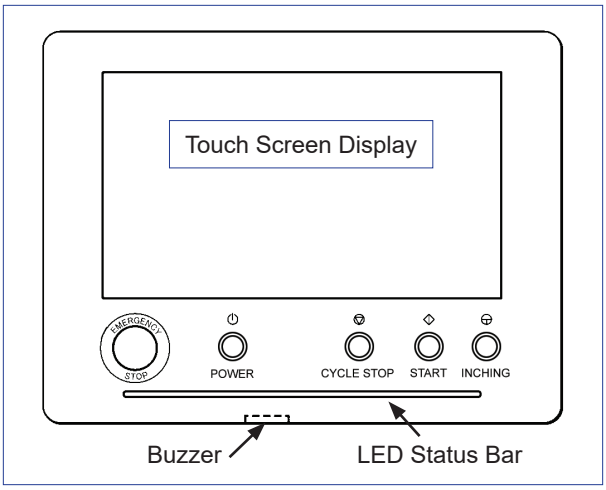
LED Status Bar

The LED status bar is a color-coded lamp.

- Red signals the machine is either stopping or has stopped.
- Green signals the machine is running.

Buzzer

A buzzer sounds when you press either the START or INCHING button and when an error occurs.

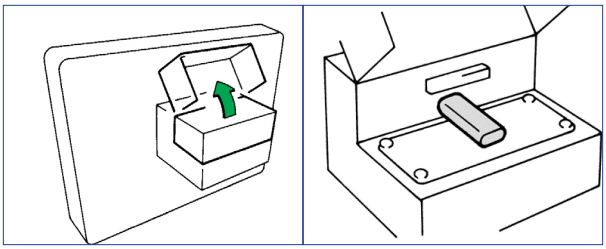


USB Port

The USB Port on the back side of the HMI allows you to read and write machine data to and from a USB flash drive, also called a “thumb drive.” Refer to your company’s instructions on saving and backing up production data.

In case of an error, these backups can reset the Wrapper to a known stable state.

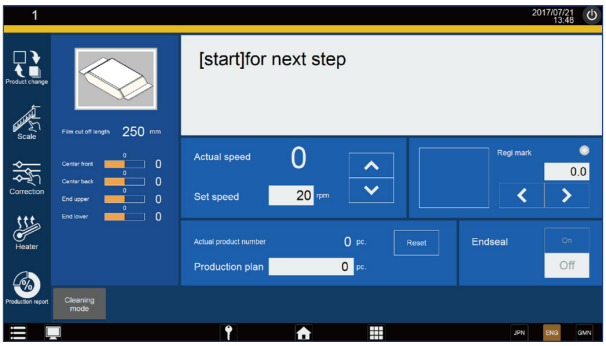
See “10.2 Backup” on page 160.



Touch Screen

When you turn the machine ON, the screen displays a series of start-up pages as the system prepares for operation. Please allow up to five minutes for this process to finish. After startup completes, the Touch Panel displays the Home Page, shown at right.

The Home Page provides easy access to product information and machine status. It also allows you to move to multiple other pages which each control different aspects of the product and Wrapper performance. Security settings control access to other pages in the program.

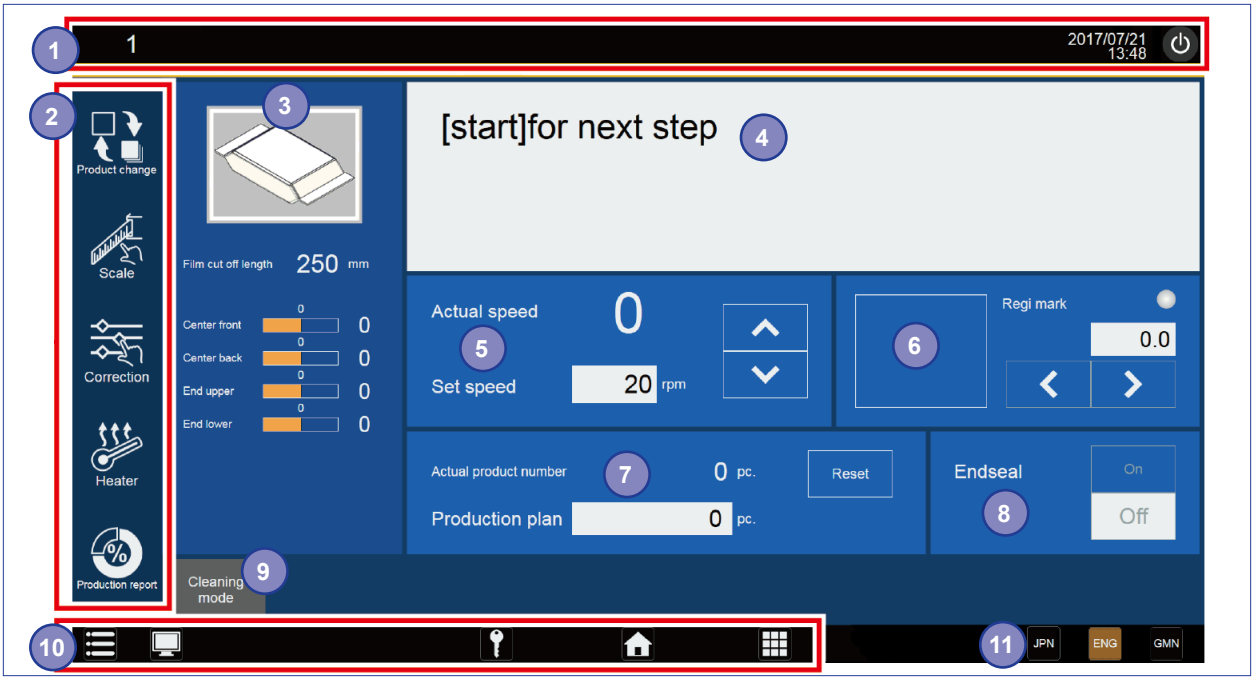


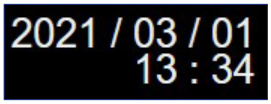
NOTICE

Use the touch screen carefully and do not apply excessive force.

- Do not poke the touch screen with a sharp object, such as a pen.
- Do not place anything on top of the touch screen.
- Do not apply tape or other adhesives to the touch screen.
- Do not use alcohol, lacquer thinner, or other solvents to clean the touch screen. Wipe away stains on the display with a clean, dry cloth.

3.6 Home Page

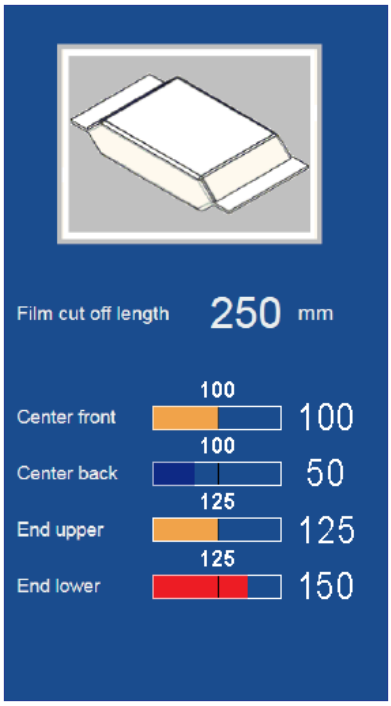


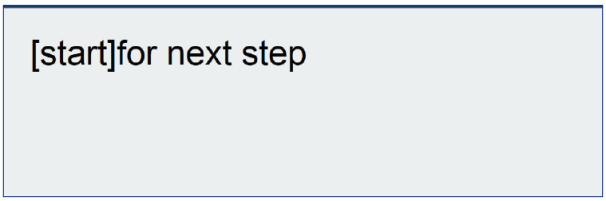


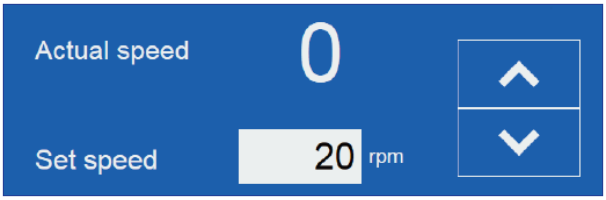
1. Top Row (from left to right):
   - Product Number: The currently selected product and its description.
   - Current Date and Time:
     - Date format is year / month / day.
     - Time format is a 24-hour clock (e.g.,1:00 P.M. is 13:00.)
   - Power Icon: Press and hold to turn the Wrapper OFF after production ends.
2. Operational Icons move to different pages with specialized controls:
   - Product Change Icon: Selects the product for wrapping. See “8.8 Product Change Page” on page 129
   - Scale Icon: Shows the settings of operator-adjusted Wrapper components. See ”8.9 Scale Page” on page 131.
   - Correction Icon: Shows machine-controlled corrections and offsets. See “8.10 Correction Page” on page 134.
   - Heater Icon: Shows settings and statuses for sealers and any optional heating equipment. See “8.11 Heater Page” on page 136.
   - Production Report Icon: Shows data on the current production run and historical trends. See “8.12 Production Report Page” on page 141.

Home Page Introduction (continued)

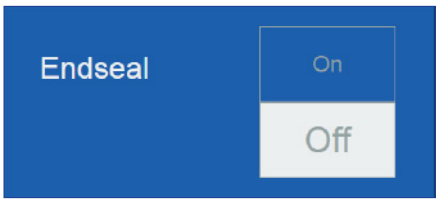
3. Current Product Information (from top to bottom):
   - Product Image: Displays either a default image (shown) or a picture of the current product. See “2: Edit the New Product Data” on page 63.
   - Film Cut Off Length: Amount of film used to wrap one product, measured in millimeters (mm). If the film has Regi-marks, this value is the distance between the leading edge of two marks.
   - Temperature Gauges: The bars display the temperature of each heated unit, measured in degrees Centigrade (C°). The current temperature shows to the right of the bar. The proper operational temperature shows above the bar and the center of the bar is equal to that temperature. The bar’s color also gives a sign of the temperature:
     - Blue - temperature is too low
     - Orange - temperature is within tolerance
     - Red - temperature is too high.
     - See “8.11 Heater Page” on page 136.
4. Operational Message - Shows the Wrapper’s status and any active faults, errors or alarms. See “Chapter 11 Troubleshooting” on page 181.
5. Speed - (measured in PPM: pieces per minute)
   - Actual Speed is the current machine speed.
   - Set Speed is the programmed operating speed for the selected product.
   - The white up and down arrows **^ v** will temporarily increase and decrease the set speed while the Wrapper is running. It will not permanently change the production recipe for that product.
   - See “2: Edit the New Product Data” on page 63.
6. Regi-mark - Adjusts the film position relative to the product. The white left and right arrows **< >** adjust the Regi-mark position in the corresponding direction. See “5.4 Set Regi-mark Detection” on page 68.

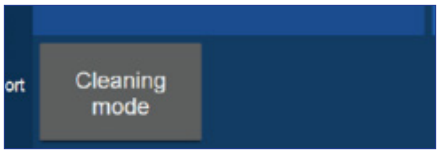






Home Page Introduction (continued)





Settings Menu Management Menu

Security Home Control Panel

7. Production - shows the actual number of products wrapped and the total number expected according to the production plan. Touching the “Reset” button, resets the actual count to zero.
8. End Seal Motion - Temporarily stops end seal motion, letting product and film pass through the end seal area untouched. Touch “OFF” to clear a product jam in the Wrapper, for example. Touch “ON” to resume turning the end sealers synchronized with the Wrapping cycle.
9. Control Panel Shortcuts - Supervisors and Managers can program shortcuts buttons, each of which gives limited operator access to a subset of Control Panel functions. See “8.7 Control Panel” on page 128.
10. Bottom Row Icons - These icons stay the same on every page in the system. From left to right, they are:
    - Settings Menu Icon: Shows a list of pages that control aspects of the Wrapping Cycle and bag formation. Touching one of the options shifts to that page. “Chapter 9 Setting Menu” on page 143 explains all functions in detail.
    - Management Menu Icon: Shows a list of pages that control aspects of the Wrapper itself, such as error logs, electronic backups, and parts replacement. It also includes an electronic copy of this manual. Touching one of the options shifts to that page. “Chapter 10 Management Menu” on page 157 explains all functions in detail.
    - Security Icon: Shows the Security Page. Controls passwords and password-protected pages in the system. See “8.5 Security and User Authentication Page” on page 126.
    - Home Icon: Moves to the Home page.
    - Control Panel Icon: Moves to the Control Panel. See “8.7 Control Panel” on page 128.
11. Language Icons: JPN / ENG / GMN. Changes the displayed language between Japanese, English, and Spanish.

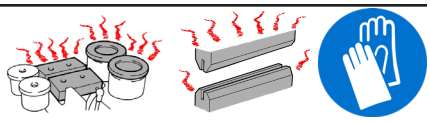
Chapter 4 Operations Cycle

4.1 Safety

⚠ WARNING

BURN HAZARD

Center sealers and end sealers are hot. Use caution when loading film.



- Alert all people nearby and announce that the machine is starting.
- Keep area clear of loose tools or other hazards.

⚠ CAUTION

PINCH HAZARD

- Keep hands and fingers away from pinch points near the safety cover or the component you are adjusting.

FILM ROLLS ARE HEAVY.

Be careful when handling and loading film rolls.

4.2 Introduction

This chapter explains how to wrap a product that already exists in the Wrapper's memory. The table below outlines each step in the cycle. Each step corresponds to a sub-section in this chapter.

Be aware that components and buttons will vary between machines and not all options shown in this manual are available to all users. Optional equipment or functions may change or override the items shown here.

This chapter does not include information about cleaning or maintenance. See "Chapter 6 Maintenance" on page 73 for those subjects.

Order of operations

Section	Description	See Page #
Start the Machine	Supply power and air to the machine and perform a basic safety check.	page 36
Select the Product	Select a product from the list of available options.	page 38
Position Wrapper Components	Adjust Wrapper components to the settings which wrap that product most effectively.	page 39
Set and Route the Film	Mount film on the spindles and feed it through the Wrapper.	page 46
Machine Set-Run	Move all components of the Wrapper to the Origin Position.	page 50
Examine Empty Test Bags	Run the machine without product and adjust the bag forming as needed.	page 51
Examine Full Test Bags	Run the machine with product and adjust the product position as needed.	page 52
Begin Production Run	Start the Wrapper and process products at production speeds.	page 55
End Production Run	Stop the Wrapper, back up data, and to shut down the machine.	page 56

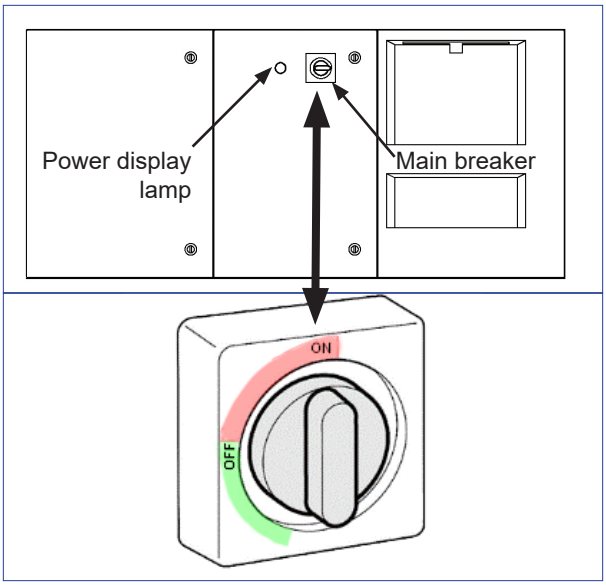
4.3 Start the Machine

⚠ CAUTION **PINCH HAZARD**

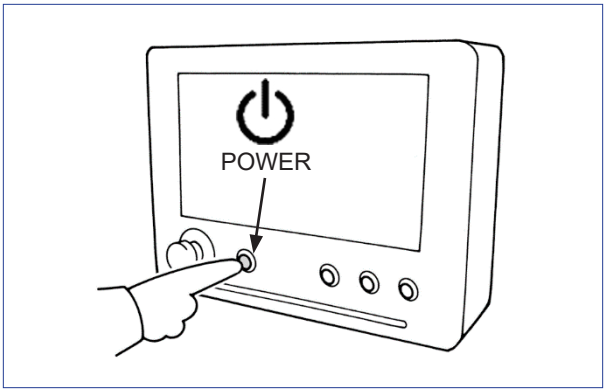
Keep hands and fingers away when closing safety covers.

1: Supply power

1. At the rear of the machine, the power display lamp must show white and the main breaker switch must be in the red zone.

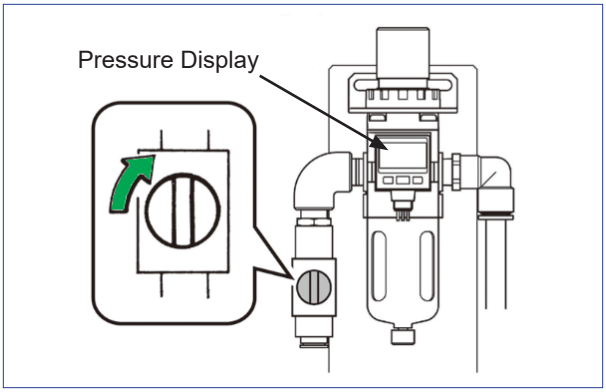


2. Press the “Power” button on the operator panel. The touch screen display will show a series of start-up pages as the system prepares for operation. Allow up to five minutes for this process. The touch screen display will show the Home Page once startup is complete.



3. Monitor the temperature gauges on the Home page. The current temperature of each heated unit shows to the right of the bar. The operational temperature shows above the bar and the center of the bar is equal to that set temperature. The bar’s color also shows the unit’s temperature:
   - Blue - temperature is too low
   - Orange - temperature is within tolerance
   - Red - temperature is too high.

Start the Machine (continued)



2: Supply air

1. Turn the air pressure valve clockwise to open.
2. Make sure the pressure shown on the display is within tolerance. The air pressure requirements for your machine are on the layout drawing in the appendix.

3: Safety check

Once the system finishes its start-up routine:

1. Examine visible wiring and piping for any breaks or cracks.
2. Notice does the machine emit any unusual vibrations, sounds, or smells?
3. Open each safety cover on the machine, one at a time.
   - The touch screen display must turn red and the alarm must sound as soon as you open the cover.
4. Press each emergency stop button on the machine, one at a time.
   - The touch screen display must turn red and the alarm must sound as soon as you press the button.

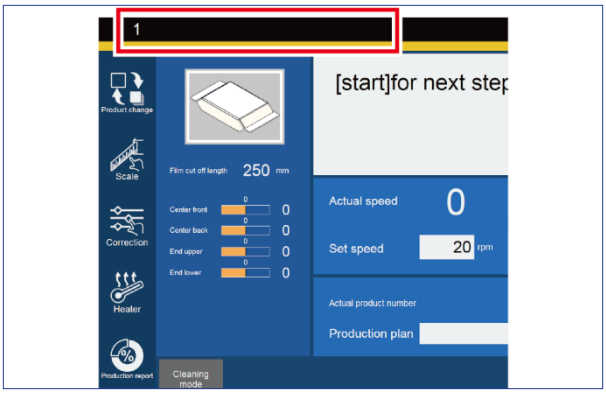
If the machine fails any of these four safety checks, alert your supervisor.

4.4 Select the Product

Current product number check

The number and name of the currently selected product will show in the top left corner of the Home page.

- If the number and name match the product you want to wrap, go to the next page.
- If the number and name do not match the product you want to wrap, follow the steps below.



To select a different product

1. Touch the Product Change Icon found in the far-left column of the Home page.
2. The Product Change menu will display all currently registered products. Touch the desired product to select it.
3. Touch the Enter button.
4. Each product has a unique set of settings and specifications to best wrap that product. If the current machine settings are different than those the new selected product requires, the Scale Icon will blink. Find the Scale Icon in the far-left column of the Home page.

Scale Icon

5. Go to next step.

REMEMBER

If the product is not in the product list, it will need to be set up. See “Chapter 5 New Product Setup” on page 59

4.5 Position Wrapper Components

⚠ CAUTION **PINCH HAZARD**

• Keep hands and fingers away from pinch points near the safety cover or the component you are adjusting.

NOTICE

• Always press the Emergency Stop Button before making physical changes to the Wrapper.

• Running the Wrapper with incorrect settings may damage the machine.

Scale page.

If the current machine settings are different from those needed by the new selected product, the Scale icon in the far-left column of the Home page will blink.

Additionally, products set up by Formost-Fuji technicians will have a separate setup sheet. These sheets are in the rear of the instruction manual and list all settings and measurements for the selected product.

It is good practice to physically check each of the machine components against the settings shown on this page.

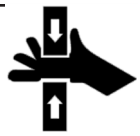
1. Touch the Scale Icon, which opens the Scale page.
2. The page shows some of the physical settings needed for the selected product. Those settings that are different from the previous product will flash. Each part has an icon which shows the desired setting. A thin orange line connects the icon to its location on the Wrapper.
3. Physically adjust the parts to match the specified settings.
4. When the setting is correct, touch the flashing icon. A green check mark will appear to show the action is complete.
5. When all settings match those of the selected product, the Scale Icon at left will stop flashing.

The following six (6) pages explain how to adjust all the basic Wrapper components.

Position Wrapper Components (continued)

⚠ CAUTION **PINCH HAZARD**

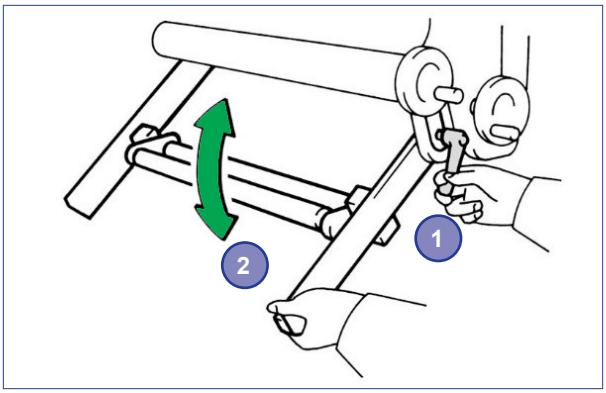
Keep hands and fingers away from pinch points near the safety cover or the component you are adjusting.



1: Set film entrance lever

The film entrance lever controls the angle of the entire film roller assembly. Near the lever clamp, there is a position guide with 3-5 numbered stops.

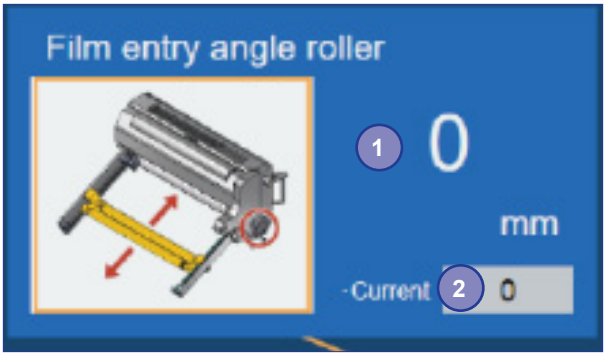
1. Turn the grey lever clamp to loosen it.
2. With one hand, lift the bottom of the film entrance assembly until the lever clamp comes out of the numbered stop.
3. With the film entrance assembly still supported, raise or lower the bottom of the assembly to guide the lever into the proper numbered stop.
4. Gently lower the film entrance assembly until the lever clamp rests firmly in the stop.
5. Tighten the grey lever clamp.



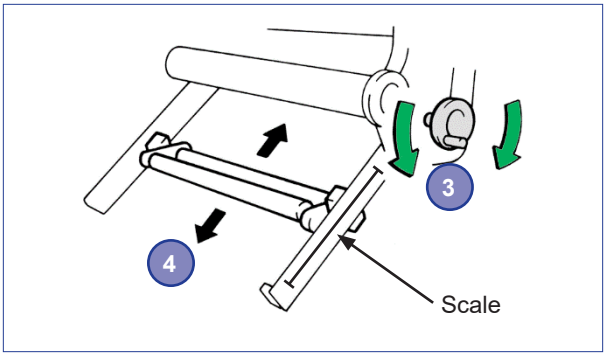
2: Set film entrance roller

On the Scale page, find the icon for the film entrance roller. The large white number (#1, at right) is the setting needed to properly wrap the selected product. The small grey box (#2, at right) shows the current setting of the roller.

Turn the film entrance adjustment wheel (#3, at right) to adjust the position of the film entry roller (#4, at right). Use the scale mounted on the front arm to position the red arrow at the desired setting.

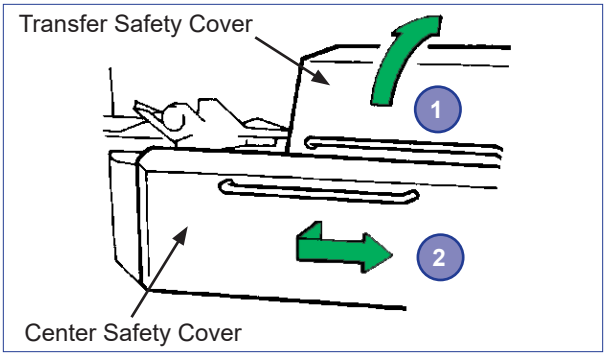


Scale page - film entrance roller

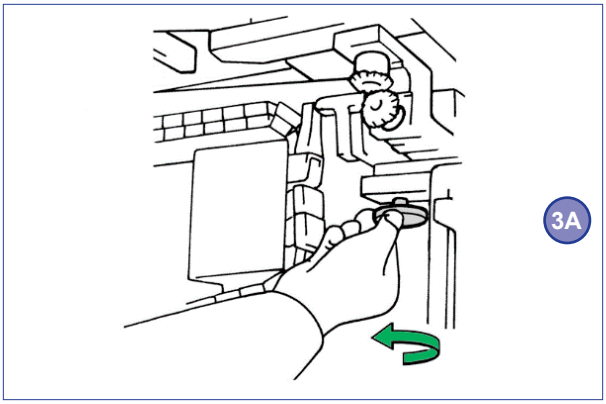


Turn the wheel to adjust the film entrance roller position.

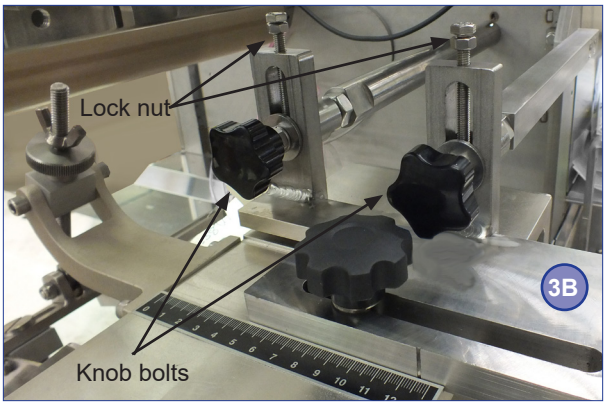
Position Wrapper Components (continued)



Open the center and transfer safety covers.



Unscrew the knob bolt under the forming box.



Loosen the lock nuts and unscrew the knob bolts to remove the forming box.

3: Replace the forming box

Most Wrappers only use one forming box.

- If the Scale page calls for the same forming box, go to the next page.
- If the Scale Page says to change the forming box:

1. Open the transfer safety cover.
2. Pull the center safety cover out and to one side.
3. The forming box mounts to the Wrapper in one of two ways:
   - A) It attaches via a knob bolt underneath the forming box.
     - Unscrew the knob bolt.
     - Lift the forming box straight up to remove.
   - B) It attaches via two standoffs connected to the back wall of the Wrapper.
     - Loosen the lock nuts.
     - Unscrew the black knob bolts.
     - Pull the forming box straight out to remove.
4. Place the new forming box in the mounting brackets.
5. Tighten the attachments from step 3.
6. Set the forming box's position, height, and wing height, using the instructions on the next page.

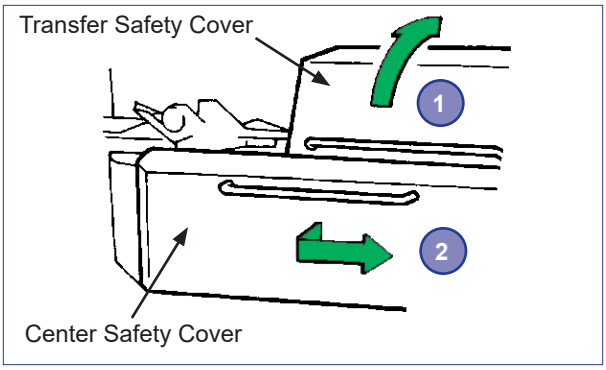
Position Wrapper Components (continued)

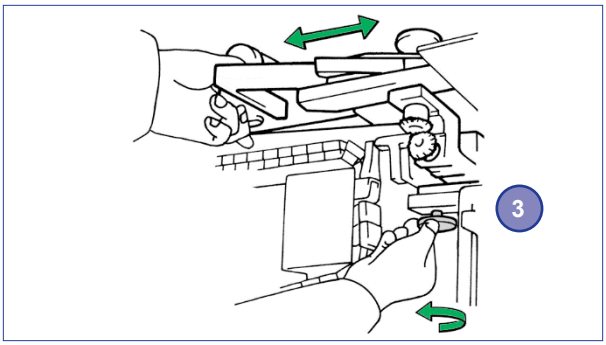
4: Set forming box position

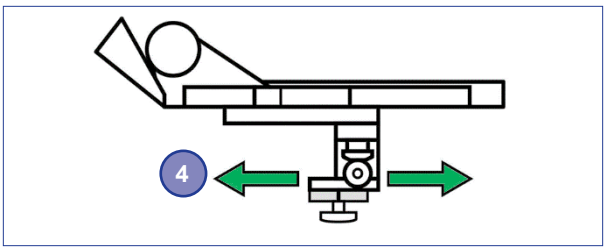
The forming box has controls to adjust its position, its width, and the height of its wings. To wrap the desired product, all three measurements must match those found on the Scale page.

For bottom-mounting forming boxes

1. Open the transfer safety cover.
2. Pull the center safety cover out and to one side.
3. Loosen the knob bolt on the underside of the forming box.
4. Find the scale on the mounting holder. Set the forming box position to match the value on the Scale page.
5. Tighten the knob bolt when complete.



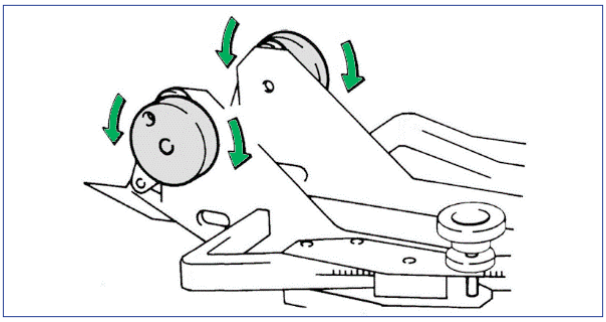




Set wing height

There are two hand-turned wheels, one on either side of the forming box wings. Turn those wheels to set the wing height to value on the Scale page.

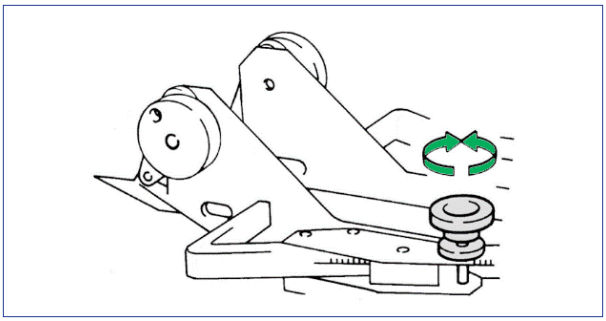
As a general guideline, the wing height is ~3 mm higher than the product.



Set forming box width

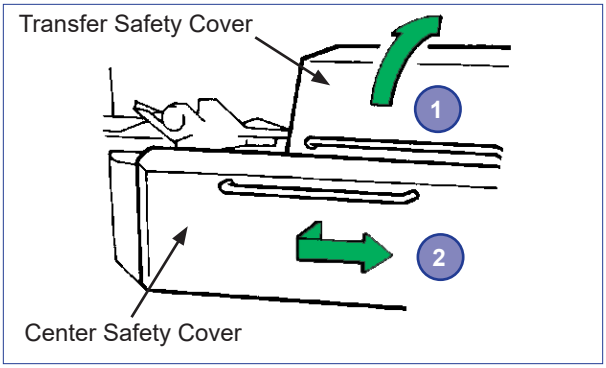
Use the single hand-turned wheel to set the forming box width to match the value on the Scale page.

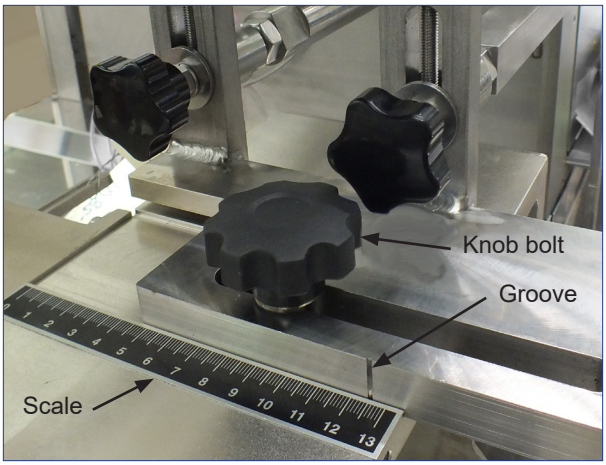
As a general guideline, the forming box width should give ~3mm clearance on either side of the product.



Close the center safety cover and transfer safety cover when finished.

Position Wrapper Components (continued)

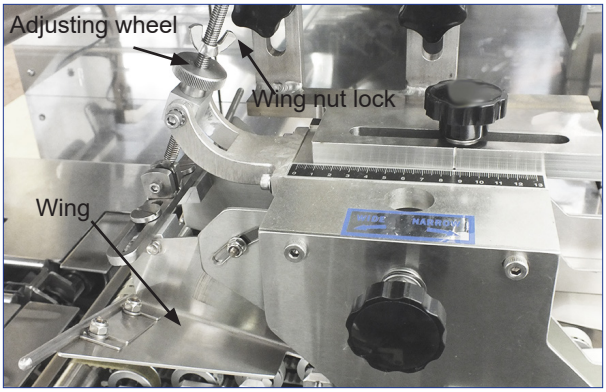




For top-mounting forming boxes

1. Open the transfer safety cover.
2. Pull the center safety cover out and to one side.
3. Loosen the knob bolt on top of the forming box.

   Note: This knob attaches the box to the mounting bracket. Do not remove the bolt completely. Only loosen the knob enough to slide the forming box.
4. Find the groove etched in the side of the mounting bracket. Align the groove with the value displayed on the Scale page, using the attached scale as reference.
5. Firmly tighten the knob bolt when complete.



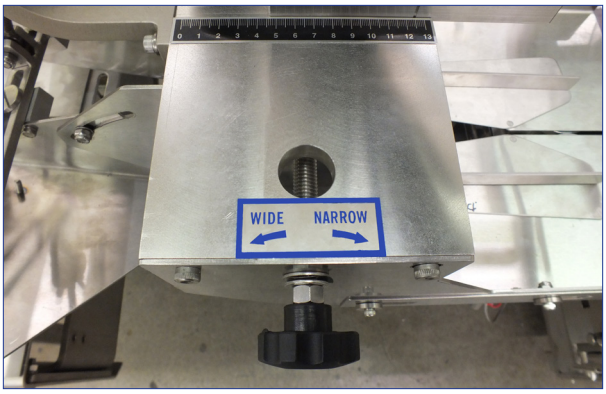
Set wing height

An adjusting wheel on top of the forming box controls wing height.

Loosen the wing nut lock at top and rotate the wheel to adjust the wing height. Set the wing height to equal to the value on the Scale page.

As a general guideline, the wing height is ~3 mm higher than the product.

Tighten the wing nut lock when complete.



Set forming box width

Use the single black knob to set the forming box width to match the value on the Scale page.

As a general guideline, the forming box width should give approximately 3mm clearance on either side of the product.

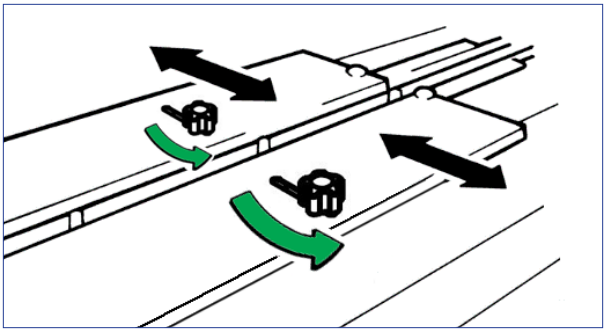
Close the center safety cover and transfer safety cover when finished.

Position Wrapper Components (continued)

5: Set infeed conveyor side guides

Set the width of the infeed conveyor side guides to match the value shown on the Scale page. Depending on the machine, the width controls may be a hand-turned wheel or a series of adjustment knobs.

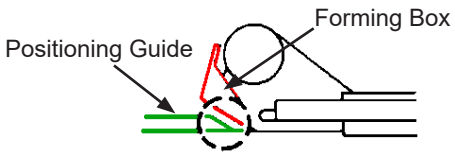
As a guideline, the proper side guide width allows the product to move along the conveyor smoothly, without rubbing against either side.

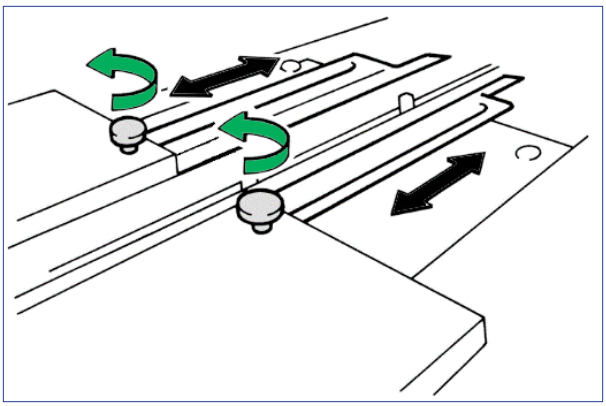


Loosen the knobs to adjust the side guides.

6: Set infeed positioning guide

The infeed positioning guide fits between the end of the infeed conveyor's side guides and the forming box. Loosen the knob bolts to set the infeed positioning guide. The guide should be close to the forming box, but not touch it. Tighten bolts when complete.

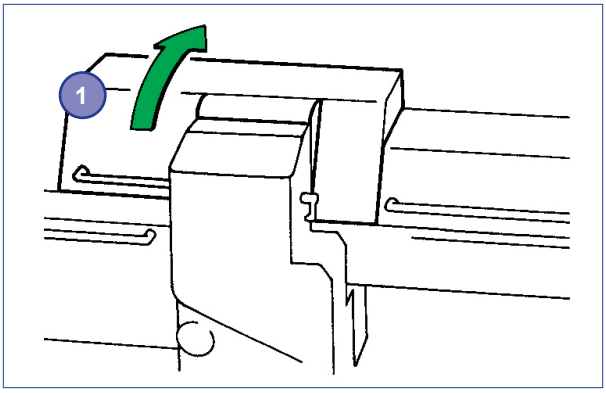


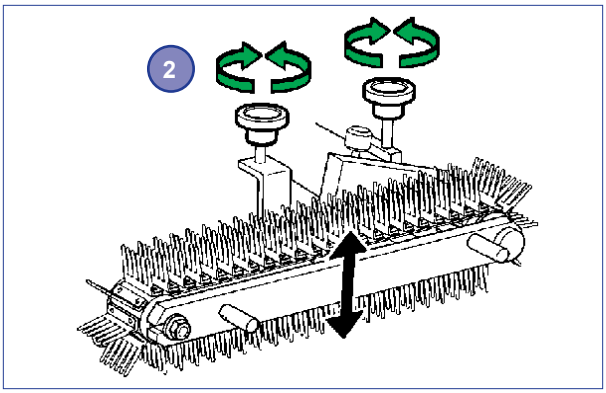


Loosen knob bolts to adjust infeed positioning guides.

7: Set transfer brush height

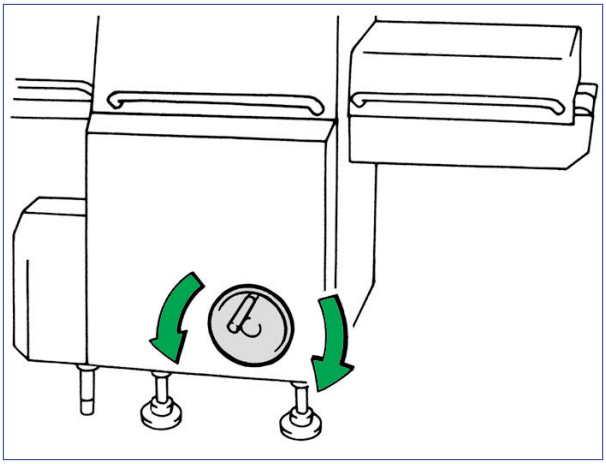
1. Open the transfer safety cover.
2. Use the hand-turned wheels to set the height of the transfer brush. The brush should press lightly against the product.
3. Close the transfer safety cover when complete.





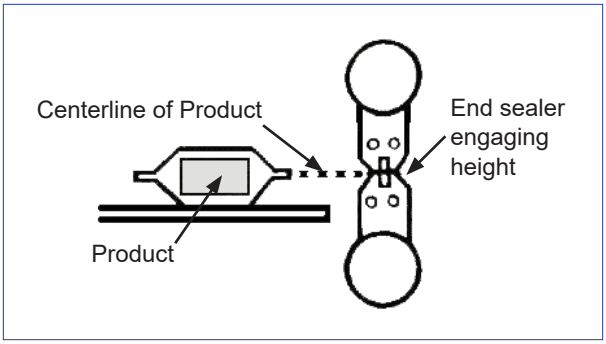
Hand wheels adjust the transfer brush height

Position Wrapper Components (continued)



8: Set end sealer height

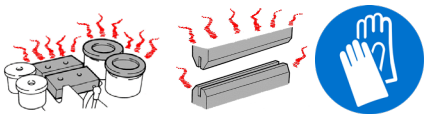
Use the hand-turned wheel to set the engaging height to match the value on the Scale screen. As a guideline, the engaging height should be the center of the product height.



4.6 Set and Route the Film

⚠ WARNING **BURN HAZARD**

Center sealers and end sealers are hot. Use caution when loading film.



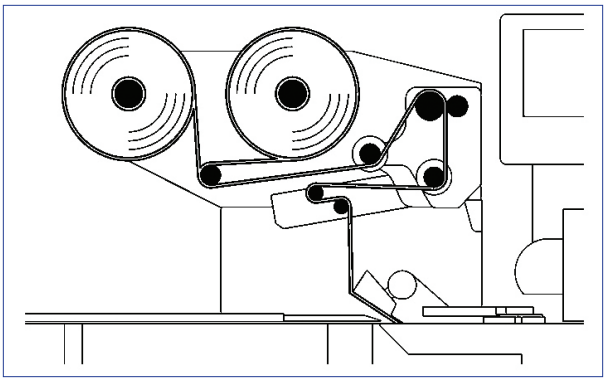
⚠ CAUTION **FILM ROLLS ARE HEAVY.**

Be careful when handling and loading film rolls.

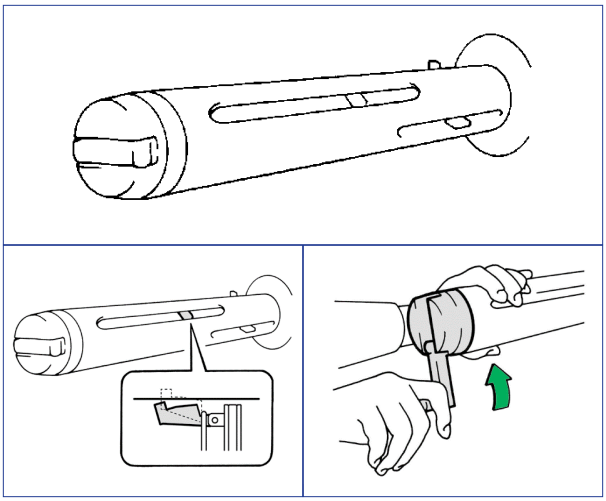
NOTICE

- Always press the Emergency Stop Button before making physical changes to the Wrapper.
- Handle must be in OPEN position when closing the film feed roller cover.

1. Find the film routing sticker on your machine. The illustration shows the path the film will travel between the film spindles and the forming box. The image at right is an example.
2. Inspect the film spindles. The film stoppers must stop stick out from either spindle. If the stoppers rise above the spindle, open the film fixing handle and turn it in the “OPEN” direction to retract the stoppers.
3. Mount the film roll on the spindle so that it will come off the roll properly.
4. Hold the spindle with one hand. With the other hand, open the film fixing handle and turn it in the “SET” direction. Continue turning until the film roll attaches securely to the spindle. Close the film fixing handle when done.

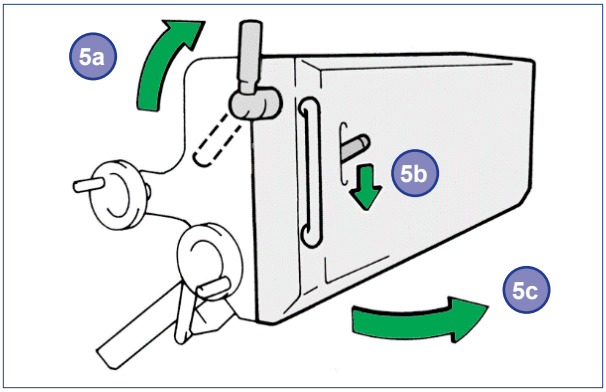


A sample film routing illustration

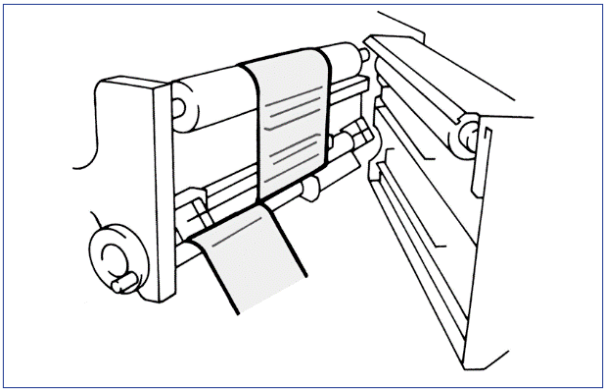


Film spindle (above). Retract the film stoppers (lower left) using the film fixing handle (lower right).

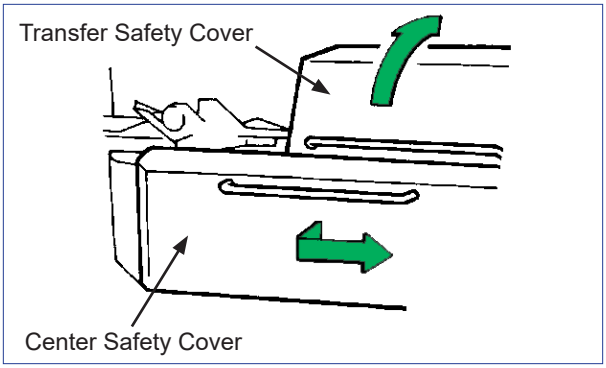
Set and Route the Film (continued)



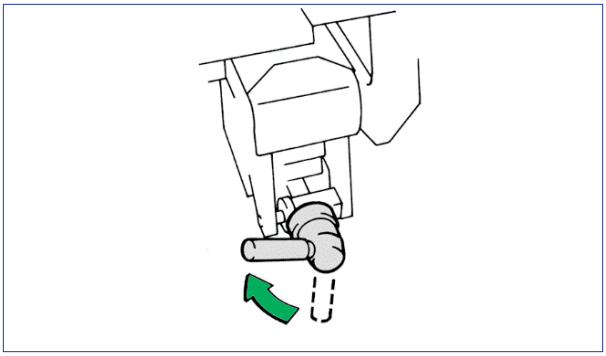
5. Open the film feed roller cover:
   - Turn the open/close lever to “OPEN.”
   - Push the cover lever down.
   - Open the cover.



6. Pull and pass the film between the rubber and metal film feed rollers and the film entrance roller, following the routing illustration. Keep the film as flat as possible.



7. Open the center safety cover and the transfer safety cover.

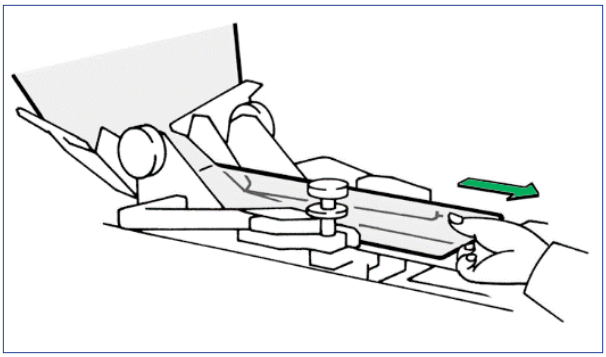


Open the first center sealer.

8. Open the lever for the first center sealer. (Second center sealer opens automatically.)

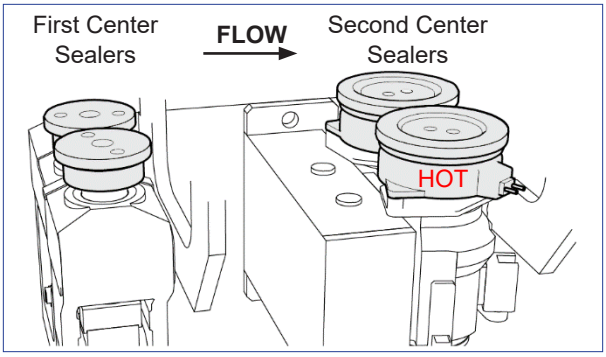
Set and Route the Film (continued)

9. Pass the film around the wings and into the forming box. Reach into the discharge end of the box and pull the film through.
   - Be certain the film passes smoothly around the corners and does not wrinkle or catch at any point.



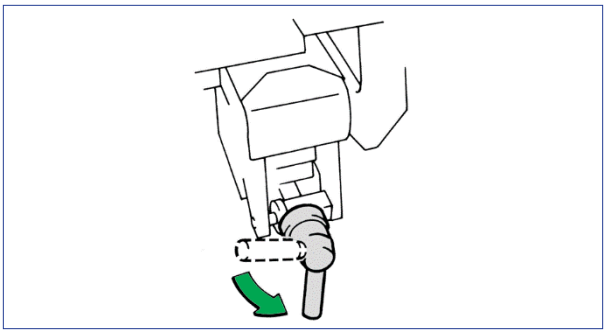
Pull the film around wings and through the forming box.

10. Pinch the side edges of the film together and carefully pass them through the first and second center sealers. Keep the film as smooth as possible.
11. Continue to pull the film through the Wrapper until the end of the film is downstream of the end sealers.



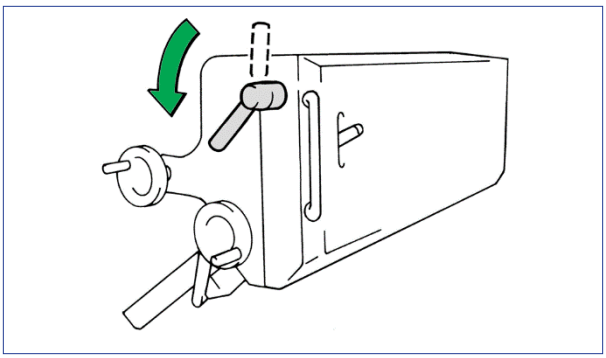
Pull the film through both sets of center sealers.

12. Check that the film is tight but not stretched. Close the first center sealers. Inspect the area near the first center sealer to be sure the film is touching the sealers with the sealers closed.



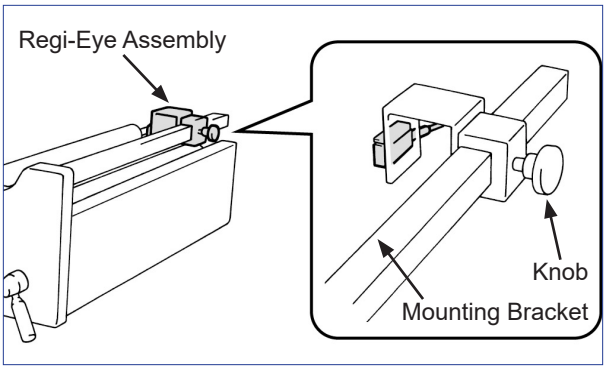
Close the first center sealer.

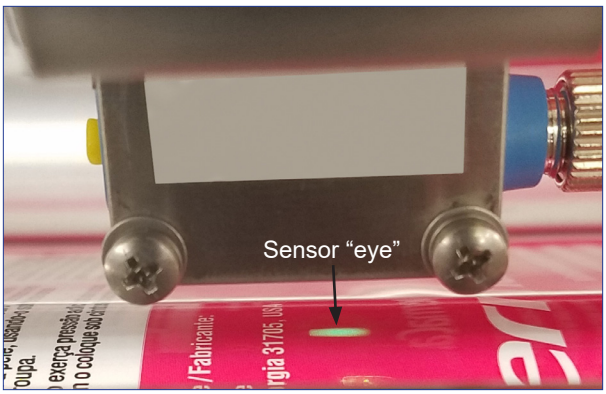
13. Close the center safety cover and transfer safety cover.
14. Close and lock the film feed roller cover.
    - Note: The open/close lever must be in the OPEN position before you close the cover.



Close and lock the film feed roller cover.

Set and Route the Film (continued)





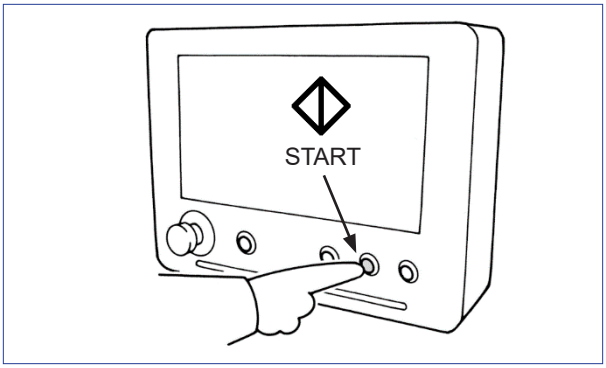
15. Adjust the Regi-mark sensor. The sensor must be in line with the Regi-marks printed on the film.
    - Loosen but do not remove the control knob.
    - Move the sensor along the mounting bracket. The sensor emits a colored light. Use this light to aim the sensor so it is in line with the Regi-marks printed on the film.
    - If the Regi-marks run the entire width of the film and the film has other printing on it, aim the sensor so that the Regi-mark is the only printing it will “see.” This usually means near one edge of the film.
    - Tighten the knob when complete.

4.7 Machine Set-Run

⚠ WARNING

- Alert all people nearby and announce that the machine is starting.
- Keep area clear of loose tools or other hazards.

A Set-Run function moves all Wrapper components to the “Origin Position” - their starting positions in the Wrapping Cycle. ”

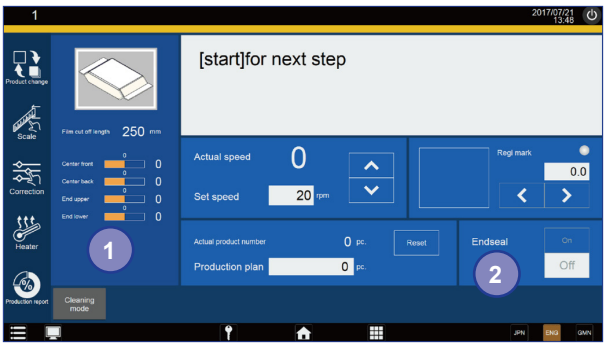


1. Inspect the area around the machine. Be certain the area around the Wrapper is clear of products, tools, or other employees.
2. Close all safety covers on the Wrapper.
3. Release the emergency stop. Turn the knob clockwise approximately ¼ turn until it clicks and pops out.
4. Press the “Start” Button.
   - The alarm buzzer will sound, and the Wrapper will begin moving. Chains, film, and other components will move at random intervals as the controlling servos move to their proper starting positions.
5. When the Set-Run function ends, the operational message area of the Home Page will display, “Ready for Operation.”
   - If there is a problem with the Set-Run, a different message will display. If this happens, see “Chapter 11 Troubleshooting” on page 181.

4.8 Examine Empty Test Bags

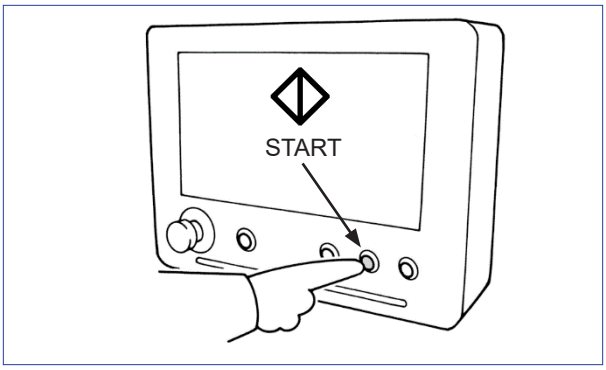
WARNING

- Alert all people nearby and announce that the machine is starting.
- Keep area clear of loose tools or other hazards.

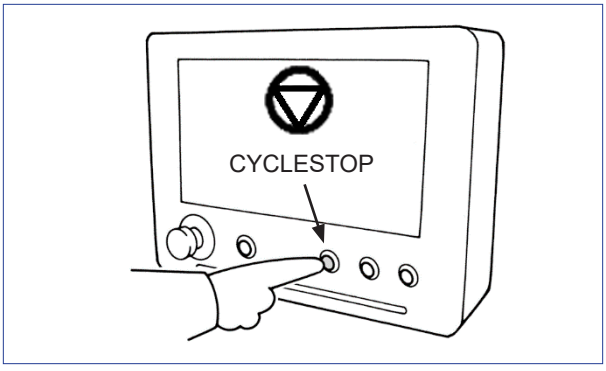


Run the Wrapper for a few minutes with the infeed conveyor empty.

1. On the Home Page, confirm the sealer temperatures are within tolerance.
2. On the Home page, turn the end sealer off.
3. Inspect the area around the machine. Be certain the area around the Wrapper is clear of product, tools, or other employees.



4. Press the “Start” button.
5. After bag forming stabilizes (~1 minute), turn the end sealer on.
6. Run the machine to create a few dozen bags.



7. Press the “Cyclestop” button.
8. Inspect the state of the empty finished bags, the bag formation, and the seal quality. Adjust the Wrapper setup as needed. For more information on
   - “4.5 Position Wrapper Components” on page 39
   - “5.3 Adjust the Film Tension” on page 65.

   • If you make any adjustments to the Wrapper, perform the Set-Run function again.
   - See “4.7 Machine Set-Run” on page 50
9. Repeat these steps until the Wrapper consistently makes bags to specifications.

4.9 Examine Full Test Bags

WARNING

- Alert all people nearby and announce that the machine is starting.
- Keep area clear of loose tools or other hazards.

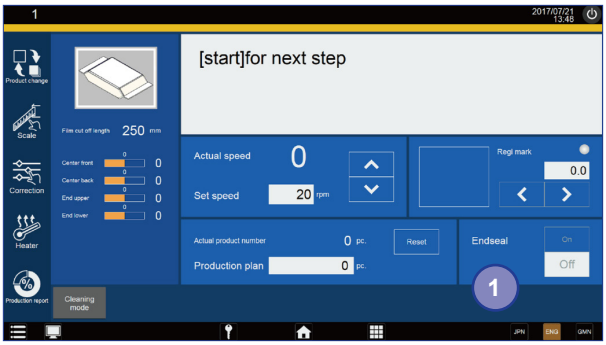
CAUTION

PINCH HAZARD

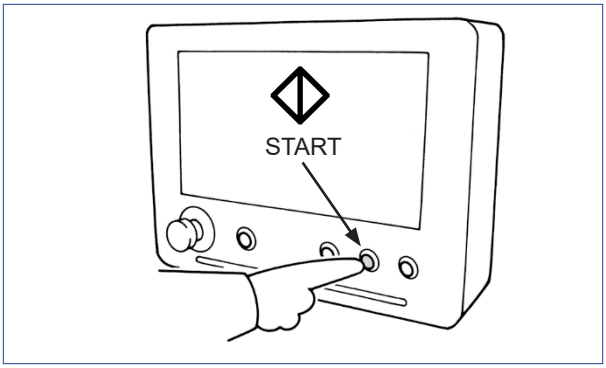
Keep hands and fingers away from pinch points near the safety cover or the component you are adjusting.

Run the Wrapper for a few minutes with the infeed conveyor supplying product to test bag interaction with the product.

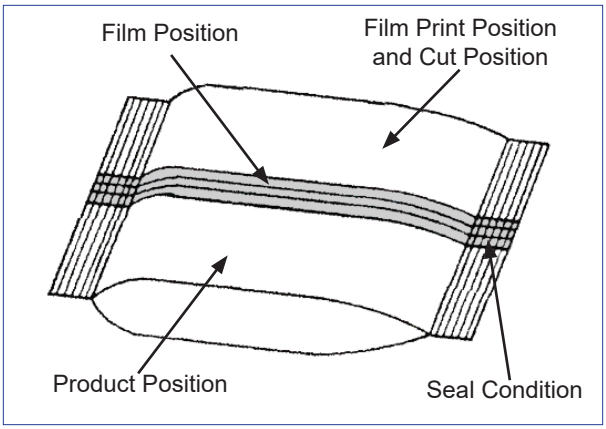
1. On the Home page, turn the end sealer OFF.
2. Inspect the area around the machine. Be certain the area around the Wrapper is clear of product, tools, or other employees.



3. Press the “Start” button.
4. When bag forming stabilizes (~1 minute), turn the end sealer ON.
5. Run the machine to create 5-10 wrapped products.
6. Press the “Cyclestop” button.

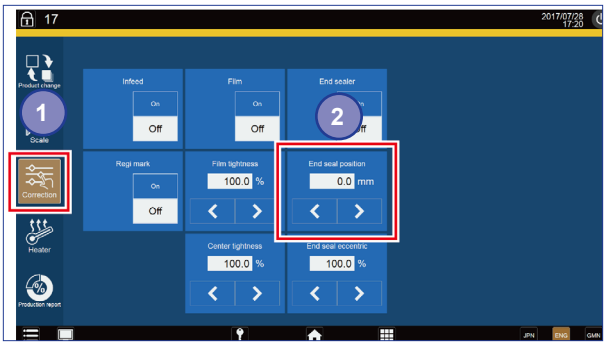


7. With the finished packages still on the discharge conveyor, inspect the position of the product in the bag.
8. Inspect the state of the filled finished bags. Check the following points:
   - Position of the film in the center/fin seal.
   - Position of the film print and cut position.
   - Condition and quality of the seals.
9. To adjust the package forming, refer to the sub-sections on the next two pages.
10. Repeat these steps until the Wrapper consistently makes packages to specifications.



The four points to inspect on a filled bag.

Examine Full Test Bags (continued)

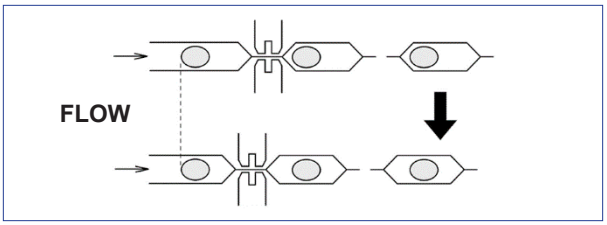


- To adjust the product position

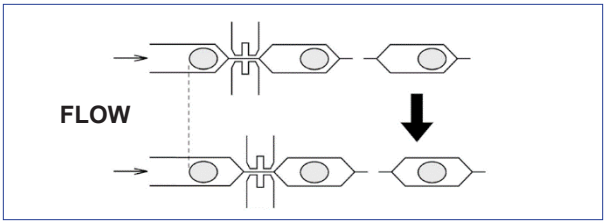
Inspect the package on the Discharge Conveyor. The product should exit the end seal unit centered between the two end seals.

To adjust the position of the product:

1. Touch to the Correction icon found in the far-left column of the Home page.
2. Find the end seal position section on the Correction page.



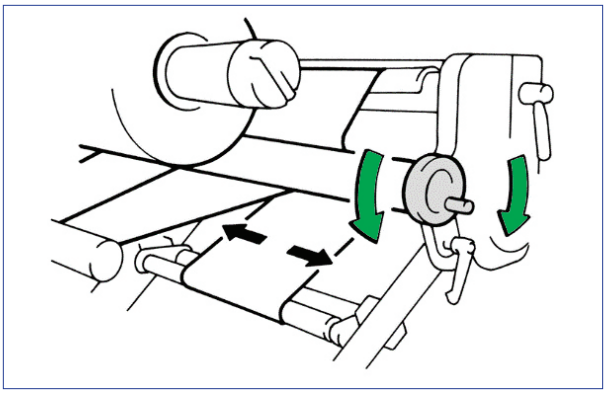
- If the product is too close to the **upstream** seal, change the correction value with the **<** (upstream) arrow.



- If the product is too close to the **downstream** seal, change the correction value with the **>** (downstream) arrow.

REMEMBER

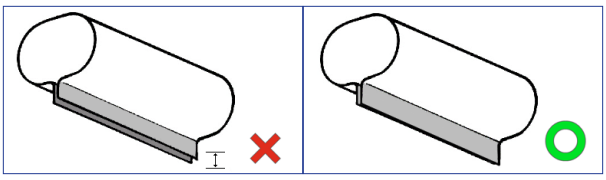
This sub-section deals with the position of the product within the wrapping, not the position of the printed graphics compared to the package length. For that issue, see “To adjust the film cut position” on the next page.



- To adjust the film position

The side edges of the film form the center/fin seal. The edges should be even and equal.

If the sides are uneven, use the film position adjustment wheel to change the film position.



Options continue on the next page.

Examine Full Test Bags (continued)

- To adjust the film print/cut position

If the product uses printed film, inspect the position of the graphics compared to the end seal cuts. The Regi-mark controls the relationship between the graphics and the end seals.

On the Home page, use the white left and right arrows **< >** in the Regi-mark section to move the cut position in the corresponding direction (upstream arrow to move the cut upstream.)

The Regi-mark section also shows a series of icons which show the detection status.

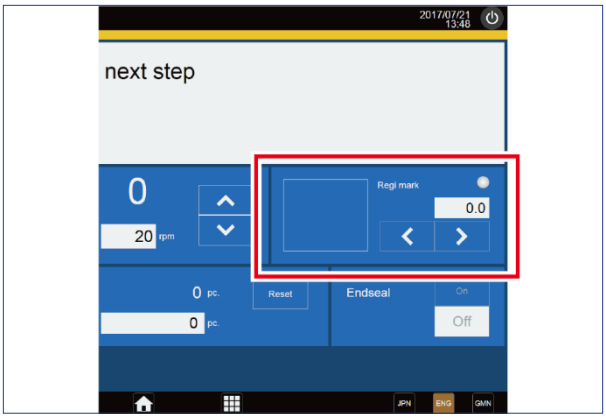


Image	Description
	Regi-mark detection is ON.
	These arrows indicate the most recent correction made to keep the film in alignment.
	Regi-mark positioning is stable. This will disappear if either of the following events occur: • A position error under 1.5 mm happens five times in a row. • A position error over 1.5 mm happens once.

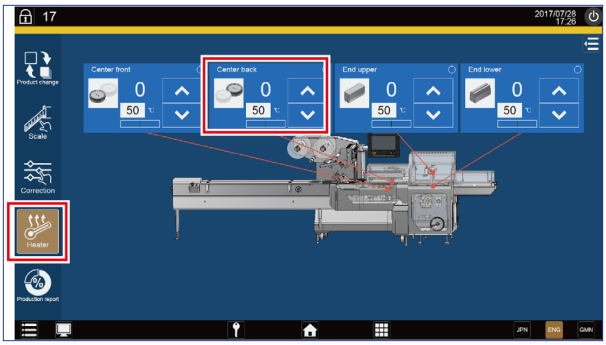
- To adjust the sealer temperatures

Problems with seal integrity can be the result of temperature problems with the sealers.

- If the temperature is too high, it can weaken and distort the film.
- If the temperature is too low, it can prevent the film from sealing.

To change a sealer temperature:

1. Touch the Heater icon on the far-left column of the Home Page.
2. Touch the image of the sealer you wish to change.
3. Use the **∧ ∨** buttons to raise or lower the temperature.



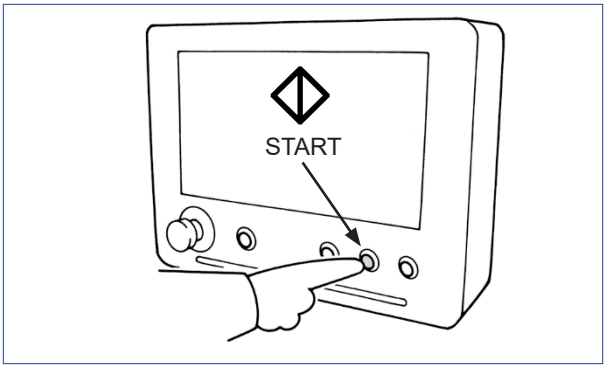
REMEMBER

All heater temperatures are Celsius (°C), not Fahrenheit (°F).

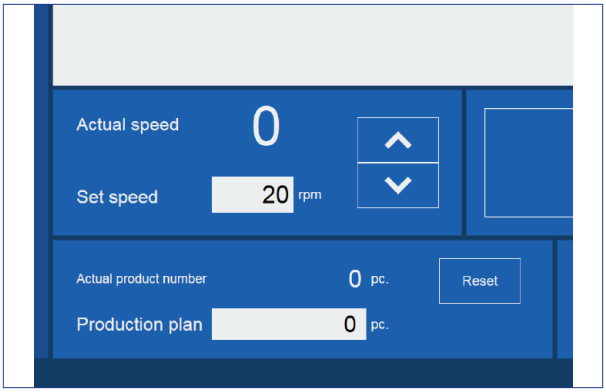
For any other problems not addressed here, see “Finished Product Trouble” on page 189

4.10 Begin Production Run

WARNING
- Alert all people nearby and announce that the machine is starting.
- Keep area clear of loose tools or other hazards.



1. Inspect the area around the machine. Be certain the area around the Wrapper is clear of product, tools, or other employees.
2. Press the “Start” button.



The speed and production report areas of the Home page.

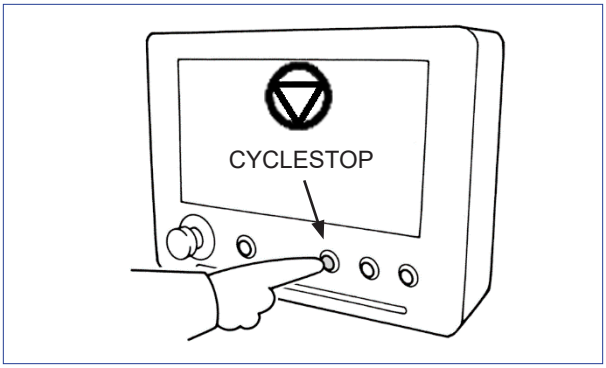
3. Monitor the Wrapper’s speed and production through the Home page display.
   - Speed - (measured in products per minute)
     - Actual Speed: current machine speed.
     - Set Speed: the programmed operating speed for the selected product.
     - The white up and down arrows ^ v will temporarily increase the set speed while the Wrapper is running.
   - Production
     - Actual: counts the number of finished packages wrapped in the current production run.
     - Production plan: The total number of products in the production run. Depending on system programming, the Wrapper may stop when the plan is complete.
     - Touching the “reset” button, sets the “Actual” count to zero.

4.11 End Production Run

1: Stop production

When all products on the machine discharge from the Wrapper, press the Cyclestop button. This will stop the Wrapper at the assigned natural pause in the Wrapping cycle. There will be a slight gap between pressing this button and all moving parts stopping.

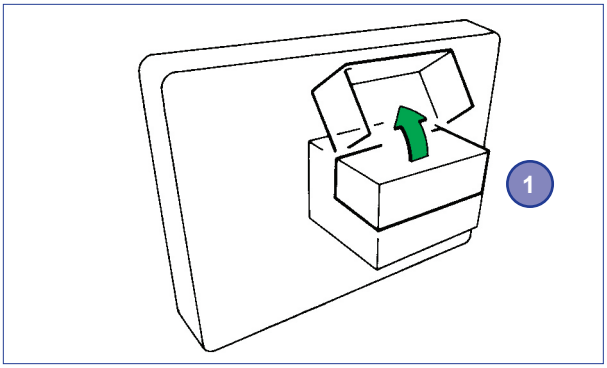
DO NOT use the Cyclestop in case of emergencies.

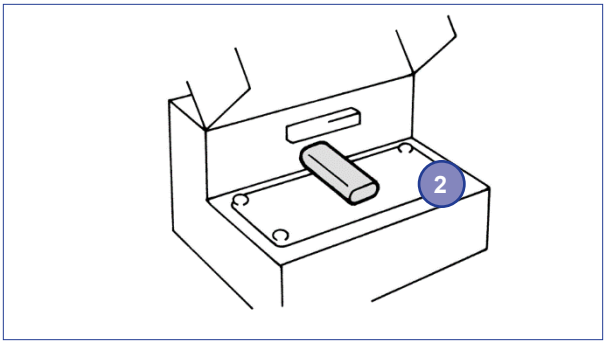


2: Save backup data (optional)

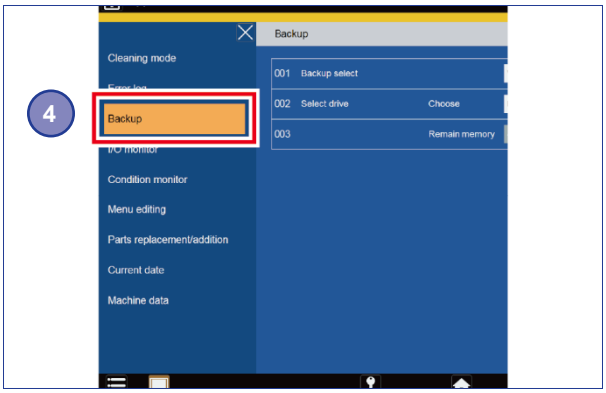
Refer to your company's instructions on saving production data. To copy production data:

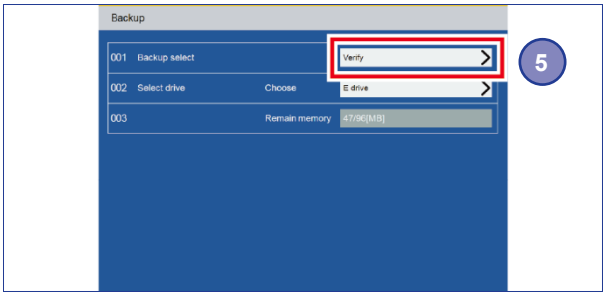
1. Lift the cover on the back side of the operator panel.
2. Insert a thumb drive into the USB terminal.
3. Touch the Management Menu icon at the bottom of the page.

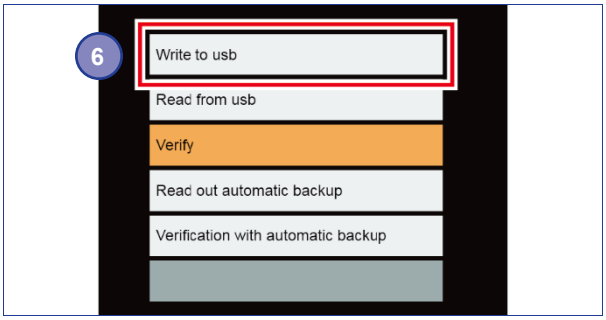


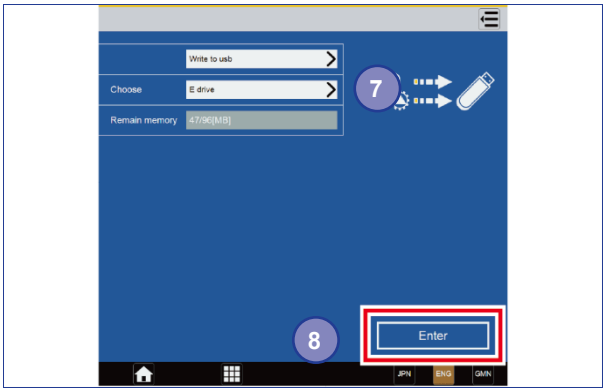


End Production Run (continued)







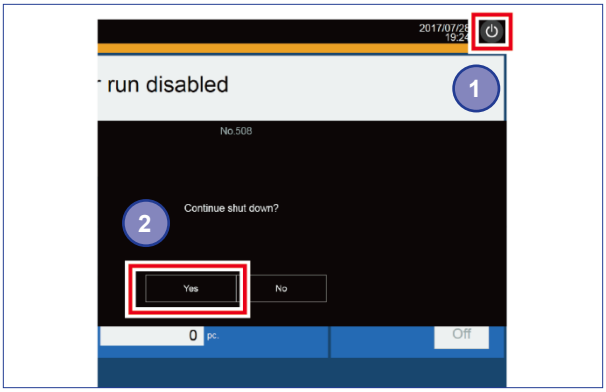


4. A menu will appear on the left side of the page. Select “Backup.”
5. On the new page, touch the white rectangle to the right of “001: Backup Select.”
6. A popup window will appear. Touch “Write to USB.”
7. Select the folder to write the data.
   - The USB drive is E:\
8. Touch the “Enter” button.
   - A pop-up confirmation window will appear. If the information is correct, select “Yes.”
9. The system will now save the production data. This may take up to five minutes. The screen will display a completion message when the system finishes.

End Production Run (continued)

3: Turn power OFF

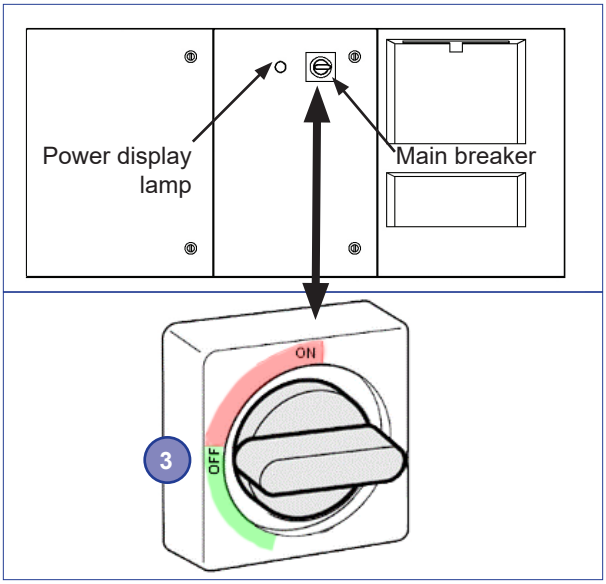
1. On the operator panel, touch and hold the Power Icon in the top right corner of the page.
2. A prompt will appear on the screen. Touch “Yes.”



REMEMBER

Always begin the shutdown procedures with the steps on the Touch Screen.

3. Move to the rear of the machine and turn the main breaker handle counter-clockwise to the OFF position.
   - Power display lamp will still show white as long as the Wrapper is plugged in.

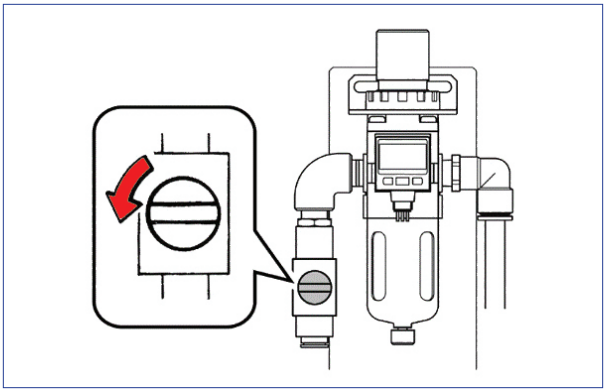


REMEMBER

The main breaker turns the Wrapper ON and OFF. The power display lamp indicates that the Wrapper is plugged in and receiving power.

4: Turn air OFF

Close the turn valve on the air pressure regulator. Pressure does not accumulate in the Wrapper, so it is not necessary to bleed pressure.



Chapter 5 New Product Setup

5.1 Introduction

This chapter explains how to register and configure a new product for your Wrapper to process. The table below outlines each step in the cycle. Each step refers to a sub-section either in this chapter or in “Chapter 4 Operations Cycle”

Be aware that components and buttons will vary between machines and not all options shown in this manual are available to all users. Optional equipment or functions may change or override the items shown here.

This chapter does not include information about cleaning or maintaining the Wrapper. See “Chapter 6 Maintenance” on page 73 for those subjects.

REMEMBER The steps and instructions in this chapter are a basic overview of the setup procedure. Each machine has different optional parts and programs installed.
If there is a difference between these instructions and the instructions given by our technician during the installation of your machine, follow the instructions given by our service department.

Order of operations

Step	Description	See Page #
1 - Register New Product Data	Assign the new product number and edit the new product data.	page 62
2 - Position Wrapper Components	Adjust Wrapper components to the settings which wrap that product most effectively.	Ch. 4 page 39
3 - Set and Route the Film	Mount film on the spindles and feed it through the Wrapper.	Ch. 4 page 46
4 - Adjust the Film Tension	Adjust film tension to control the bag’s shape and performance.	page 65
5 - Examine Empty Test Bags	Run the machine without product and adjust the bag forming as needed.	Ch. 4 page 51
6 - Examine Full Test Bags	Run the machine with product and adjust the product position as needed.	Ch. 4 page 52
7 - Set Regi-Mark Detection	Enable the Regi-mark sensor.	page 68
8 - Set Timing and Timer Functions	Set the final system details for how the Wrapper will handle the product.	page 70

5.2 Register New Product Data

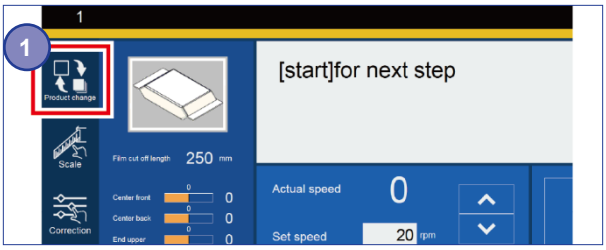
To register the New Product Data:

1. Assign the new product number.
2. Edit the new product data.

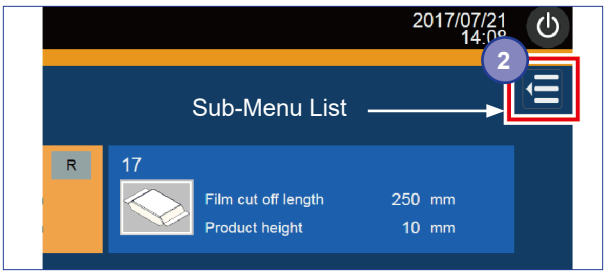
1: Assign the New Product Number

The easiest way to create a new product is to copy from an existing product.

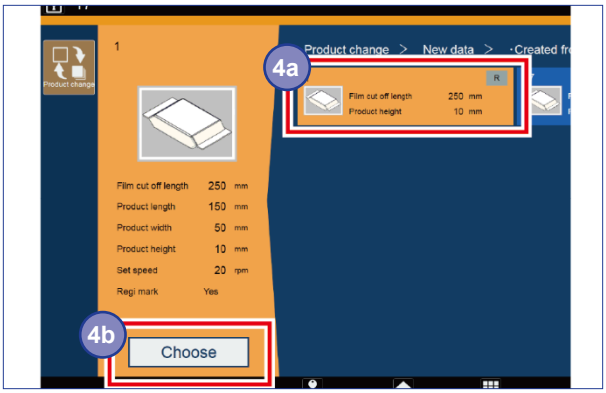
1. On the **Home Page**, touch the Product Change icon in the left column. The current product list will appear.



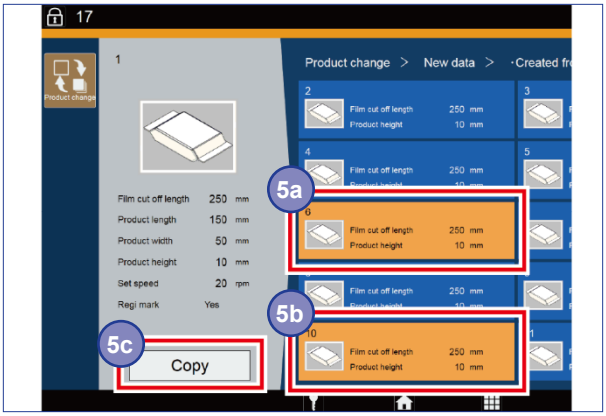
2. In the upper right of the page, touch the sub-menu list.
3. A series of popup windows will appear.
   - Touch “New Data.”
   - Touch “Created from Copy.”
   - Touch “Confirm.”



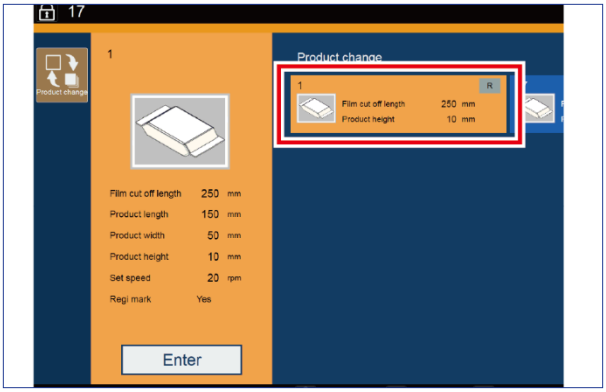
4. The screen will display the current product list.
   - Touch the source product - the product you wish to copy data from.
     - Try to select a source product that does not use Regi-mark film. If all products use Regi-mark film, select a product with similar dimensions.
   - Touch the “Choose” button.
   - On the popup window, touch “Confirm.”



5. The screen will display the entire product menu.
   - Touch the destination product numbers - the products where you want to copy the data.
   - If you are creating multiple new products, you can select multiple numbers at one time.
   - Touch “Copy.”
6. A final popup will ask “Will copy product data continue?”
   - If the source product and destination products are correct, touch “Yes.”
   - If there has been a mistake, touch “No” and the Copy function will start over.

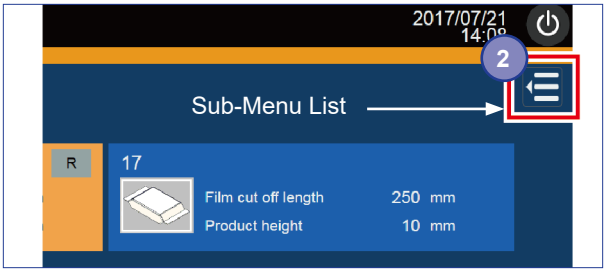


Register New Product Data (continued)

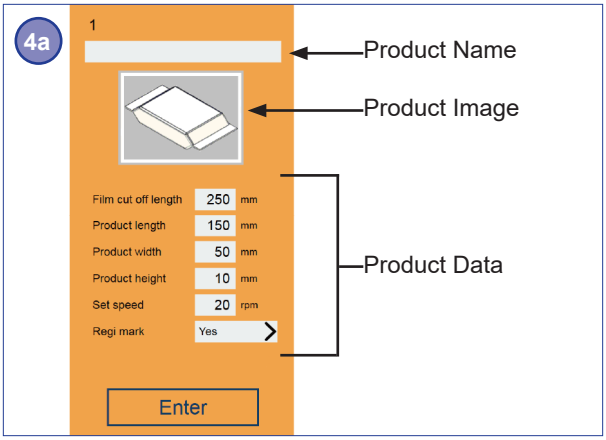


2: Edit the New Product Data

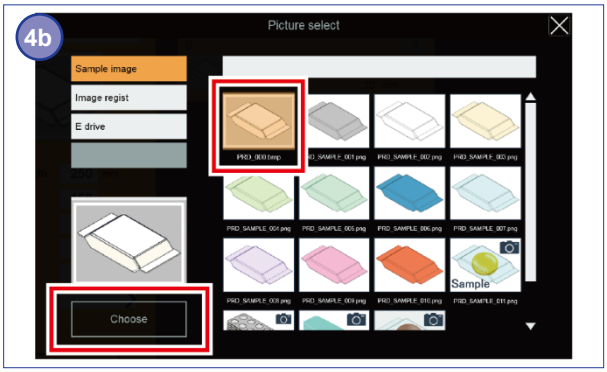
1. On the Product Change page, touch the new product.



2. In the upper right of the page, touch the sub-menu list.
3. In the popup window that appears, touch “Data Edit.”



4. Touch each white area to edit the new product data:
   - **Product Name:** Touch this area and a digital keyboard will appear. Type in the new product’s name and touch “Enter” or “Input” to accept.

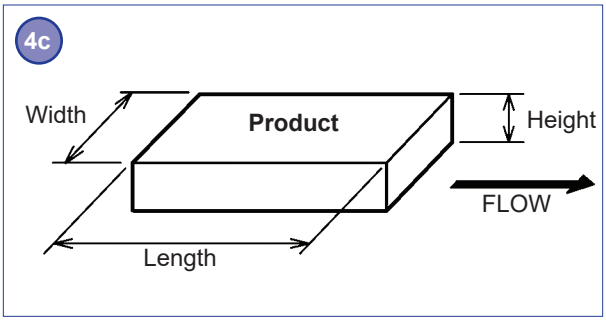


   - **Product Image:** Touch this area and a popup window of various icons will appear. Touch one to select that icon and then touch “Choose” to accept it. It is also possible to load pictures of the actual product. To do so:
     - Load a small picture onto the removable USB flash drive.
     - On this page, touch “E Drive”
     - Select the image from the drive list.
     - Touch “Choose.”

This step continues on the next page.

Register New Product Data (continued)

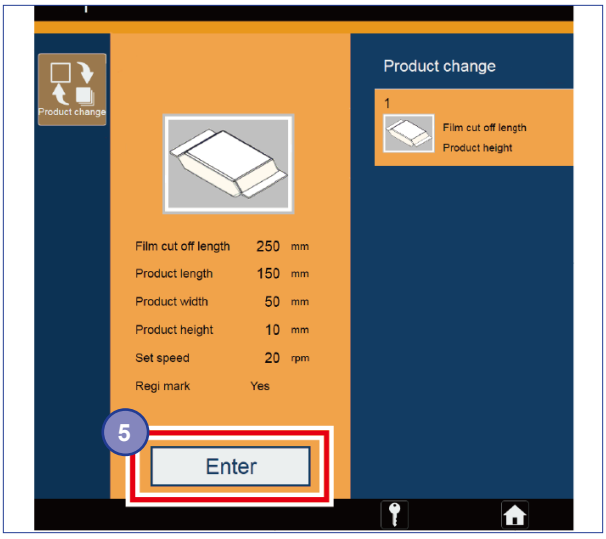
- **Product Data:** Touch this area and a digital numerical keypad will appear for each data point selected.
  - Film cut off length - The length of film used per product, measured in millimeters (mm). For products using film with Regi-marks, this is the distance between the leading edge of two Regi-marks.
  - Product measurements - See illustration at right. Measure all dimensions in millimeters (mm).
  - Set Speed - The desired wrapping speed, measured in products per minute.
  - Regi-mark - Does the film for this product have Regi-marks?



REMEMBER

If the new product uses Regi-mark film, **YOU MUST LEAVE THE REGI-MARK SET TO "NO" FOR NOW**. Continue with the setup. Changing this setting to comes later in the setup process.

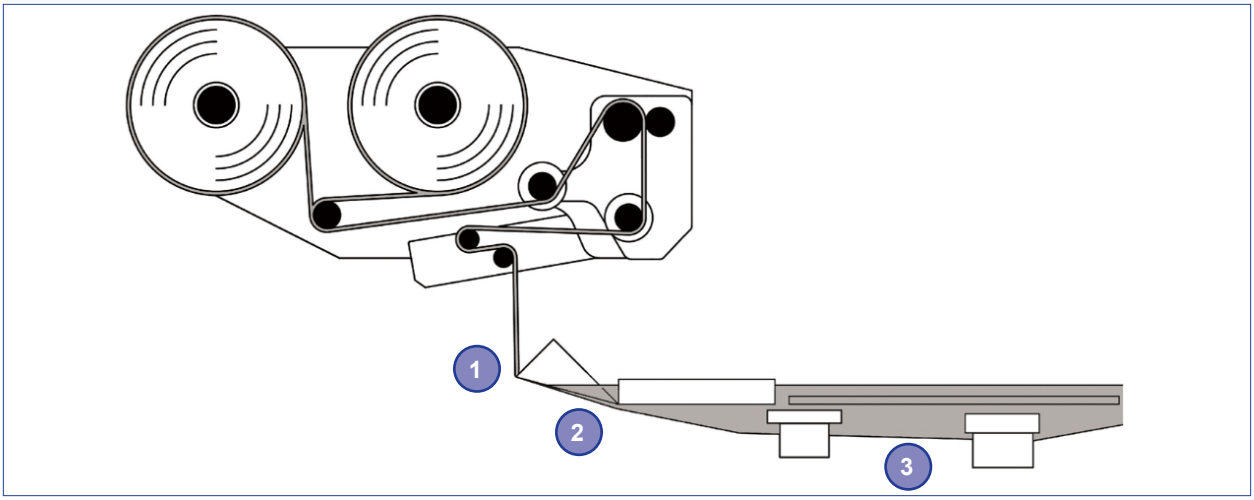
5. After entering all data, touch Enter to save the changes.



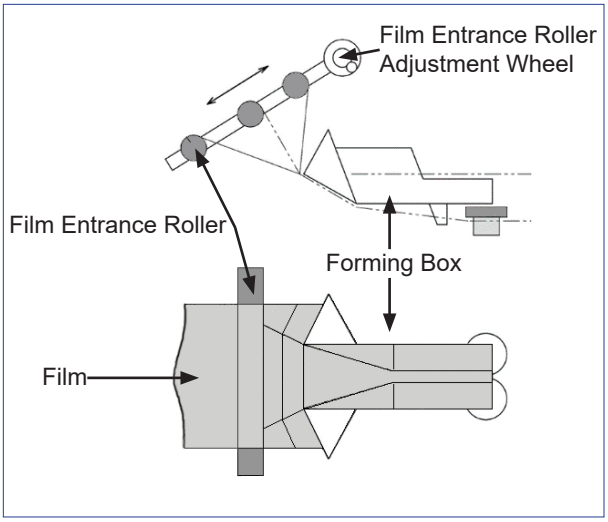
Next Steps:

Position Wrapper Components	Ch. 4 page 39
Set and Route the Film	Ch. 4 page 46

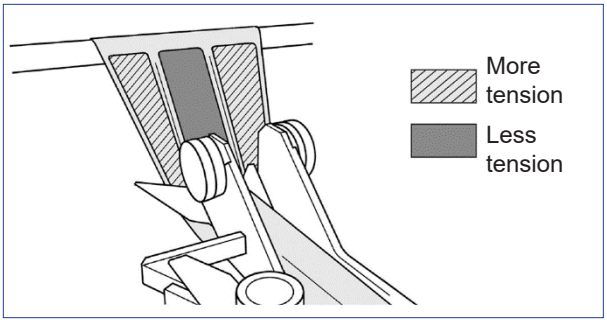
5.3 Adjust the Film Tension



Three areas to adjust film tension



Adjust the position of the film entrance roller to change the film tension



Desired film tension

After you have positioned the Wrapper components and routed the film, you must adjust the film tension. Film tension - specifically where and how the Wrapper pulls the film - affects the quality of the final bag.

The three points of tension adjustment are:

1. At the forming box entrance.
2. Between the forming box and the first center rollers.
3. Between the first and second center rollers.

1: At the Forming Box Entrance

The forming box sits where the infeed conveyor meets the film's path of travel. The film wraps around the forming box's wings to create a tube. Each product arriving on the infeed conveyor lands inside this film tube. The act of wrapping around the forming box puts tension on the film.

The film entrance adjustment wheel controls the position of the film entrance roller.

- Moving the roller higher reduces tension on the film edges.
- Moving the roller lower adds tension to the film edges.
- The best setup puts slightly more tension on the sides of the film than on the center.

For a simple setup of a new product or new film, raise the Film Entrance Roller until the film has equal tension across its width. Once it reaches this equal point, lower the roller slightly.

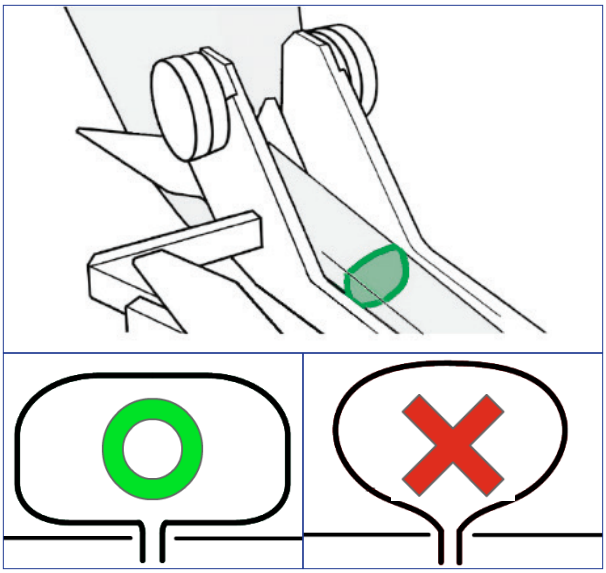
Adjust the Bag Forming (continued)

2: Between Forming Box and First Center Rollers

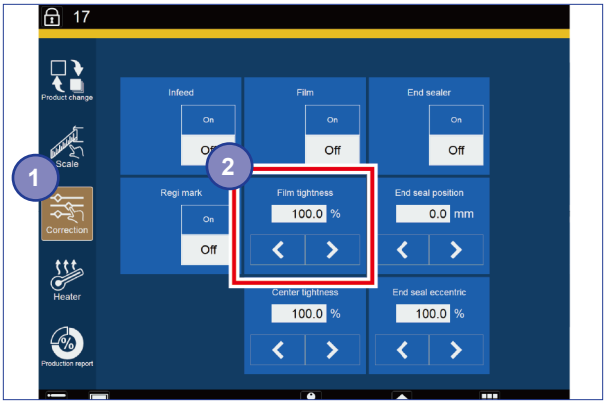
Examine the tube as it passes through the forming box. A well-formed tube will flow around the forming box and create a semi-circle. If the film is under too much tension, the bottom will pull in tightly.

The speed of the first and second center sealers controls tension in this area. You can change this speed on the **Correction Page**.

1. Touch the Correction icon in the left column.
2. Find the Film Tightness correction area.
   - Decreasing this value makes both sets of center rollers move slower which reduces film tension.
   - Increasing this value makes both sets of center rollers move faster, which increases film tension.

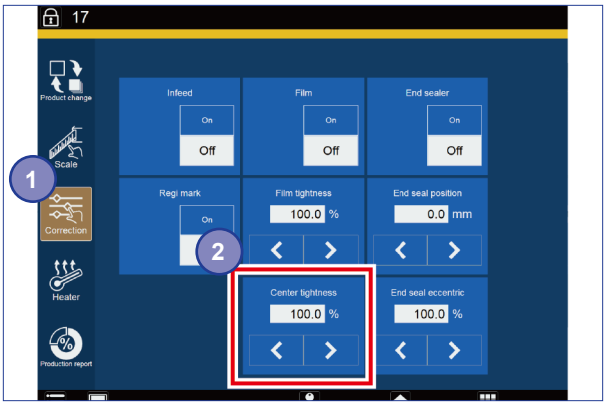


Inspect the film tube in the forming box (above). Well-formed (left) and tight (right) film tubes.



Film tightness adjusts both center rollers equally.

Adjust the Bag Forming (continued)



Center tightness adjusts the second center roller only.

3: Between First and Second Center Rollers

Examine the film in between the center sealers. If there are vertical wrinkles in the film after the first center sealer, adjust the tension on the **Correction Page.**

1. Touch the Correction icon in the left column.
2. Find the Center Tightness correction area.
   - Decreasing this value makes the second center roller move slower, which reduces tension.
   - Increasing this value makes the second center roller move faster, which increases tension.

Next Steps:

Examine Empty Test Bags	Ch.4 page 51
Examine Full Test Bags	Ch. 4 page 52

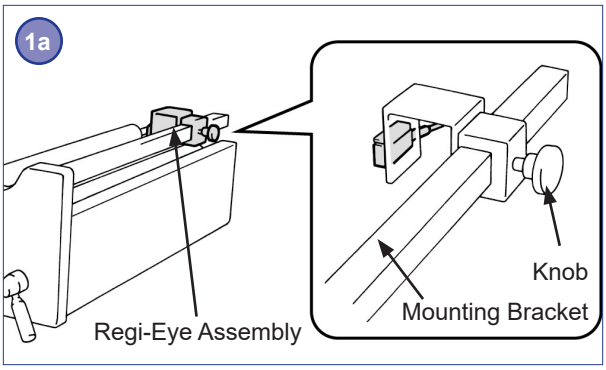
5.4 Set Regi-mark Detection

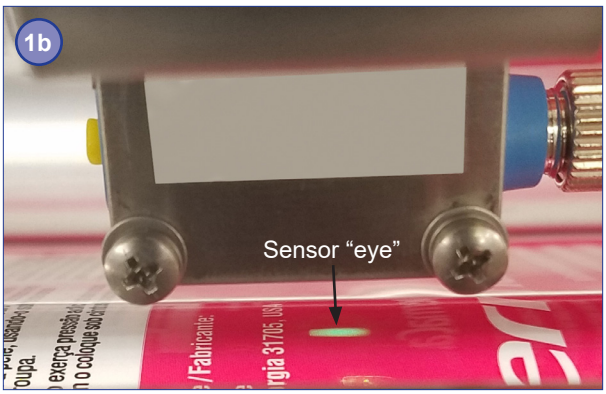
Registration marks (called “Regi-marks”) are bold colored blocks printed on one or both outer edges of the film. They usually mark the end of the wrapping for one product and the beginning of the wrapping for the next product. These printed blocks help the system to measure film and to position a product within its film wrapping.

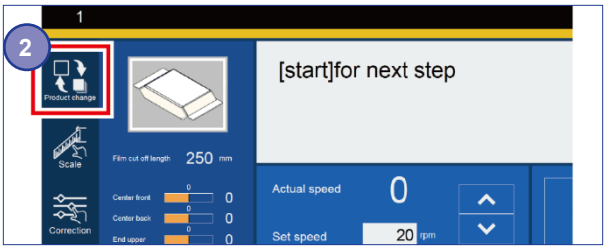
If your film does not use Regi-marked film, move to page 70.

In the standard Wrapping Cycle, each axis on the machine rotates once to create one wrapped product. Therefore, one wrapped product is equal to 360° of axis rotation, regardless of how long the product is. The system uses this equation to set timing points (discussed in the next sub-section.) Specifically, Regi-mark detection sets the “zero” position for the film axis.

The Regi-mark sensor, (also called the Regi-Eye) sits on a mounting bracket between the film spindle and the forming box. Its “eye” scans the film for the sharp contrast of a Regi-mark.



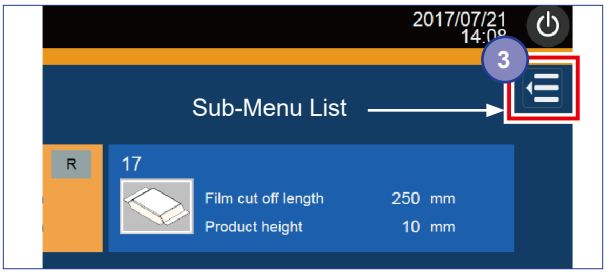


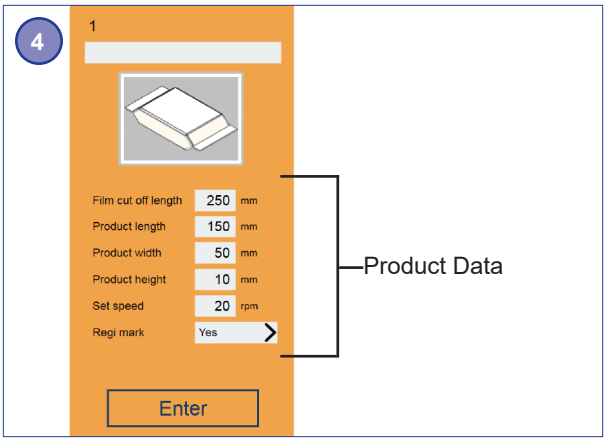


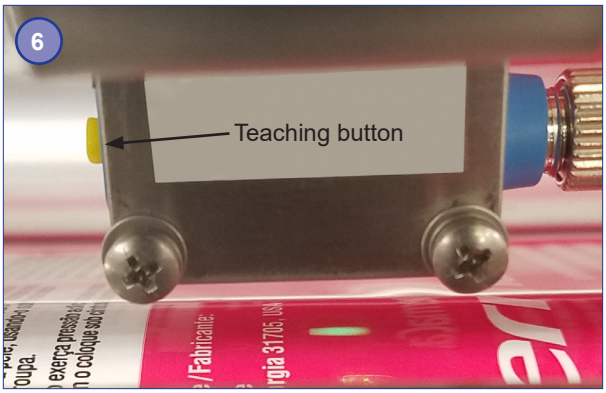
To turn on Regi-mark detection:

1. Adjust the Regi-mark sensor. The sensor must be in line with the Regi-marks printed on the film.
   - Loosen but do not remove the control knob.
   - Slide the sensor along the mounting bracket. The sensor emits a colored light. Use this light to aim the sensor so it is in-line with the Regi-marks printed on the film.
   - If the Regi-marks run the entire width of the film and the film has other printing on it, aim the sensor so that the Regi-mark is the only printing it will “see.” This usually means near one edge of the film.
   - Tighten the knob when complete.
2. On the Home Page, touch the Product Change icon in the left column. The current product list will appear.
   - On the Product Change page, touch the product you wish to edit.

Set Regi-mark Detection (continued)

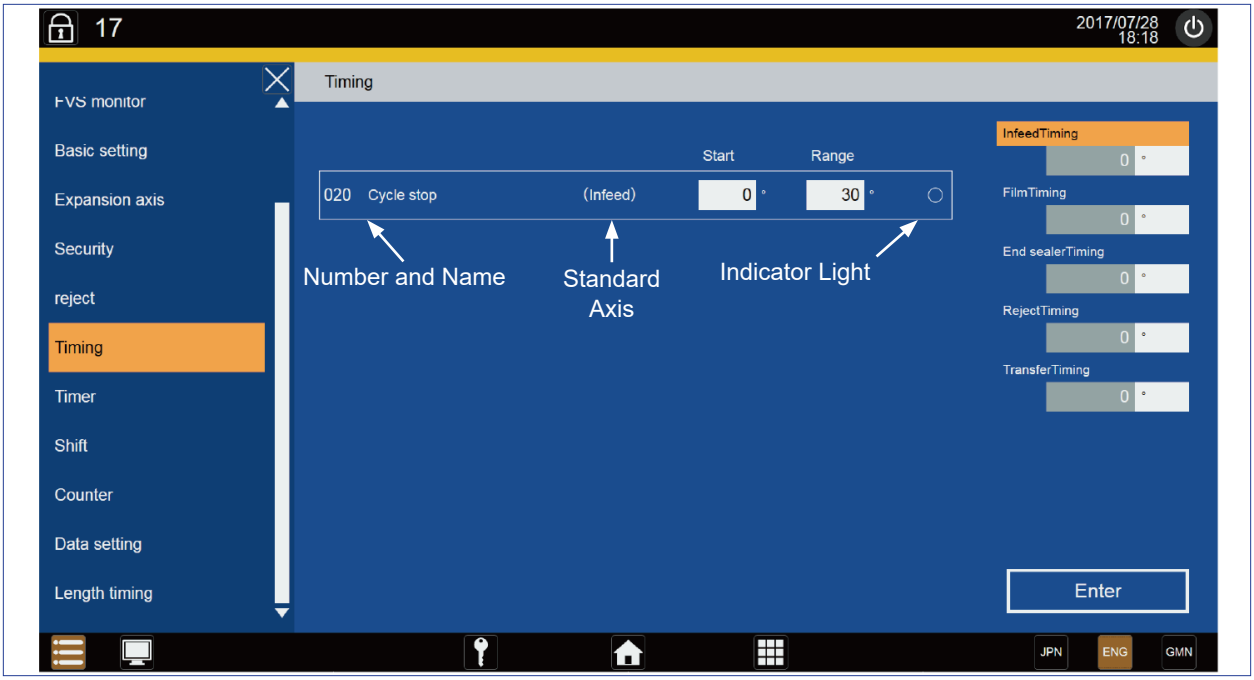






3. In the upper right of the page, touch the sub-menu list.
   - In the popup window that appears, touch “Data Edit.”
4. Find the product data value for Regi-marks.
   - Touch the white space to the right. A menu will appear.
   - Touch “Yes (Semi-Auto Regi- mark Sensor).”
   - Touch “Enter” at the bottom of the page.
5. Return to the Home page. The Wrapper will need to perform a Set-Run function. Press START to begin the Set-Run.
   - During the Set-Run, the sensor will try to detect the Regi-mark.
6. If the system cannot detect the Regi-mark:
   - Advance the film so that the Regi-mark is directly under the sensor eye.
   - Touch the “Teaching button” once.
   - Perform the Set-Run function again.

5.5 Set Timing and Timer Pages



Timing Page

Timing points are functions linked to a specific point in the standard Wrapping Cycle. In the standard Wrapping Cycle, one wrapped product is equal to 360° of axis rotation. This does not mean that one product means each Wrapper component does one complete rotation for every product. It is only that the system converts the product length into a 360° cycle.

A Timing function starts at a certain point in the cycle (START) and runs for a specified number of degrees of axis rotation (RANGE.)

For each listing on the Timing page, there is a description, the name of the servo the timing point uses as reference, entries for Start and Range, and an indicator light which turns on when that function is engaged. The column at the screen far right shows the current position of all servo motors.

For a simple example, consider a sensor eye mounted on the infeed conveyor with a value of START-120 RANGE-30. The Attachment Zero position controls the zero point (0°) for the infeed conveyor. When the Attachment Zero position reaches 120°, the sensor will turn on and remain on until the infeed conveyor axis reaches 150° - a range of 30°.

For a more complex example, consider a printer mounted on the film axis with a value of START-180 RANGE-30. By changing the START value, you can adjust where the printing will appear on the film.

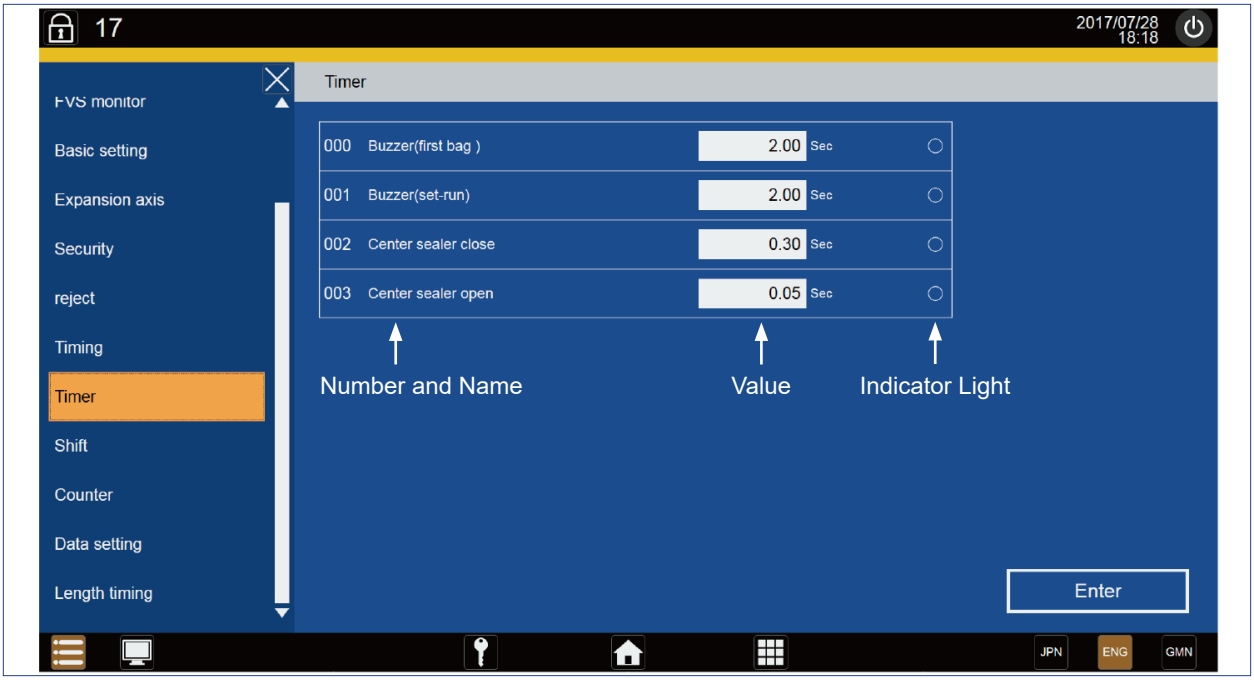
- Increasing the ON value (i.e., START-210) will move the print toward the upstream end of the package.
- Decreasing the ON value (i.e., START-150) will move the print toward the downstream end of the package.

For more information, see “9.10 Timing” on page 155.

Two common Timing axes

Timing #	Axis	Definition of one cycle (360°) and Zero Point (Origin)
00 - 19	Film	One cycle = the gap between the leading edge of two Regi-marks. Zero point = position of Regi-mark detection.
20 - 49	Infeed Conveyor	One cycle = the gap between the front face of two infeed attachments. Zero point = set by the Lug Zero position (see “To set the lug origin:” on page 150.)

Set Timing and Timer Pages (continued)



REMEMBER

A **Timer** measures in *seconds*.
A **Timing Point** measures in *degrees* of a rotational axis.

Timer Page

Certain functions have a gap between a sensor detects an event and the Wrapper's reaction to that event. The items on this page vary from system to system based on optional equipment and customer requirements.

The first example listed above - Buzzer (first bag) - shows that the Buzzer will sound for 2.00 seconds between pressing the "START" button and the Wrapper infeed and film beginning to move.

For each listing on the Timer page, there is a description, a duration measured in seconds and fractions of seconds, and an indicator light which turns on when that timer is engaged and counting.

For more information, see "9.9 Timer" on page 154.

Chapter 6 Maintenance

6.1 Safety

DANGER

► HIGH VOLTAGE

• Lock out and tag out the electrical supply before maintenance or repair.

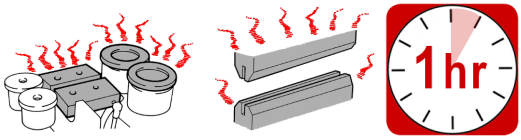
WARNING

► PRESSURIZED AIR

• Flying debris can injure your eyes.
• Disconnect air supply before maintenance.
• Wear eye protection when using pressurized air.

► RESIDUAL BURN RISK

• Sealers can remain hot for up to sixty (60) minutes after disconnecting power.

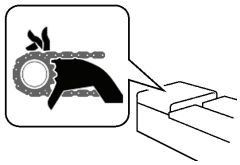


► BURN RISK

• Wear gloves when maintaining hot sealers.

► CATCHING AND CRUSHING HAZARD

• Moving parts can catch and crush.
• Keep hands away from sprocket and chains when they are moving.



► CRUSHING HAZARD

• Center Seal Unit and Transfer Brush Units are heavy. Hold the unit firmly to prevent dropping it.

6.2 Introduction

This chapter explains the basic daily and periodic maintenance for your Wrapper. Formost-Fuji designed this machine to provide many years of reliable service with a minimum of maintenance. “Minimum maintenance” still includes regular cleaning, lubrication, and system inspection, as well as proactive replacement or repair of worn components. Catching a developing problem early can limit or prevent far more costly damage and/or repair.

- For a basic list of tools this machine requires, see page 76.
- For a list and explanation of daily cleaning and maintenance, see page 77.
- For a periodic (meaning weekly or monthly) maintenance, see page 87.
- For a lubrication points, see page 88.
- For monthly inspection points, see page 92.
- For a sample monthly maintenance schedule, see page 93.

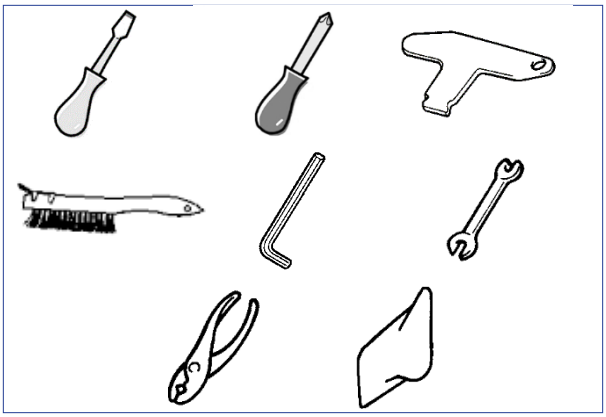
Introduction (continued)

Other precautions before starting maintenance

- All maintenance should be performed by trained professionals.
- Before starting any work:
  - Clean around the machine and put away any unnecessary tools or product.
  - Assemble all necessary tools and spare parts.
  - Wear suitable, safe, and clean working clothes which will not hinder your work or catch in machinery.
- Keep the Spare Parts List up to date. Unexpected outage of spare parts may delay production.

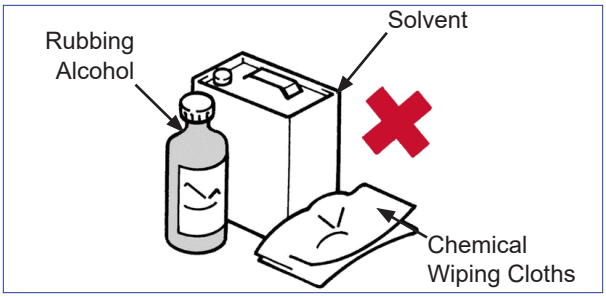
Basic tool kit:

- Screwdriver (flathead driver)
- Phillips-head Screwdriver
- Back Panel Door Key
- Wire Brush
- Hexagonal Wrench
- Open-Ended Wrench
- Pliers
- Clean cloths.



Do not use:

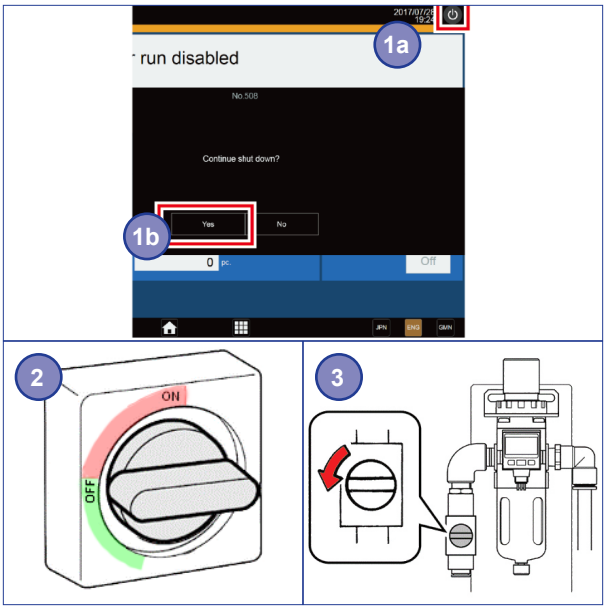
- Rubbing alcohol
- Industrial solvents or harsh chemicals such as lacquer thinner or benzine.
- Chemical wiping cloths.



How to turn off the Wrapper.

Several steps in this chapter require you to turn the Wrapper completely off. The steps in this process are:

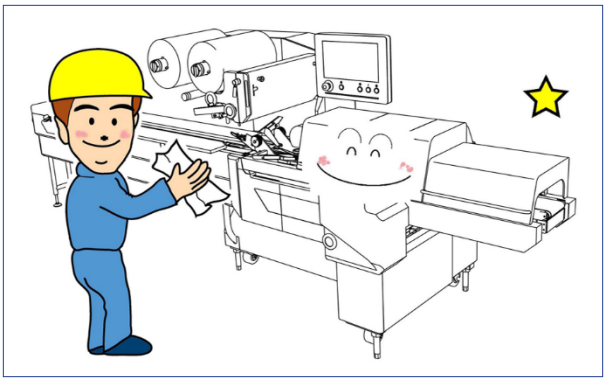
1. Touch the Power icon found in the top right corner of the Home page, and touch “Yes” to confirm.
2. Move to the rear of the machine. Turn the main breaker handle counter-clockwise to the OFF position.
3. Close the air pressure regulator valve.



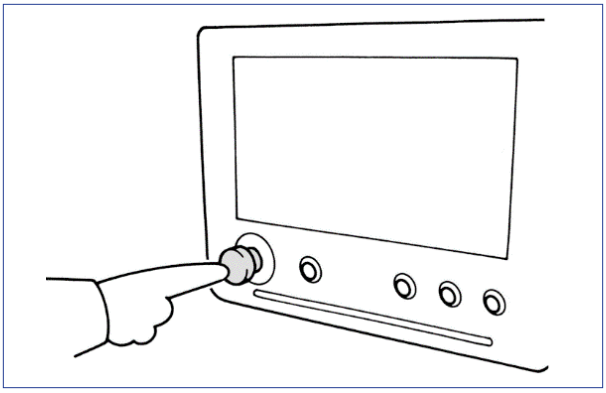
6.3 Daily Maintenance

DANGER **HIGH VOLTAGE**
Lockout/tag out electrical supply before using cleaning liquids on the machine.

WARNING ► **PRESSURIZED AIR**
• Flying debris can injure your eyes.
• Wear safety goggles or similar eye protection when working with pressurized air.



A clean machine is a happy machine.



Press the Emergency Stop button before maintenance.

For this machine to supply dependable service, it must be cleaned and maintained every day after you finish operations.

Important areas to clean are:

1. External surfaces (page 77.)
2. Photoelectric sensors (page 78.)
3. Rubber film feed roller (page 78).
4. Infeed chain and chain rail (page 79.)
5. Center sealer unit (page 81.)
6. End seal unit and discharge (page 85)

1: External Surfaces

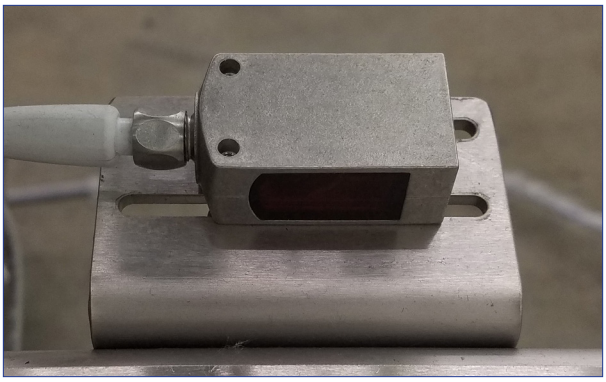
Press the Emergency Stop button before beginning.

- Use an air gun to remove crumbs and dust from the machine.
- Wipe stains from external surfaces with a moist cloth and immediately wipe dry.
- Immediately remove lubricants, solvents, or other chemicals.
- Do not use harsh chemicals, such as lacquer thinner, rubbing alcohol, or benzine on the transparent covers.
- Wipe the touch panel with a dry cloth. For difficult stains, tightly wring a wet cloth before wiping and immediately wipe dry.
- Thoroughly clean all surfaces which come into direct contact with products. If wrapping food products, sanitize these surfaces.

Daily Maintenance (continued)

2: Photoelectric Sensors

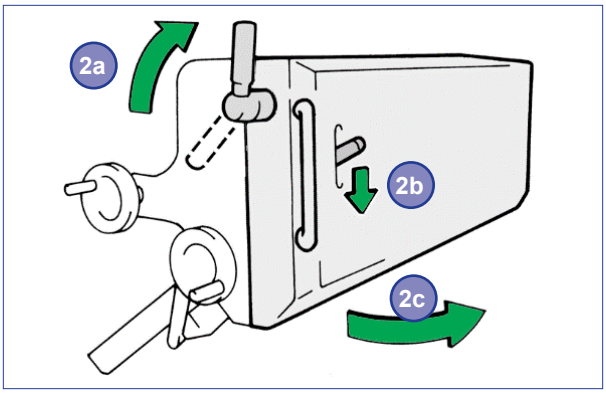
1. Press the Emergency Stop button.
2. Use a soft, dry cloth to wipe any dust or film fragments sticking to photoelectric sensors or reflectors.
3. Take care not to move the sensors out of position.

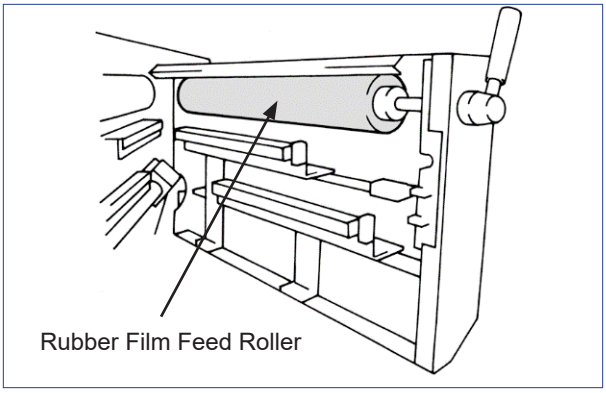


An example of a photoelectric sensor eye.

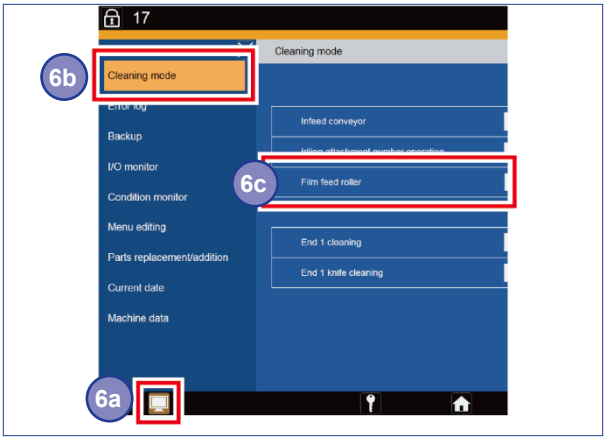
3: Rubber Film Feed Roller

1. Press the Emergency Stop button.
2. Open the film feed roller cover:
   - Turn the open/close lever to “OPEN.”
   - Push the cover lever down.
   - Swing the cover open.
3. Wipe the rubber roller with a soft, dry cloth. Look for any breaks or damage on the surface of the roller.
4. Close and lock the film feed roller cover.
5. Release the lock on the Emergency Stop button.
6. Access the Cleaning Mode controls:
   - Touch the Management Menu Key.
   - Touch “Cleaning Mode,”
   - Touch “Film Feed Roller.”
     - Touch “CW” to move the film feed roller clockwise.
     - Touch “CCW” to move the film feed roller counter-clockwise.
7. Repeat steps 1-6 and continue wiping the rubber roller with a soft, dry cloth until you have cleaned the entire roller.





Rubber Film Feed Roller

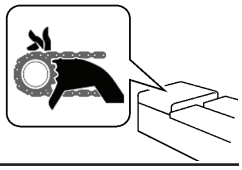


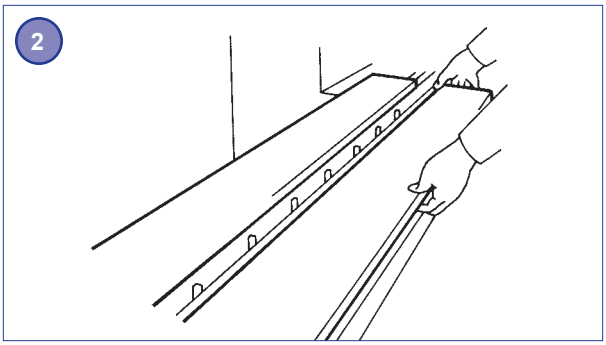
NOTICE

Do not manually advance the roller while cleaning it. Use the steps 4-6 above.

Daily Maintenance (continued)

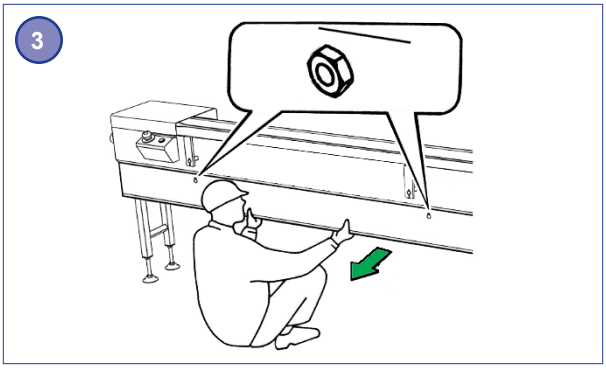
⚠ WARNING **CATCHING AND CRUSHING HAZARD**
Moving parts can catch and crush.
Keep hands away from sprockets and chains when they are moving.



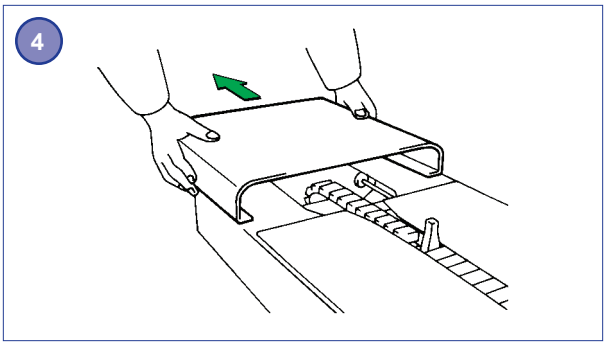


4: Infeed Chain and Chain Rail

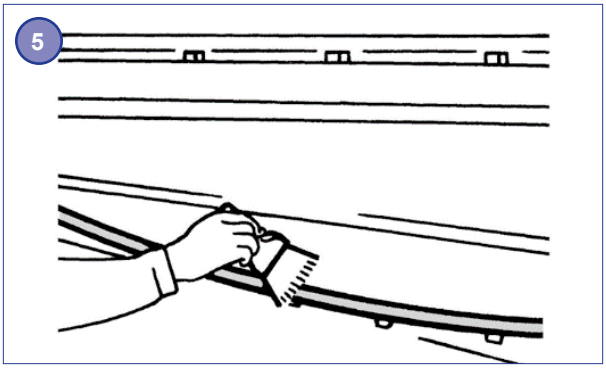
1. Press the Emergency Stop button.
2. Remove the infeed conveyor guides.



3. Remove the skirts below the infeed conveyor. Support the skirt as you lift it to prevent it from falling.



4. Loosen any attachment bolts and remove the upstream cover.



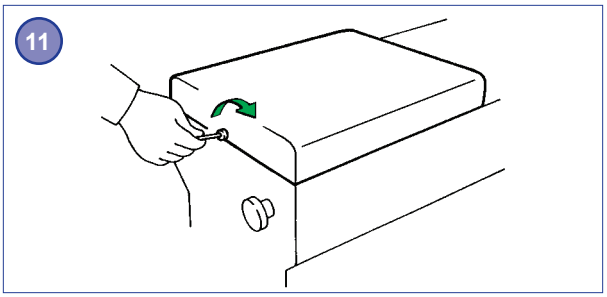
5. Wipe off dust and other accumulated debris off the infeed chain and chain rail. Use a brush, a dry cloth, or compressed air.

This instruction continues on the next page.

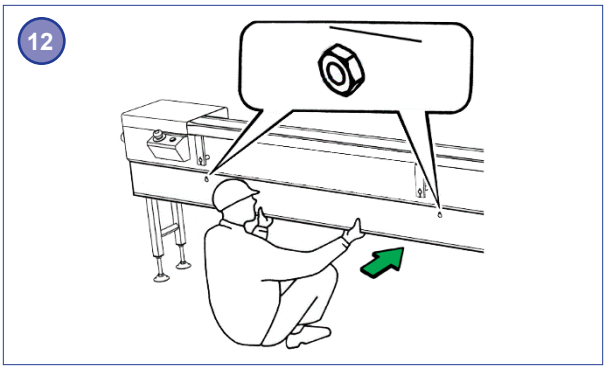
Daily Maintenance (continued)

6. Release the Emergency Stop button.
7. Access the Cleaning Mode controls:
   - Touch the Management Menu Key.
   - Touch “Cleaning Mode,”
   - Touch “Idling.”
8. Press the START button and advance the chain. Press CYCLESTOP when the chain reaches a good position to continue cleaning.
9. Press the Emergency Stop button.
10. Repeat steps 6-9 until you have cleaned the entire chain.
    - ONLY clean the chain with the Emergency Stop button activated.

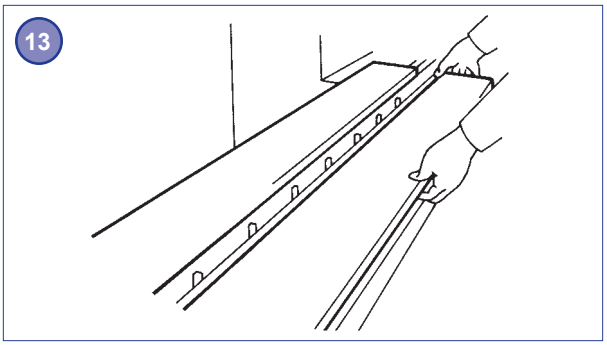
11. Mount the infeed cover and tighten any attaching bolts.



12. Hang the infeed conveyor skirts in place, tightening any attaching bolts.



13. Replace the infeed conveyor guides.

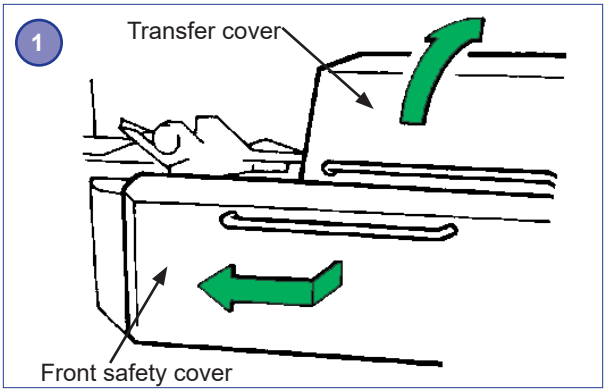


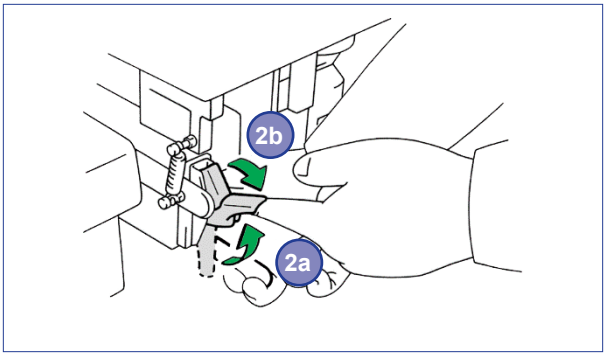
Daily Maintenance (continued)

⚠ WARNING

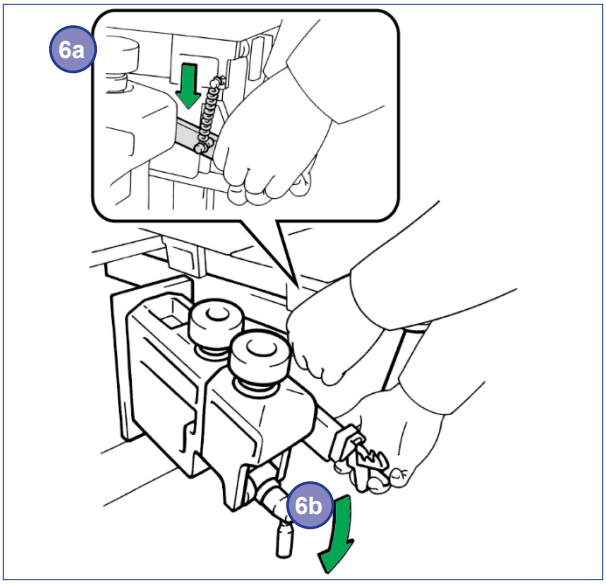
► **BURN RISK**
Center sealers are hot.
Wear gloves when maintaining hot sealers.

► **CRUSHING HAZARD**
Center seal unit and transfer brush units are heavy.
Hold the unit firmly to prevent dropping it.





Steps to release the center seal unit.



5: Center Seal Unit

If you perform this action while the sealers are hot, the bits and fragments of film will be easier to remove. Use caution and wear gloves.

1. Open the transfer cover and the front safety cover.

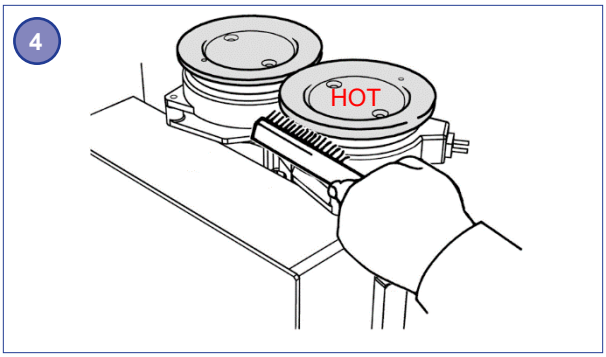
2. With one hand, firmly hold the center unit grip. With the other hand, unlock the center unit.
   Note: Illustration shows the standard locking mechanism. Your machine may vary.

3. Continue holding the center unit grip and push the lever down to open the center unit.
   - If necessary, remove the center beds to access the Center Sealer. See .page 83

This instruction continues on the next page.

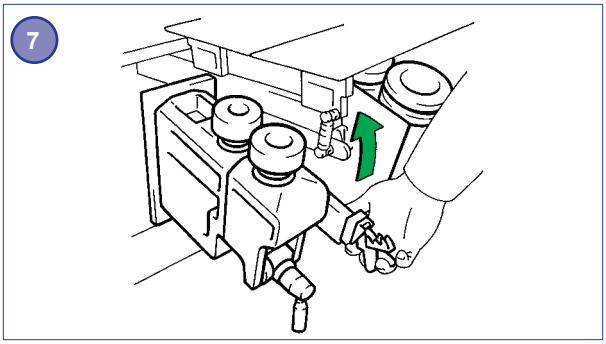
Daily Maintenance (continued)

4. Gently brush waste film off the sealing surfaces with a wire brush. Be careful not to touch the sealer surface with your hands. Also be careful not to damage the sealers.

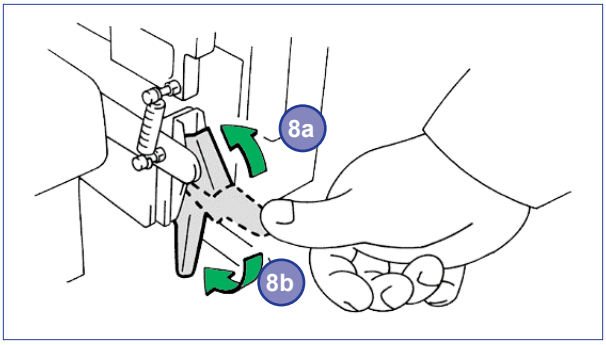


Brush waste film from center sealers and inspect.

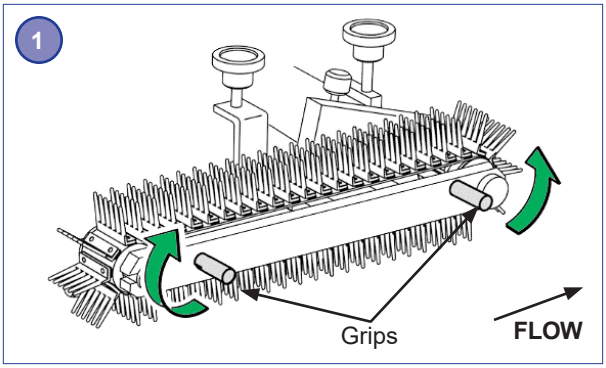
5. Wipe sealers with a clean, dry cloth. After wiping, examine the sealers again for any left-over waste film. Look for and remove any stains to the sealer.
6. Apply a light silicone grease.
7. Lift the center unit, holding firmly to the grip.



8. Lock the center unit.
9. When complete, close the center safety cover and transfer cover.



Daily Maintenance (continued)

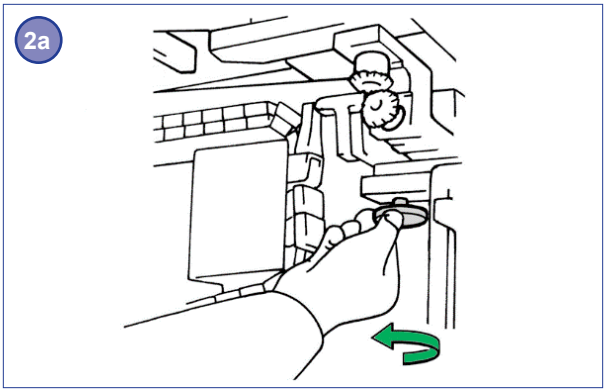


How to Remove Center Beds

Depending on configuration, you may need to remove the center beds to better access the center seal unit.

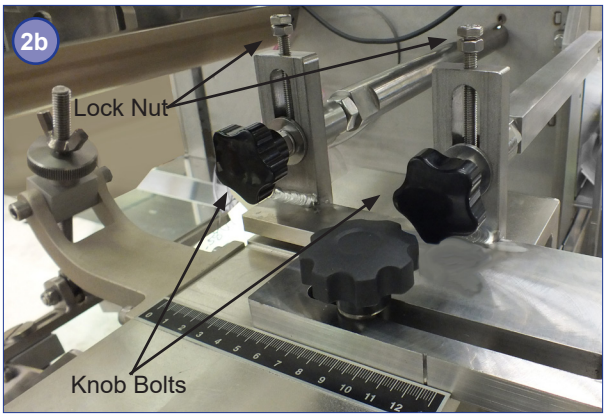
To remove the center beds:

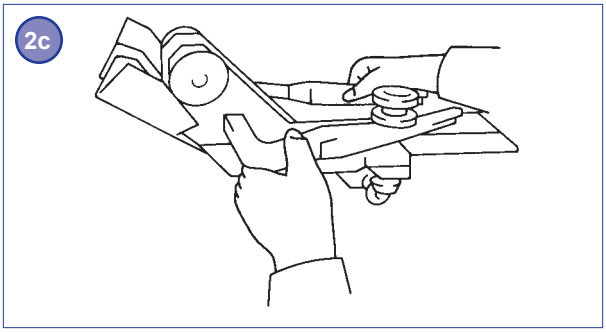
1. Lift the discharge end of the brush until it clicks, locking it in place.



2. Remove the forming box.
   - For bottom-mounted forming boxes: unscrew the knob bolt underneath.
   - For top-mounted forming boxes: loosen the lock nuts and unscrew the black knob bolts.

This instruction continues on the next page.

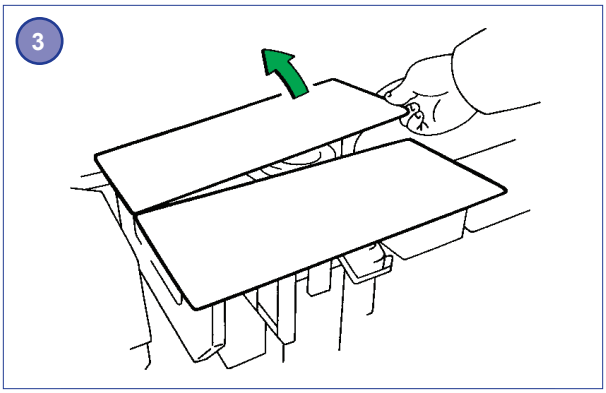




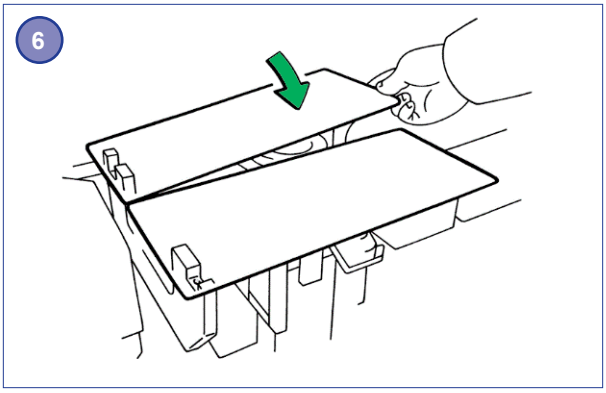
Lift out the forming box.

Daily Maintenance (continued)

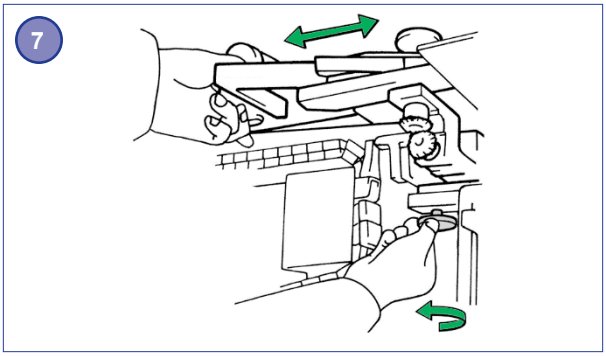
3. Lift out the center beds. The beds attach with magnets and you will hear a pop when the magnets disconnect.
   - One of the center beds has a fold-up tab at the discharge end. Remove this bed last and replace it first.



4. Continue with maintenance.
5. When you finish the maintenance, lock the center unit in place.
6. To replace the center beds: fit the pins on the underside into the holes until the magnets click.

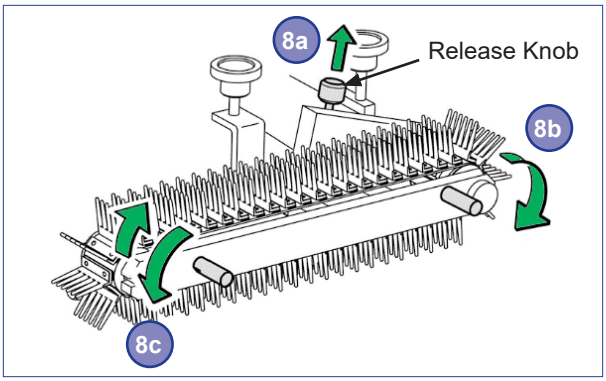


7. Replace the forming box and set it in place. For more information, see “4: Set forming box position” on page 42.



Replace the forming box (bottom mount shown)

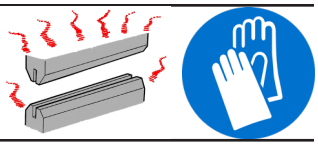
8. Lower the transfer brush:
   - a) With one hand, hold the grip on the discharge end of the transfer brush. With the other hand, pull the release knob.
   - b) Lift the discharge end of the transfer brush slightly and let go of the release knob.
   - c) With the discharge end still supported, lift the infeed end of the transfer brush slightly and then lower the entire brush.



Pull the release knob and lift the discharge end of transfer brush to release the safety catch.

Daily Maintenance (continued)

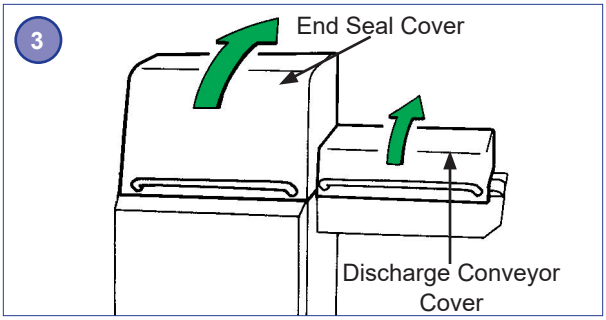
⚠ WARNING **BURN RISK**
End sealers are hot.
Wear gloves when maintaining hot sealers.



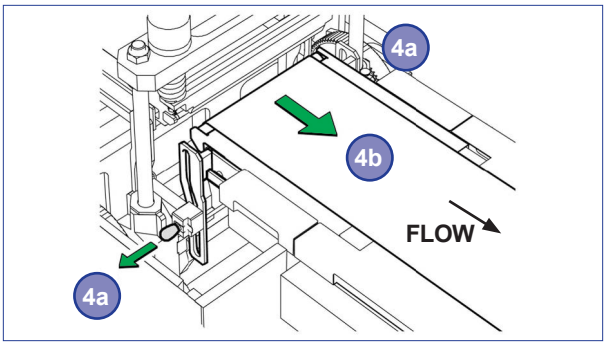
6: End Seal Unit and Discharge

If you perform this action while the sealers are hot, the bits and fragments of film will be easier to remove. Use caution and wear gloves.

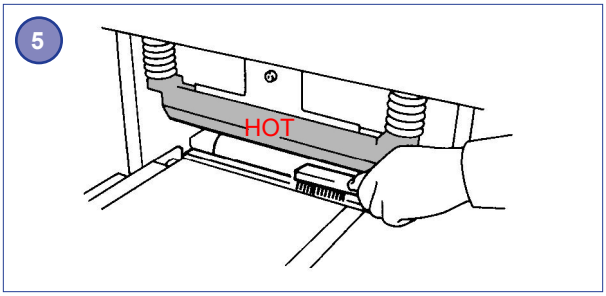
1. Access the Cleaning Mode controls:
   - Touch the Management Menu Key.
   - Touch “Cleaning Mode,”
   - Touch “End 1 Cleaning.”
   - Touch “Upper Sealer.”
2. Press the Emergency Stop button.



3. Open the end seal cover and the discharge conveyor cover.



4. On the discharge conveyor, there are two black knob bolts, one on each side of the upstream end of the conveyor. Pull the knob bolts out and rotate 90° to lock them out of the way. Slide the conveyor downstream.

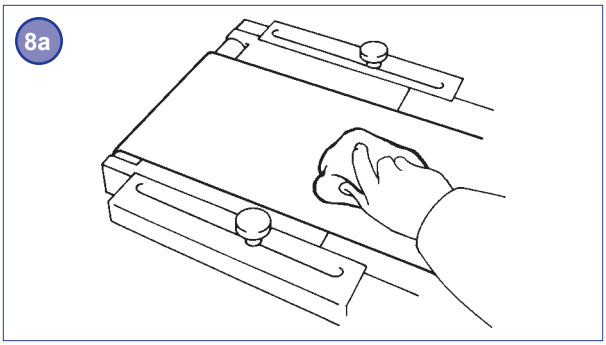


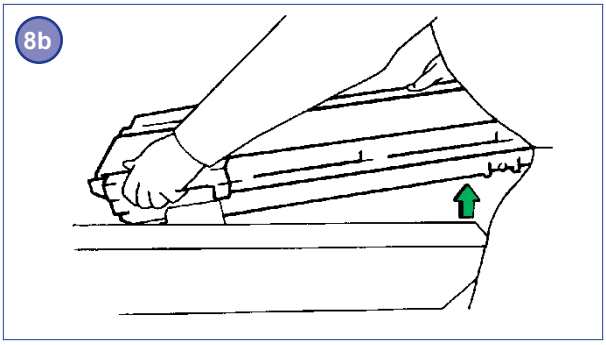
5. Gently brush waste film off the sealing surfaces with a wire brush. Be careful not to touch the sealer surface with your hands. Also be careful not to damage the sealers.
6. Wipe sealers with a clean, dry cloth. After wiping, inspect the sealers again for any left-over waste film. Inspect for and remove any stains to the sealer.
7. Apply a light silicone grease.

This instruction continues on the next page.

Daily Maintenance (continued)

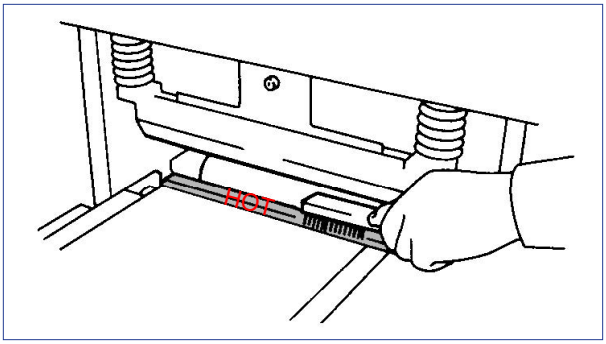
8. Wipe the discharge conveyor belt with a moist, wet cloth.
   - If there are difficult-to remove stains on the belt, lift the discharge conveyor out of the frame for better access the belt.
9. Close the Transfer Cover and the Discharge Conveyor Cover.
10. Release the Emergency Stop button.





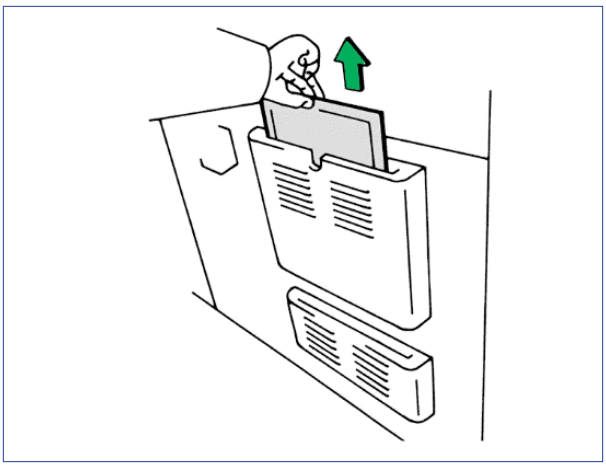
11. The display should return to the Cleaning Mode screen. If not, follow the steps in the illustration at right.
    - Touch the Management Menu Key.
    - Touch “Cleaning Mode,”
    - Touch “Lower Sealer.”
12. Press the Emergency Stop button.

13. Open the End Seal Cover and the Discharge Conveyor Cover.
14. Repeat steps 5-7 to clean the lower sealer.
15. When complete, return the discharge conveyor to its original position.
16. Close the transfer cover and the discharge conveyor cover.
17. Release the Emergency Stop button.



6.4 Periodic Maintenance

DANGER **HIGH VOLTAGE**
Lockout/tag out electrical supply before maintenance.



There are a few pieces of maintenance that are necessary, but which need to occur less often.

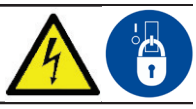
1: Filter for Heat Exchanger

Frequency: Monthly

1. At the rear of the machine, take the filter out of its case on the control box door. Lift it straight up to remove it.
2. Clean the filter, either with a vacuum or wash it in water.
   - If you use water, allow the filter to dry completely before reinstalling.
3. Put the filter firmly back into place.

6.5 Lubrication

DANGER **HIGH VOLTAGE**
Lockout/tag out electrical supply before maintenance.



WARNING ► **RESIDUAL BURN RISK**
Center Sealers can remain hot for up to sixty (60) minutes after disconnecting power.

► **CRUSHING HAZARD**
Center Seal Unit is heavy.
Hold the unit firmly to prevent dropping it.

Assuming the Wrapper runs eight (8) hours a day, we recommend lubricating the following parts once every three (3) months:

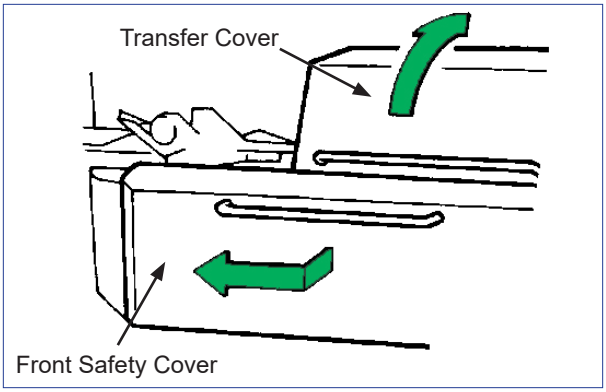
1. Center seal bevel gears (page 88.)
2. Box motion end seal cams (page 90.)

Formost-Fuji recommends Idemitsu Kosan Daphne Eponex grease, grade EP-0. If this is unavailable, look for a high quality lithium-based food grade grease.

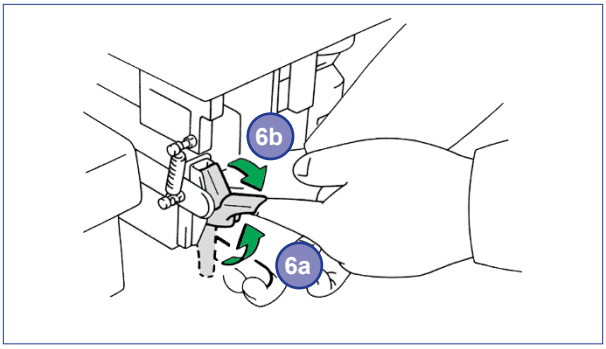
Center Seal Bevel Gears

You must power down the machine before performing the steps in this section.

1. Turn Wrapper power OFF using the steps on page 76
2. Open the transfer cover and the front safety cover.
3. Wait until the Center Sealers are sufficiently cool.



4. With one hand, firmly hold the center unit grip. With the other hand, unlock the center unit. **Note:** Illustration shows the standard locking mechanism. Your machine may vary.

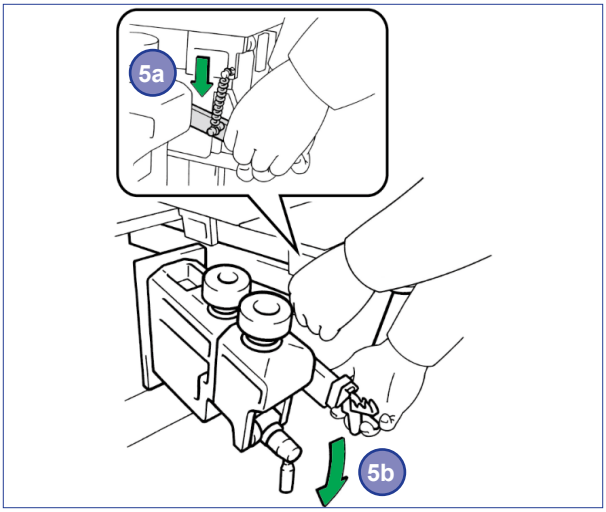


This instruction continues on the next page.

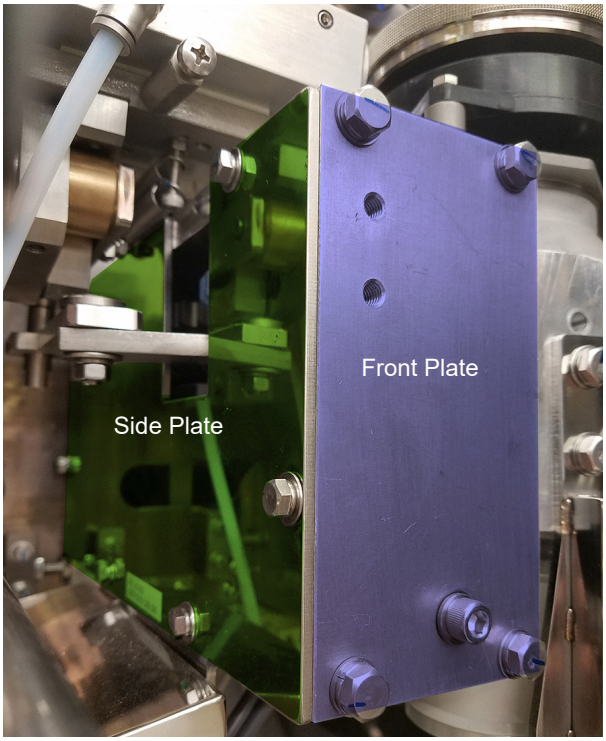
REMEMBER

Wipe up stains or excess with a clean, dry cloth. Be careful not to stain the surrounding area with grease or oil during lubrication.

Lubrication (continued)

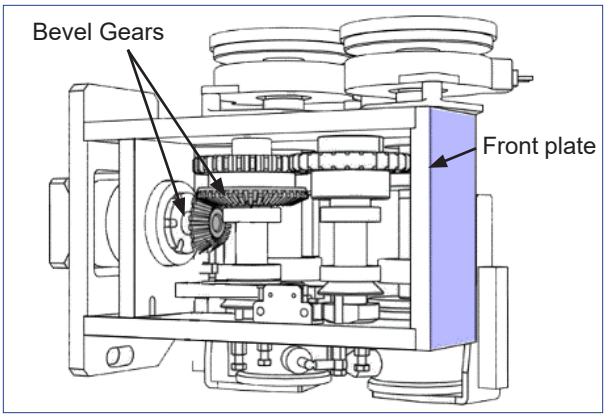


5. Continue holding the center unit grip and push the lever down to open the center unit.
6. If necessary, remove the center beds to access the Center Sealer. See page 83



Remove the side plate (color added for emphasis).

7. Remove the five bolts on the side plate (colored green in the illustration at right).



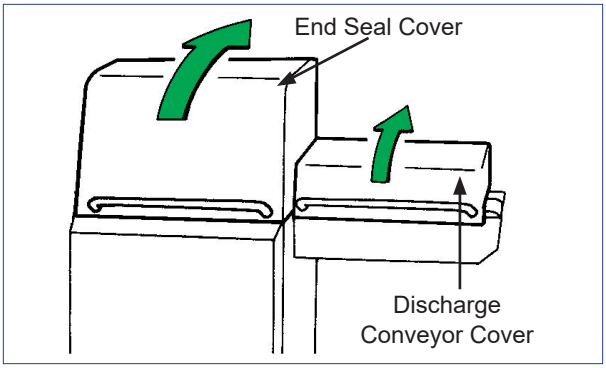
8. Apply grease to the bevel gears using a brush. For reference, the front plate on this illustration (shown at left, colored blue) is the same piece as the blue plate in the image above.
9. When complete, re-attach the side plate, re-set the center sealers, and lock them in place.
10. Close the transfer cover and front safety cover.

Lubrication (continued)

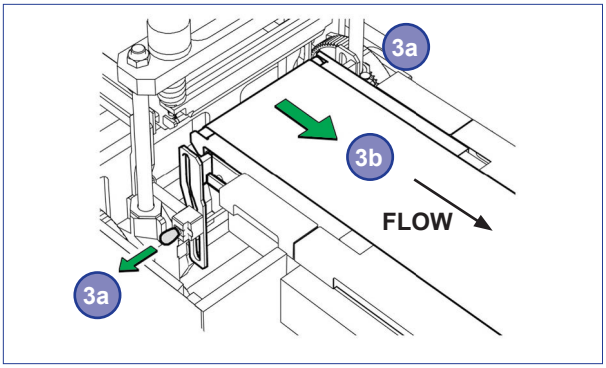
2: Box motion end seal cams

You must power down the machine before performing the steps in this section.

1. Turn Wrapper power OFF using the steps on page 76
2. Open the end seal cover and the discharge conveyor cover.

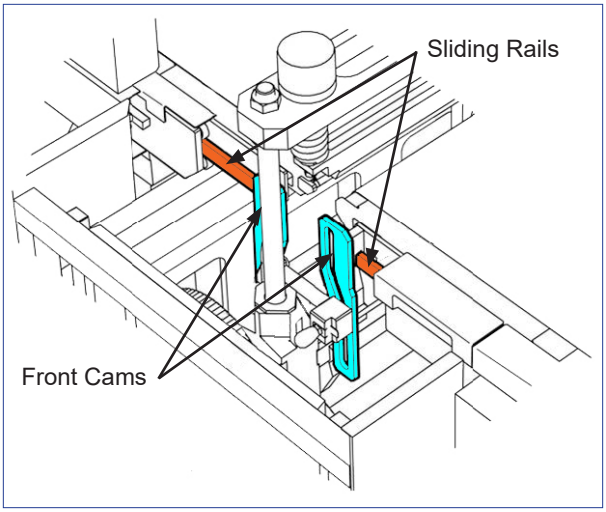


3. On the discharge conveyor, there are two black knob bolts, one on each side of the upstream end of the conveyor. Pull the knob bolts out and rotate 90° to lock them out of the way. Slide the conveyor downstream.

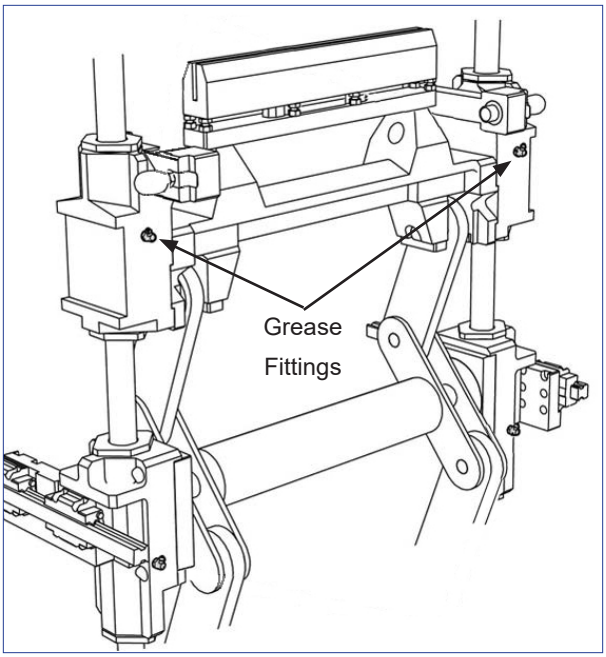


4. Use a brush to apply grease to the front and rear cams (colored light blue in the image at right.)
5. Also apply grease the sliding rails (colored orange in the image at right.)

This instruction continues on the next page.



Lubrication (continued)

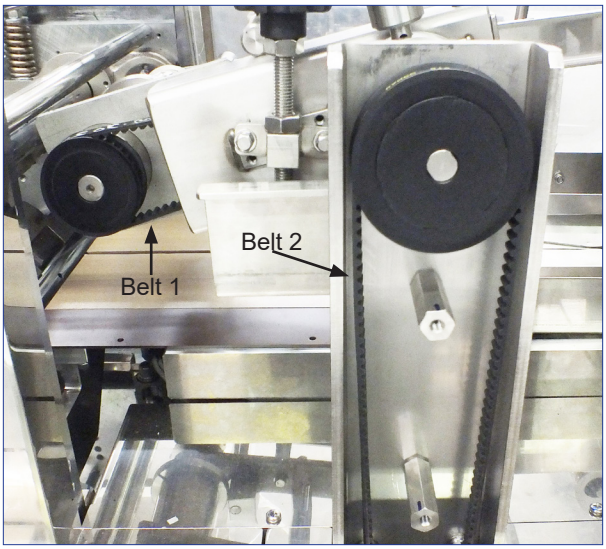


6. Use a grease gun to apply grease to the fittings found under the bottom end seal.
7. When complete, return the discharge conveyor to its original position.
8. Close the end seal cover and the discharge conveyor cover.

6.6 Monthly Inspection

Transfer Brush Drive Timing Belts

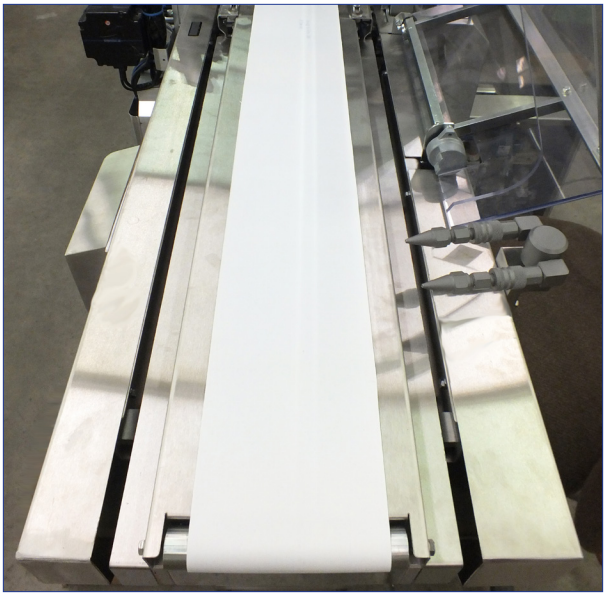
- Examine the belts and make sure they have proper tension.
  - If a belt is slack, adjust it.
  - If it cannot be adjusted, replace the belt.
- Examine the belts looking for fraying, tears, or other damage.
  - If a belt appears frayed or damaged, replace it.



Transfer brush drive timing belts viewed from rear.

Discharge Conveyor Flat Belt

- Examine the conveyor belt looking for fraying, tears, or other damage.
  - If a belt appears frayed or damaged, replace it.



Discharge conveyor flat belt (optional air reject shown.)

Contact Formost-Fuji Parts Department for all replacement parts.

partsdept@formostfuji.com

425-483-9090

Monday- Friday, 7:00 am to 4:30 pm (Pacific)

6.7 Sample Maintenance Schedule

		Week 1					Week 2					Week 3					Week 4				
Daily Cleaning	**Ref.**	**M**	**T**	**W**	**Th**	**F**	**M**	**T**	**W**	**Th**	**F**	**M**	**T**	**W**	**Th**	**F**	**M**	**T**	**W**	**Th**	**F**
• External Surfaces	page 77																				
• Photoelectric Sensors	page 78																				
• Rubber Film Feed Roller	page 78																				
• Infeed Chain and Chain Rail	page 79																				
• Center Seal Unit	page 81																				
• End Seal and Discharge	page 85																				

Monthly Cleaning and Inspection	**Ref.**	
• Clean Filter for Heat Exchanger	page 87	
• Examine Transfer Brush Drive Timing Belt	page 92	
• Examine Discharge Conveyor Belt	page 92	

Quarterly Lubrication	**Last lube date**	**Next lube date**	**Ref.**	
• Lubricate Center Seal Bevel Gears			page 88	
• Lubricate Box Motion End Seal Cams			page 90	

Chapter 7 Parts Replacement

7.1 Safety

DANGER

► HIGH VOLTAGE

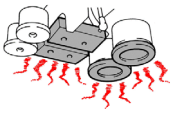
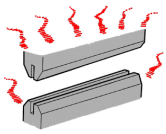
• Lock out / tag out electrical supply before maintenance.
• When the machine is energized, touch nothing inside the Main Control Box except the keys of the Inverter keypad.

WARNING

► PRESSURIZED AIR

Disconnect air supply before maintenance.

► RESIDUAL BURN RISK

• Center Sealers and End Sealers can remain hot up to sixty (60) minutes after disconnecting power.

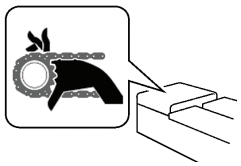
► BURN RISK

• Wear gloves when maintaining hot sealers.

►RESIDUAL SHOCK RISK

• Electrical parts can remain charged up to five (5) minutes after disconnecting power.

►CATCHING AND CRUSHING HAZARD



• Moving parts can catch and crush.
• Keep hands away from sprocket and chains when they are moving.

CAUTION

►SHARP KNIVES

• Keep hands out from between the end sealers, even when the power is turned off.

7.2 Introduction

This chapter covers how to replace Wrapper parts. Certain parts of the machine will wear with use and will need replacement.

Images in this manual may differ slightly from your actual machine. Not all items shown on pages are available to all users. Some optional equipment or functions may alter or override the items shown in this chapter.

- Infeed Chain - page 99
- Box Motion End Sealer - page 103
- Box Motion End Seal Knife - page 108
- Electrical Box Fuse - page 112
- Servo Drive - page 113
- Inverter - page 115

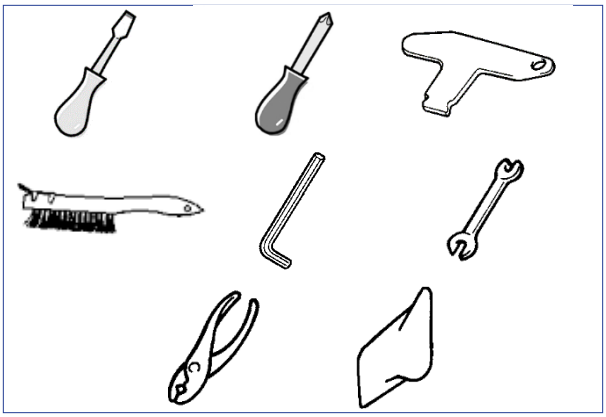
Introduction (continued)

Other precautions before starting maintenance

- All maintenance should be performed by trained professionals.
- While working on the Wrapper, wear suitable, safe, and clean working clothes which will not hinder your work or catch in machinery.
- Keep the Spare Parts List up to date. Unexpected outage of spare parts may delay production.
- Some tasks require two people: One to perform the task and one to serve as Safety Monitor.
- Always move the chain in its normal direction of travel. Pull the return chain toward the upstream end of the conveyor.

Basic tool kit:

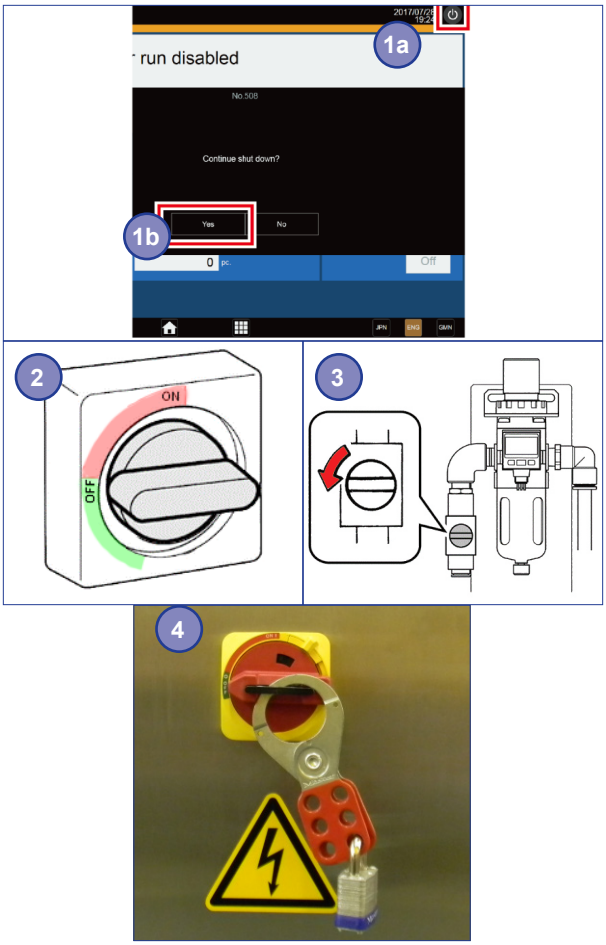
- Screwdriver (flathead driver)
- Phillips-head Screwdriver
- Back Panel Door Key
- Hexagonal Wrench
- Open-Ended Wrench
- Pliers
- Clean cloths.



How to turn off the Wrapper.

Several steps in this chapter require you to turn the Wrapper completely off. The steps in this process are:

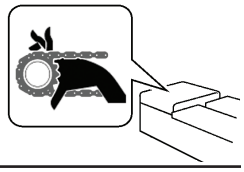
1. Touch the Power icon found in the top right corner of the Home page, and touch “Yes” to confirm.
2. Move to the rear of the machine. Turn the main breaker handle counter-clockwise to the OFF position.
3. Close the air pressure regulator valve.
4. Formost-Fuji encourages lock out and tag out procedures for all power-down maintenance. However, your safety supervisor will decide which steps require power lock out and tag out based on your local and regional safety rules and regulations.

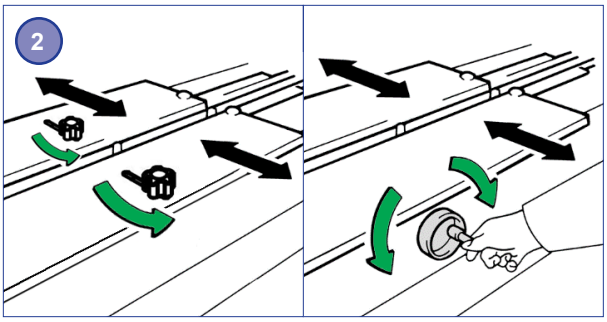


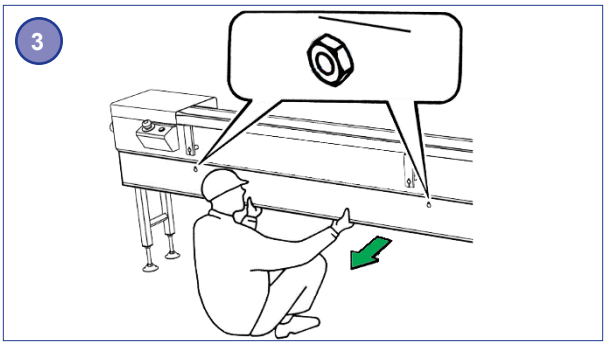
7.3 Replacing an Infeed Chain

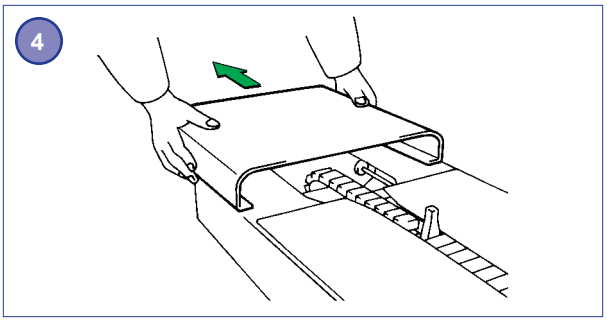
⚠ WARNING **CATCHING AND CRUSHING HAZARD**

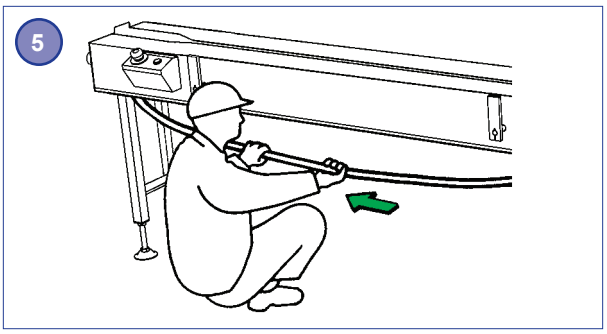
Moving parts can catch and crush.
Keep hands away from sprocket and chains when they are moving.











Pull the slack chain upstream to advance.

Infeed chains require regular cleaning. You must remove the chain to clean them properly. Also, depending on your machine's configuration, different products may require different flight pitch spacing.

You must power down the machine before performing the steps in this section.

1. Turn Wrapper power OFF using the steps on page 98.
2. Open the Infeed Conveyor Guides to maximum width using either the knobs or hand crank provided.
3. If the infeed conveyor has extra-long skirts which block access, remove the front-facing skirts to better access the chain. Support the skirt as you lift it to prevent it from falling.
4. If the infeed cover blocks easy access, remove the upstream cover.
5. Pull the infeed chain upstream to find the colored joint link (also called a "master link.") There is only one master link per chain.

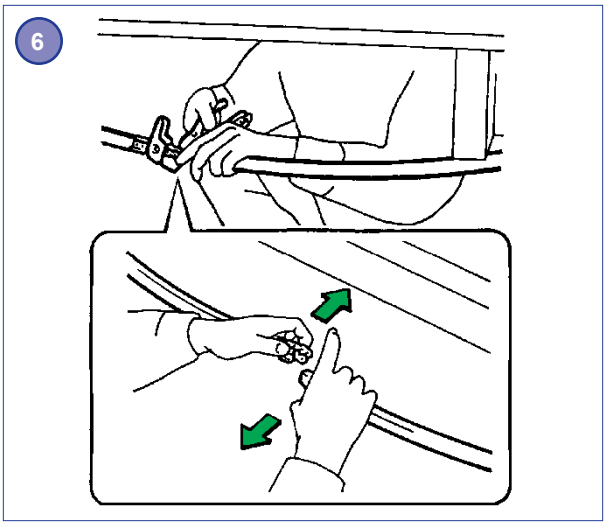
This instruction continues on the next page.

REMEMBER

Always move the chain in its normal direction of travel. Pull the return chain toward the upstream end of the conveyor.

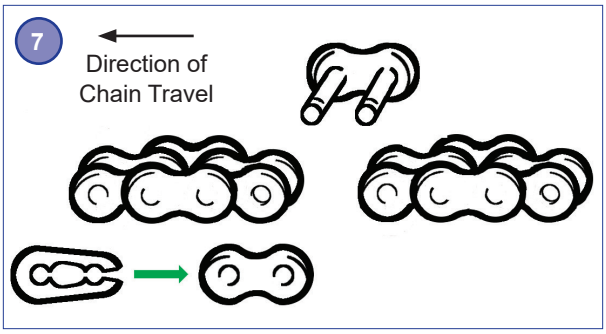
Replacing an Infeed Chain (continued)

6. Use pliers to remove the master link retaining pin and pull the master link out of the chain. Be sure to keep all pieces of the master link together.



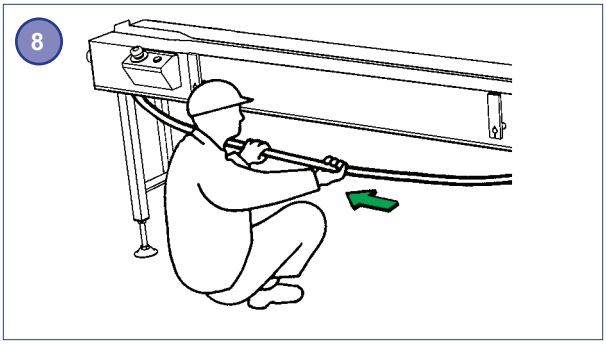
Detail of how to separate the chain at the master link.

7. Attach the replacement chain to the upstream end of the old chain using the master link. Connect the master link so the ends of the retaining clips trail the direction of flow, as shown at right.



Parts of the master link.

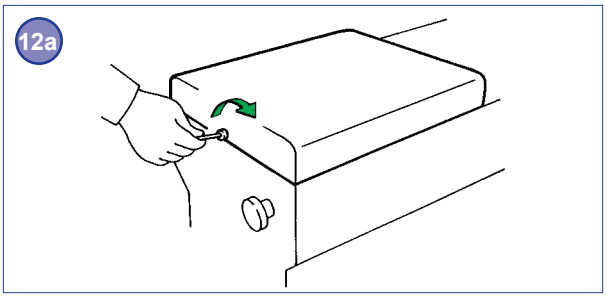
8. Pull the downstream end of the old chain. This feeds the new chain through the sprockets and gears of the infeed conveyor.
9. When the master link returns, use pliers to remove the master link retaining clip. Separate the old chain from the new chain.
10. Lift the old chain out and away for cleaning. Be careful in lifting - the chain is heavy.
11. Use pliers to connect the two ends of the new chain with the master link. As before, the ends of the retaining clips must trail the direction of flow.

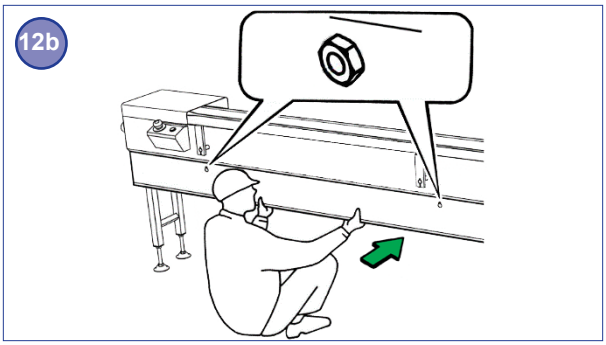


Pulling the old chain upstream feeds the new chain through the conveyor.

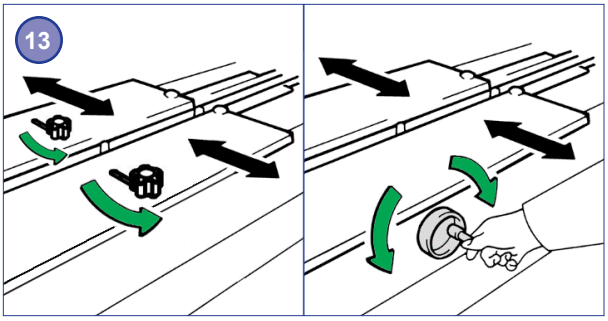
This instruction continues on the next page.

Replacing an Infeed Chain (continued)

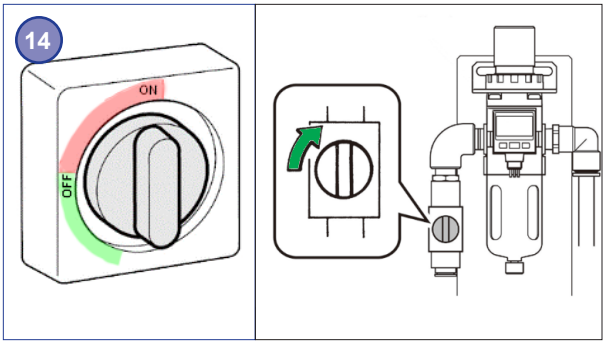




12. If removed earlier, replace the infeed cover and front-facing skirts. Support the skirt as you lift it to prevent it from falling.



13. Set the width of the Infeed Conveyor Guides. Depending on your machine, use either the hand-turned wheel or the adjustment knobs.



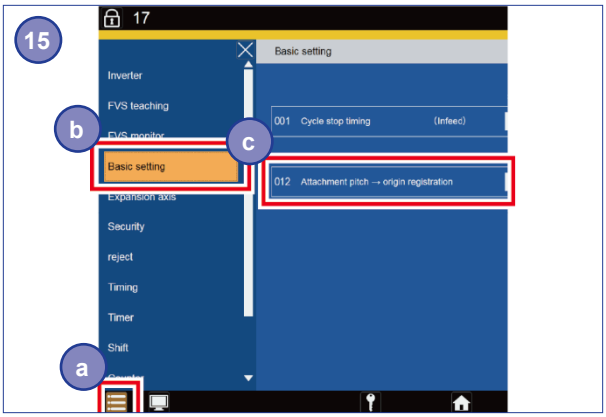
Turn main breaker to ON and open the air valve.

14. Move to the rear of the machine, turn the main breaker handle clockwise to the ON position and open the air valve. Wait until the Home page displays “[START] for next step.”

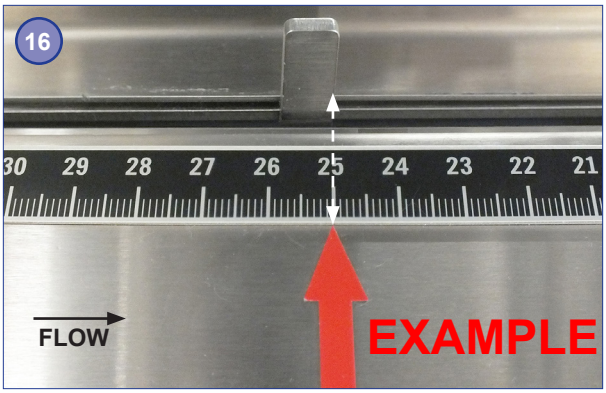
This instruction continues on the next page.

Replacing an Infeed Chain (continued)

15. When the system reboot is complete:
    - Touch the Settings Menu icon.
    - Touch “Machine Basic Setting.”
    - If the flight pitch has changed:
        - Touch the white space to the right of “Attachment Pitch > Origin Registration.”
        - A number keypad will appear. Enter the flight pitch - the distance between the leading edge of two attachments on the chain - and touch “Enter.”
    - If the flight pitch has not changed, go to the next step.



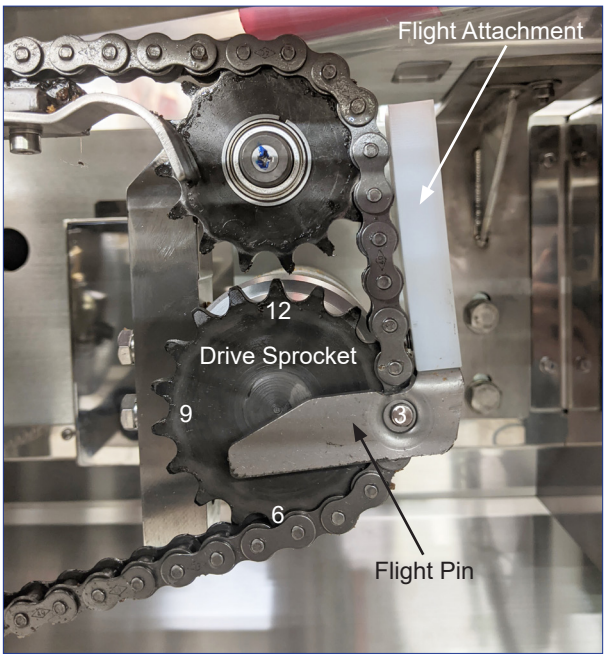
16. Stay on the Machine Basic Setting page.
    - Touch “Attachment zero position setting.”
    - Press and hold the INCHING button on the control panel. Advance the chain until the downstream face of an attachment is directly in line with the arrow on the infeed conveyor.
        - If your machine has more than one chain flight pitch, find the arrow marked with the new flight pitch length.
    - Touch “Set Origin.”



REMEMBER

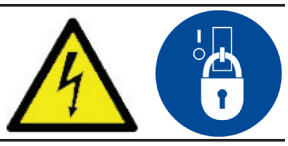
If the red lug origin position arrow is missing from the infeed deck, use this alternate method to set the zero position:

- Open the front transfer cover.
    - For right-hand machines: Advance the chain until a flight pin (the metal bottom of a flight attachment) is at the “three o’clock” position on the drive sprocket (shown at right).
    - For left-hand machines: Advance the chain until a flight pin (the metal bottom of a flight attachment) is at the “nine o’clock” position on the drive sprocket.
- Touch “Set Origin.”

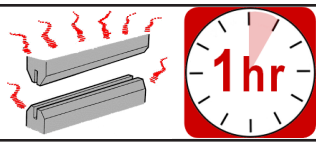


7.4 Fitting a Box Motion End Sealer

DANGER ► **HIGH VOLTAGE**
• Lock out / tag out electrical supply before maintenance.



WARNING ► **RESIDUAL BURN RISK**
• End sealers can remain hot for up to sixty (60) minutes after disconnecting power.



CAUTION ► **SHARP KNIVES**
• Be careful when replacing the knives, even when the power is turned off.
• Keep hands out from between the sealers.

Adjust end sealers when end seal integrity changes. Replace end sealers when seal integrity changes beyond what maintenance can resolve.

You must power down the machine before performing the steps in this section.

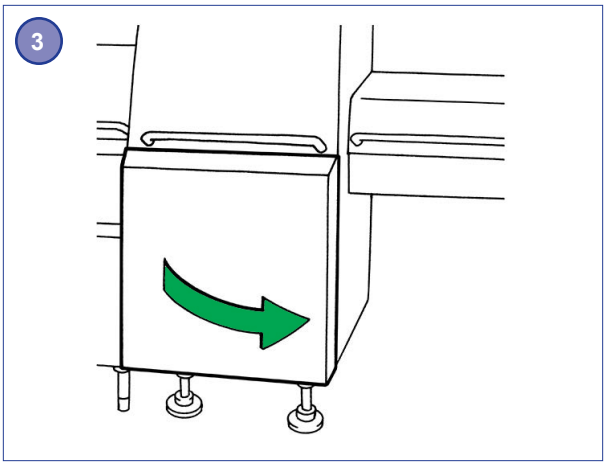
1. Turn Wrapper power OFF using the steps on page 98.
2. Wait until the end sealers are sufficiently cool. This may take up to 60 minutes.

This instruction continues on the next page.

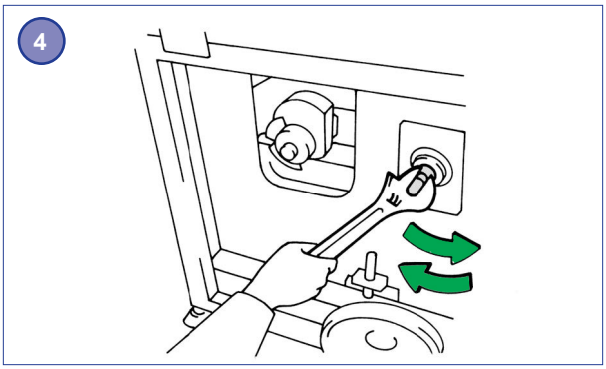
Fitting a Box Motion End Sealer (continued)

Preparation

3. Open the end lower front cover.

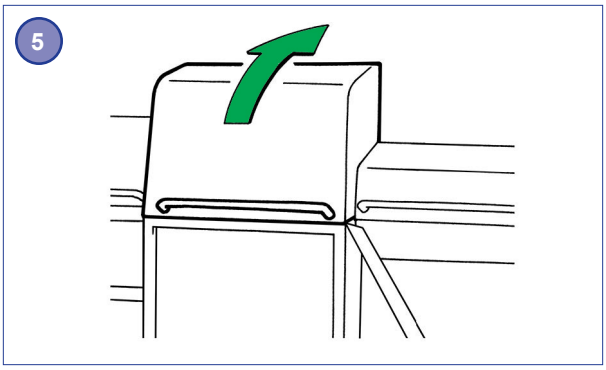


4. Use an open-ended wrench to rotate the end sealer drive shaft. Turn the sealers so they are at their maximum width.

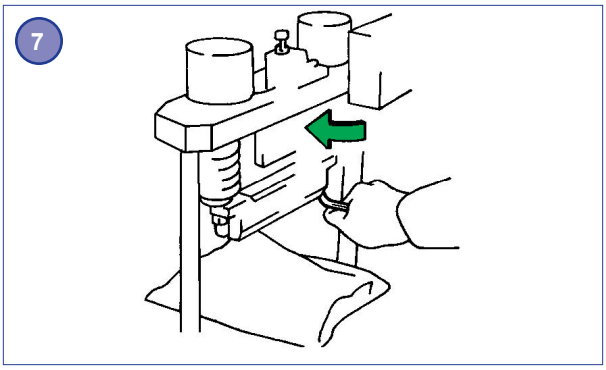


5. Open the end seal cover.
6. Place a thick, clean cloth over the transfer and discharge conveyors to protect the belts.

This instruction continues on the next page.

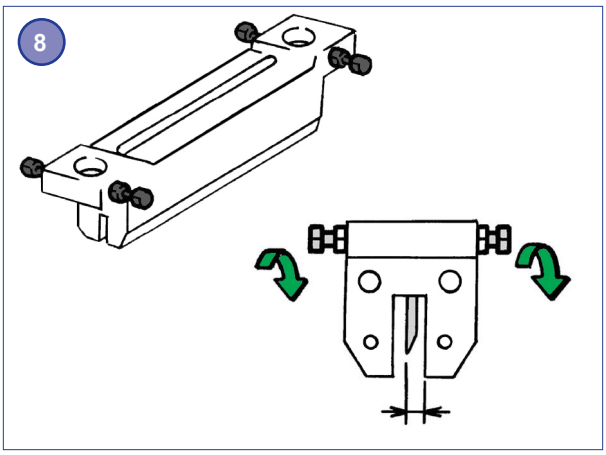


Fitting a Box Motion End Sealer (continued)



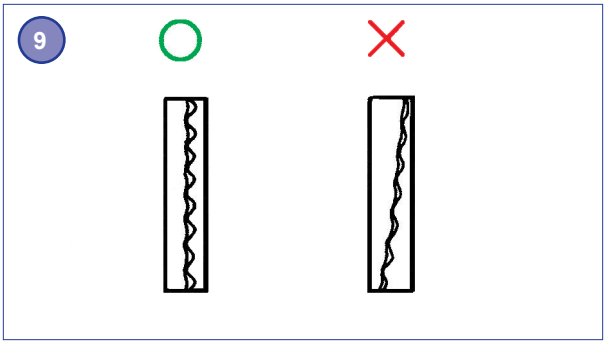
Position the Upper End Sealer

7. Loosen but do not remove the set-bolt on the back side of the sealer.
   - If the nuts on the front side are heavily tightened, use an open-ended wrench to loosen the nuts by 1/4 turn

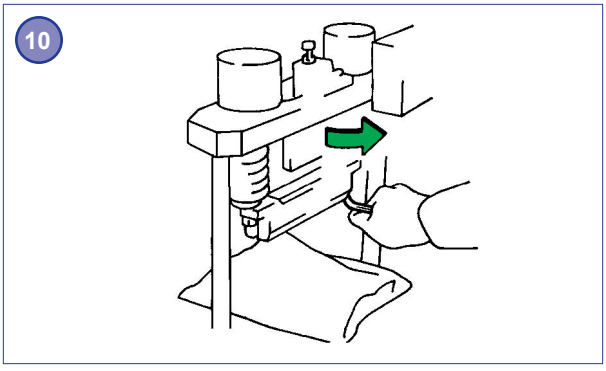


Adjust the bolts by equal turns to change knife position.

8. Use the bolts on the front and back to adjust the sealer position so that the knife fits into the center of the sealer groove. Turn both sets equally.



9. Take care to position the knife vertically and not diagonally.



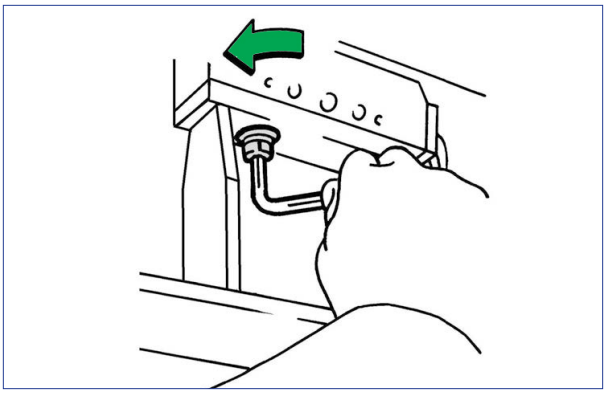
10. Tighten set-bolts and rear nuts when complete.

This instruction continues on the next page.

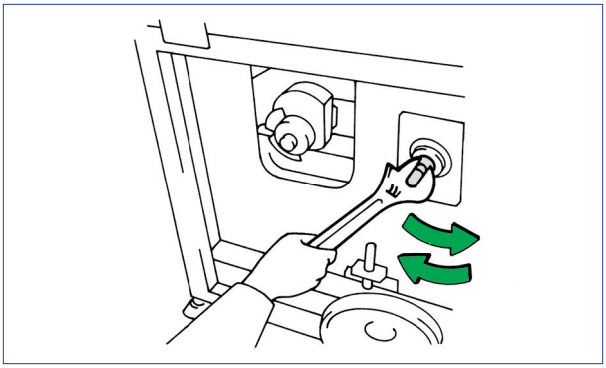
Fitting a Box Motion End Sealer (continued)

Position the Lower End Sealer

11. Use a hexagonal wrench to loosen - but do not remove - the set-bolts underneath the lower end sealer bracket.



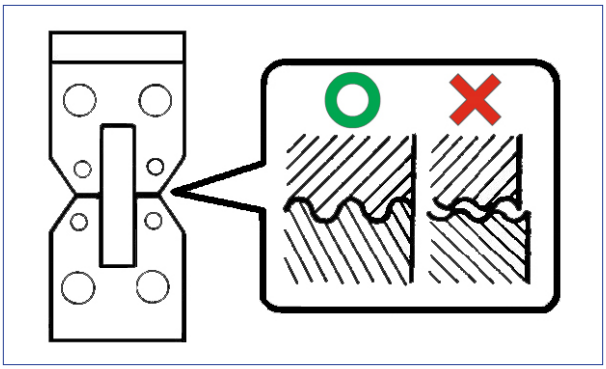
12. Use an open-ended wrench to rotate the end sealer drive shaft. Carefully turn the sealers so that the upper and lower sealers engage.



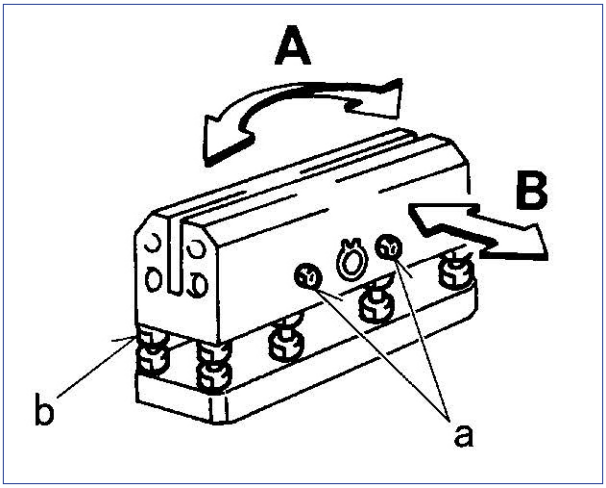
13. Adjust the positions of the end sealers so that the lower end sealer can fit the upper. Take care to keep sealer grooves aligned.

Detailed instructions begin at the top of the next page.

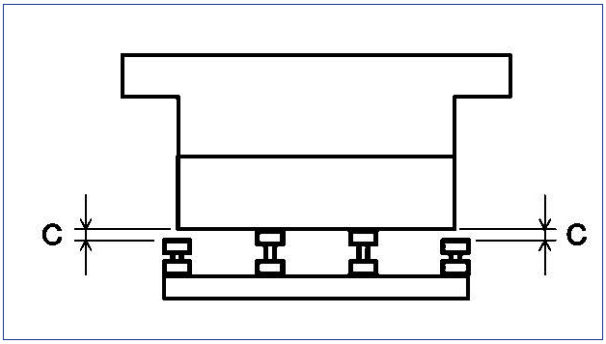
This instruction continues on the next page.



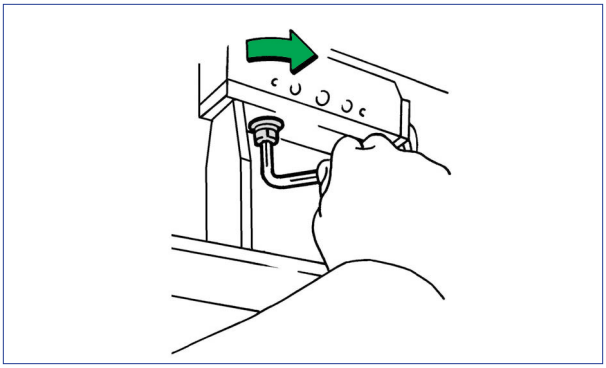
Fitting a Box Motion End Sealer (continued)



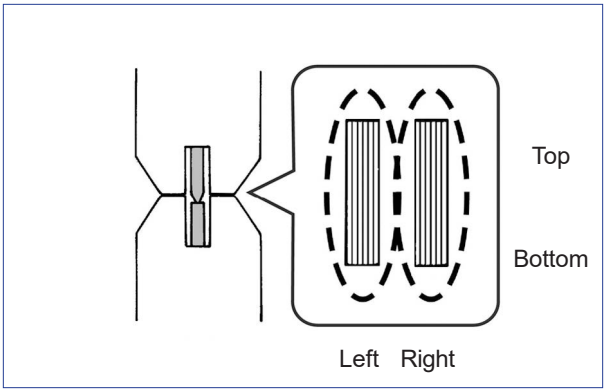
- Bolts (labeled “a” at left) restrict the sealer’s movement in the direction of flow (labeled “B” at left).
- “a” bolts tightened too tightly will cause front to back movement (labeled “A” at left).



- There are four pairs of bolts (labeled “b” above left). When the end sealer engages with the upper sealer:
- The two pair in the middle should be in light but direct contact with the lower end sealer.
- The two pair at the edges should have a clearance of between 0.3 to 0.5 mm (labeled “c” at left).



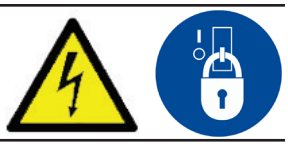
14. Tighten the set-bolts underneath the lower end sealer bracket.



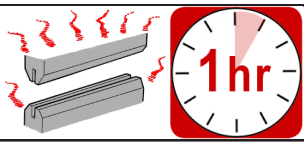
15. Put two sheets of carbon paper between the upper and lower end sealers to check the sealing pattern fitting. Compare the depth and alignment of the pattern, on the left and right sides as well as compare the top with the bottom.
16. Repeat steps 7-15 until the alignment is smooth and even.
17. Remove the cloth from the conveyor.
18. Close the machine covers and restore power to the Wrapper.

7.5 Replacing a Box Motion End Seal Knife

DANGER ► **HIGH VOLTAGE**
• Lock out / tag out electrical supply before maintenance.

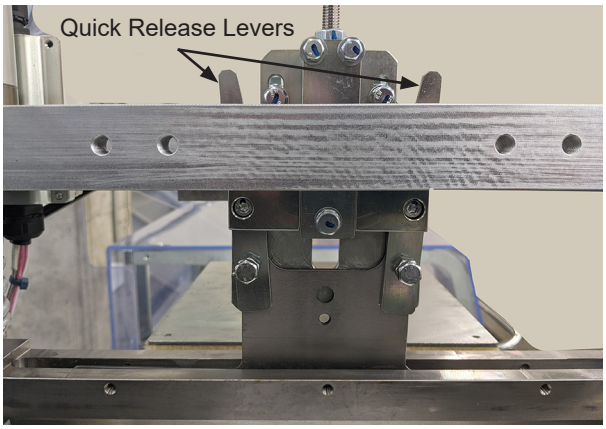


WARNING ► **RESIDUAL BURN RISK**
• End Sealers can remain hot for up to sixty (60) minutes after disconnecting power.

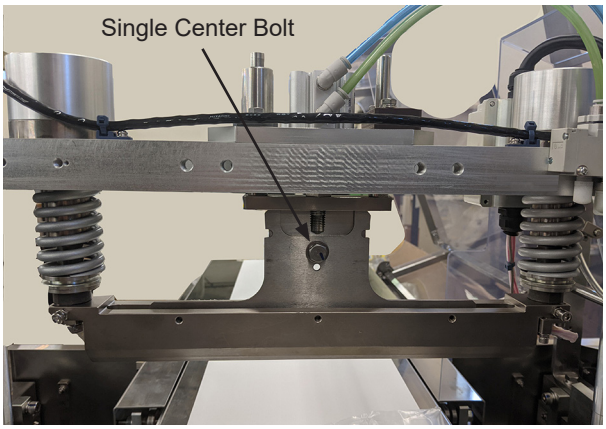


CAUTION ► **SHARP KNIVES**
• Be careful when replacing the knives, even when the power is turned off.
• Keep hands out from between the sealers.

There are two basic types of end seal knives: Quick Release (left) and Bolt Attached (right). Check your machine to determine which you have.



Quick Release knives have spring mounted levers.



Bolt Attached knives have a single center bolt.

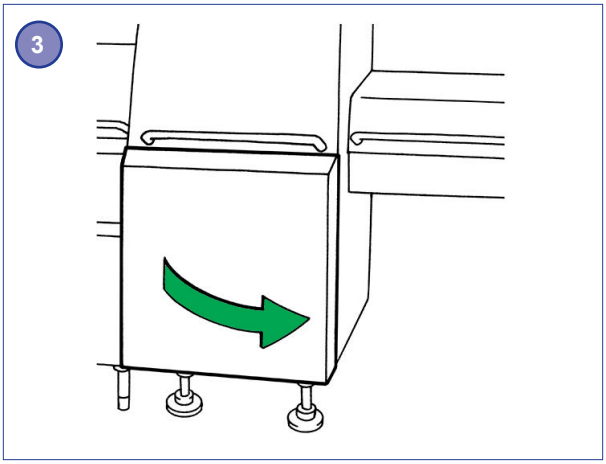
Adjust end seal knives when packages do not separate completely. Replace end seal knives when package separation changes beyond what maintenance can resolve.

You must power down the machine before performing the steps in this section.

1. Turn Wrapper power OFF using the steps on page 98.
2. Wait until the end sealers are sufficiently cool. This may take up to 60 minutes.

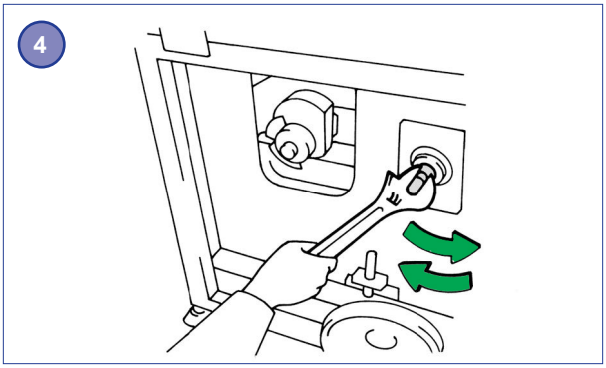
This instruction continues on the next page.

Replacing a Box Motion End Seal Knife (continued)

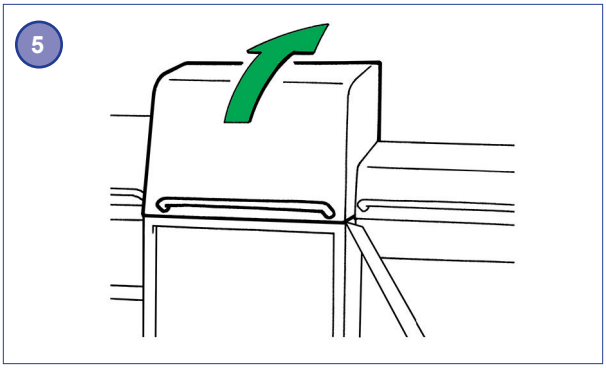


Preparation

3. Open the end lower front cover.



4. Use an open-ended wrench to rotate the end sealer drive shaft. Turn the sealers so they are at their maximum width.

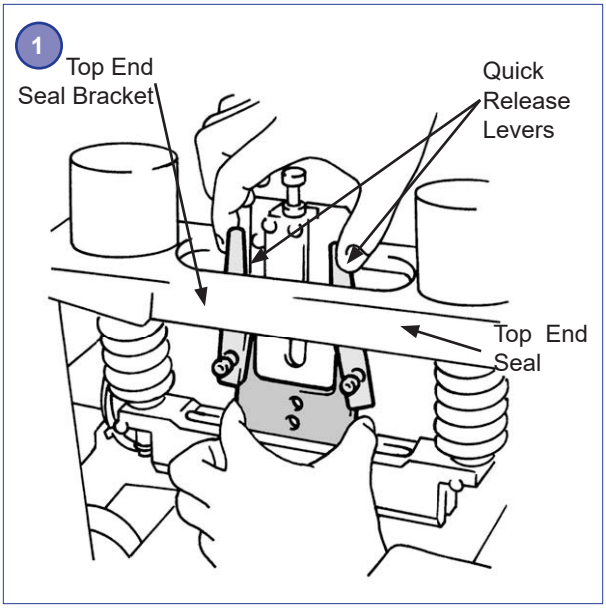


5. Open the end seal cover.
6. Place a thick, clean cloth over the transfer and discharge conveyors to protect the belts.
   - For quick-release knives, see page 110
   - For bolt-attached knives, see page 111

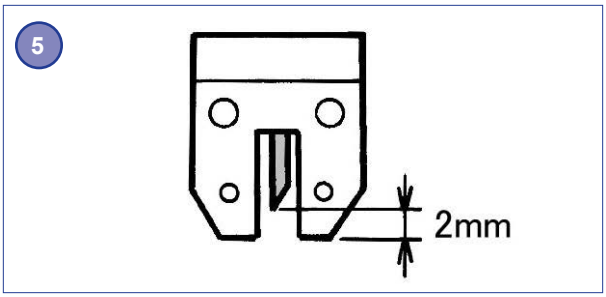
Replacing a Box Motion End Seal Knife (continued)

For Quick-Release Knives

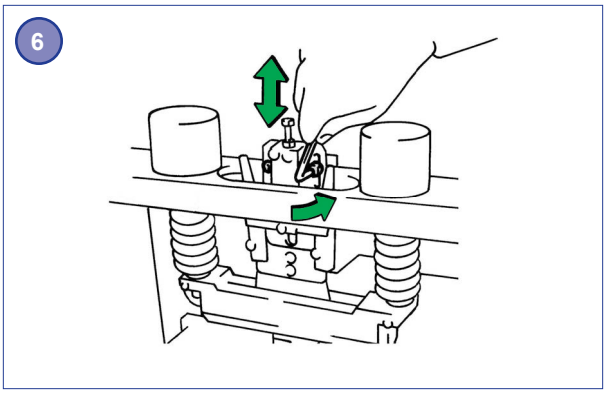
1. With one hand, hold the knife shank (the dull, back part of the knife). With the other hand, pinch the knife quick-release levers located above the top seal bracket.
2. Guide the knife down and through the top seal bracket. Never put your hand under the knife. Drop the knife onto the cloth. Do not attempt to catch a falling knife.
3. Carefully insert the new knife up through the groove in the top end seal.
4. Use the levers at the top to attach the knife in place.



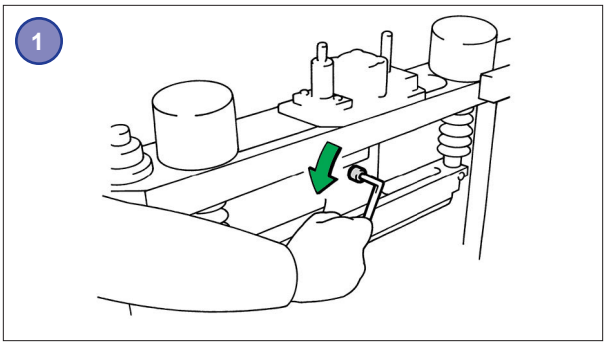
5. Check the knife position by looking through the open end of the sealer. The optimal position for the knife is centered side-to-side and 2 mm up from the sealing edge.
   - Place a piece of paper behind the opposite end to see the knife edge in better contrast.



6. If the knife is not positioned properly, loosen the set bolts and adjust.
7. When complete, remove the cloth from the conveyors.
8. Close the end seal upper and lower covers and restore power to the Wrapper.



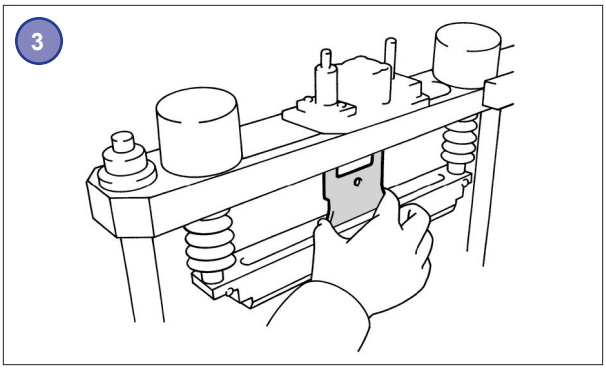
Replacing a Box Motion End Seal Knife (continued)



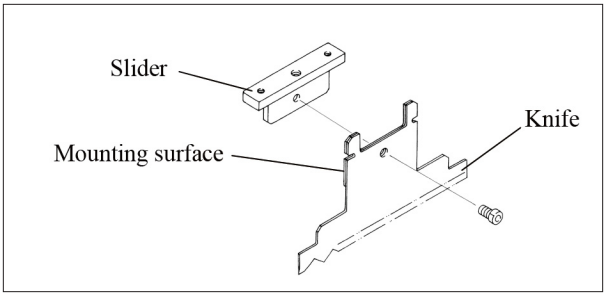
For Bolt-Attached Knives

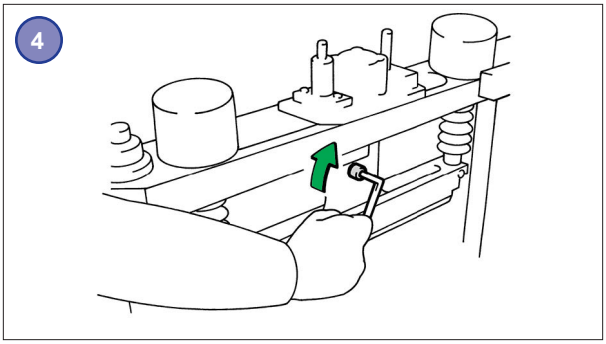
NOTE: Air-cylinder activated knives use bolt-attached knives. It is not necessary to disconnect the air supply before replacing the knife, but you must power down the machine.

1. Loosen the attaching bolt. (The illustration at left shows a hexagonal wrench, however your machine may use a different type of bolt.)
2. Allow the knife to fall onto the cloth. Never put your hand under the knife. Do not attempt to catch a falling knife.



3. Holding the new knife by the shank (the dull, back part of the knife) insert the knife into the end sealer from the bottom.

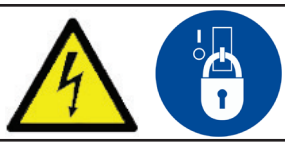




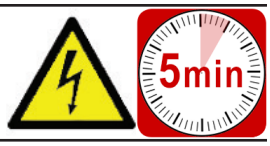
4. Attach the knife to the slider with the attaching bolt.
5. When complete, remove the cloth from the conveyors.
6. Close the end seal upper and lower covers and restore power to the Wrapper.

7.6 Replacing a Heater Box Fuse

DANGER ► **HIGH VOLTAGE**
• Lock out / tag out electrical supply before maintenance.



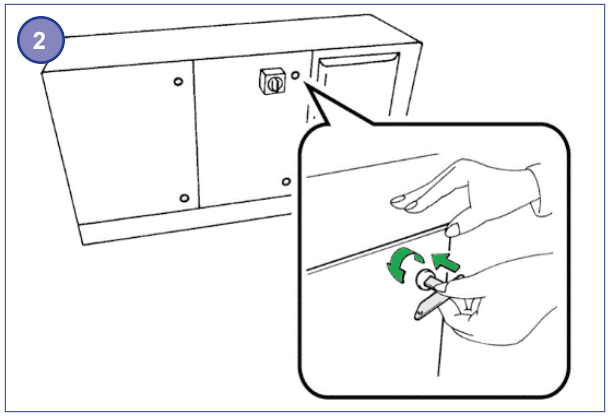
WARNING ► **RESIDUAL SHOCK RISK**
• Electrical parts can remain charged for up to five (5) minutes after disconnecting power.



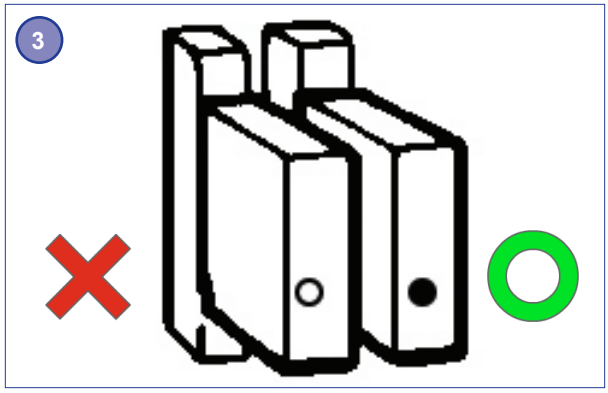
NOTICE Always replace the fuse with the same type and amperage.

You must power down the machine before performing the steps in this section.

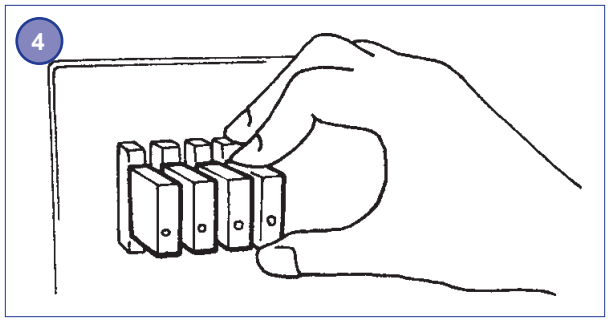
1. Turn Wrapper power OFF using the steps on page 98.
2. Open the main control box door.
   • Insert the door key into the lock and turn one-quarter turn counter-clockwise.
   • The key will lock in place until you close the door and re-lock it.



3. Find the fuse that has tripped. The small window will show white on the face of the blown fuse.

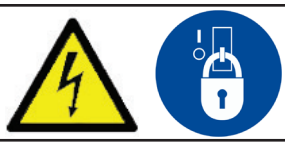


4. Pinch the top and bottom of the blown fuse and pull it straight toward you.
5. To mount the new fuse, push a fresh fuse straight in to the slot.
6. Close the main control box door and lock it with the key.

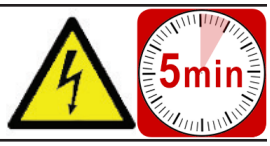


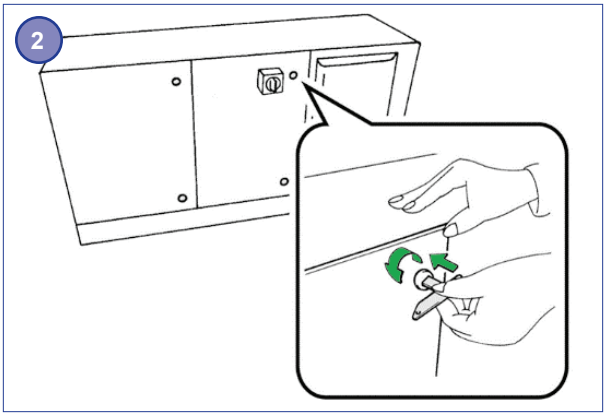
7.7 Replacing a Servo Drive

DANGER ► **HIGH VOLTAGE**
• Lock out / tag out electrical supply before maintenance.



WARNING ► **RESIDUAL SHOCK RISK**
• Electrical parts can remain charged for up to five (5) minutes after disconnecting power.





REMEMBER

Write down all connections and tag all wiring for the drive before removing anything.
Take care to reconnect into the proper terminals after mounting the new equipment.

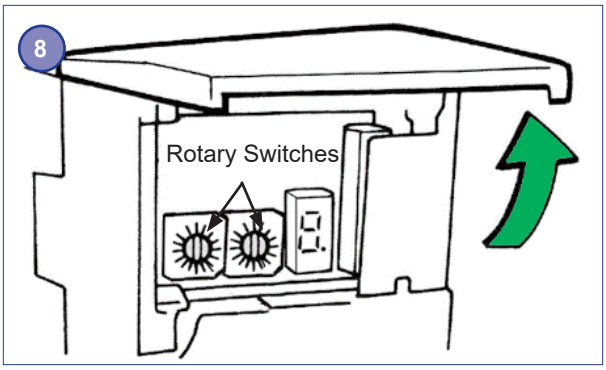
You must power down the machine before performing the steps in this section.

1. Turn Wrapper power OFF using the steps on page 98.
2. Open the main control box door.
   - Insert the door key into the lock and turn one-quarter turn counter-clockwise.
   - The key will lock in place until you close the door and re-lock it.
3. Write down all connections and wiring for the servo drive before removing them.
4. Disconnect the wiring and remove the part, following the instructions provided by the manufacturer.
   - Manufacturer's manual included with machine documentation flash drive.
5. Confirm the model number of the new part matches that of the old part.
6. Mount the new part, again following the instructions provided by the manufacturer.
7. Reconnect all connections and wiring, following the notes taken in step 3.

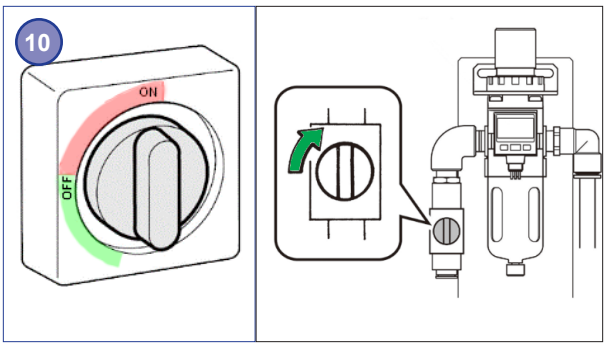
This instruction continues on the next page.

Replacing a Servo Drive (continued)

8. Open the display cover on the Servo Drive. Set the rotary switches on the new unit to match the old unit. Close the display cover when complete.
9. Close the main control box door and lock it with the key.



10. Move to the rear of the machine, turn the main breaker handle clockwise to the ON position and open the air valve. Wait until the Home page displays “[START] for next step.”

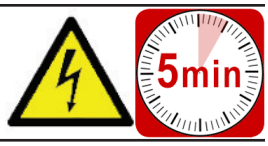


11. Access the Parts Replacement controls:
    - Touch the Management Menu icon.
    - Touch “Parts Replacement/Addition,”
    - Touch “Servopack,”
    - Touch “Enter.”

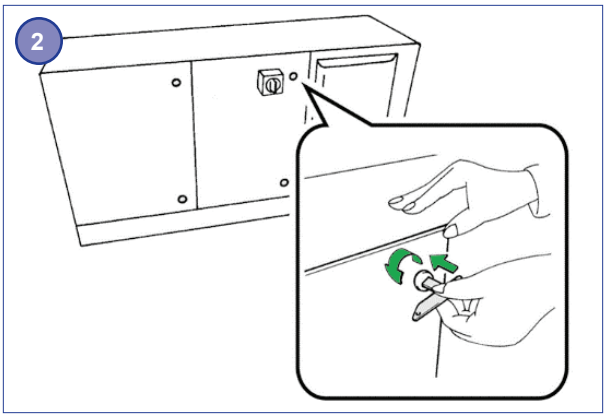
7.8 Replacing an Inverter

DANGER **HIGH VOLTAGE**
When the power is ON, touch nothing inside the Control Box except the keys of the Inverter keypad.

WARNING **RESIDUAL SHOCK RISK**
Electrical parts can remain charged for up to five (5) minutes after disconnecting power.



NOTICE **TWO-PERSON JOB**
This task require two people:
One to perform the task and one to serve as Safety Monitor.



REMEMBER

Write down all connections and tag all wiring in the Inverter before removing anything.
Take care to reconnect into the proper terminals after mounting the new equipment.

You must power down the machine before performing the steps in this section.

Before turning the power OFF, check the inverter manual for specific details on how to replace the device. For more information, see the manufacturer's manual included with machine documentation flash drive.

1. Turn Wrapper power OFF using the steps on page 98.
2. Open the main control box door.
   - Insert the door key into the lock and turn one-quarter turn counter-clockwise.
   - The key will lock in place until you close the door and re-lock it.
3. Write down all connections and wiring for the part before removing them.
4. Disconnect the wiring and remove the part, following the instructions provided by the manufacturer.
5. Confirm the model number of the new part matches that of the old part.
6. Mount the new part, again following the instructions provided by the manufacturer.
7. Reconnect all connections and wiring, following the notes taken in step 3.
8. Turn the main breaker handle clockwise to the on position. Wait until the Home page displays "[START] for next step."

This instruction continues on the next page.

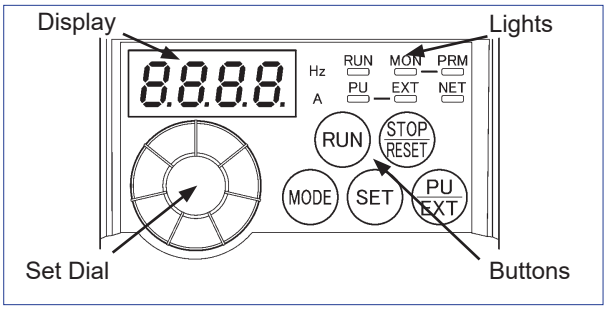
Replacing an Inverter (continued)

9. Set the Inverter parameters using the steps below the table.

Parameter	Description	Set Value
77	Enables parameter writing in any mode, regardless of operation status	2
79	Selects operation mode	2
7	Motor acceleration time (in seconds)	0.0
8	Motor deceleration time (in seconds)	0.0
9	Set the rated motor current (in amps) See the blue tag inside the main control box door.	(see notes at left)
340	Set the network operation mode.	10
434	Set the communication network number for the inverter.	1
435	Set the communication station number of the inverter.	51

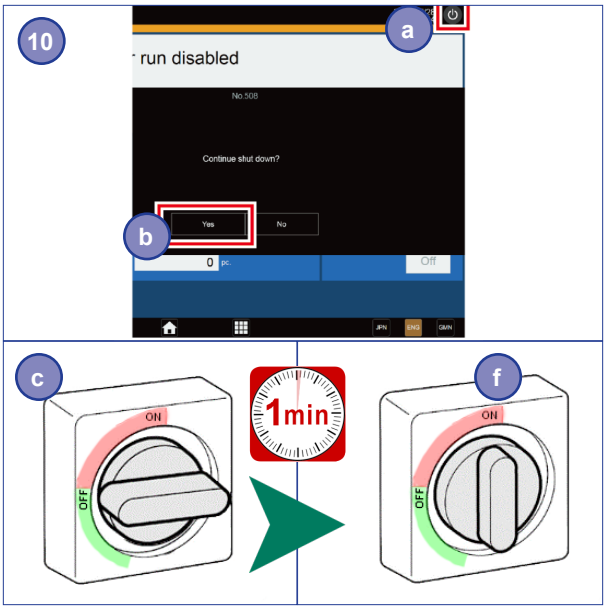
- **Step One:** Compare the set values in this table with those in the electrical drawings at the end of this manual. If there is a difference between the two, use the values in the drawings.
- **Step Two:** Access the Parameter Setting Mode.
  - Press the PU/EXT button.
    - The PU light will turn on.
  - Press the MODE button.
    - The PRM light (Parameter) will turn on.
- **Step Three:** Set the Parameter.
  - Turn the Set Dial until the display shows “77” and press the SET button.
  - Turn the Set Dial until the display shows “2” and press the SET button.
    - After the new value is set, the parameter number and the set value will alternately flash on the display.
  - Repeat Step Two and set all parameters on the table above.
- **Step Four:** When all parameters are set, press the MODE button twice.

This instruction continues on the next page.

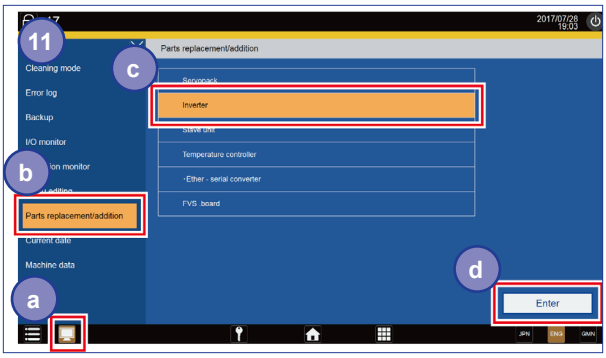


Face of the inverter control panel.

Replacing an Inverter (continued)



10. Restart the machine.
    - Touch and hold the Power icon located in the top right corner of the Home page.
    - Touch “Yes” to confirm.
    - Turn the main breaker handle counter-clockwise to the OFF position.
    - Close the main control box door and lock it with the key.
    - Wait one minute.
    - Turn the main breaker handle clockwise to the ON position.
    - Wait until the Home page displays “[START] for next step.”



Steps to access the parts replacement function.

11. Access the Parts Replacement controls:
    - Touch the Management Menu icon.
    - Touch “Parts Replacement/Addition,”
    - Touch “Inverter,”
    - Touch “Enter.”

Chapter 8 Touch Screen Guide

8.1 Introduction

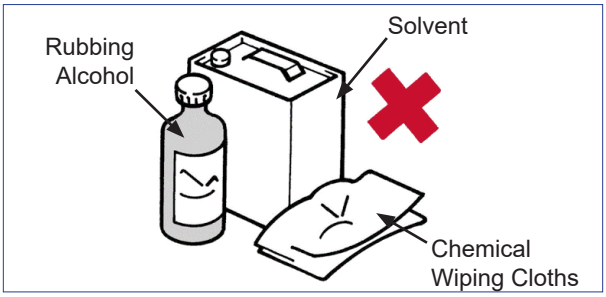
NOTICE The Wrapper is built for industrial use, but the touch screen is still a sensitive electronic device.
Use it carefully and do not apply applying excessive force.

This chapter covers the use of the HMI touch screen, plus navigation and application of the pages connected to the Home page.

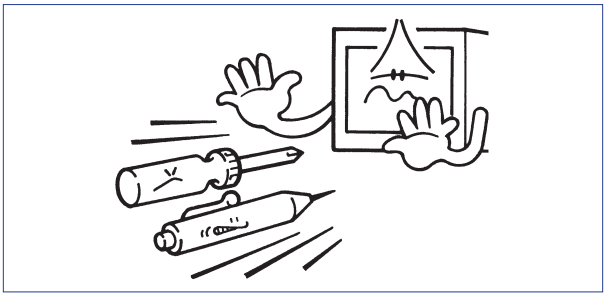
With smart phones and tablets becoming commonplace, many users will already be comfortable with touching the screen to click or drag, pinching fingers together or spreading fingers apart to adjust an image. However, we include this chapter because not everyone has that good fortune.

- For common buttons, see page 122
- For number pads and keyboards, see page 124 and page 125
- For the Security page, see page 126
- For the most commonly used pages,
  - Control Panel, see page 128
  - Product Change, see page 129
  - Scale, see page 131
  - Correction, see page 134
  - Heater, see page 136
  - Production Report, see page 141

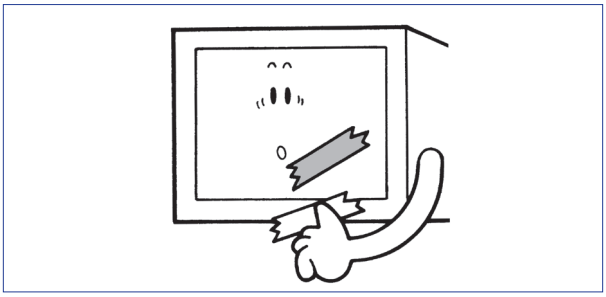
Precautions



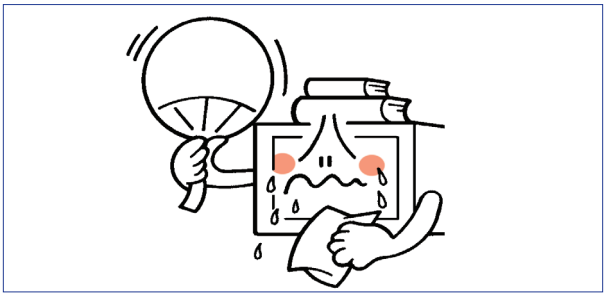
- Do not use alcohol, lacquer thinner, or other solvents to clean the touch screen.
- Wipe away stains on the display with a clean, dry cloth.
- In case of difficult stains, wipe carefully with a moist cloth.



- Do not poke the touch screen with a sharp object, such as a screwdriver or a pen.

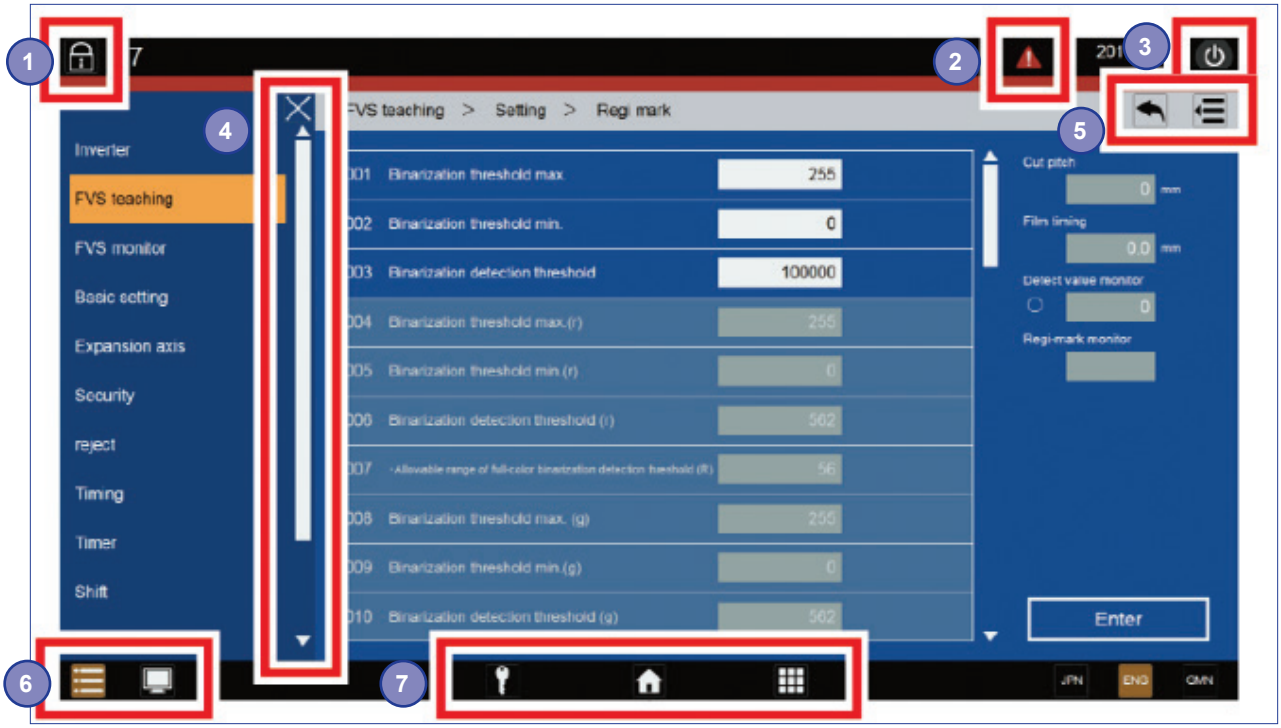


- Do not apply tape or other adhesives to the touch screen.



- Do not place anything on top of the touch screen.
- Proper ventilation prevents overheating.

8.2 Description of Common Buttons



The illustrations above show several common buttons and icons that will appear on many of the pages.

1. **Page lock** - Touch once and the lock prevents the page from shifting to a different page. The icon changes to orange when locked. Touch again to release the lock. Be aware that this prevents shifting to the error page if something goes wrong.

2. **System warnings** - These icons will appear in the top right corner of any page.
   - *Red* signals an error. Touch the flashing red symbol to go to the Error page.
   - *Yellow* signals an alarm. To see the source of the alarm, go to the Home page.

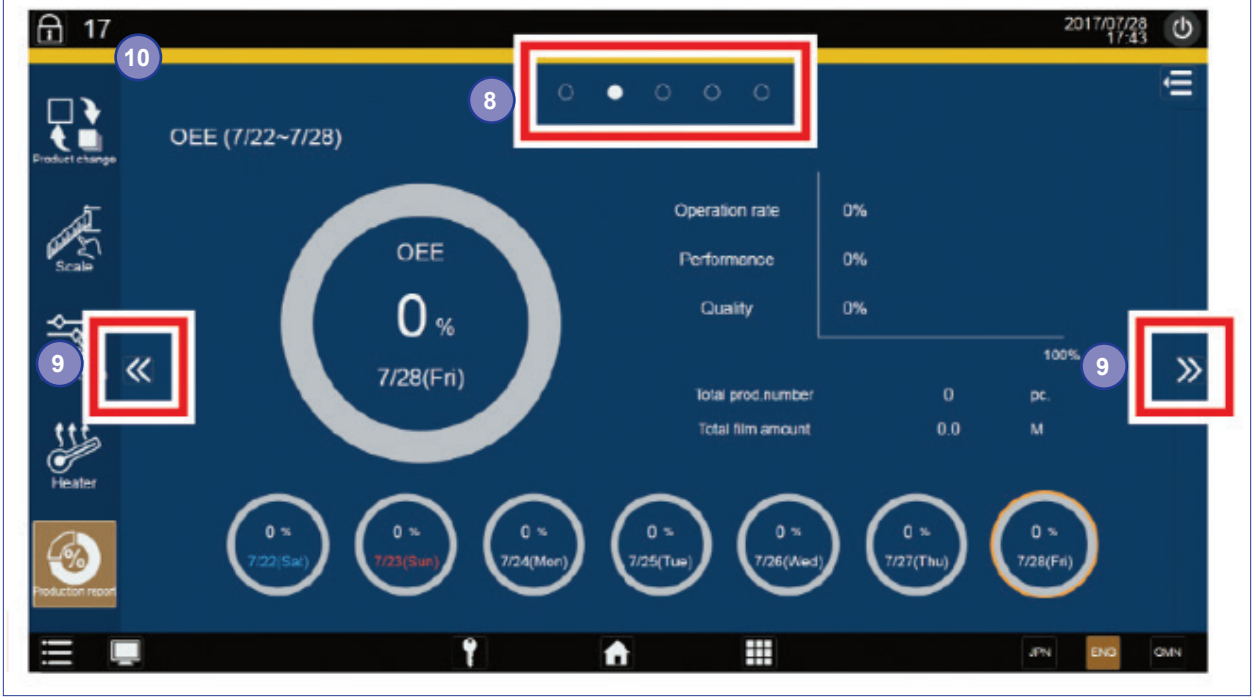
3. **Power icon** - Turns the Wrapper OFF. Always use this button to begin the shut-down process.
   - See “3: Turn power OFF” on page 58.

4. **Scroll bar** - This will only appear on pages where there is more information than what will fit on the display at one time. Either touch the arrows or touch and drag the white bar to move through the displayed information.

5. **Optional navigational buttons** - When available, these buttons give choices for moving between pages.
   - *Return arrow* (above, at left) moves to the last page displayed.
   - *Sub-Menu button* (above, at right) will create a pop-up window with extra options.

6. **Menu buttons** - Each button will display a long list of options, each with its own page.
   - *Settings menu* (above, at left) These control aspects of the Wrapping cycle and bag formation. See “Chapter 9 Setting Menu” on page 143
   - *Management Menu* (above, at right) These control aspects of the Wrapper itself. See”Chapter 10 Management Menu” on page 157.

Description of Common Buttons (continued)



7. **Primary navigation buttons** - These three buttons are visible on every page on the Touch Screen.
   - *Security Icon* (above, at left). Supervisors and Managers can enter their passwords to access locked control pages. See page 126.
   - *Home Icon* (above, at center) returns to the Home page. See “3.6 Home Page” on page 29.
   - *Control Panel Icon* (above, at right) moves to the Control Panel. See page 128.

8. **Page of pages button** - These dots signal that there are multiple pages within a given function. The filled white dot shows which page is on screen; the open/empty dots show how many pages there are and in which direction. To shift to another page, you can either touch an open dot or use the left and right arrow keys (#9).

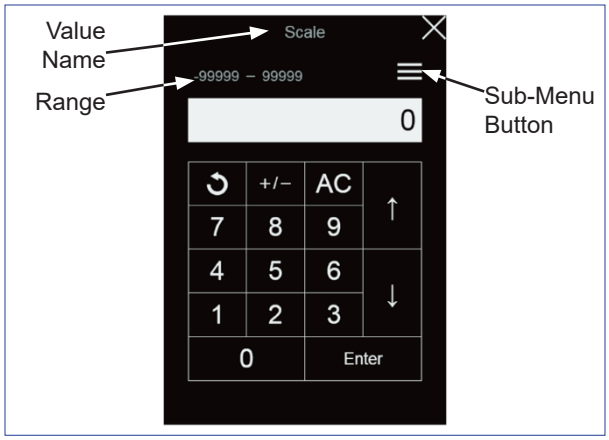
9. **Left** and **Right buttons** - On functions with multiple pages, touching one of these buttons will shift the display one page to the left or right.

10. **Operational condition bar** - This bar changes color to signal the status of the Wrapper.

Color	Status
Orange	Wrapper is preparing and cannot be operated.
Yellow	Set Run has not happened yet.
Green	Wrapper is operating normally.
Red	An error has occurred.
Gray	Wrapper is stopping.

8.3 Number Pads and Calculators

There are several places where a user must enter numbers into the system. Touch a value space on the page and a number pad will appear. Most number pads will look like the image at right.



Any time a number pad appears, the name of the value and the acceptable range will show the top of the pad. For example: at right, the number pad is for the Scale entry and the acceptable values are between -99999 and 99999. The number pad will include a decimal point or a positive/negative symbol only if the value requires it.

Other buttons on the number pad include:

AC *All Clear*. Deletes the entire value.

BS *Back Space*. Deletes the last number on the right.

Return. Displays the last saved value.

Enter *Enter*. Accepts the displayed value and closes the number pad.

↑ ↓ *Up* and *down arrows* ↑↓**.** Incrementally increases or decreases the far-right number of the displayed value.

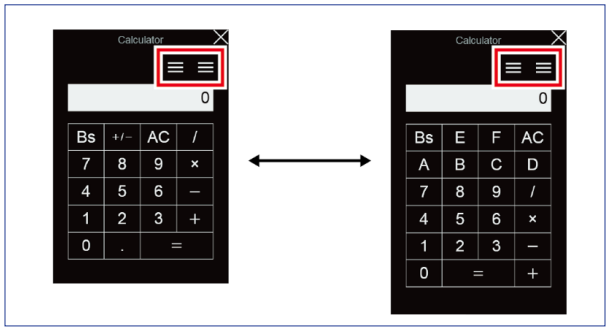
- For example: if entering whole numbers, touching the up arrow will change the value from 2 to 3; if entering numbers with a decimal, touching the up arrow will change the value from 2.0 to 2.1.

Close. Closes the number pad. Any value not entered will not save.

Calculators

Some number pads will have calculator apps. Touch the sub-menu to select and use it as you would use any other calculator to for quick math functions.

Calculators with two sub-menu buttons include a hexadecimal calculator (0-F). Touch the sub-menu button to switch.



Switching between regular (decimal) and hexadecimal calculators.

8.4 Keyboards

Alphabet-Order mode (above) and Computer mode (below) keyboards.

There are two types of digital keyboards available on this system: Alphabet-Order mode (A-B-C-D) and Computer-mode (QWERTY.)

Touch the *"Keyboard Change"* button to switch between the two and use what is most comfortable for you.

There are a few important similarities between the two keyboards:

Close. Closes the keyboard. Any value not entered will not save.

Backspace. Deletes one character to the left of the cursor.

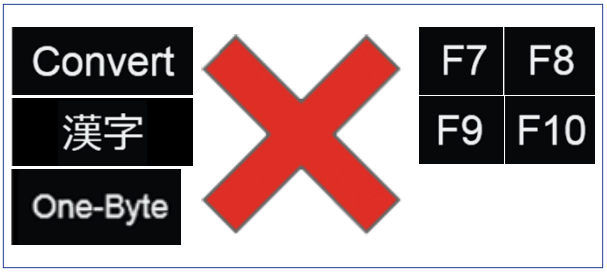
DEL *Delete.* Deletes one character to the right of the cursor.

There are a few important differences between the two displays:

Enter / Input *Enter* on the Alphabet-Order keyboard and *Input* on the Computer keyboard do the same function: accept and save the value just typed in.

A/A / Shift *A/A* on the Alphabet-Order keyboard and *Shift* / *Caps Lock* on the Computer keyboard do the same function: Move between upper- and lower-case letters.

Blank / Space *Blank* on the Alphabet-Order keyboard and *Space* on the Computer keyboard do the same function: Insert an empty block after the last letter entered.



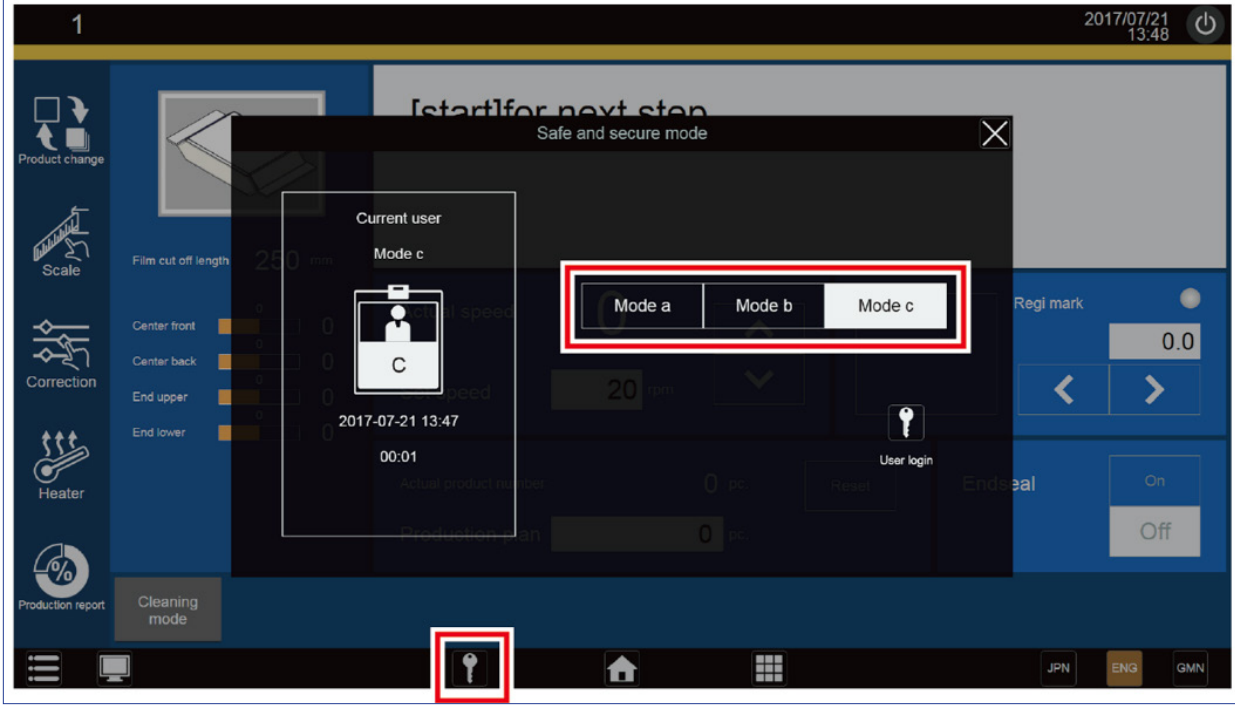
The buttons at left convert the machine between English and Japanese. DO NOT TOUCH.

- If your display suddenly changes to Japanese, someone may have accidentally touched one of these buttons.

Change To return to English, touch the *"Change"* button once.

- If this does not solve the problem, touch it again.
- The *"Change"* button cycles the keyboard through Hiragana, Katakana, and English. (Hiragana and Katakana are two different types of Japanese writing.)

8.5 Security and User Authentication Page



The Wrapper system has many functions and controls which make small adjustments to how the machine works. Accidental changes could cause injury to an operator and/or damage the machine. The security feature allows managers to lock those controls under password-protected pages.

There are three levels of access within the system:

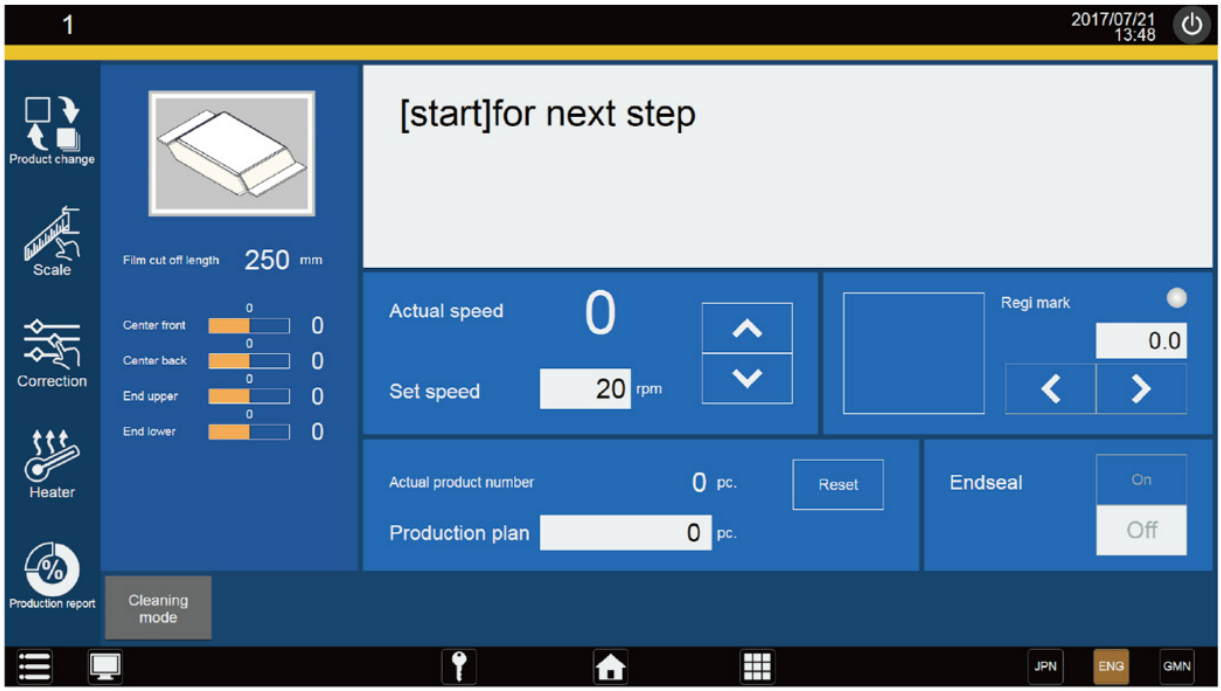
- **Mode A - Operator.** Gives access to the functions and pages needed for basic production and operation of the machine.
- **Mode B - Supervisor.** Gives access to all functions and pages from Mode A, plus those needed to make basic changes the machine and production.
- **Mode C - Manager.** Gives access to all functions and all pages. The machine will automatically log out of this mode 30 minutes after the last change.

If a user attempts to access a restricted page, the machine will ask for a password. Enter it using the keyboard to continue.

To temporarily change between different security modes, press the key icon at the bottom of the page, select the new mode and enter the password.

• For more information, see “10.15 Security” on page 178.

8.6 Home Page



The Home page is the main display page for the Wrapper. It allows easy access to product information and machine status. It is the first page displayed after the machine starts, and it will should be the last page before the machine shuts down.

To return to the Home page, touch the Home icon found at the bottom of every page.

• For more information, see “3.6 Home Page” on page 29.

8.7 Control Panel

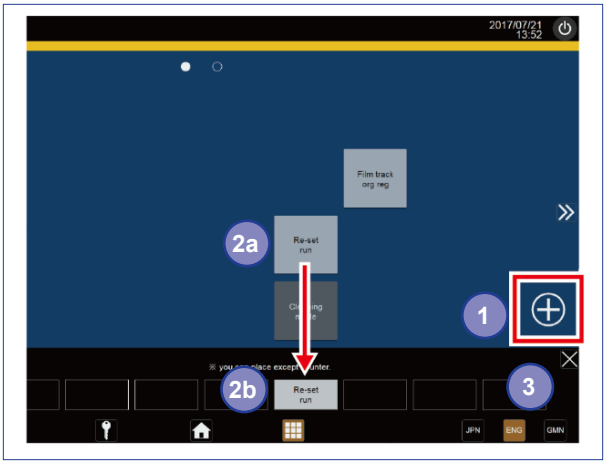
The Control Panel is a page which provides access to several specialized functions for using the Wrapper.

To access the Control Panel, touch the Control Panel icon found at the bottom of every page.

Control panel

Home Page Shortcuts

It is possible to set shortcuts on the Home page linked to Control Panel functions. For example, if the Control Panel is password protected, setting a shortcut on the Home page allows operator access to that individual function without granting operator access to the entire Control Panel.



Steps to create a home page shortcut

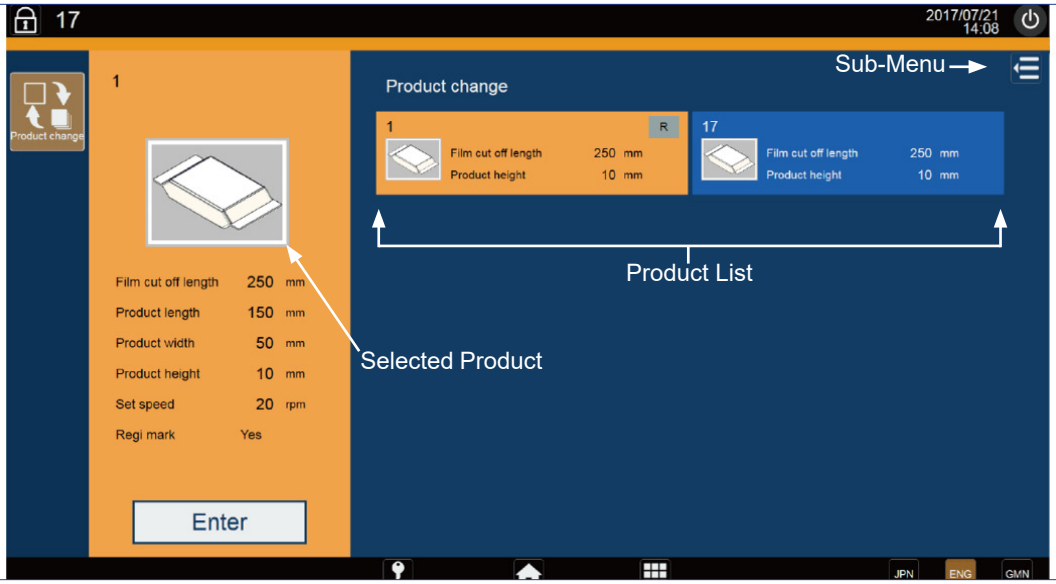
To create a shortcut:

1. Press the *"+"* sign in the lower right corner of the Control Panel.
   - A black bar will appear, displaying the available shortcut slots.
   - Find the icon of the function you wish to access from the Home Page.
   - Note: Counters cannot be set as a shortcut.
2. Touch and drag the icon into one of the empty slots, then lift your finger to release.
3. When finished editing, press the *"X"* in the corner of the black part of the page.

To remove a shortcut:

1. Press the *"+"* sign in the lower right corner of the Control Panel.
2. Touch the icon in the lower black slot, drag it up into the main blue part of the page, then lift your finger to release.
3. When finished, press the *"X"* in the corner of the black part of the page.

8.8 Product Change Page



The Product Change page is a menu of all registered products in the Wrapper. It can save data on up to 300 unique items.

The product list is on the right side of the page. It displays all products saved in the system. The currently selected product is orange; all other products are light blue.

Details of the selected product are on the left side of the page. It includes basic information about the product including the film cut off length, the product dimensions, the set speed for production, and whether the standard film has Regi-marks.

The sub-menu found in the top right corner of the page offers three options:

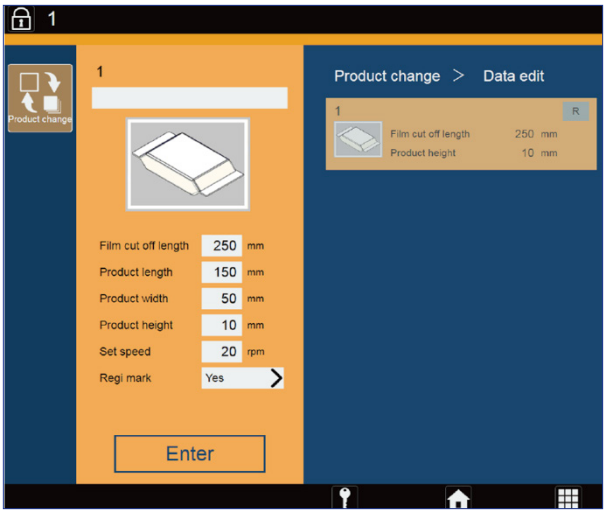
- *Data Edit*: Allows changes on existing products.
- *New Data:* Used to create new products.
- *Clear Data:* Removes a product from the list.
- Details on these three sub-menu options are on the following page.

REMEMBER

The Product Change page is the first step in selecting the product to be wrapped. However, there are other steps to take before you safely begin wrapping. For more information, see “4.5 Position Wrapper Components” on page 39.

Product Change Page (continued)

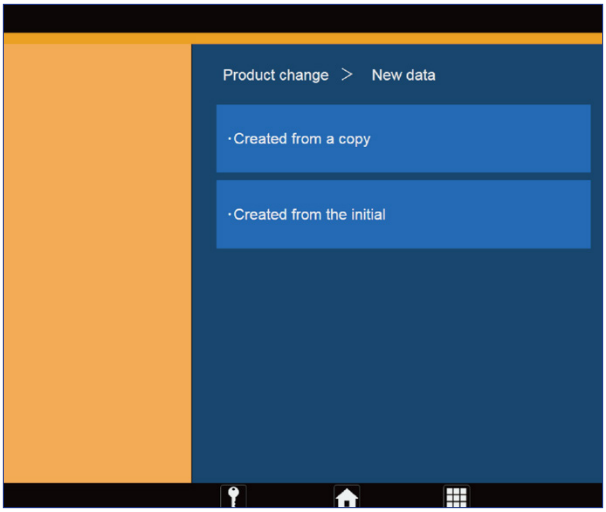
1: Data Edit Page



This page is for changing basic product data including product name, the film cut-off length, the product dimensions, and the preferred set production speed. You can also load a picture of the actual product or use a generic icon.

See “2: Edit the New Product Data” on page 63.

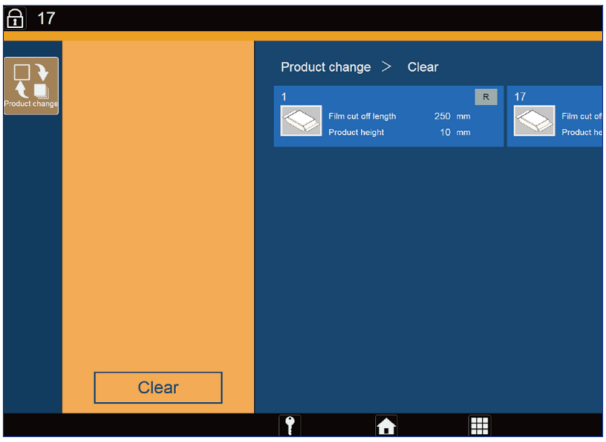
2: New Data Page



This page is for creating a new product. Select one of two options:

- **Create from a copy.** Creates a new product, using an existing product as reference. This is the easier choice.
- **Create from default.** Creates a new product using only the Wrapper default information. This is the more complicated choice.
- For more information on creating a new product, see “Chapter 5 New Product Setup” on page 59

3: Clear Data Page



This function removes a product from the product list. Be careful: it can delete a large amount of data very quickly.

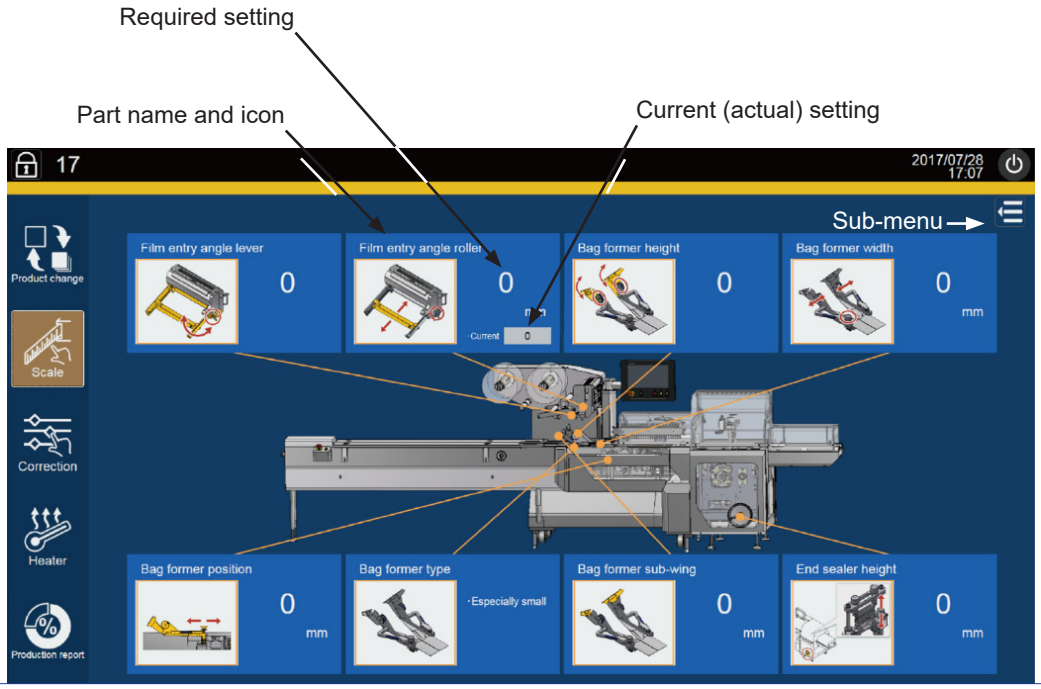
To remove a product:

1. From the Product Change page, touch the sub-menu in the top right corner of the page then touch “Clear Data.”
   - A popup window will appear. Touch “Yes” to confirm.
2. A list of all current products will appear.
   - Touch the product you wish to remove.
   - Touch “Clear.”
   - Once you confirm “Yes” the system will remove the product from the product list permanently.

REMEMBER

Deleted products can be restored if you have a recent backup.
See “10.2 Backup” on page 160.

8.9 Scale Page



The Scale page lists the mechanical settings needed to properly wrap the selected product. Every product has slightly different settings for proper bag formation. The Wrapper cannot physically change the settings, but the Scale page is a reference for what those settings should be.

Each icon shows the component's name, an image of that component, and an orange line showing its location on the Wrapper. The large number is the setting necessary for proper bag formation; the small number (if present) is the current setting.

Whether or not the current setting appears, it is good practice to physically check and confirm each setting on the Scale page every time you begin a production run.

See "4.5 Position Wrapper Components" on page 39.

The sub-menu found in the top right corner of the page has four options:

- *Change Setting Value*: Used to adjust a product's setup values. Details on next page.
- *Detail Setting*: Used to make changes to the part's description, image, and measurement information. Details on next page.
- *Linear Scale Correction*: **Do not adjust.** Matches the linear scale of the film entrance roller with the position of the scale. We input this data at the factory before shipment.
- *Change Layout:* **Do not adjust.** Changes the placement of icons on the Scale page and the location of the orange directional arrow. Used only to add new components to the Wrapper.

REMEMBER The Scale page is a list of machine settings you must change manually. The Correction page is a list of machine settings which the machine will adjust automatically, after you enter the change on the page.

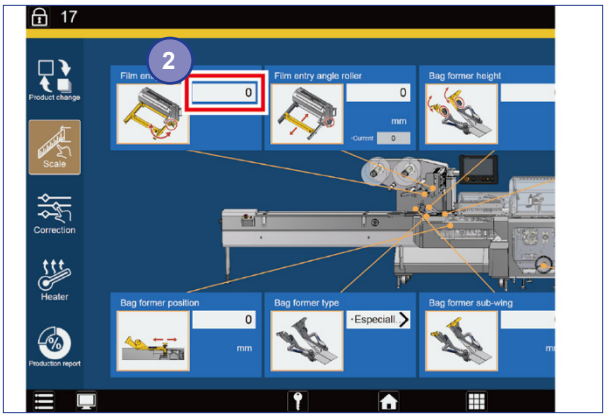
Scale Page (continued)

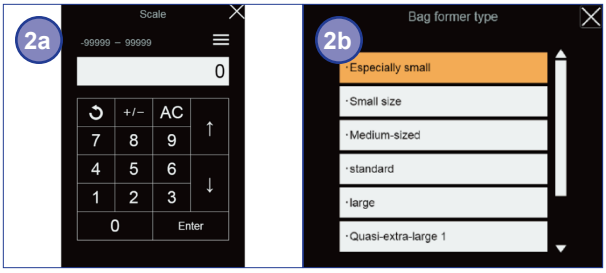
1: Change Setting Value

Changing the setting value permanently resets the setup requirements for a product.

Remember: changing the value here does not physically change the machine. You must change that setting on the Wrapper manually and perform a Set-Run before starting a production run.

1. Touch the Sub-Menu button and select “Change Setting Value.”
2. Touch the value you wish to change.
   - If the value is a number, a keypad will popup. Enter the desired value and press “Enter.
   - If the value is one item from a pre-set list, that list will appear. Touch the desired item on the list to select it.





2: Detail Setting

Changing the details means to changes a Wrapper component’s description, image, and measurement information.

Remember: changing the value here does not physically change the machine. You must change that setting on the Wrapper manually and perform a Set-Run before starting a production run.

1. Touch the Sub-Menu button and select “detail setting.”
2. The detail setting page will appear.
   - On the right side of the page, touch the part you wish to change.
3. On the left side of the page, touch a description area to select it. Enter values on the keyboard or number pad which pops up.
   - See the table on the next page for all options for the entries.
4. When you have made all the changes for that item, touch “Enter” at the bottom of the orange section.

Scale Page (continued)

Entry	Description
Scale Name	Use the keyboard to enter the component's name.
Yes/None	• "Yes": this will appear on the Scale page. • "None": this will not appear on the Scale page.
Scale Image	Sets the image that will appear on the Scale page. • Touch "Sample image" to select an image from a pre-loaded list of parts. • Touch "E Drive" to load an image saved on a removable USB flash drive.
Scale	Use the number pad to enter the preliminary setting for the part.
Unit	Use the keyboard to enter the unit of measurement (mm, inches, degrees).
Input Method	• Select "value" if you measure the part's settings in numbers. • Select "letter strings" if the setting is one of a list of named options.
Decimal Digit Number	Selects the precision of the setting's measurement. The popup menu will list numbers from 0-3. • 0: measured in whole numbers only (e.g.: 2) • 1: measured one place past the decimal (e.g.: 2.1) • 2: measured two places past the decimal (e.g.: 2.13) • 3: measured three places past the decimal (e.g.: 2.125)
+/- Code	• Select "yes" if the setting's values can be measured as either a positive or a negative number. • Select "none" if the setting's values are only measured as a positive number.

8.10 Correction Page

The Correction Page allows the operator to make fine adjustments to the Wrapper's condition and to bag forming.

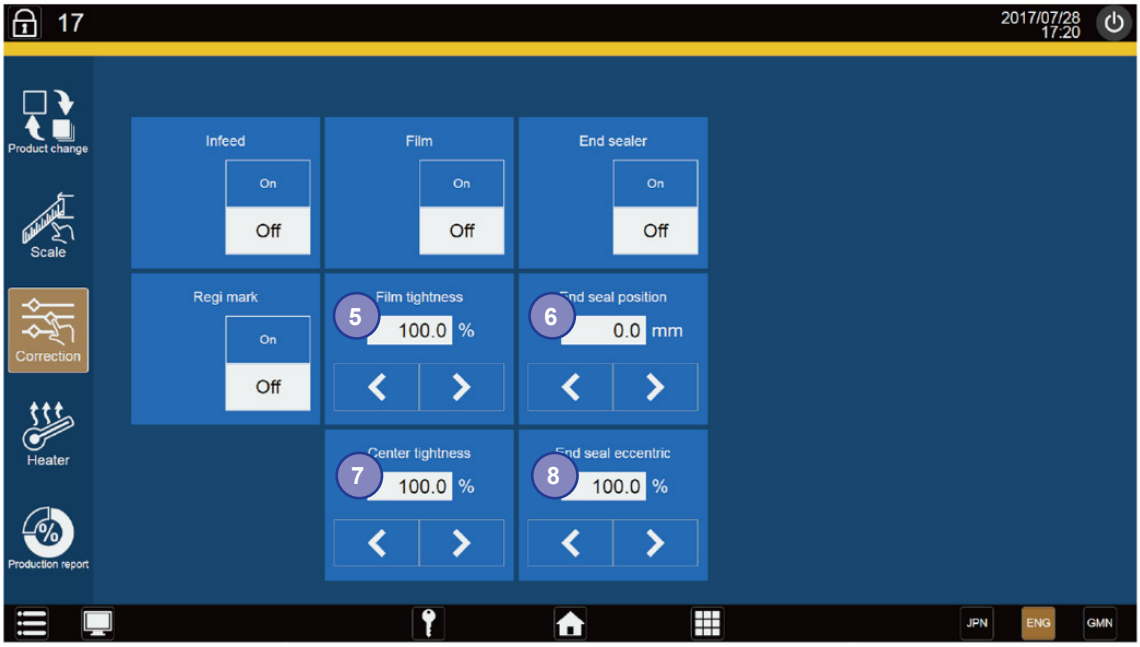
The first four options shown above turn certain motor axes ON and OFF.

1. **Infeed ON/OFF** - When ON, the infeed conveyor will operate with the rest of the Wrapper functions. When OFF, the infeed conveyor stops regardless of Wrapper operation.
2. **Film ON/OFF** - When ON, all film rollers between the film feed roller and the end sealer will operate with the rest of the Wrapper functions. When OFF, all rollers stop regardless of Wrapper operation.
3. **End Sealer ON/OFF** - When ON, the end seal unit will operate with the rest of the Wrapper functions. When OFF, the end sealer stops in the "open" position regardless of Wrapper operation. Be aware: this does not turn off the heaters inside the end sealers. To turn a heater off, see page 136.)
4. **Regi-mark ON/OFF** - When ON, the Wrapper will make controlled corrections based on the Regi-mark detection. When OFF, the Wrapper will not make those corrections.

REMEMBER

- These four settings can only be changed while the Wrapper is not running.
- Performing the Set-Run function will turn these first four settings ON.

Correction Page (continued)



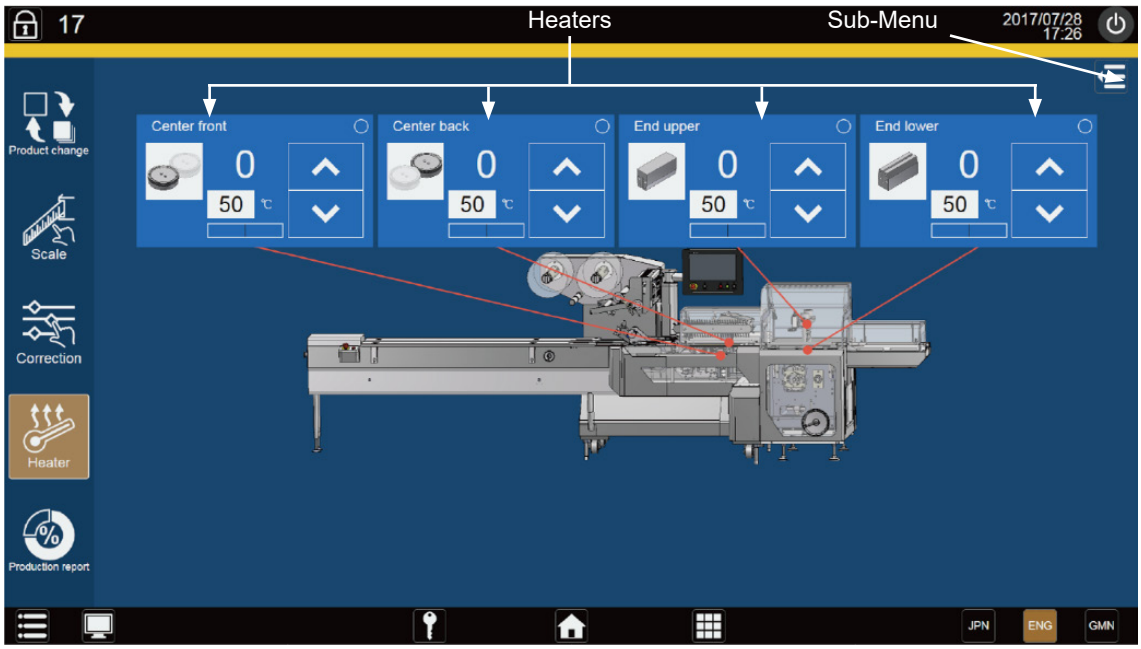
5. **Film Tightness (%)** - Controls the film tension between the film feed roller and the center seal unit by adjusting the speed of both sets of center rollers equally.
   - (**<**) Decreasing this value makes both sets of center rollers move slower, which reduces tension and makes the film slacker.
   - (**>**) Increasing this value makes both sets of center rollers move faster, which increases tension and makes the film tighter.
6. **End Seal Position (mm)** - Makes small adjustments in the sealer timing, which affect the product's position between the two end seals.
   - (**<**) Decrease this value if the product is too close to the upstream seal.
   - (**>**) Increase this value if the product is too close to the downstream seal.

REMEMBER

If the product is centered between the two end seals but the seals do not align with the Regi-marks, make no adjustment here. Use the Regi-mark adjustment on the Home page.

7. **Center Tightness (%)** - Controls the film tension between the two sets of center rollers by adjusting only the speed of the second center rollers. At 100%, the first and second center rollers both rotate at the same speed.
   - (**<**) Decreasing this value makes the second center roller move slower, which makes the film slacker.
   - (**>**) Increasing this value makes the second center roller move faster, which makes the film tighter.
8. **End Seal Eccentric (%)** - Adjusts the dwell time - the amount of time the end sealers spend in contact with the film during their rotation. At 100%, the sealers are rotating with unmodified dwell time.
   - (**<**) Decreasing this value reduces the dwell time and makes the film less tense.
   - (**>**) Increasing this value gives the sealer a longer dwell time and makes the film more tense.

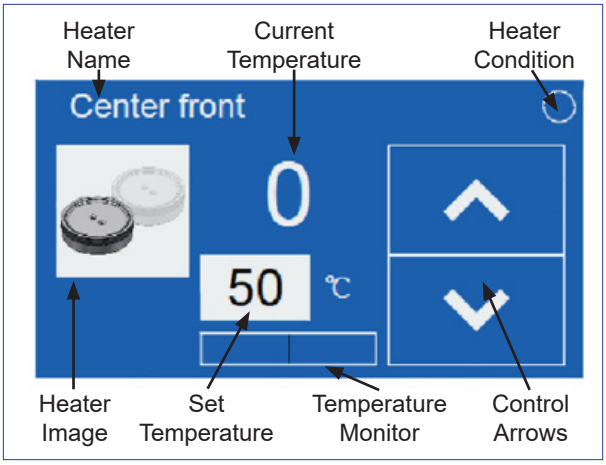
8.11 Heater Page



The Heater page displays all the temperature controls for the Wrapper. Each icon stands for one of the heating elements and shows its status and its location within the machine.

Parts of note include:

- The large white number is the *current* temperature for that heater.
- The smaller black number in the white box is the *set* temperature for that heater.
- The temperature monitor is a bar gauge that displays the current temperature of each heater. The black line at the middle point of the bar corresponds to the set temperature.
- The heater condition in the top right corner of the icon will turn orange when the heater is actively heating up.
- The control arrows will raise and lower the set temperature. If you change the temperature here, the temperature will remain changed until the next Set-Run function. To permanently set a new default temperature, go to the sub-menu and select “Detail Setting.”



REMEMBER

Your display may look different than that shown above because your system may have different heaters installed.

Heater Page (continued)

The sub-menu found in the top right corner of the page offers four options:

- *Detail Setting*: Allows edits to each individual heater.
- *Graph Edit*: Creates a programmable graph that will control temperatures based on changing set speeds.
- *Auto-Tuning*: Performs a system check on the heating elements. It is not necessary to perform this under normal circumstances.
- *Boost Setting*: Helps control temperature fluctuations when the machine is first starting and when the Wrapper is running at high speeds. It is not necessary to perform this under normal circumstances.

REMEMBER

Heater temperatures are product specific. Changing the temperature for one product has no effect on temperatures for other products

1: Detail Setting

This sets a heater's default temperature for the product currently selected.

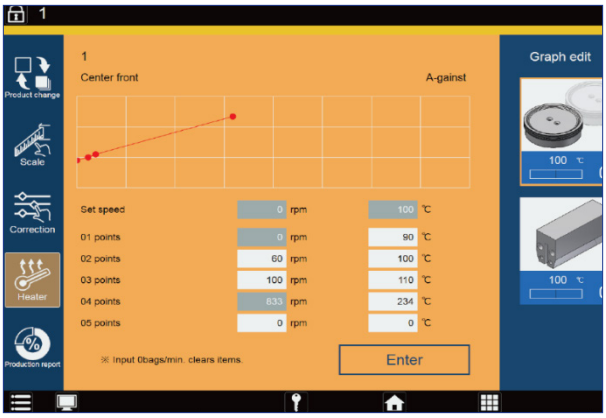
1. Touch the sub-menu button and select "Detail Setting."
2. Touch the heater you wish to change from the list at the right side of the page.
3. In the orange column at the left of the page:
   - Touching the ON/OFF switch controls the heater directly.
     - Turning it OFF here removes the heater from use and will significantly affect the Wrapper's performance.
   - Touching the white box to the right of "Setting temp" brings up a number pad which will set the default temperature for that heater.
   - Touching the heater image allows the user to change the image to another of the library images or to load an image saved to the removable flash drive (E:\ Drive).
4. When you have made all the changes for that item, touch "Enter" at the bottom of the orange section.

Heater Page (continued)

2: Graph Edit

A temperature graph creates a relationship between production speed and temperature. Enter two sets of speed and temperature data and the system will calculate a gradient between them. If the Wrapper runs at a speed in between the two data points, the system will automatically adjust the temperature to match.

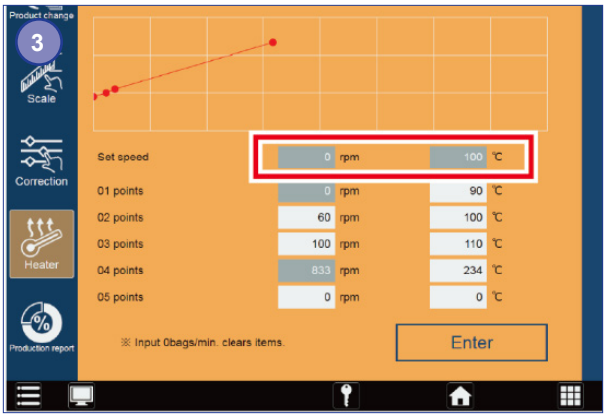
In the example at right, when the Wrapper speed is 60 products per minute, the sealer should be 100°c. At 100 ppm, the sealer should be 110°c. With the Graph turned on, a production run at 80 ppm would cause the Wrapper to automatically adjust the temperature to 105°c.



To edit the temperature graph:

1. Touch the sub-menu button and select “Graph Edit.”
2. Touch the heater to graph from the list at the right side of the page.

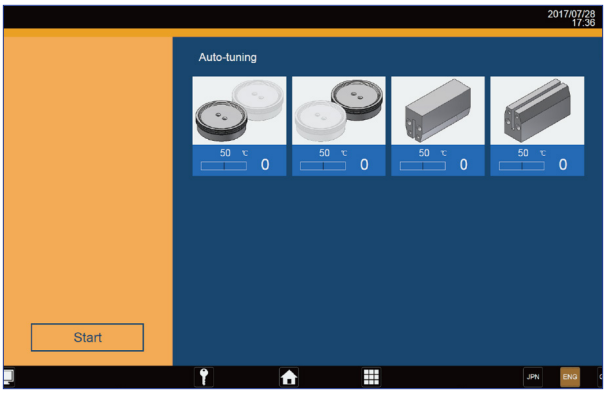
3. In the orange column at the left of the page:
   - Touch the squares in the row labeled “Set speed” and enter the data.
     - The left column is the machine speed, measured in parts per minute. (Parts per minute and RPM are the same.)
     - The right column is the temperature corresponding to that set speed.
   - You must enter at least two sets of speed/ temperature values for the system to calculate a gradient.
4. When complete, touch “Enter.”



REMEMBER

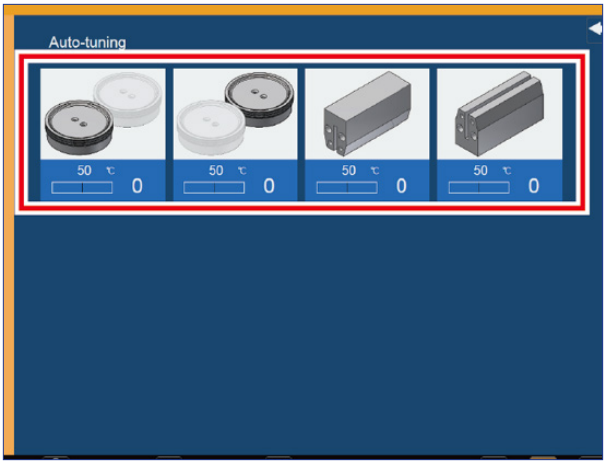
Production speeds change instantly. Heaters take more time to warm or cool. Seal integrity may decrease during the transition.

Heater Page (continued)



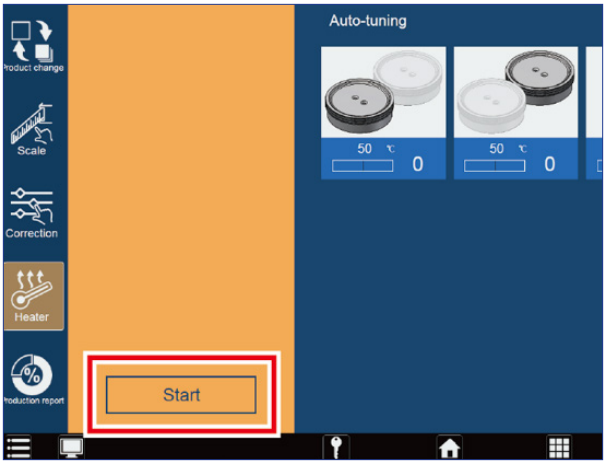
3: Auto-Tuning

This improves temperature control based on the heater's range and ability. It runs a series of tests and calculates heater controls for your machine.



To perform the Auto-Tuning function:

1. Touch the Sub-Menu button and select "Auto Tuning."
2. Touch the heater to tune from the list at the right side of the page.



3. In the orange column at the left of the page, touch "Start" and confirm "Yes."
4. The page will display a confirmation message when the operation is complete.

REMEMBER

A heater only requires auto-tuning once, at installation. Formost-Fuji performed this function when we built the machine. Only perform this function again after replacing a heater.

Heater Page (continued)

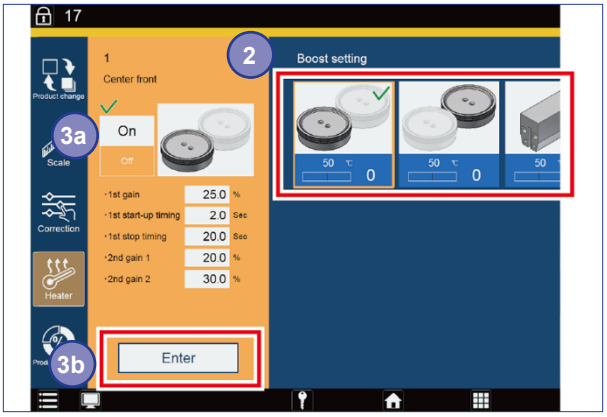
4: Boost Setting

The function is an optional modification of the temperature controls which helps reduce temperature fluctuations while the machine is warming up.

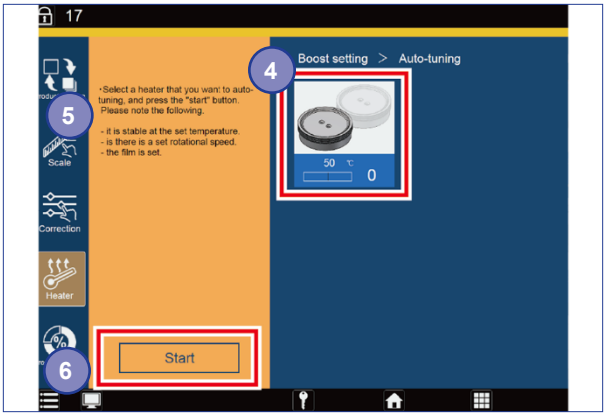
Performing this function will also run the Auto-Tuning function as part of the setup.

To perform the Boost function:

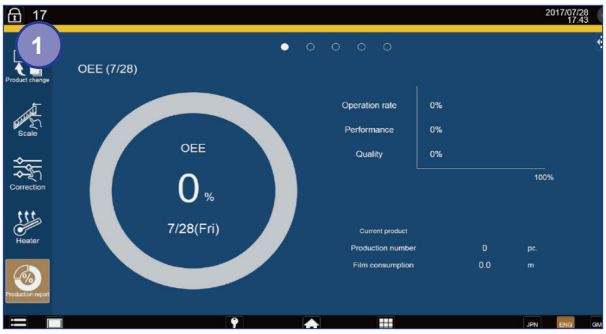
1. Touch the Sub-Menu button and select “Boost Setting.”
2. Touch the heater to boost from the list at the right side of the page.
3. In the orange column at the left of the page, touch “ON” and then “Enter.”
   - A confirmation window will appear.
     - Touch “NO” to stop the function.
     - Otherwise, touch “YES.”

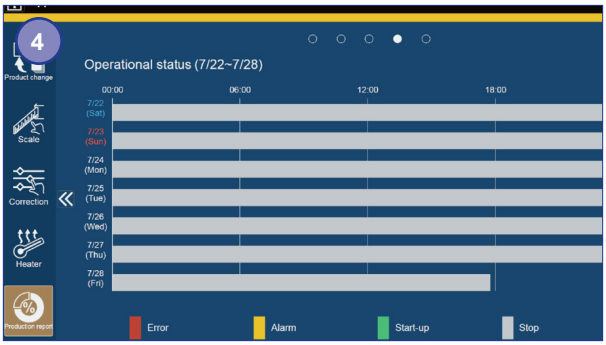


4. After a short time, the list of heaters will reappear. Select the heaters to boost.
5. The left side of the page will list some conditions that must happen before continuing. Check that those conditions are true and perform the required tasks.
6. Press “Start” and confirm “Yes.”
7. The page will give instructions on steps to take. Operate the machine as instructed.
8. The page will show when the function is complete and normal Wrapper functions can begin.



8.12 Production Report Page





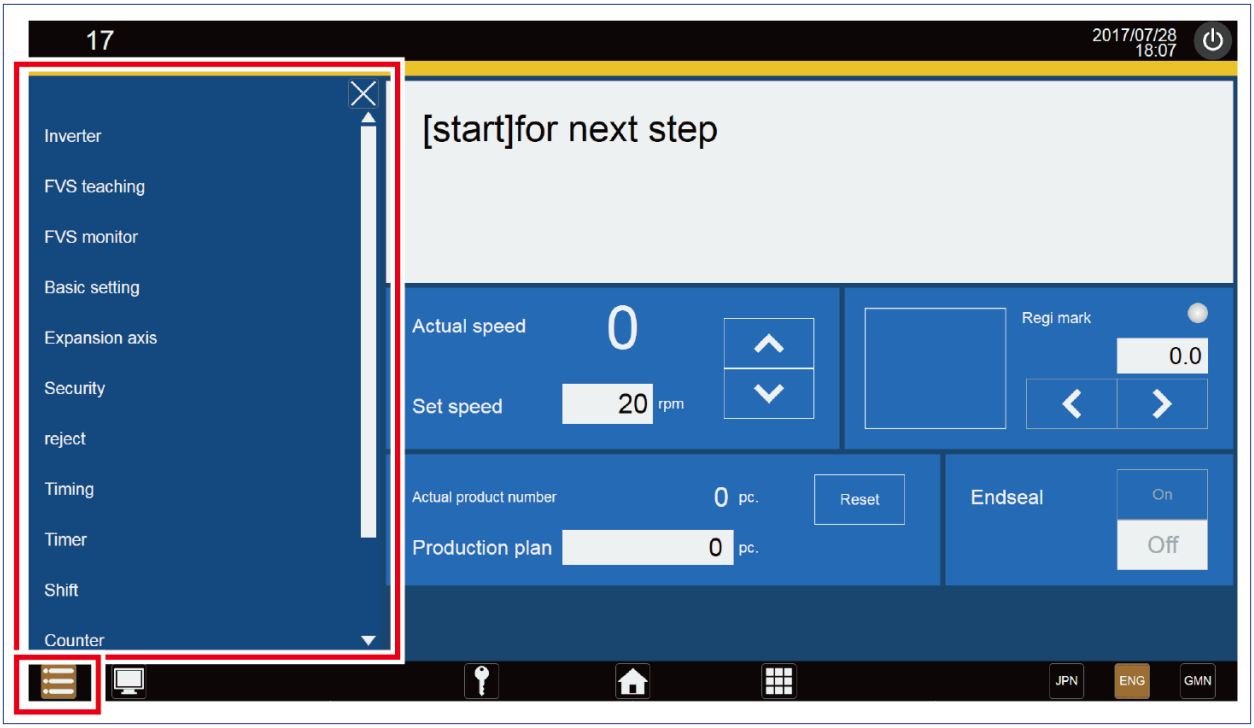
The Wrapper automatically tracks system information and time spent in different modes. This data compiles into five color-coded production reports.

Use either the “page of pages” dots at the top of the page or the left and right arrows at either side of the page to navigate between the pages.

1. **OEE for One Day** - Overall Equipment Effectiveness is a measurement of the machine’s operational performance. The large circle stands for the total amount of time the machine spent in different production states. The page also tracks the number of units wrapped (called the production number) and the amount of film consumed.
2. **OEE for One Week** - This page assembles the OEE daily data (#1 above) for the current day and the previous six days. Touch one of the seven circles at the bottom of the page to see each day’s individual statistics.
3. **Operational Status for One Day** - The Daily Operational Status display is two long bar graphs showing the machine’s status for the current day. The top bar shows the first half of the day: midnight to noon; the bottom bar shows from noon to 11:59 pm. The four colors stand for the four different machine statuses listed at the bottom of the page.
4. **Operational Status for One Week** - The Weekly Operational Status display assembles the Daily Operational Status reports (#3 above) into seven bar graphs. The current day is the bottom of the seven bars. Unlike the Daily Operational Status, each day is one single bar charting time spent in different operational statuses from midnight (left) to 11:59 pm (right).
5. **Operational Rate for One Week** - The Operational Rate is the total amount of time the machine spent in different production states. Each bar stands for one day of the last seven, and current day is the farthest right bar.

Chapter 9 Setting Menu

9.1 Introduction



The Setting Menu is a list of links to pages, each page controlling a specific function related to the Wrapping Cycle and bag formation.

Touch the Setting Menu button in the lower left corner of any page to open the long menu.

- If the menu is longer than the screen, use the scroll bar to view the remaining items.
- Touch one of the functions to move to that function's control screen.
- To exit the menu, touch the "X" in the top right corner of the screen.

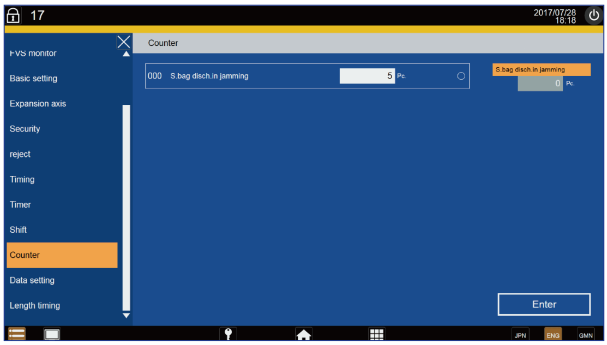
The function descriptions in this chapter are in the alphabetical order, not screen order.

- Counter - see page 146.
- Data Setting - page 147.
- Inverter - page 148.
- Length Timing - page 149.
- Machine Basic Setting - page 150.
- Servo - page 152.
- Shift - page 153.
- Timer - page 154
- Timing - page 155

If there are other functions listed in your menu, they refer to added options. Refer to Chapter 12 - Optional Functions.

REMEMBER ► Pages shown here may not match those on your machine.
- Not all functions are available to all security access levels.
- Not all functions are installed on all machines.

9.2 Counter



The Counter function controls actions which either take place over several cycles or which only activate after several inputs occur in sequence.

For each listing on the page, there is a description, the number of events needed for the function to occur, and an indicator light which turns on when that event is actively counting. The list on the right side of the screen shows each listing's current total.

How individual Counters operate depends on the sequencer programming relating to that Counter. Only the Controls Department at Formost-Fuji should create new Counters.

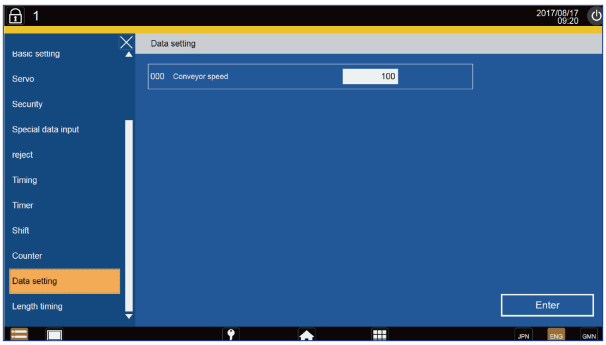
If instructed to change the Counter by the Service Department:

- Touch the white space to the right of the description. A numerical keypad will appear.
- Enter the value and touch the "Enter" button on the keypad. A green check mark will appear next to the changed value.
- When finished, touch the "Enter" button in the lower right corner of the screen.

List of Common Counters

Counter	Effect	Definition
S. Bag Disch in Jamming	The number of cut lengths to pass out of the Wrapper after an End Seal jam.	The distance between the Forming Box and the End Sealers, divided by the product cut length.

9.3 Data Setting



The Data Setting function sets values associated with auxiliary devices attached to the Wrapper. There are no standard data settings. If your Data Setting page is blank, you have no applicable devices. If there are functions listed on your page, they refer to added options. Refer to Chapter 12 - Optional Functions.

To change, if necessary:

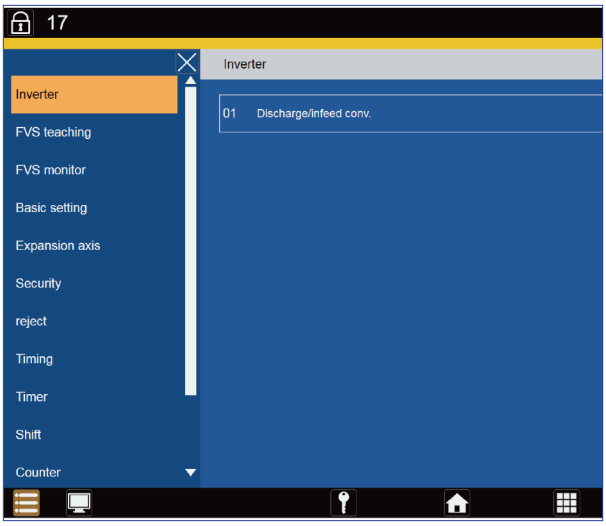
- Touch the white space to the right of the description. A numerical keypad will appear.
- Enter the value and touch the “Enter” button on the keypad. A green check mark will appear next to the changed value.
- When finished, touch the “Enter” button in the lower right corner of the screen.

9.4 Inverter

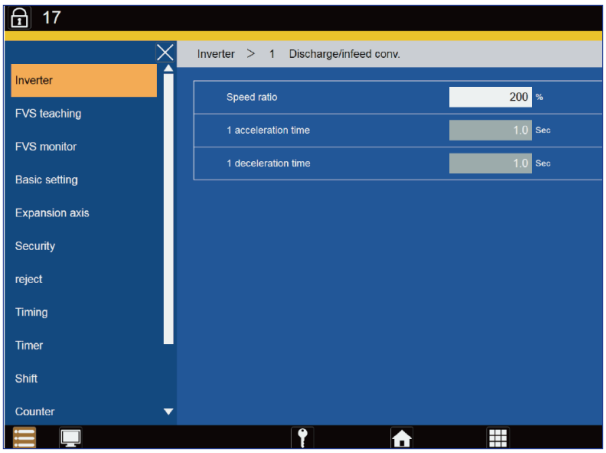
The Inverter function controls inverter speeds. Inverters most often control conveyors, such as the discharge conveyor.

Select the Inverter function from the setting menu. The first page is a list of all inverters on your machine. Touch an item on the list to select that inverter. The page will change to show three controls:

- *Speed ratio* shows the conveyor speed relative to the film speed, measured as a percentage.
  - 100% means that the conveyor speed and the film roller speed are the same.
  - A value above 100% means the conveyor moves faster than the film. Doing so creates a gap between products on the conveyor. The higher the percentage, the larger the gap.
  - A value below 100% means the conveyor moves slower than the film. We do not recommend values below 100% unless the discharge conveyor has an optional package deflator.
- *Acceleration time* and *Deceleration time* measure the delay between when you enter a speed ratio change when the Inverter will be at that new speed.
  - Lower measurements mean the Inverter and the Conveyor react faster.
  - Higher measurements mean a longer reaction time.
  - Standard setting is 1.0. Do not adjust unless instructed by the Formost-Fuji Service Department.

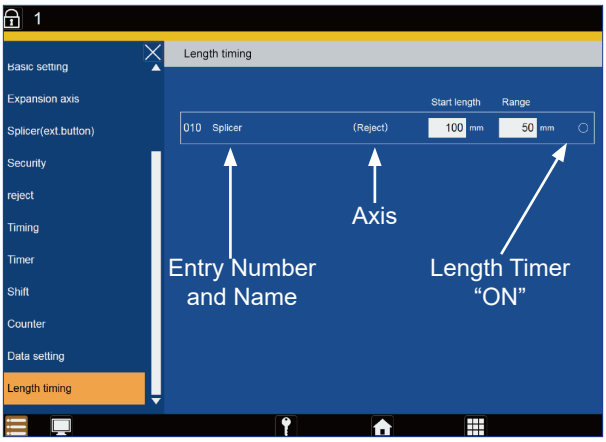


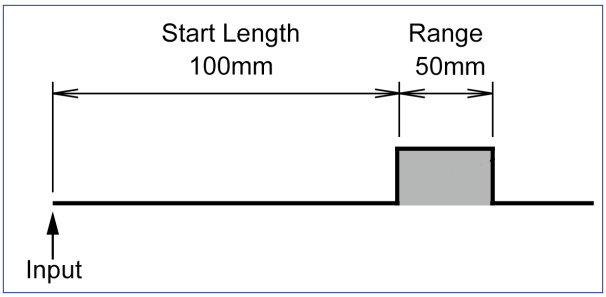
First inverter page lists all inverters on the Wrapper.



Second inverter page changes inverter speeds.

9.5 Length Timing





For example, the rejection function above has values Start-100 / Range-50.

- Because it is on the rejection axis, the Length Timer begins measuring Start film travel when the end sealers first begin to separate on the trailing edge of a product.
- After 100 mm of film passes the end sealers, the Start measurement ends, the rejection function engages, and the Range measurement begins.
- After 50 mm of film passes the end sealers, both the Range measurement and the rejection function end.

There are four methods to measure an interval on the Wrapper: Length Timing, Shift, Timers, and Timing.

Length Timing measures the start and duration of functions based on the length of film traveled.

The zero point - when the function begins measuring - depends on the controlling axis. See the table below for the different zero points.

For each listing on the Length Timing page, there is a description, the controlling axis, and an indicator light which turns on when that timing point is engaged and counting.

All Length Timing points have two components: Start and Range.

- *Start* is the between the zero point and when the function begins - measured in millimeters.
- *Range* is the distance the film will travel between the function beginning and ending - also measured in millimeters.

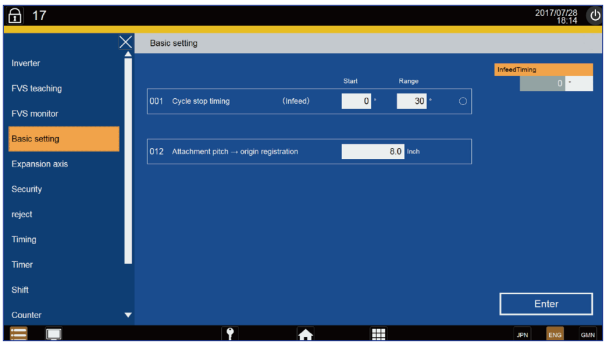
To change values on this screen:

- Touch the white space to the right of the description. A numerical keypad will appear.
- Enter the value and touch the "Enter" button on the keypad. A green check mark will appear next to the changed value.
- When finished, touch the "Enter" button in the lower right corner of the screen.

Axis	Definition of Zero Point (Origin)
Film	Regi-mark detection.
Infeed	Chain Infeed: Lug Origin position (see page 150.)
	Attachless Infeed: Product detection on the conveyor belt.
End Sealer 1	The position of maximum clearance between sealers.
End Sealer 2	The position of maximum clearance between sealers.
Reject (Discharge)	The position of maximum engagement of the end sealers (which corresponds to 180° on the end sealer axis.)

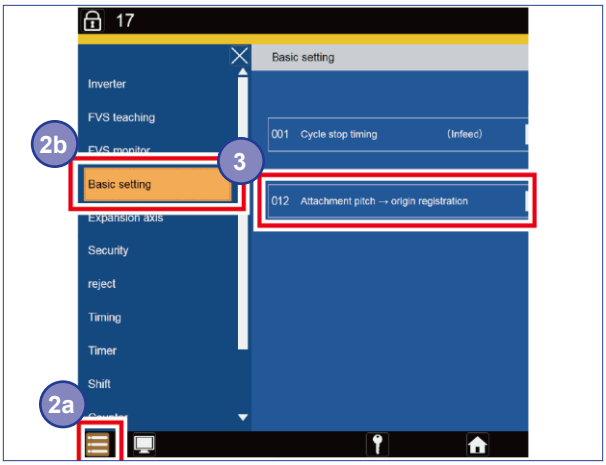
9.6 Machine Basic Setting

All Machine Basic Setting pages have controls related to the infeed flight pitch and the Lug Origin Position (also called the Attachment Zero Position.) If there are functions listed on your page, they may refer to added options. Refer to Chapter 12 - Optional Functions.



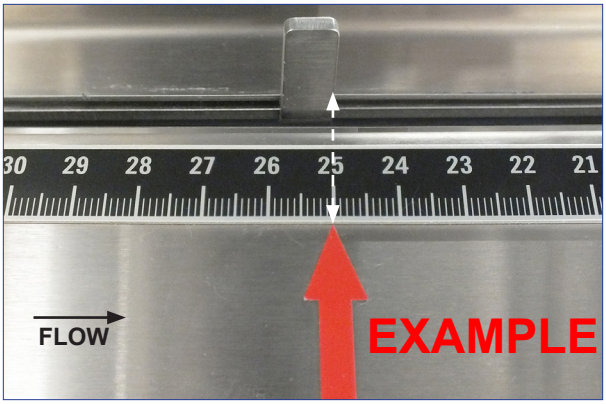
To change the size of flighted infeed chain:

1. Perform the steps to physically change the chain. After restarting the system,
2. Touch the Settings Menu Key and select “Basic Setting.”
3. Touch “Attachment Pitch > Origin Registration.”
4. A number keypad will appear. Enter the flight pitch - the distance between two attachments on the chain.
5. Touch “Enter.”



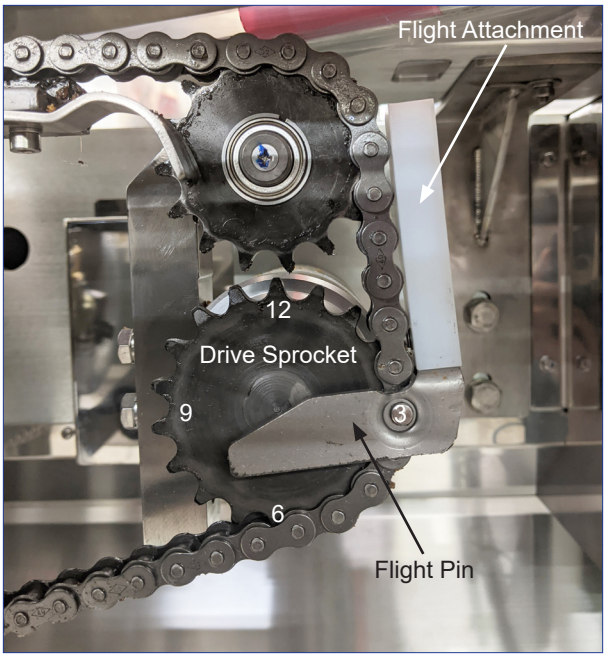
To set the lug origin:

1. Press and hold the INCHING button on the control panel.
2. Advance the chain until the downstream face of an attachment is directly in line with the arrow on the infeed conveyor.
   - If your machine has more than one chain flight pitch, find the arrow marked with the new flight pitch length.
3. Touch “Set Origin.”



Align the attachment’s downstream face with the arrow.

Machine Basic Setting (continued)



If the red arrow is missing from the infeed deck:

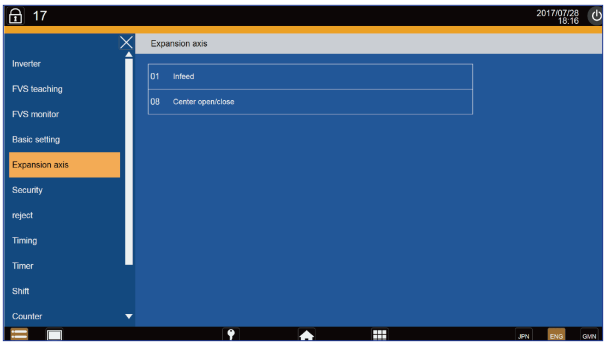
- Open the front transfer cover.
  - For right-hand machines:
    - Press and hold the INCHING button on the HMI.
    - Advance the chain until a flight pin (the metal bottom of a flight attachment) is at the “three o’clock” position on the drive sprocket (shown at left).
  - For left-hand machines:
    - Press and hold the INCHING button on the HMI.
    - Advance the chain until a flight pin (the metal bottom of a flight attachment) is at the “nine o’clock” position on the drive sprocket.
- Touch “Set Origin.”

9.7 Servo

The Servo function (also called the Expansion Axis) allows the user to edit optional controls installed through the expansion axis. The items and options on this screen vary from system to system.

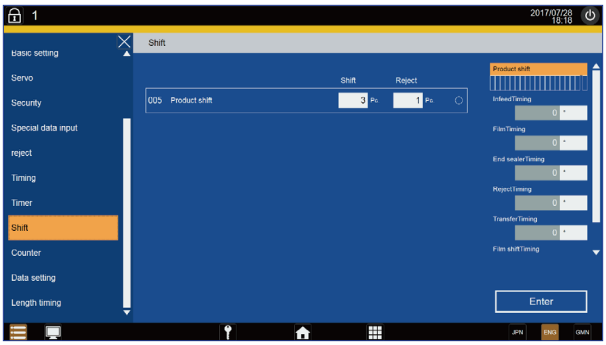
The function installed on all machines is the Center Open/Close item, which controls the sealing pressure of the Center Seal Unit.

See the table below for more information.



Item	Description
Center Seal Pressure Adjustment	Options are: Normal, Medium, and Strong, as specified below.
Center Sealing Pressure (normal)	As background: When the Wrapper is not running, the Center Seal Unit opens to its maximum width. When the Wrapper begins running, it closes after the center sealer close delay (see Timers, page 165). These three entries indicate the amount the center sealers close, measured as a percentage of maximum opening.
Center Sealing Pressure (medium)	
Center Sealing Pressure (strong)	
Start measuring open/close amount	If the error message “Center Sealer Open/Close Amount is Unmeasured” appears, touch this button and follow the instructions.

9.8 Shift



For example: the function above shows Shift-3, Reject-1. When a sensor detects an error, the system will allow three packages to pass the rejection area untouched and reject the next following package. (A Reject value of 2 would reject two packages, and so on.)

There are four methods to measure an interval on the Wrapper: Length Timing, Shift, Timers, and Timing.

The Shift function (also called the Shift Register) measures the interval in complete bag cycles.

The most common form of Shift is a rejection. From the film feed roller to the end sealer, the Wrapping process is a single tube of film. Different sensors at different locations along the tube can reject a particular product or piece of film. However, there is only one location to remove that rejected product from the stream. The Shift Register monitors all the potential rejection problems and tracks rejected products from detection to rejection.

For each listing on the Shift page, there is a description and an indicator light which turns on when that timer is engaged and counting.

Each entry has two values: Shift and Reject.

- *Shift* is the number of packages to allow through the end sealers as normal.
- *Reject* is the number of packages to remove from the discharge conveyor.

These settings are based on the difference between the photoelectric sensor eye and the rejection area, measured in whole numbers. In most cases, you will not need to adjust the setting unless you reposition the sensor or install a new feed system.

If necessary:

- Touch either the Shift or Reject value for the Shift you want to change. A numerical keypad will appear.
- Enter the value and touch the “Enter” button on the keypad. A green check mark will appear next to the changed value.
- When finished, touch the “Enter” button in the lower right corner of the screen.

9.9 Timer

There are four methods to measure an interval on the Wrapper: Length Timing, Shift, Timers, and Timing.

Timers measure the interval in seconds.

For example, there is a short interval between pressing the “START” or “INCHING” buttons and the Wrapper components beginning to move.

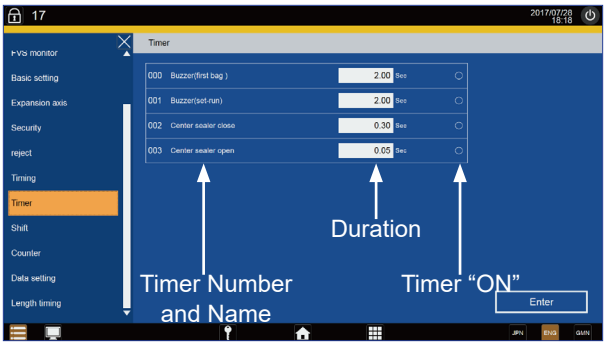
Because Timers do not scale with production speeds, they should only measure events which are independent of the Wrapping cycle.

The items on this screen vary from system to system based on optional equipment and customer requirements.

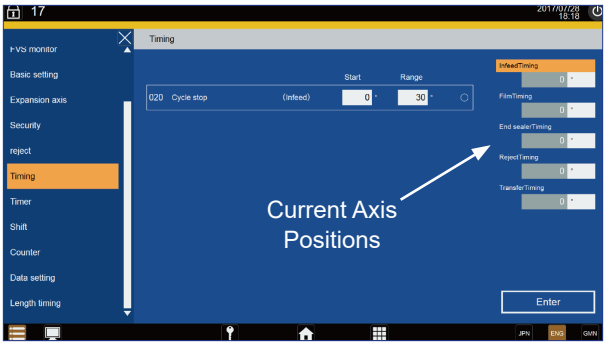
For each listing on the Timer page, there is a description, a duration measured in seconds and fractions of seconds, and an indicator light which turns on when that timer is engaged and counting.

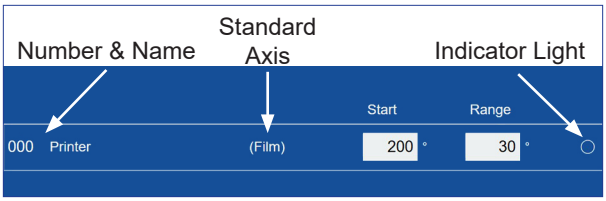
To change a Timer:

- Touch the white space to the right of the description. A numerical keypad will appear.
- Enter the value and touch the “Enter” button on the keypad. A green check mark will appear next to the changed value.
- When finished, touch the “Enter” button in the lower right corner of the screen.



9.10 Timing





There are four methods to measure an interval on the Wrapper: Length Timing, Shift, Timers, and Timing.

Timing points measure the start and duration of functions in degrees of axial rotation. In the standard Wrapping Cycle, where one wrapped product equals one 360° cycle.

REMEMBER

This does not mean that one product means each Wrapper component rotates 360° for every product. It is only that the system converts the product length into a 360° cycle.

For each listing on the Timing page, there is a description, the controlling axis, and an indicator light which turns on when that timing point is engaged. On the far right of the page, a small grid shows the current axis position for all the axes on the Wrapper.

The zero point - when the function begins measuring - also depends on the controlling axis. See the table below for the each axes' zero point and the definition of one 360° cycle.

Timing #	Standard Axis	Definition of one cycle (360°) and Zero Point (Origin)
000 - 019	Film	One cycle = the gap between the leading edge of two Regi-marks. Zero point = position of Regi-mark detection.
020 - 049	Infeed Conveyor (Chain)	One cycle = The gap between the front face of two attachments. Zero point = The Lug Origin position (see page 150.)
	Infeed Conveyor (Attachless)	One cycle = The system converts 360° into the package length (in millimeters) and tracks that distance of conveyor movement. Zero point = Product detection on the conveyor belt.
050 - 064	End Sealer 1	One cycle = one complete rotation of the end sealer. Zero point = the position of maximum clearance between sealers.
065 - 079	End Sealer 2 (optional)	One cycle = one complete rotation of the second end sealer. Zero point = the position of maximum clearance between sealers.
080 - 089	Reject (Discharge)	One cycle = Cut Off Length (mm) x Discharge Conveyor Speed Fine Adjust (see page 148). Zero point = the position of maximum engagement of the end sealers (which corresponds to 180° on the end sealer axis.)

Timing (continued)

Timing points begin at a certain degree in the cycle (Start) and run for a set number of degrees (Range). Functions can begin in one cycle and run through the next cycle. For example, a function with Start-290 Range-120 will turn on at 290° and turn off at 50° in the next cycle.

To change values on this screen:

- Touch either the Start or Range value for the Timing point you want to change. A numerical keypad will appear.
- Enter the value and touch the “Enter” button on the keypad. A green check mark will appear next to the changed value.
- When finished, touch the “Enter” button in the lower right corner of the screen.

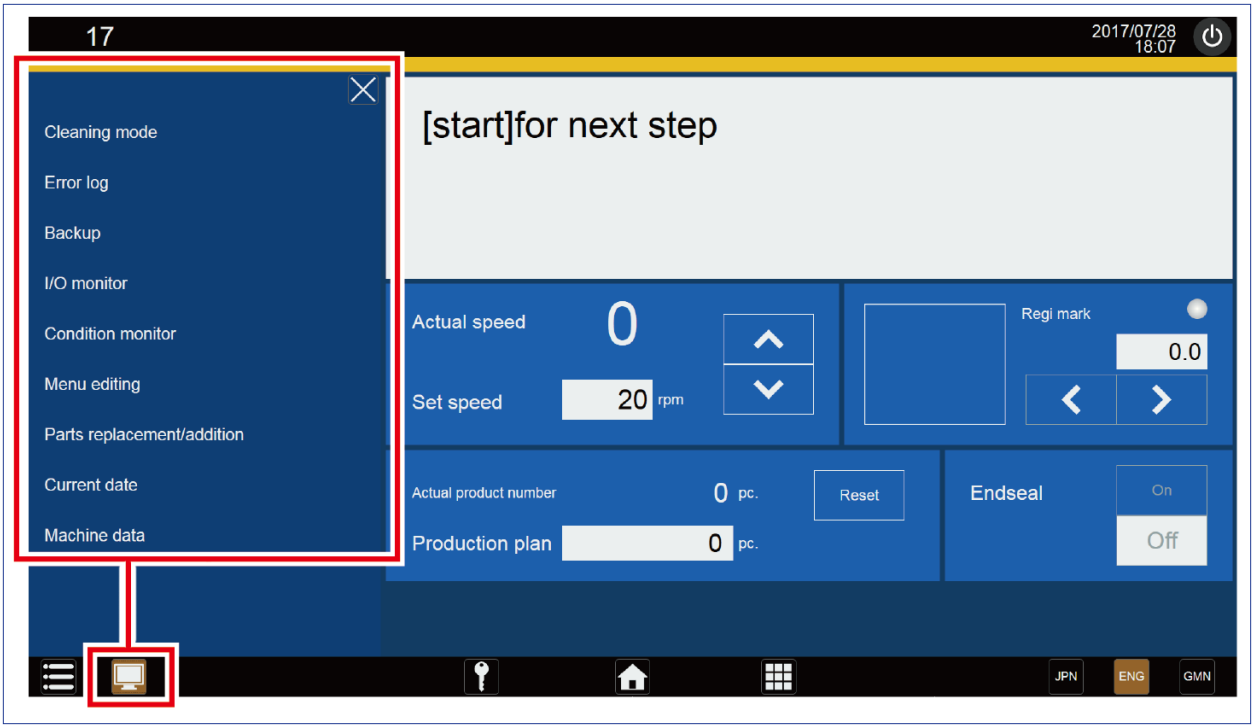
RANGE Minimums

The production speed affects the possible Range window. While computers are becoming faster, the transition from electronic calculations to physical results is the rate limiting factor. Refer to the table at right for a list of minimum and maximum Range values.

Wrapper Speed (PPM)	Minimum RANGE (°)	Maximum Range (°)
1 - 100	4°	356°
101 - 200	8°	352°
201 - 300	12°	348°
300 - 400	16°	344°
401 - 500	20°	340°
501 - 1000	40°	320°
1001 - 1500	60°	300°

Chapter 10 Management Menu

10.1 Introduction



The Management Menu is a list of links to pages, each page controls a specific function related to the Wrapper itself.

Touch the Management Menu button - the second button in the lower left corner of a page to open the long menu.

- If the menu is longer than the screen, use the scroll bar to view the remaining items.
- Touch one of the functions to move to that function's control page.
- To exit the menu, touch the "X" in the top right corner of the screen.

The function descriptions in this chapter are in the following order, not screen order.

- Backup - see page 160.
- Calendar Timer - see page 161.
- Cleaning Mode - see page 162.
- Condition Monitor - see page 163.
- Current Date - see page 167.
- Error Log - see page 168.
- I/O Monitor - see page 169.
- Log Reading - see page 172.
- Machine Data - see page 173.
- Maintenance - see page 174.
- Manuals - see page 175.
- Menu Editing - see page 176.
- Parts Replacement/addition - see page 177
- Security - see page 178.
- Troubleshooting - see page 179.

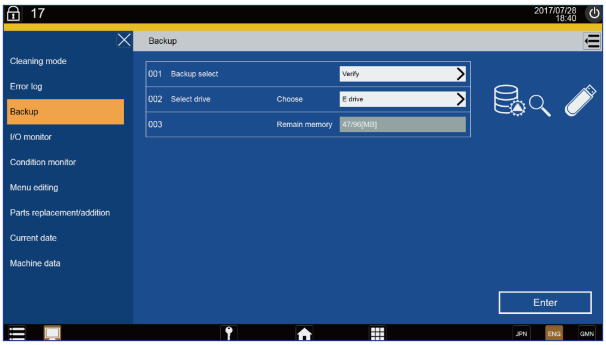
If there are other functions listed in your menu, they refer to added options. Refer to Chapter 12 - Optional Functions.

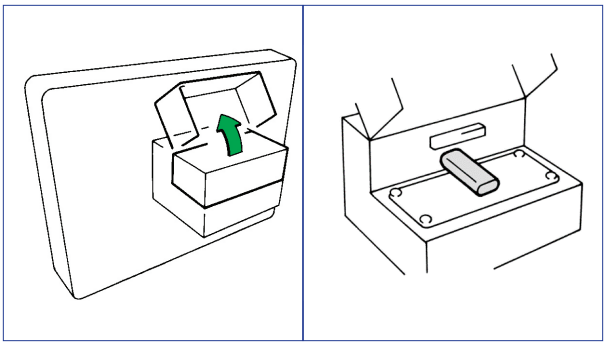
REMEMBER ► Pages shown here may not match those on your machine.
- Not all functions are available to all security access levels.
- Not all functions are installed on all machines.

10.2 Backup

The Backup function copies machine data to and from a USB thumb drive. The USB port found at the back of the operator panel. Refer to your company's instructions on saving production data.

For a walk-through of how to save data, see "2: Save backup data (optional)" on page 56.





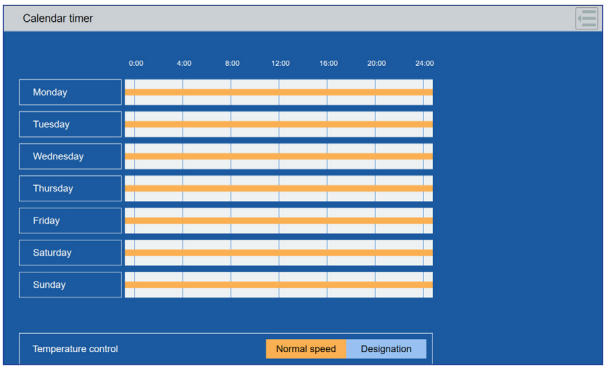
Options for Backup Select

Item	Definition
Write to USB	Saves data from the Wrapper onto the USB thumb drive.
Read from USB	Reads data from the USB thumb drive onto the Wrapper. **BE CAREFUL.** This will replace the data currently on the Wrapper.
Verify	Compares and collates the data in the machine with the data on the USB thumb drive.
Read Out Automatic Backup	Displays data saved with the automatic backup function.
Verification with Automatic Backup	Compares and collates the data in the machine with the data from the automatic backup function.

Options in Sub-Menu

Item	Definition
Individual Backup	Displays options to back up specific data point.
New Folder	Creates a new storage folder on the USB thumb drive. A keyboard will appear; type the new file name and press "Enter" or "Input" depending on your keyboard.

10.3 Calendar Timer



The Calendar Timer function programs the Wrapper to start and stop at specific times through the week. This can reduce system power consumption as well as reducing down-time by allowing the begin warming up before the morning shift begins.

To add a calendar timer entry through the Sub-Menu function “Settings.”

1. Select a timer to edit.
2. Touch “YES” to turn the timer ON.
3. Input the start and end times.
   - If the function happens every day of the week, touch the blue “Every day” button (the button will turn orange when selected).
   - If the function happens only on certain days of the week, you will need to create separate entries for each day.
4. Touch “Enter” to save.

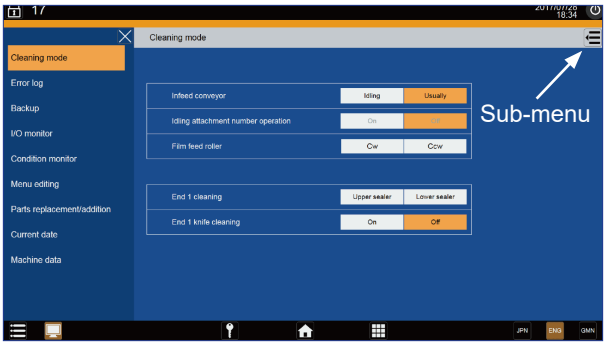
REMEMBER

- Scheduling time off is not the same as turning the Main Breaker power OFF.
- Do not rely on the Calendar Timer when performing maintenance that requires the power to be OFF.

10.4 Cleaning Mode

The Cleaning Mode page is a collection of functions used to control the Wrapper during regular cleaning of the machine. Settings in the sub-menu control exactly how the functions on the main page will operate.

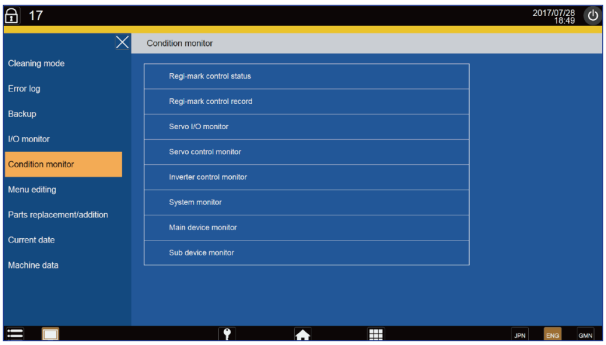
See the table below for details of each option.



Cleaning Mode Options

Item	Description
Infeed Conveyor	• *IDLING:* The infeed conveyor will move forward at the speed entered on the sub-menu • *USUALLY*: The infeed conveyor will move forward at the set production speed.
Idling Attachment Number Operation	• *ON:* The infeed conveyor will move forward for a length equal to the film cut-off length times the “attachments” set on the sub-menu. • (For example: If film cut-off length is 100 mm and attachment is 3, conveyor will move forward 300 mm. • *OFF:* The infeed conveyor will move forward until you press the CYCLESTOP button.
Film Feed Roller	Used for cleaning the film feed rollers. Like the INCHING control, the rollers will rotate so long as you continue to press the button. Rollers rotate at a speed set on the sub-menu. CW rotates the roller clockwise; CCW rotates it counter-clockwise.
End 1 Cleaning	Used for cleaning the end sealer. *UPPER* and *LOWER* buttons will rotate the respective sealer to the position set on the sub-menu.
End 1 Knife Cleaning	Used for cleaning the end sealer knife. ON will rotate the end sealer to the position of maximum clearance between sealers.

10.5 Condition Monitor



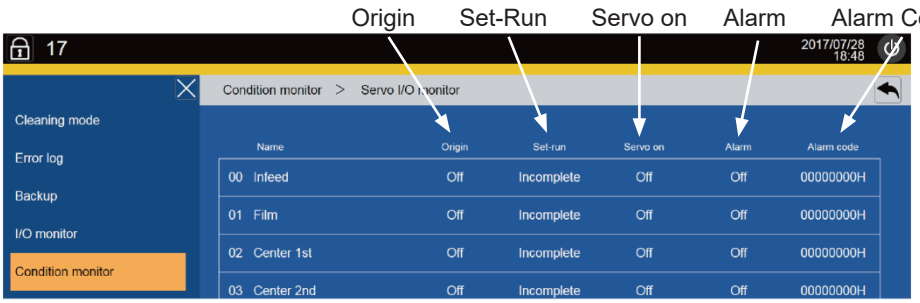
The Condition Monitor page displays the status of all the main machine controls. It is useful when troubleshooting an error with the Wrapper. The main page (shown at left and detailed below) lists the available status pages:

Condition Monitor Pages

Item	Description	Begins on
Servo I/O Monitor	Displays the condition of the servo motors, including alarms and alarm codes.	page 164
Servo Control Monitor	Displays expanded condition of servo motors, including encoder pulses, deviation, and torque.	page 165
Inverter Control Monitor	Displays the condition of the inverters.	page 166

Condition Monitor (continued)

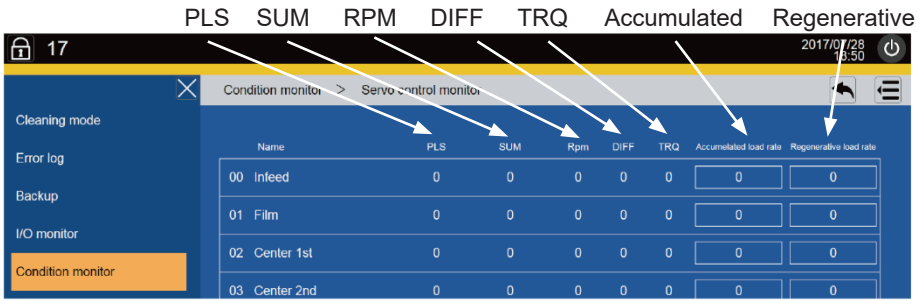
Servo I/O Monitor Page



Item	Description
Origin	Shows if a Set-Run function has occurred and that servo's sensor has detected its origin point. For the Film servo, the Regi-mark detection acts as its origin.
Set-Run	Shows if a Set-Run function has occurred, so that all Wrapper servos will move in relation to all others. If an individual servo moves away from its origin position, this column will show incomplete.
Servo On	Shows if that specific servo is receiving power and is turned ON. (For example, the end sealer servo can be turned OFF by a button on the Home page.)
Alarm	Shows if that specific servo is experiencing an alarm. If so, the alarm code display in the next column.
Alarm Code	The alarm code for the servo. See the Troubleshooting section and the servo manual for an explanation.

Condition Monitor (continued)

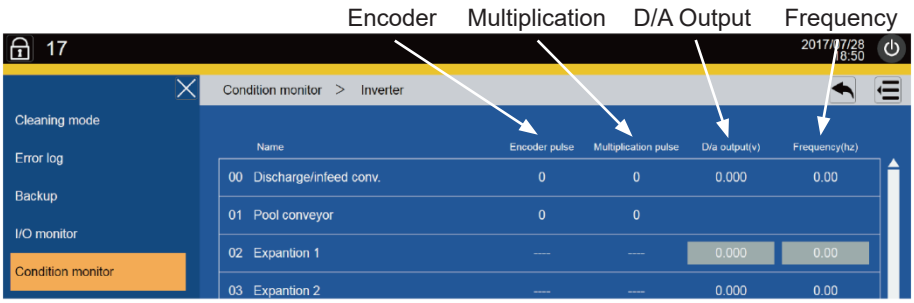
Servo Control Monitor Page



Item	Description
PLS: Encoder pulse	Counts pulses issued by the encoder. One rotation of the motor equals 65,536 pulses. This entry counts to 65,536 and resets to zero.
SUM: Encoder pulse total	Counts the total pulses issued by the encoder up to 999,999,999 pulses. (This is equal to 15,250 rotations of the motor.) To clear this total, go to this page's Sub-menu and select "Multiplication pulse reset" and confirm.
RPM: Motor rotation	Displays the rotational speed of the encoder, measured in revolutions per minute.
DIFF: Deviation	Displays the difference between an order and an actual pulse.
TRQ: Torque	Displays the output rate of torque. Rated torque is 100%.
Accumulated Load Rate	Displays the accumulation load for this axis.
Regenerative Load Rate	Displays the regenerative load for this axis.

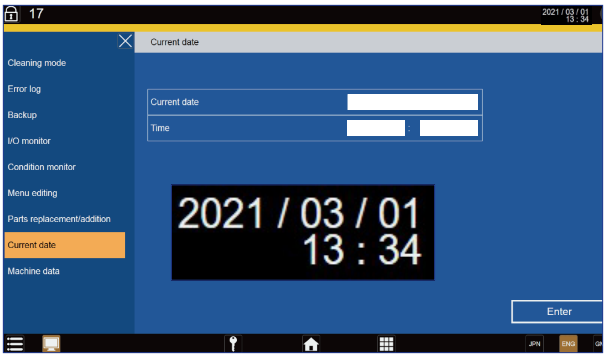
Condition Monitor (continued)

Inverter Control Monitor Page



Item	Description
Encoder Pulse [pulse]	Not checked.
Multiplication Pulse [pulse]	Not checked.
D/A Output [V]	Not applicable for this machine
Frequency [Hz]	Displays the order frequency to the inverter.

10.6 Current Date



Date/time group for March 01, 2021 at 1:34 pm.

All production reports, system and error logs include a date and time stamp for reference. Use this page to set the system date and time for your machine.

- Touch the white box surrounding a value to select and change it.
  - The date format is year / month / day.
  - The time display uses a 24-hour clock. Refer to the table at left if there is any confusion.

Time	24-Hour Clock
Noon	1200
1:00 pm	1300
2:00 pm	1400
3:00 pm	1500
4:00 pm	1600
5:00 pm	1700
6:00 pm	1800
7:00 pm	1900
8:00 pm	2000
9:00 pm	2100
10:00 pm	2200
11:00 pm	2300
Midnight	0000

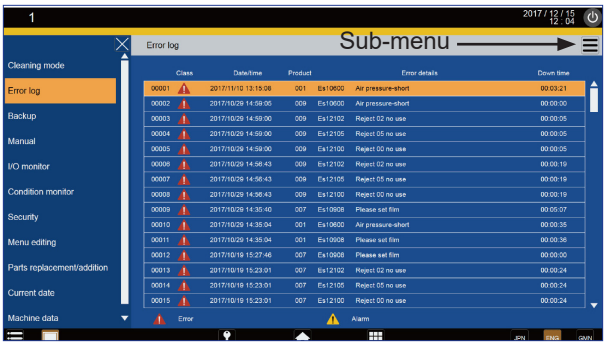
10.7 Error Log

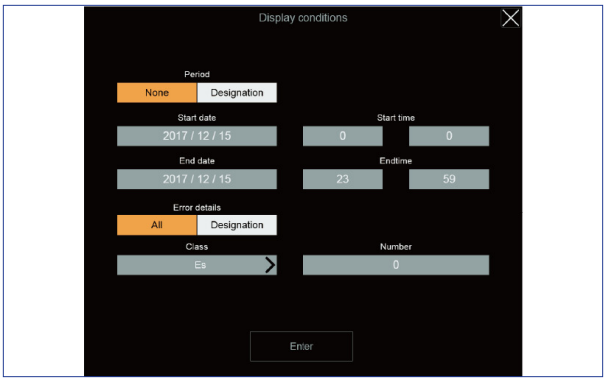
The Error Log records all errors and alarms that occur on the machine. Each log entry shows the date, time, product number and total down time. This information can help you to diagnose problems or evaluate system down time.

The log stores up to 3,000 errors with the most recent error shown first. When the system reaches that limit, the oldest errors are deleted. Performing a system backup will save the Error Log data. For more information, see page 160.

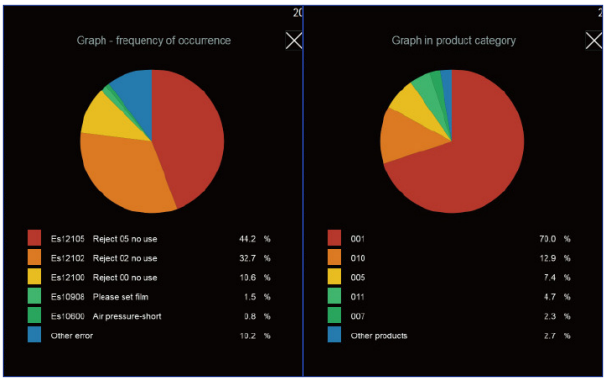
The sub-menu gives three options for sorting the data:

- *Display Conditions.* Allows you to sort the error logs entries by date, product, or error.
- *Display Frequency of Occurrence.* Lists all errors from most common to least common.
- *Display Product Category.* Shows all errors for the currently selected product.
- For the last two options:
  - Touch the Sub-Menu button and select “Show Graph” to see a pie chart of the error data.
  - Touch the “Return” button to exit and go back to the main Error Log page.





The Display Conditions sub-menu.



Display Frequency of Occurrence (left) and Display Product Category (right)

10.8 I/O Monitor

The I/O Monitor displays the status of every Input (X) and Output (Y) signal for this machine. The lighter-colored left half of the page shows all Inputs (scroll down for the second page). The darker-colored right half shows all Outputs.

In each section, the channel number appears in bold (for example: **X000**), followed by the sixteen individual bits, numbered 0-15. Each numbered bit includes a short description. Refer to the tables on the following pages for a complete explanation.

A number highlighted in orange shows that the signal is currently ON.

REMEMBER

Entries appearing on your page but not listed may refer to optional equipment.

I/O Monitor (continued)

Common Input Channels

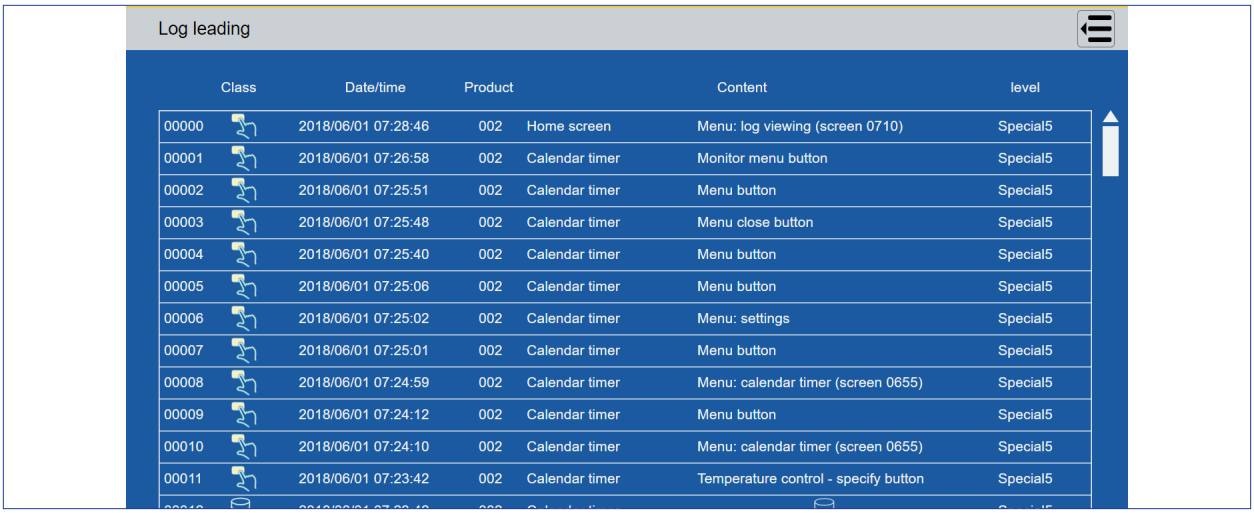
Channel	Bit	Name	ON indicates:
X000	00	Emergency Stop Button	Neither Emergency Stop button is triggered (both Operating Panel and Infeed Conveyor).
	01	Cycle Stop Button	Neither Cycle Stop button is pressed (both Operating Panel and Infeed Conveyor).
	02	Start Button	The START button has been pressed.
	03	Inching Button	The INCHING button has been pressed.
	04	Linear Scale Normal Signal	The linear transducer that measures the angle of the film entry roller is reporting as normal.
	05	Cent F IH Heater Err	The induction heater for the front second center sealer detects an error.
	06	Cent B IH Heater Err	The induction heater for the rear second center sealer detects an error.
	08	Film End Detection	The sensor located between the film spindle and the film feed roller is reporting as empty.
	09	Product Detect	The product detect sensor eye on the infeed conveyor detects a product.
X001	00	Infeed Origin Sensor	The infeed origin sensor detects a product.
	01	Regi-mark Sensor	The Regi-mark sensor detects a Regi-mark.
	02	Center Sealer Open	The “Open” sensor detects the center seal unit.
	03	Center Sealer Close	The “Closed” sensor detects the center seal unit.
	04	End Origin Sensor (X)	The X-Axis origin sensor at the end seal unit detects a product.
	05	End Origin Senor (Y)	The Y-Axis origin sensor at the end seal unit detects a product.
X050	00	Transfer Cover Open	The transfer cover is closed.
	01	Fr Ctr Seal Cov Open	The front center cover is closed.
	02	Up End Seal Cov Open	The end seal upper cover is closed. (Box Motion Wrappers only.)
	03	Film Feed Roller Cover Open	The film feed roller cover is closed.
	04	Fr Lwr End Seal Cov Open	The end seal lower front cover is closed. (Box Motion Wrappers only.)
	05	Discharge Cover Open	The discharge conveyor cover is closed.
	06	Rear Lwr End Cov Open	The end Seal lower back cover is closed. (Box Motion Wrappers only.)

I/O Monitor (continued)

Common Output Channels

Channel	Bit	Name	ON indicates:
Y016	02	Servo Power On	Servo motor is receiving power.
	03	External Buzzer	The buzzer is sounding.
	05	Cycle Stop Lamp	Cycle Stop button on the Operator Panel is red.
	06	Start Lamp	Start button on the Operator Panel is green.
	07	Inching Lamp	Inching button on the Operator Panel is green.
	08	PC Run Signal	Power is supplied and controller is running.
	09	Operation Panel LED Signal R	LED bar on the Operator Panel is red.
	10	Operation Panel LED Signal G	LED bar on the Operator Panel is green.
	11	Operation Panel LED Signal B	LED bar on the Operator Panel is blue.
	14	Cent F IH Inv Reset	An error on the induction heater for the front second center sealer has been released.
	15	Cent B IH Inv Reset	An error on the induction heater for the rear second center sealer has been released.
Y017	00	Heater Power On	Power is supplied to the heaters.

10.9 Log Reading



Where the Error Log (page 168) records errors and alarms, the Log Reading function records every data point and every button pushed on the machine. Each log entry shows the date, time, product number currently running, and the user access level of the person who performed the task.

The Log divides records into two types: Operational and Data.

- *Operational* entries are actions such as touching an item on the touch screen or pushing a button on the HMI.
- *Data* entries record the values of a setting before and after someone changes it.

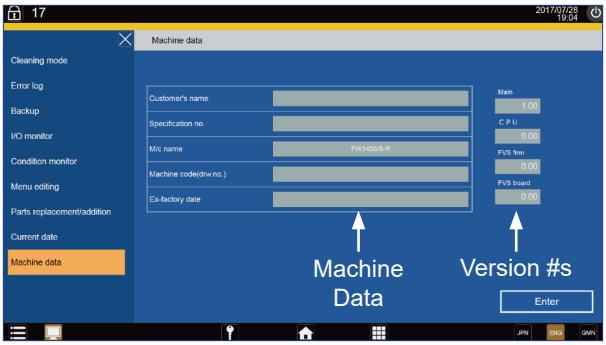
The log stores up to 99,999 actions with the most recent event shown first. When the system reaches that limit, the oldest errors are deleted. Performing a system backup will save the Error Log data. For more information on backups, see page 160.

The sub-menu gives three options for sorting the data:

- *Display Conditions.*
  - When set to “None,” the log will display as normal.
  - When set to “Designation,” the display will limit data to the date and time range you enter.
- *Operational Log.* Displays only operational actions.
- *Data Log.* Displays only data functions.
- The “Return” arrow in the top right of the page will return to the normal mixed display.

The sub-menu also includes a “data clear” option which will delete all entries from the log. Do not perform this task without first backing up your data.

10.10 Machine Data



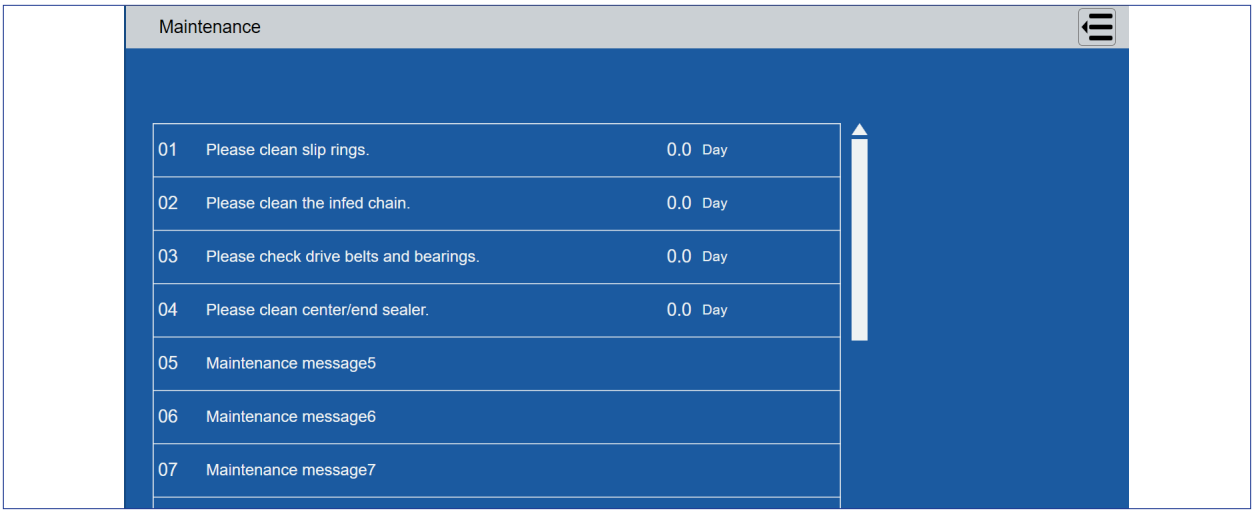
The Machine Data page displays the core information about your Wrapper. You cannot edit this information; it is only for display and reference. When contacting Formost-Fuji, this information will help our Service Department to help you.

The data in the right-hand column are the version numbers for the system's software and firmware. This may change with system upgrades.

Machine Data Fields

Item	Description
Customer Name	The customer for whom this machine was made.
Specification Number	The Formost-Fuji serial number.
M/C Name	The model name and machine hand (left- or right- hand product flow)
Machine Code	Mechanical drawing number
Ex-Factory Date	Date the machine shipped from Formost-Fuji.

10.11 Maintenance



The Maintenance page is a calendar function which allows the operator to set regular reminders to perform maintenance tasks and to keep a log of maintenance performed.

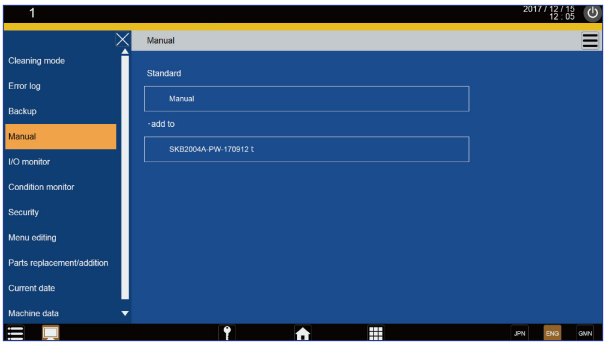
The main page displays the programmed reminders for the machine. These reminders will appear as an alert message on the Home page once the Wrapper meets the set conditions.

When an alert appears, go to the Maintenance page, touch and hold the timer to select it, and then touch the “Re-measurement: ON” button.

To create a new reminder or to edit an existing one, touch and hold the name of the reminder. On the pop-up menu, enter the following data points, touching the buttons to select the desired options:

- *Name:* The message which will display when the Wrapper meets the counting criteria.
- *Select Setting:*
  - YES turns the reminder ON.
  - NO turns the reminder OFF.
- *Type:* Offers four types of time measurement for how often the alert should appear.
  - *Run:* Counts only the time the Wrapper operates in a production mode.
  - *Power:* Counts only the time the Wrapper has been powered ON.
  - *Elapsed time:* Counts the total time, regardless of machine power or operation status.
  - *Count:* Alert appears every number of finished products made, not time elapsed.
- *Unit:* Specifies the unit of measurement for all timed types (*Run, Power,* and *Elapsed time*). Options include hours, days, months, and years.
- *Value:*
  - For timed types (*Run, Power,* and *Elapsed time*), this is the number of hours or days, etc. between reminders.
  - For the “Count” type, this is the number of products between reminders.
- *Re-measurement:* Will always show as OFF. Touch ON to reset the timer to zero.

10.12 Manuals



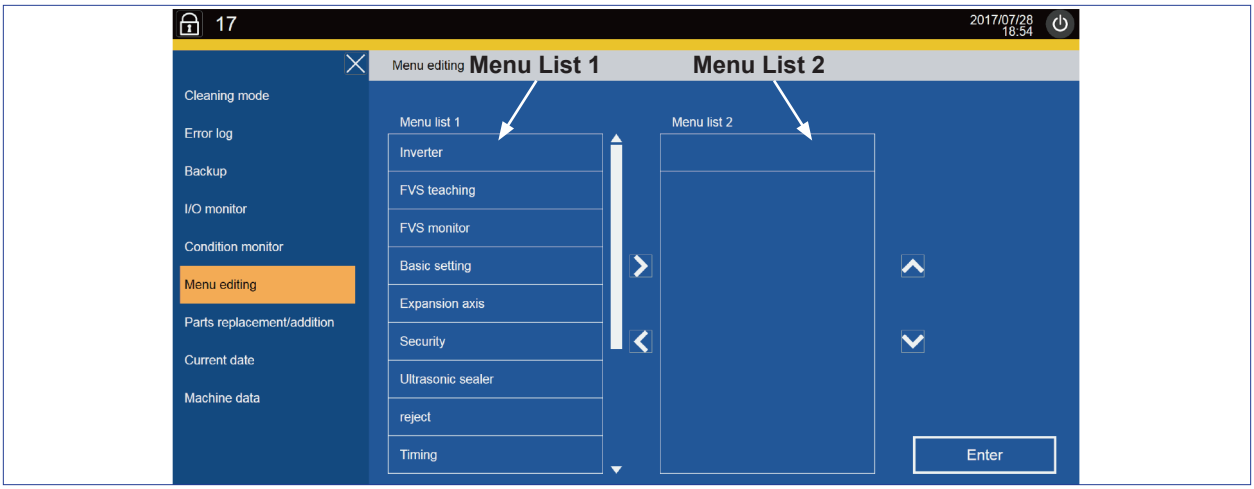
The Manuals Function displays an electronic copy of this instruction manual. Also loaded are the troubleshooting sections for the following components:

- Inverters
- AC Servo Drive
- Temperature Controller
- Switching Power Supply
- Induction Heating (IH) Inverter

Touch an entry to display the manual.

We also provided electronic copies for all manuals in the USB flash drive included with your documentation.

10.13 Menu Editing



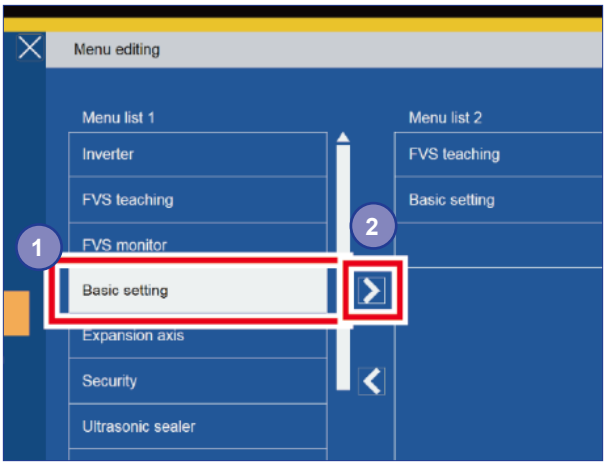
The Menu Editing function allows the manager to re-arrange displayed order of the Setting Menu functions. You can do this for easier access to common operations or to remove password-protected pages or other pages blocked from operator use.

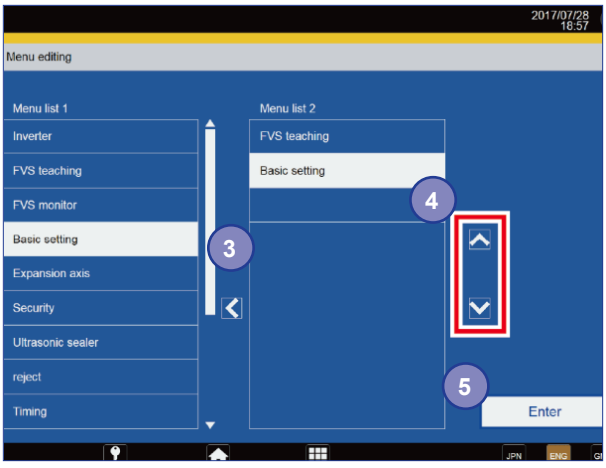
Two columns appear on the page.

- *Menu List 1* (left) is the standard default order for functions on the Setting Menu.
- *Menu List 2* (right) is the custom created order.

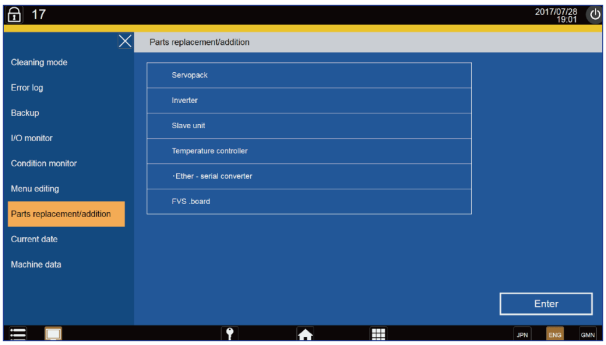
To create your custom list:

1. Touch an item in Menu List 1.
2. Touch the white **>** arrow to copy that item into Menu List 2.
   - Repeat these steps to copy over all desired functions.
3. If you select an item in error, touch the item in Menu List 2, then touch the white **<** button to remove it from the custom list.
4. To change the order of items in Menu List 2, touch an item and then use the white **^** and **v** arrows.
5. When complete, touch the “Enter” button.
6. Touch the icon for the Setting Menu in the lower left corner of the screen.
7. An icon will appear in the upper left of the menu. Touch it once and the menu will shift to the custom created Menu List. Touch it again and the menu will shift back to the default list.





10.14 Parts Replacement / Addition



The Parts Replacement function formats a new electronic component after replacement. Only access this page after replacing an electrical part or on instruction from our service department.

After selecting the Parts Replacement function, touch the name of the replaced part and touch “Enter.” Follow any instructions shown on the page.

For more information, see:

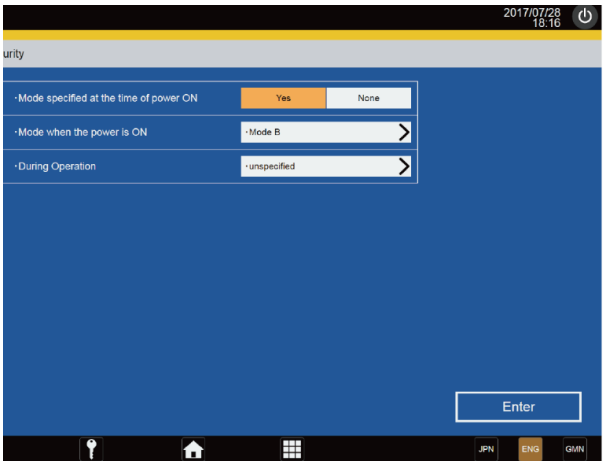
- “7.7 Replacing a Servo Drive” on page 113
- “7.8 Replacing an Inverter” on page 115

10.15 Security

The Security page controls what security status the Wrapper will enter when the power turns on.

There are three levels of access within the system:

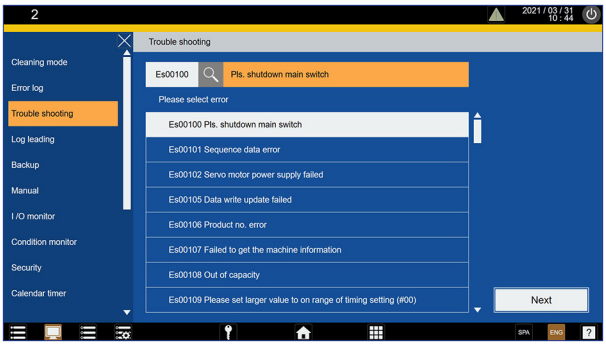
- **Mode A - Operator.** Gives access to the functions and pages needed for basic production and operation of the machine.
- **Mode B - Supervisor.** Gives access to all functions and pages from Mode A, plus those needed to make basic changes the machine and production.
- **Mode C - Manager.** Gives access to all functions and all pages. The machine will automatically log out of this mode 30 minutes after the last change.

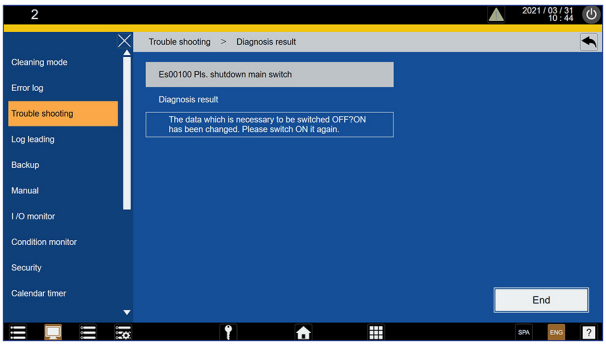


Security Options

Item	Options
Mode Specified at Time of Power ON (Choosing here selects which of the other options will be available.)	• *MANUAL:* Login required when you turn the power ON. • **Mode when ON** - unavailable • **During Operation** - available • *AUTO:* System automatically locks into a specified security level when you turn the power ON. • **Mode when ON** - available • **During Operation** - unavailable
Mode When the Power Is ON	Sets the default security level.
During Operation (Choose one)	• *Operation Possible:* The Wrapper can start and stop without a system login. • *Operation Stop:* No Wrapper functions will happen without a system login.

10.16 Troubleshooting





The Troubleshooting page is a list of all Es (system-wide) error messages.

On the main page, search for an error message:

1. On the upper half of the page.

Touch the “Search” icon.

A number pad will appear. Enter the error number and touch “ENTER” on the keypad.

- If the system cannot find the error code, it refers to added options. See Chapter 12 - Optional Functions.

2. On the lower half of the page.

Use the vertical scroll bar, found on the right side of the error list. Scroll through all the error messages, which appear in numerical order.

After you find the error code, touch it once to select it. The entry will change from blue background with white text to white background with blue text. Touch “Next” in the lower right corner of the page. The new page will describe the “Diagnosis result”: the basic steps to resolve the error.

The Troubleshooting chapter of this manual also lists the error codes and solutions. For more information, see “Chapter 11 Troubleshooting” on page 181.

Chapter 11 Troubleshooting

11.1 Safety

DANGER

► HIGH VOLTAGE

• Lock out and tag out the electrical supply during maintenance, or repair.

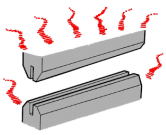
• When the machine is energized, touch nothing inside the Main Control Box except the keys of the Inverter keypad.

WARNING

► PRESSURIZED AIR

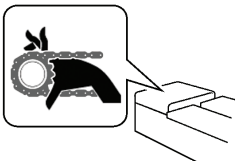
• Flying debris can injure your eyes.
• Disconnect air supply before setup or repair.
• Wear safety goggles.

► BURN HAZARD



• Sealers are hot.
• Sealers can remain hot for up to sixty (60) minutes after disconnecting power.
• Wear gloves when maintaining hot sealers.

► CATCHING AND CRUSHING HAZARD



• Moving parts can catch and crush.
• Keep hands away from sprocket and chains when they are moving.

► CRUSHING HAZARD

• Center Seal Unit and Transfer Brush Units are heavy.
• Hold the unit firmly to prevent dropping it.

►RESIDUAL SHOCK RISK

• Electrical parts can remain charged up to five (5) minutes after disconnecting power.

CAUTION

► PINCH HAZARD

• Keep hands and fingers away from pinch points near the safety cover or the component you are adjusting.

► FILM ROLLS ARE HEAVY.

• Be careful when handling and loading film rolls.

► SHARP KNIVES

• Keep hands out from between the end sealers, even when the power is turned off.
• Wear gloves when maintaining knives.

11.2 Introduction

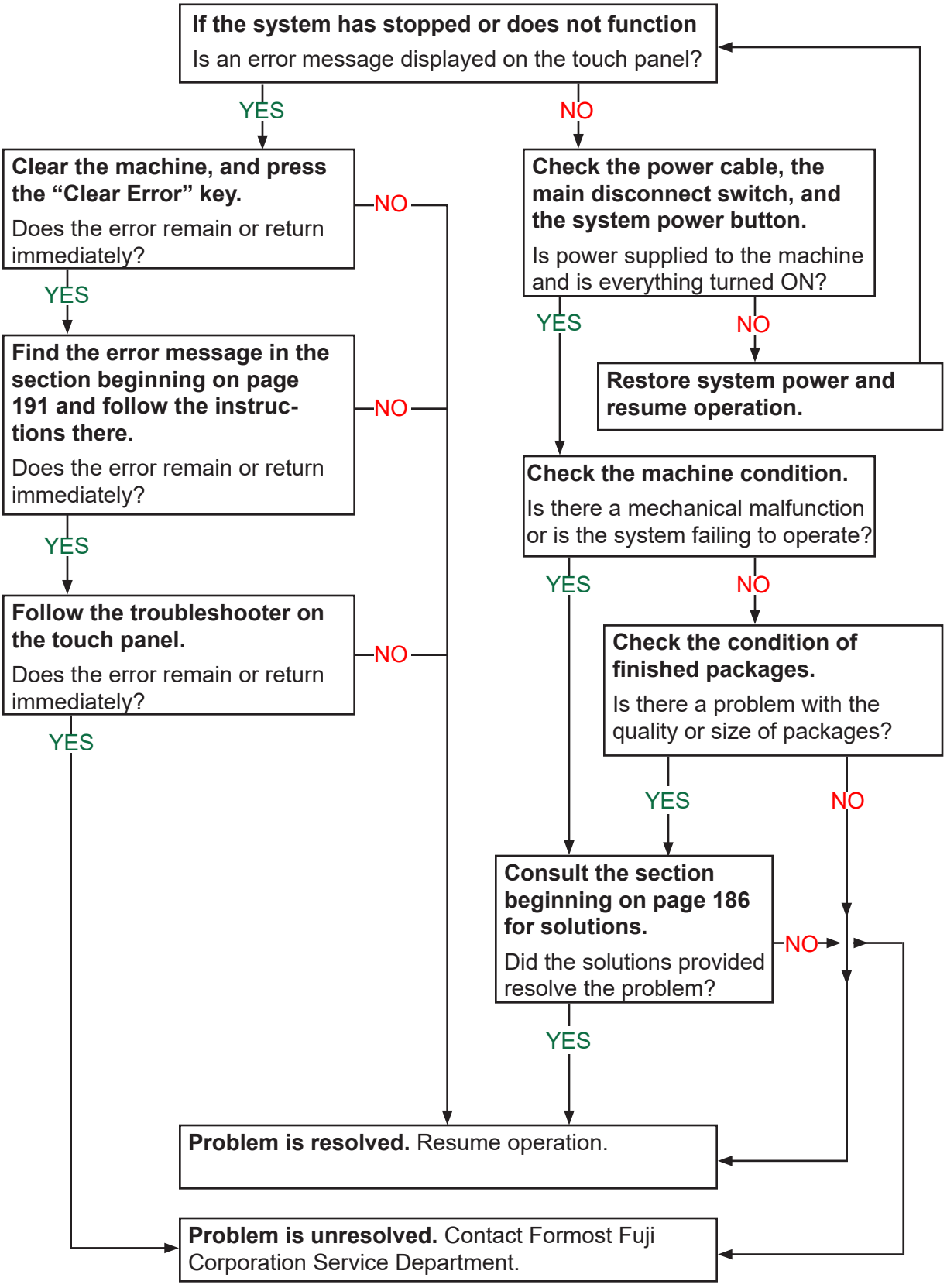
This chapter covers the most common problems which can occur on your Wrapper.

Your Wrapper is a finely-tuned machine, operating with narrow tolerances for a large number of settings. One change to a single setting can have large effects on the product, the film, and the finished wrapped package. Even without operator changes, film rolls run out and parts will inevitably wear and break. All of these problems will generate errors, which this chapter should help solve.

Please read this chapter carefully before using the Wrapper and keep it nearby for easy reference.

- For a flow chart of steps to take when something goes wrong, see page 185.
- For bag formation issues or other problems with no error messages displayed, see page 186.
- For an explanation of different types of error messages, see page 191
- For a list of all error messages, their causes and possible solutions, see page 192.

11.3 Troubleshooting Flow Chart



11.4 Trouble Without Error Messages

This section covers common problems which do not generate an error message on the display.

- For problems with the operator panel and touch screen, see page 186
- For problems with the film, see page 187
- For problems with how the product moves through the Wrapper, see page 188
- For problems with the finished product, including bag formation, see page 189

Screen Trouble

> Is there an error message on the screen?

Possible Cause	Suggested Solution
An error or other abnormal condition has occurred.	Find the error message in the section beginning on page 191 and follow the recommended solution.

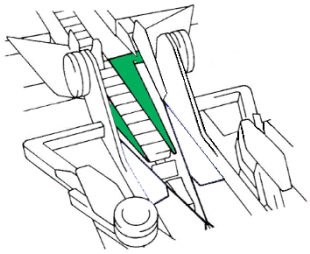
> Is the screen blank with nothing displayed?

Possible Cause	Suggested Solution
The power supply may be OFF.	1. Check the main power supply lamp on the rear door cover. • *If the lamp is lit:* the machine has power. Go to #2 • *If the lamp is dark*: the machine has no power from the distribution panel. 2. Check the breaker on the rear door cover. • *If the breaker is turned to OFF:* turn the breaker one-quarter turn clockwise. • *If the breaker is turned to ON*: the machine is turned on. Go to #3. 3. Press and hold the power button on the operator panel for three seconds. • *If the screen turns on:* wait five minutes for the system to start up and check the display for error messages. • *If the screen does not turn on:* contact Formost-Fuji Service Department.
The touch panel may be broken.	Contact the Formost-Fuji Service Department.
The touch panel power source may be broken.	Contact the Formost-Fuji Service Department.
The controller may be broken.	Contact the Formost-Fuji Service Department.

Trouble Without Error Messages (continued)

Film Trouble

> Film goes sideways and comes off the forming box.

Possible Cause	Suggested Solution
Film may be too narrow.	The film width should be 30-50 mm more than total outside dimension of the product to be wrapped. *(Product Width x 2) + (Product Height x 2) + 30-50 mm*
Film may not be centered.	Make sure the film roll is centered on the film spindle. Use the film position adjustment wheel to adjust the spindle position.
Film entrance angle may not be appropriate.	As the film enters the forming box, it should be tight at the sides and slightly looser at the center. Adjust the tension as needed.
Forming box may be incorrectly positioned. 	Proper position for the Forming Box is: • 2-3 mm between the triangular plate of the infeed conveyor (shown in green at left) and the forming box. • 3-5 mm lower than the upper side of the infeed conveyor.
Film tension may not be appropriate.	Adjust the film tightness using the controls on the Correction page.

> Film wraps around the end sealers (especially polypropylene film)

Possible Cause	Suggested Solution
End sealer temperature may be too high.	Lower the temperature on the Heater page.
Film may be incompatible with the machine.	Change the film and attempt to run again. If no other film type is available, apply silicone grease to the End Sealers with a brush. See “6: End Seal Unit and Discharge” on page 85.

Trouble Without Error Messages (continued)

Product Transfer Trouble

> Film and/or Product does not move smoothly on the product bed.

Possible Cause	Suggested Solution
Film may not be in good condition.	Follow the instructions on the previous page for “Film goes sideways and comes off the forming box.”
Sealing portion of the film is melting.	Lower the temperature on the Heater Screen.
Transfer brush may be too low.	Adjust the height of the transfer brush so that it presses lightly on the product.
End Sealer rotating speed may be too low.	Increase the “End Seal Eccentric” on the Correction screen.

> Products do not move smoothly in the discharge conveyor

Possible Cause	Suggested Solution
Discharge brush may be too low.	Adjust the height of the discharge brush.
Discharge conveyor is not installed correctly.	Detach the discharge conveyor and re-install.
Gap between the discharge conveyor and the end sealer may be too wide.	Loosen the control knobs and shorten the distance between the conveyor and the end sealer. Tighten knobs when complete. Be careful to allow enough room so that the end sealer does not touch the edge of the conveyor as it turns.

> Products are moving out of position causing products to get caught in the end sealer.

Possible Cause	Suggested Solution
Infeed chain movement may not be smooth.	Inspect the infeed chain for twisting or bent attachment pins. Attachments should lean slightly backward when not under tension.
Infeed chain may be vibrating too much.	1. Adjust chain tension. 2. Clean the chain rail.
Product may not be making good contact with the infeed attachment.	1. Lower the chain rail. 2. If appropriate, mount a stop-brake on the conveyor.
Transfer brush height may not be appropriate.	Adjust the height of the transfer brush so that it presses lightly on the product.
End sealer engaging height may not be appropriate.	The engaging height should be the center of the product height. Adjust the height with the end seal vertical adjustment wheel.
End sealer rotational speed may not be appropriate.	Adjust the “End Seal Eccentric” on the Correction page.

Trouble Without Error Messages (continued)

Finished Product Trouble

> The width of the bag is larger than the width of the product.

Possible Cause	Suggested Solution
Forming box may be too wide and too high.	Adjust the forming box position, making it narrower and lower (if possible).
Film entrance angle may not be appropriate.	Lower the film entrance roller position. Note: If the roller is too low, the film may meander.

> The center seal (fin seal) is wrinkled.

Possible Cause	Suggested Solution
Film tension between the center seal rollers may not be appropriate.	Adjust the tension using the “Center tightness” button on the Correction page.
High temperatures may have caused the film to go slack.	Lower the temperature on the Heater page.

> Poor adhesion on the center seal (fin seal).

Possible Cause	Suggested Solution
Heater temperature may be inappropriate.	Adjust the temperature on the Heater Screen.
Film may have poor adhesion.	Change the film roll and attempt to run again.

> Poor adhesion on the end seal.

Possible Cause	Suggested Solution
Heater temperature may be inappropriate.	Adjust the temperature on the Heater Screen.
The contacting force of the upper and lower sealers may be weak.	Adjust the end sealer contact with the adjusting bolt. See “7.4 Fitting a Box Motion End Sealer” on page 103
Film may have poor adhesion.	Change the film roll and attempt to run again.

This list continues on the next page.

Trouble Without Error Messages (continued)

Finished Product Trouble (continued)

> End seal between two products is incomplete. One will seal but not the other.

Possible Cause	Suggested Solution
Cutting knife blade may stick out too much, preventing proper end seal connection.	Adjust the knife position to reduce it sticking out so far. See “7.5 Replacing a Box Motion End Seal Knife” on page 108
End Sealer rotational speed may be too high.	Adjust the “End Seal Eccentric” on the Correction screen.

> Film does not cut well at the end sealer.

Possible Cause	Suggested Solution
Cutting knife blade may not stick out enough.	Adjust the knife position. See “7.5 Replacing a Box Motion End Seal Knife” on page 108
Knife blade may be worn.	Replace the knife with a spare or remove the knife and grind it with a grinder. See “7.5 Replacing a Box Motion End Seal Knife” on page 108

11.5 Error Messages

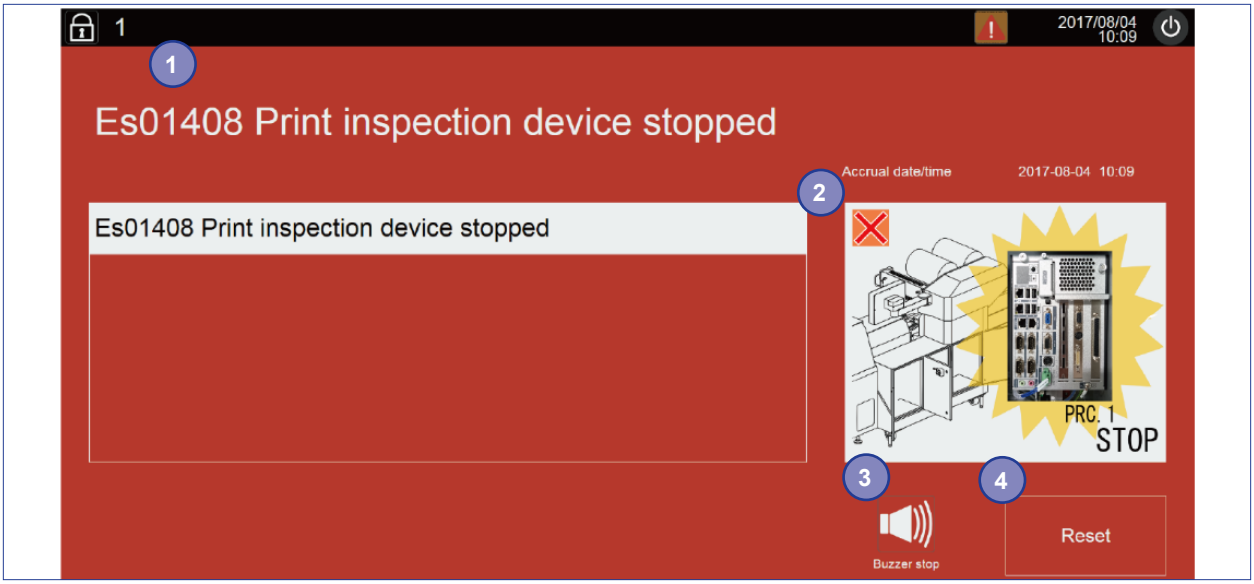
Types of Errors

An error is generally defined as an abnormal condition on the Wrapper. When an error occurs, the buzzer will sound and an error message will display on the operator panel.

There are four types of errors, addressed in order through the remainder of this chapter.

Type of error	Reaction when Wrapper is running	Begins on
Emergency Stop Error (Power OFF)	The machine will stop at once and will disconnect the power to the servo amplifier. This error prevents Wrapper operations from restarting until the error has been cleared.	page 192
Emergency Stop Error	The machine will stop at once. This error prevents Wrapper operations from restarting until the error has been cleared.	page 194
Cyclestop Error	The machine will stop at the end of a wrapping cycle. The exact position refers to the Cyclestop Timing point.	page 200
Alarm	The machine will not stop but may prevent or delay operational start. Machine will continue wrapping.	page 203

Parts of the Error screen.



1. Error code. The error's reference number. Use the number to find the full error description in this chapter.
2. Error location. Shows where the error occurred on the Wrapper, often with an image.
3. Buzzer stop. Silences the error buzzer but does not clear the error.
4. Error reset. Releases the error. **Always correct the error before releasing the error.**

Error Messages (continued)

Emergency Stop Errors (Power OFF)

Error Code	Displayed Text	Cause and Resolution
Es00100	Pls. shut down main switch	A setting value has changed. The system needs a restart to proceed. • Turn the Wrapper power OFF. • Wait one minute then turn main breaker handle clockwise to the ON position.
Es01600	Infeed servo error	An error has occurred in the servopack which drives the component listed. A common cause for this error is opening a safety cover or triggering an Emergency Stop more than five times in under one minute. • Touch the “Reset” key. • If the error continues, restart the system again. • If the error continues, open the main control box and check the servopack display for an alarm. • Refer to the servo drive manual to troubleshoot this alarm. Electronic copies are available through the Manuals page of the Management Menu and with the parts book documentation flash drive. • If the error continues, it is possible the servopack has broken. Contact Formost-Fuji.
Es01601	Film feed roll servo error	
Es01602	Center 1st roller servo error	
Es01603	Center 2nd roller servo error	
Es01604	End sealer servo error	
Es01606	Transfer servo error	
Es01607	Center open/ close servo error	
Es10000	Discharge inverter error	An error has occurred in the inverter that drives the discharge conveyor. • First, watch the belt to see if it is meandering. If so, adjust the belt tracking. • Clean the discharge belt, removing any stains or remains stuck on it. Examine the belt for any wearing, tears, or other damage. • If the error continues, open the main control box and check the inverter display for an alarm. • Refer to the inverter manual to troubleshoot this alarm. Electronic copies are available through the Manuals page of the Management Menu and with the parts book documentation flash drive. • If the error continues, it is possible the inverter has broken. Contact Formost-Fuji.
Es10200	Em. stop locked	One of the Emergency Stop buttons has been pressed. • Confirm the machine itself is clear of hazards. • Make sure the area around the Wrapper is clear of tools, other hazards, or other employees. • Turn the Emergency Stop knob clockwise approximately ¼ turn until the knob clicks and pops out.

This list continues on the next page.

Error Messages (continued)

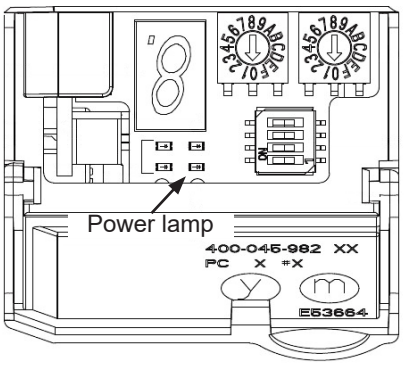
Emergency Stop Errors (Power OFF) (continued)

Error Code	Displayed Text	Cause and Resolution
Es10201	Cover open	The safety covers over an area of the Wrapper has been opened or is ajar. • Confirm the area around the cover is clear of hazards. • Close the cover.
Es11001	Transfer cover open	
Es11002	Front center seal cover open	
Es11004	Film feed cover open	
Es11006	Discharge cover open	

Error Messages (continued)

Emergency Stop Errors

Error Code	Displayed Text	Cause and Resolution
ES00101	Sequence data error	A data error has been found in optional devices, such as a printer. • Touch the “Reset” button. • Load the most recent backup data. • It is possible that the CPU’s battery is low or the CPU has broken. Contact Formost-Fuji.
Es00102	Servo motor power supply failed	The power supply for the servo pack is turned OFF. • Touch the “Reset” button. • Open the main control box door and examine each servo pack. Under the front cover, find the power lamp shown in the illustration at left. This lamp will show orange if the servo is receiving power. • Check the servo for problems, errors displayed, loose connections, safety relays or magnetic switches that have been switched accidentally. • Refer to the inverter manual to troubleshoot this alarm. Electronic copies are available through the Manuals page of the Management Menu and with the parts book documentation flash drive. • If the error continues, it is possible the servopack has broken. Contact Formost-Fuji.
Es01800	Infeed motor overload	A jammed product or a stuck belt will overload the motor. • Empty the infeed conveyor. • Examine conveyor width, belt, and side guides for anything that may catch products. • If the error continues, contact Formost-Fuji.
Es01801	Film motor overload	The film has jammed somewhere between the film feed roller and the forming box. • Inspect the film path to find the jam. Check if the film has wound around a roller. • Clear the jam. Inspect the previous roller for damage. • Confirm the film follows the film route shown. • If the error continues, contact Formost-Fuji.
Es01802	Center 1st roller overload	The film has jammed between the forming box and the second center rollers. • Find and clear the film jam. • Inspect both sets of center rollers for damage. • If the error continues, contact Formost-Fuji.
Es01803	Center 2nd roller overload	



This list continues on the next page.

Error Messages (continued)

Emergency Stop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es01804	End sealer motor overload	A product has jammed near the end sealer. • Find and clear the jam. • Examine the end sealers and the surrounding area for damage. • If the error continues, contact Formost-Fuji.
Es01806	Transfer motor overload	A product has jammed under the transfer brush. • Find and clear the jammed product. • Examine the area for damage. • Confirm that the transfer brush is set so that it presses lightly against the product. • If the error continues, contact Formost-Fuji.
Es01807	Center open/ close motor overload	Film has jammed at the center seal open/close unit. • Find and clear the film jam. • Examine both sets of center rollers for damage, including damaged bearings. • If the error continues, contact Formost-Fuji.
Es02000	Infeed origin error	For flighted infeed conveyors, the sensor cannot detect a flight attachment during a set run. • Clean the infeed origin sensor. • Disconnect and reconnect the infeed origin sensor cable, ensure the connection is seated well. • If the error continues, contact Formost-Fuji.
Es02004	End sealer origin sensor error	The sensor that monitors the end seal rotation cannot detect the origin position marker. • Clean the end seal origin sensor. • Disconnect and reconnect the sensor cable, ensure the connection is seated well. • If the error continues, contact Formost-Fuji.
Es02007	Center open/ close origin sensor error	The sensor that monitors the center sealer position cannot detect its position. • Clean the center open sensor. • Disconnect and reconnect the sensor cable, ensure the connection is seated well. • If the error continues, contact Formost-Fuji.

This list continues on the next page.

Error Messages (continued)

Emergency Stop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es02200	CC-IE solution column error	The I/O monitor communicates with the Wrapper system via CC-Link. The CC-Link IE field is not working according to its settings. The number of action units is wrong. • Turn Wrapper power OFF. • Disconnect and reconnect the communication cable, ensure the connection is seated well. • If the error continues, it is possible that either the cable or one of the components has broken. Contact Formost-Fuji.
Es02201	CC-IE initialization failed	The I/O monitor communicates with the Wrapper system via CC-Link. The settings have been changed and that change has caused the link to fail. • Check the setting values. • Turn Wrapper power OFF. • Disconnect and reconnect the communication cable, ensure the connection is seated well. • If the error continues, it is possible that either the cable or one of the components has broken. Contact Formost-Fuji.
Es02202	CC-IE cyclic transmission error	The I/O monitor communicates with the Wrapper system via CC-Link. Information communication has failed. • Check the setting values. • Turn Wrapper power OFF. • Disconnect and reconnect the communication cable, ensure the connection is seated well. • If the error continues, it is possible that either the cable or one of the components has broken. Contact Formost-Fuji.
Es02203	CC-IE cyclic reception error	
Es08000 through ES08015	Thermocouple line break 01-16	The system has received an abnormal signal from one of the thermocouple channels that measure sealer temperatures. • If the error continues, it is possible the thermocouple wires are broken. In the case of the center sealer, the brushless connector may have broken. Contact Formost-Fuji.
Es08100 through Es08115	Heater line break 01-16	The heater is turned ON but the temperature does not increase. • Check fuses, solid-state relay (SSR), and heater wiring.

This list continues on the next page.

Error Messages (continued)

Emergency Stop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es08200 through Es08215	Temp. control error 01-16	The temperature has been too high for too long. • For box-motion end seal machines, check the temperature settings on the Heater screen. Also check the solid-state relay (SSR) and the temperature controller for damage. Contact Formost-Fuji. • For center Induction Heaters (IH), this error will display if the heater breaks or if it stays ON for too long. Contact Formost-Fuji.
Es08600 through Es08615	Temp. ctr comm. err 01-16	Communication between the system and the temperature controller has failed. • Turn Wrapper power OFF. • Remove the LAN cable on the HUB and insert it into an unused HUB terminal. • If the error continues, it is possible that either the cable or one of the components has broken. Contact Formost-Fuji.
Es08800 through Es08815	Thermocouple short-circuit 01-16	A thermocouple may have short-circuited or broken down. • Inspect the thermocouple for breaks. • Even with no visible damage, it is possible that the thermocouple has broken down. Contact Formost-Fuji.
Es08900 through Es08915	Please check type of brushless connector 01-16	A brushless connector is showing a different model number than what should be used on this system. • Check the model number of the brushless connector and contact Formost-Fuji.

This list continues on the next page.

Error Messages (continued)

Emergency Stop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es10402	Center sealer doesn't open	The Wrapper system is unable to control the center sealer opening and closing. • If the center seal opens and closes, the proximity sensor may have an error. • Check sensor status on the I/O monitor screen. • Clean the sensor and surrounding area. • Turn Wrapper power OFF. • Disconnect and reconnect the sensor cable, ensure the connection is seated well. • Examine the sensor wiring and the wire coatings. • If the problem continues, contact Formost-Fuji • If the center sealer unit does not open and close, there may be a jam in the drive unit. • Examine the center sealer unit for film or product jams, clearing and cleaning if necessary. • Check the drive unit for damage. • If the problem is not resolved, contact Formost-Fuji.
Es10403	Center sealer doesn't close	
Es10414	Regi-mark sensor unit sensitivity error.	Regi-marks were not detected at set run. • Check the product number settings on the Product Change page. Confirm the product should have Regi-marked film. • Observe film travel and make sure it does not meander. • Check the Regi-mark sensor area is clean and clear. • Adjust the detecting conditions on the Regi-mark sensor. • See "5.4 Set Regi-mark Detection" on page 68 • If the problem is not resolved, contact Formost-Fuji.
Es10415	Regi-mark sensor unit malfunction	Error Es10414 is being triggered repeatedly. • Perform the resolution steps for that error code again. • If the problem is not resolved, contact Formost-Fuji.
Es10501	Set-run time over	The Set-run took over 100 seconds to perform. The delay may be caused by abnormality in the infeed unit, the film feed unit, the end seal unit, or optional devices. • Perform the Set-run again and see which unit takes the longest time to process. • If the problem is not resolved, contact Formost-Fuji.
Es10502	No center seal occurs	Film has been fed before the second center rollers closed. • If this error occurs, contact Formost-Fuji.

This list continues on the next page.

Error Messages (continued)

Emergency Stop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es10908	Please set film	10908 indicates film has run out during operation. 10914 indicates film has run out while the Wrapper was stopped. • Set a new roll of film on the film spindle and feed it through the machine. • If this error occurs after a roll has been mounted, the film may be too slack. Tighten the film.
Es10914		

Error Messages (continued)

Cyclestop Errors

Error Code	Displayed Text	Cause and Resolution
Es00106	Product No. Error	The product number is out of range (1-300). • It is possible that the CPU's battery is low or the CPU has broken. Contact Formost-Fuji.
Es01402	File read error from storage data	Storage area data reading/writing has failed. • Turn the Wrapper power OFF. • Wait one minute then turn main breaker handle clockwise to the ON position. • If the error continues, contact Formost-Fuji.
Es01403	File save error to storage data	
Es01409	Servo amplifier initialization failure	Initialization of the component listed has failed. • Turn the Wrapper power OFF. • Wait one minute then turn main breaker handle clockwise to the ON position. • Check the connection cable between the component and the CPU. Disconnect and reconnect the cable, making sure the connection is seated well. • If the error continues, contact Formost-Fuji.
Es01410	Inverter intializa-tion failure	
Es01411	Serial-ether converter initial-ization failure	
Es01412	Film set position is 20mm wrong, please set film	During Set-run, the system determined that the roll of film was set more than 20 millimeters out of position. • Reset the film roll on the film spindle and feed it through the machine.
Es01514	Memory exception occurred	There has been an internal processing error or exception. • Turn the Wrapper power OFF. • Wait one minute then turn main breaker handle clockwise to the ON position. • If the error continues, it is possible that the CPU has broken. Contact Formost-Fuji.
Es02204	CC-IE transient transmission failure	The I/O monitor communicates with the Wrapper system via CC-Link. Information communication has failed. • Turn the Wrapper power OFF. • Disconnect and reconnect the communication cable, making sure the connection is seated well. • If the error continues, it is possible that either the cable or one of the components has broken. Contact Formost-Fuji.
Es02205	CC-IE transient reception failure	

This list continues on the next page.

Error Messages (continued)

Cyclestop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es08500	Temp. out of range	If a Wrapper heater uses a temperature graph, this error will display if the current temperature of the heater is not within tolerance for the new processing speed. • Allow the heaters 60 seconds to reach the new temperature. • If the component does not reach the new temperature, refer to the steps for Emergency Stop Errors Es08000-08015 (thermocouple line break) and Es08100-08115 (heater line break). • For more information, see “2: Graph Edit” on page 138.
Es09000 through Es09015	Temperature is below the lower limit 01-16.	The current temperature of a heater is either below or above the acceptable limits. • Allow the heaters 60 seconds to reach the new temperature. • If the component does not reach the new temperature, refer to the steps for Emergency Stop Errors Es08000-08015 (thermocouple line break) and Es08100-08115 (heater line break).
Es09100 through Es09115	Max. temperature exceeded 01-16.	
Es11100	IH inverter error, center front	The center front/back induction heater (IH) inverter has detected an error. • Turn Wrapper power OFF. • Inspect the IH coil wiring for damage or breaks in the wiring. • Turn the main breaker control ON. • If the error continues, it is possible that either the IH inverter or the IH coil has been damaged or is broken. Contact Formost-Fuji.
Es11101	IH inverter error, center back	
Es11103	Safety switch/ sensor error (e.stop, safety cover.)	The Wrapper system has detected a circuit mismatch in the wiring for Emergency Stop and cover safety sensors. • Touch the “Reset” button. • Check the lamps on all safety covers. Sensors should be showing amber/yellow in normal conditions. Check their connections on both ends of the wiring. • Have an electrician consult the wiring diagram. Inspect the main control box for disconnections in the wire routing. • If the sensors are operating, it is possible there is a bad connection, or a problem with the electromagnetic contact points. • If the problem continues, contact Formost-Fuji.

This list continues on the next page.

Error Messages (continued)

Cyclestop Errors (continued)

Error Code	Displayed Text	Cause and Resolution
Es11108	Regi-control error	11108 indicates timing for detecting a Regi-mark has deviated from set position. 11109 indicates Regi-marks cannot be detected during production. • Check the product number settings on the Product Change page. Confirm the product should have Regi-marked film. • Observe film travel and make sure it does not meander. • Check the Regi-mark sensor area is clean and clear. • Adjust the detecting conditions on the Regi-mark sensor. • See “5.4 Set Regi-mark Detection” on page 68 • If the problem is not resolved, contact Formost-Fuji.
Es11109	Regi-detect error	
Es11314	No printing continued	Sensors cannot detect print on the film. • Inspect the printer for damage or breaks in the wiring. • If the error continues, it is possible that printer has been damaged or is broken. Contact Formost-Fuji.
Es11603	Linear scale error.	• An error has occurred on the linear scale. • Turn Wrapper power OFF. • Inspect the linear scale cable for damage or breaks. • Disconnect and reconnect the sensor cable, ensure the connection is seated well. • If the error continues, it is possible that printer has been damaged or is broken. Contact Formost-Fuji

Error Messages (continued)

Alarms

Error Code	Displayed Text	Cause and Resolution
Es00108	Out of capacity	Production speed is set to zero (0). Machine will not start. • Change the set speed on the Home screen.
Es00109	Please set larger value to ON range of timing setting	The RANGE for a timing point is too narrow. • Set a larger RANGE. A RANGE set to 0° will silence the alarm but will not accomplish the timing function, either. • For more information, see “RANGE Minimums” on page 156.
Es00113	Please set larger value to OFF range of timing setting	The RANGE for a timing point is too broad. • Set a smaller RANGE. A RANGE set to 360° will silence the alarm but will not accomplish the timing function, either. • For more information, see “RANGE Minimums” on page 156.
ES00114	Servo communication not completed	No action required. M-III communication initialization has failed and was retried. The alarm exists to record the error in the error log and does not affect the Wrapper’s operation.
Es01414	Auto backup	Machine data is currently backing up. • Wait one minute before changing any machine settings.
Es001511	Data drive was repaired	Data saved in this machine was detected to be corrupt and was automatically recovered. • Touch the “Reset” button. • If that does not resolve the error, load the most recent backup data. • It is possible that the CPU’s battery is low or the CPU has broken. Contact Formost-Fuji.
Es01515	File write delay occurred	File writing in the Wrapper processors was delayed. The alarm exists to record the error in the error log. • If this alarm happens, contact Formost-Fuji.
Es08400 through Es08415	Temp. input not stable 01-16	The thermocouple’s signal is unstable. • Turn Wrapper power OFF. • Inspect the terminals and wiring around the thermocouple.
Es08501	Temp. out of range	The temperature for one of the heaters is not within the acceptable range to begin production. • Wait a few minutes to allow the heater to warm up. • Watch the temperature gauges on the Home screen. They should stabilize shortly.

This list continues on the next page.

Error Messages (continued)

Alarms (continued)

Error Code	Displayed Text	Cause and Resolution
Es08502	Wait for temperature stability, remaining XX minutes	The heater is still warming up and is out of range. • Wait a few minutes to allow the heater to finish. • Temperature gauges on the Home screen should be close to the set temperature.
Es08700	Temp. ctr auto tuning	The heater is currently processing the Auto-Tune function. Do not disturb. • Touching “Reset” will interrupt the function and inhibit heater performance. • Wait a few minutes to allow the heater to finish.
Es08708	Teaching in progress (for temperature stability)	The Teaching function - which can help control temperature fluctuations at the beginning and end of production - is currently happening. Do not disturb. • Wait a few minutes to allow the function to finish.
Es09200 through Es09215	Temperature is decreasing 01-16	The current temperature is out of the allowable range for production. • Wait a few minutes to allow the temperature to return within acceptable limits.
Es09300 through Es09315	Temperature is increasing 01-16	
Es11205	Film tracking (front)	The film roll is consistently moving sideways, towards either the front or rear of the machine. • Stop production. • Reset the film roll on the film spindle and feed it through the machine.
Es11206	Film tracking (back)	
Es11501	Regi-control error	Timing for detecting a Regi-mark has deviated from set position. • Check the product number settings on the Product Change page. Confirm the product should have Regi-marked film. • Observe film travel and make sure it does not meander. • Check the Regi-mark sensor area is clean and clear. • Adjust the detecting conditions on the Regi-mark sensor. • See “5.4 Set Regi-mark Detection” on page 68 • If the problem is not resolved, contact Formost-Fuji.

This list continues on the next page.

Error Messages (continued)

Alarms (continued)

Error Code	Displayed Text	Cause and Resolution
Es11502	Regi-mark miss detect	Sensors have failed to detect 10+ Regi-marks while feeding film. • Check the product number settings on the Product Change page. Confirm the product should have Regi-marked film. • Observe film travel and make sure it does not meander. • Check the Regi-mark sensor area is clean and clear. • Adjust the detecting conditions on the Regi-mark sensor. • See “5.4 Set Regi-mark Detection” on page 68 • If the problem is not resolved, contact Formost-Fuji.
Es11503	Regi-detect error	Sensors cannot detect Regi-marks during production. • Check the product number settings on the Product Change page. Confirm the product should have Regi-marked film. • Observe film travel and make sure it does not meander. • Check the Regi-mark sensor area is clean and clear. • Adjust the detecting conditions on the Regi-mark sensor. • See “5.4 Set Regi-mark Detection” on page 68 • If the problem is not resolved, contact Formost-Fuji.
Es11504	Battery error	The CPU battery is running low. If the alarm is reset without replacing the battery, the alarm will re-appear in one hour. • Replace the button battery on the CPU. • For more information, contact Formost-Fuji.
Es11505	Control box temperature is too high	The temperature sensor in the main control box is reporting temperatures outside normal operating range. Operating at too high temperatures for too long may damage some of the electronic components. • Clean the heat exchanger filter on the main control box door. • See “1: Filter for Heat Exchanger” on page 87 • Check whether the ambient temperature around the machine is over 40°C (104°F). Wrapper should be installed away from direct sunlight, excessive dust, or areas with high humidity.
Es11507	Cyclestop button is pushed	Sensors indicate the Cyclestop button has been pushed. If the Cyclestop button has not been pushed, the button may be broken. • Inspect the buttons on the operator panel (or panels) and check the wiring. • Check the I/O monitor on the Management Menu, channel X000:01. The channel will show ON only if neither Cycle Stop button is pressed (both Operating Panel and Infeed Conveyor). • If the problem continues, contact Formost-Fuji.

This list continues on the next page.

Error Messages (continued)

Alarms (continued)

Error Code	Displayed Text	Cause and Resolution
Es11510	Check defected package (by loose print, etc)	A product's printing is either missing or was printed in error due to a malfunction of the printer. • Discharge the product with defective printing.
Es11511	Film tracking (outboard side)	Film is meandering, either away from the operator side (outboard) or toward the operator side (inboard). • No action required at this point. Machine will trigger alarms Es11205 or Es11206 if the problem continues. • Inspect film mounting and reset the film roll on the film spindle if necessary.
Es11512	Film tracking (inboard side)	
Es11514	Film joint detect	A joint in the film - a place where two pieces of film have been taped together - has been detected. • Remove the product or products with the film joint from the discharge conveyor. If your system has a rejection function, this will be done automatically. • Monitor Regi-mark monitoring to ensure proper cut length continues.
Es11601	Film tracking	The film has gone off the track or is about to do so. • Check and adjust film tension and bag forming.
Es11602	Scan time error	• The CPU processor has taken more time than allowed to read and process motor control information. • Note that this error has occurred and notify Formost-Fuji.

Chapter 12 Optional Functions

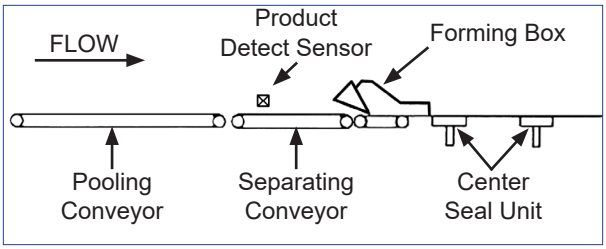
12.1 Overview

This chapter covers the configuration and operation of optional equipment installed on this machine.

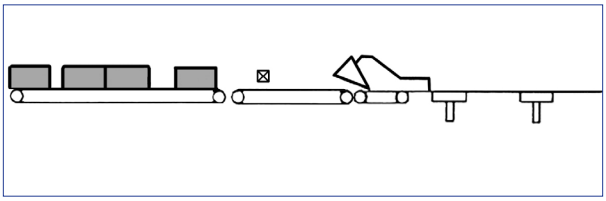
Descriptions expand upon the information in the previous three chapters and supply special exceptions to that information. If information in this chapter contradicts an earlier chapter, use the information and settings here.

- Pages shown here may not match those on your machine.
- Not all functions are available to all security access levels.
- The function descriptions in this chapter are arranged in alphabetical order.
- If this is the only page in this chapter, there are no optional features installed.
- If you have any questions, please contact the Formost-Fuji Service Department.

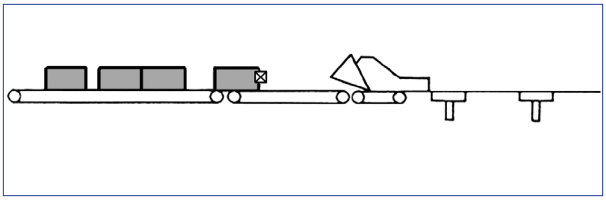
12.2 Attachless



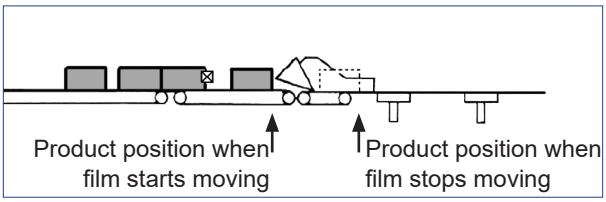
Components of the Attachless system.



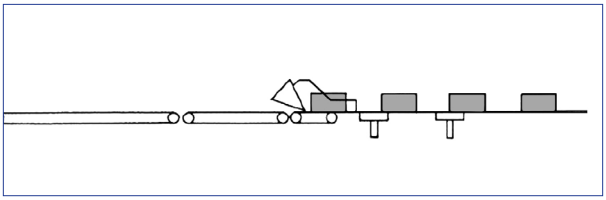
1: Products arrive on the pool conveyor.



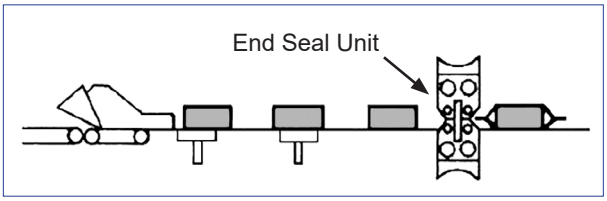
2: Product Sensor detects leading edge of product.



3: Program adjusts belt & film speeds to position product.



4: Evenly spaced products leave the bag former.



5: Products pass through the end sealer.

The Attachless Infeed system is an optional infeed system. It uses two belt conveyors instead of a flighted chain to control the product's entry into the Wrapper.

When properly configured, the Attachless system will:

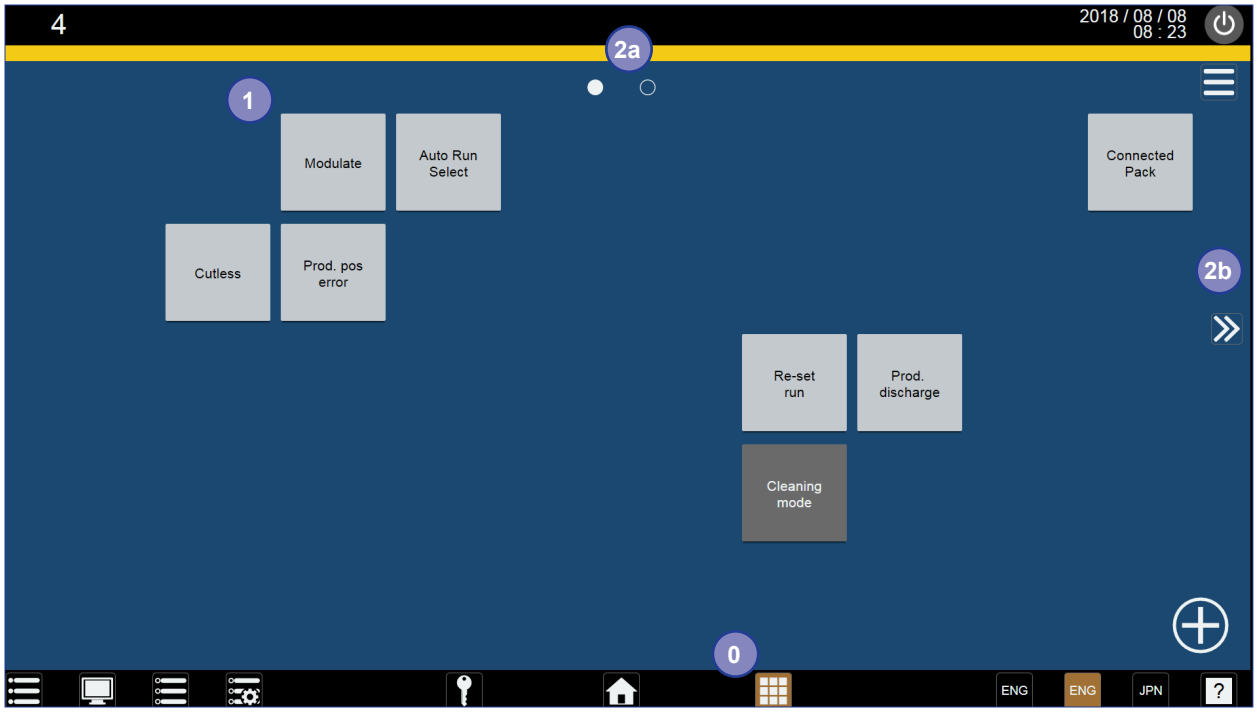
- Detect products on the Separation conveyor and adjust belt and film speeds to properly position the product within the film tube.
- Stop the Wrapper when there is too little of a gap between products, or when a product is too long for the cut off length.

Theory of Operation

The Attachless system consists of two independently-controlled belts: the upstream "pooling" conveyor and the downstream "separation" conveyor. A product detection sensor sits midway along the separation conveyor.

1. As products arrive irregularly from upstream equipment, they collect on the slower-moving pooling conveyor.
2. The speed difference between the Pooling conveyor and the separation conveyor creates a gap between products. The product sensor detects when the product is a set distance from the forming box.
3. The Attachless program adjusts the speeds of the film and the separation conveyor belt in order to properly position the product within the film tube.
   - Note that if there are no other products upstream, the film (with the product on it) will stop until the sensor detects another product.
4. The changes to the belt and film speeds should arrange the products evenly. The properly-spaced products pass through the forming box and move on to the center sealer unit
5. The products pass through the end seal unit without jamming or impacting the sealers.

Attachless (continued)



Control Panel screen showing the Attachless function.

Activating/Deactivating Attachless

The Attachless function will always be ON unless specifically turned OFF by the operator. To turn the function OFF:

Touch the Control Panel button (#0 above) from any screen.

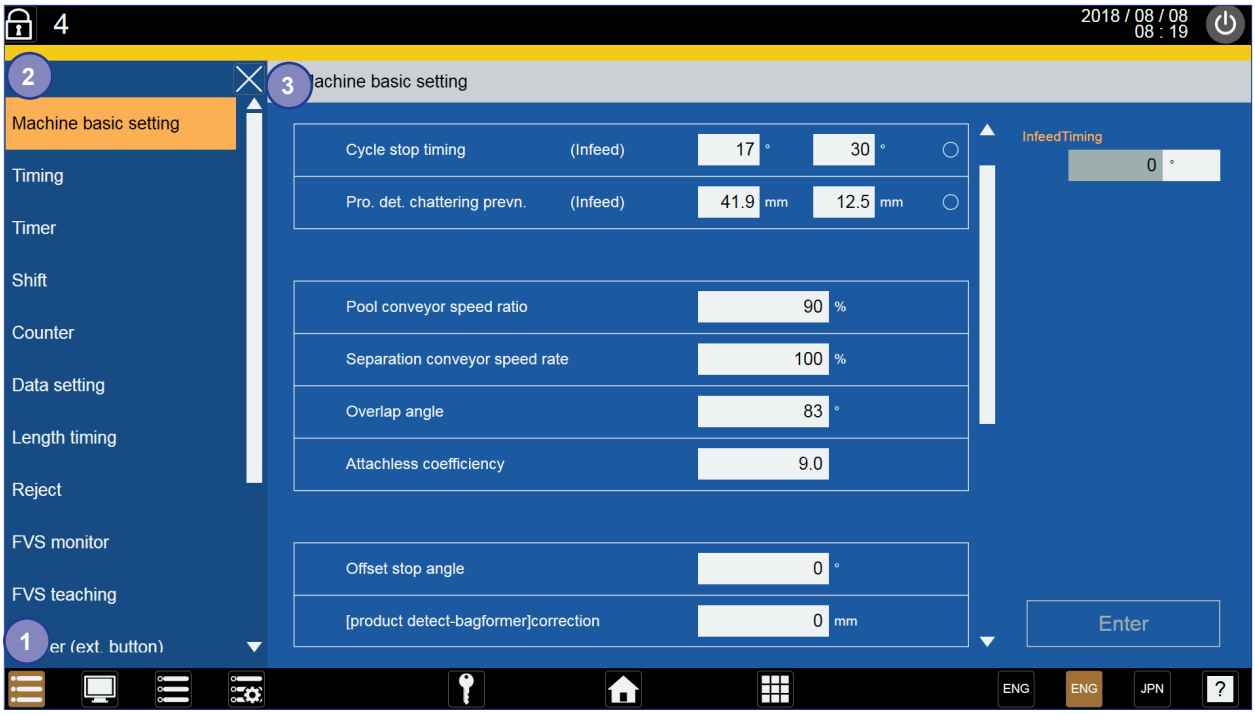
- Find the “Modulate” key (#1 above).
- If the key is not on the first Control Panel screen displayed, check page two by touching either of the page navigation tools (#2 above).

When Modulate is OFF (light grey), Attachless is ON. The conveyors and film will adjust to match product position as described in this section.

When Modulate is ON (orange), Attachless is OFF. The conveyors and film will run at the Wrapper’s set speed, regardless of product position, unless stopped by other sensors.

For more information, see Chapter 9.7 Control Panel Screen.”

Attachless (continued)



Details of the Attachless Setting Menu screen.

Attachless Settings

The Attachless function operates as a relationship between several variables and machine settings. All the controls for the Attachless function are available through one central screen, located on the Setting Menu.

Touch the Setting Menu button in the lower left corner of any screen and a long menu will open.

- Touch the “Machine Basic Setting” menu item.
- If the menu is longer that then screen, use the scroll bar to view the lower items.

The screen will display all relevant variables which affect the Attachless function. Refer to the table on the following pages for an explanation of these variables.

Attachless (continued)

Attachless Settings (continued)

Setting	Range	Definition
Cycle Stop	0° to 359°	Defines where the Wrapper stops in the Wrapper cycle when no product is available. The Infeed Axis remains 0° until the sensor detects a product. Also note that one package length equals 360°.
Product Detect Chattering Prevention	0° to 359°	Prevents unevenly shaped products from being detected twice and identifies products that are too close and cannot be separated enough by downstream adjustments. **ON:** For most products, set ON at 300° and make changes in 5° increments. • If a finer control is needed, multiply product length (in millimeters) by 360 and divide the result by the product cut pitch. [(Product length * 360) / film cut off length] **RANGE:** Should remain at 30°.
Pool Conveyor Speed Ratio	0% to 999%	Sets the Pool Conveyor's speed as a percentage of the Separation Conveyor's speed. • Lower speeds will result in larger gaps between products but may cause the film tube to stop more frequently. • Higher speeds will result in smaller gaps between products and may cause the film tube to speed up frequently. For more information, see "To Adjust the Pool Conveyor Speed" on page 216.
Separation Conveyor Speed Ratio	0% to 999%	Sets the speed for the Separation Conveyor when product is not present. When product is detected, the belt will return to normal speed. Usually set to 100% but can be adjusted under special circumstances. • Values over 100% will cause the belt to speed up and reduce Wrapper wait time. • Values under 100% will cause the belt to slow down and increase Wrapper wait time.

Attachless (continued)

Attachless Settings (continued)

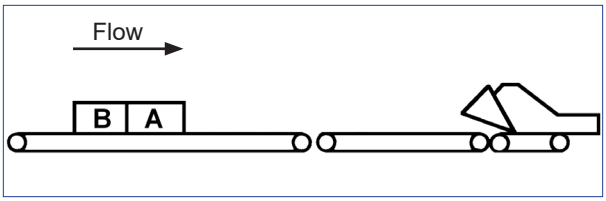
Setting	Range	Definition
Overlap Angle	0° to 359°	System calculated value. Should remain at 10° unless instructed by Formost-Fuji technicians. Establishes an acceptable range on the Separation Conveyor where a following product can intrude on the current product and not stop the Wrapper. The system compensates for this shorter gap between products by briefly accelerating the film speed once the current product transfers off the Separation conveyor.
Attachless Coefficiency	1.0 to 9.0	Controls the rate of machine acceleration and deceleration. The Wrapper system calculates the Coefficiency based on product height and cut length, but it can be adjusted if necessary. • The lower the Coefficiency, the faster the film tube accelerates and decelerates. • The higher the Coefficiency, the slower the film tube accelerates and decelerates.
Offset Stop Angle	-180° to 180°	When the machine is waiting for product, the end sealers will open and stop moving. This value modifies the end sealer stop position when the Wrapper is waiting. For the End Seal Axis, • 0° is the position of maximum clearance between sealers. • 180° is the position of minimum clearance between sealers.
[Product Detect - Bag Former] Correction	-228mm to 228mm	Calculations for film movement is based on the fixed distance between the Product Detect Sensor and the Bag Former. This entry acts as a modifier to that distance. • A negative number will start film movement sooner. • A positive number will start film movement later.

Attachless (continued)

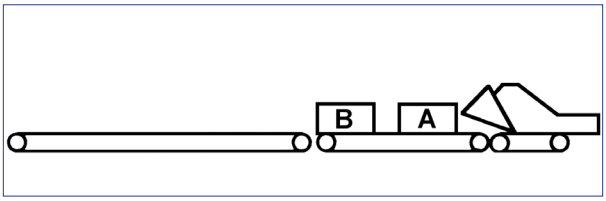
Making Adjustments

To Adjust the Pool Conveyor Speed

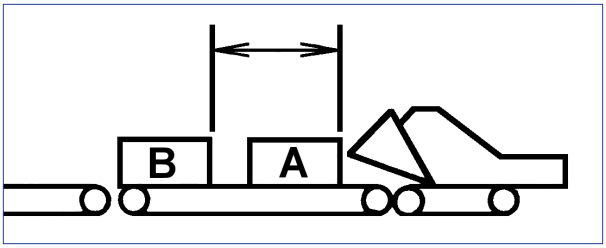
1. Take the film cut off length for the product (measured in millimeters) and add 15 mm.
2. Load two products on the pool conveyor, end to end.
3. Ensure the area around the Wrapper is clear and press the START button.
4. Press the Emergency Stop button as soon as both products are completely on the Separation Conveyor.
5. Measure from the leading edge of the first product to the leading edge of the second product.
   - If the measurement is less than the value from Step 1, decrease the Pool Conveyor Speed on the Machine Basic Settings Page.
   - If the measurement is more than the value from Step 1, increase the Pool Conveyor Speed on the Machine Basic Settings Page.
6. Repeat Steps 2-5 until the product separation consistently matches the value from Step 1.



2: Load two products on the pool conveyor, end to end.

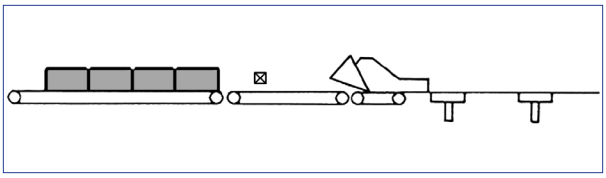


4: Stop when both are on the Separation Conveyor.

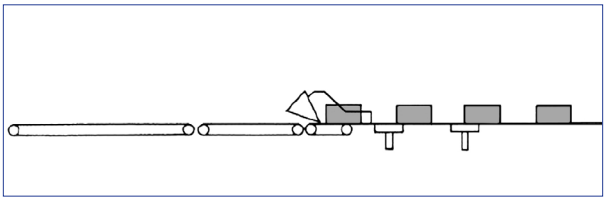


5: Measure from leading edge to leading edge.

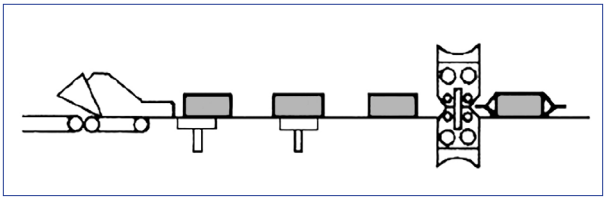
Attachless (continued)



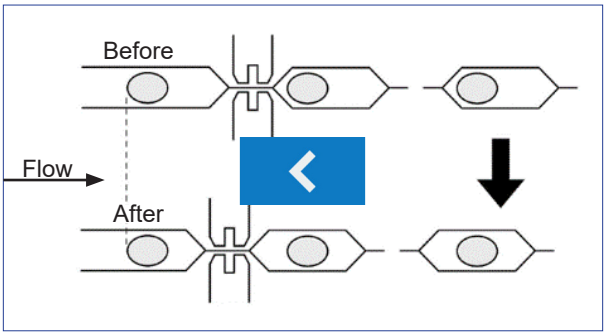
2: Load products end to end on the pool conveyor.



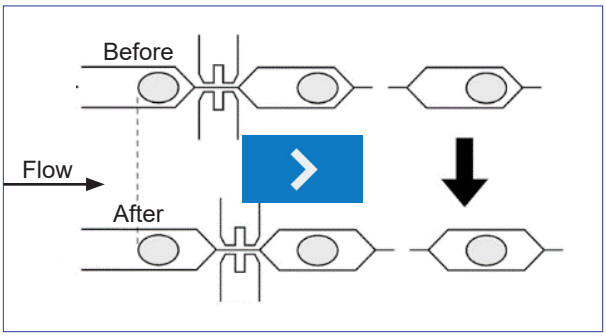
5: Wrapper stops when all products are in the film tube.



7: Inch products through the end sealer to prevent jams.



8a. Use upstream arrow if product is too far upstream.



8b. Use downstream arrow if product is too far downstream.

Making Adjustments (continued)

To Adjust the End Sealer Position

1. Measure the distance between the upstream end of the forming box and the center of the end sealer. Divide that measurement by the product cutoff length for the product and round the result down.
2. Load several products end to end on the Pool Conveyor (load the number determined from Step 1).
3. On the Control screen, touch “Modulate” to turn that function ON (orange).
4. Ensure the area around the Wrapper is clear and press the START button.
5. When all the products have entered the film tube, the Wrapper will stop moving.
6. On the Control screen, touch “Modulate” to turn that function OFF (light grey).
7. Press and hold the INCHING button to move the first product closer to the end sealer. Move slowly to ensure the product will pass through the end sealers properly.
8. Adjust the end sealer position using the End Seal Position button on the **Correction screen.**
   - If the product is too close to the **upstream** seal, change the correction value with the **upstream** arrow.
   - If the product is too close to the **downstream** seal, change the correction value with the **downstream** arrow.
9. Press and hold the INCHING button to advance the product through the end sealers. Watch to ensure the end sealers do not crush the product.
10. Repeat Steps 7-9 to move the next product through the end sealers. Check the product position within the package and adjust the End Seal Position as necessary. Continue to do this for all the products in the film tube.
11. Repeat this process until products are consistently in the correct position within the package without making further adjustments to the End Seal Position.

Attachless (continued)

Troubleshooting

> Product(s) out of position within the film tube.

Possible Cause	Suggested Solution
Timing point 06 - Cycle Stop may be stopping the system when the product is not fully in the film tube.	Adjust the ON value so that the end of the product is an appropriate distance from the discharge end of the Separation Conveyor.
The film tube may be starting and stopping with a disruptive jerk (extreme acceleration and/or deceleration.)	Increase the Attachless Coefficiency.

>The film tube or end sealers stop frequently.

Possible Cause	Suggested Solution
The film tube acceleration and/or deceleration may be too extreme.	Increase the Attachless Coefficiency.
The value of Overlap Angle may be too high.	Reduce the Overlap Angle by a small amount.

>The Wrapper stops frequently with an error message.

Possible Cause	Suggested Solution
Products may be in contact with one another when fed into the film tube.	Decrease the speed of the pool conveyor.
	Increase the wrapper set speed.
Products are sufficiently spaced apart but the value of Overlap Angle may be too low.	Increase the Overlap Angle by a small amount.

Attachless (continued)

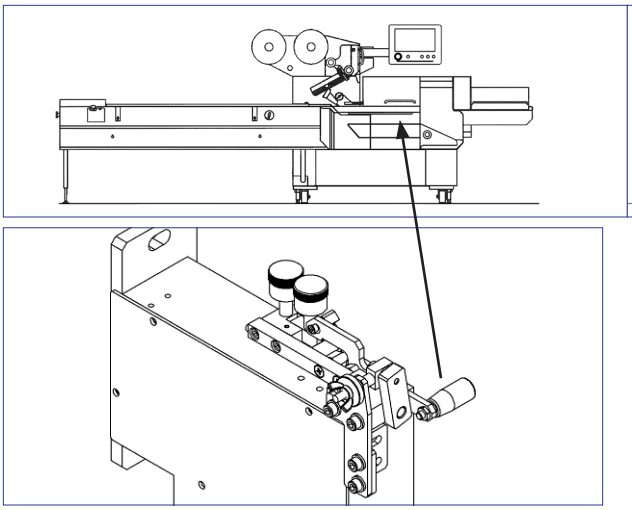
Troubleshooting (continued)

>The end sealers stop while in contact with the film tube.

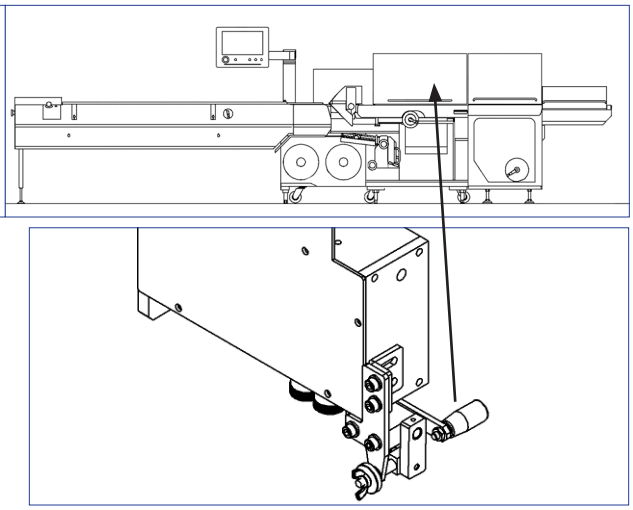
Possible Cause	Suggested Solution
When the Wrapper is waiting for products, the end sealers come into contact with the film tube.	Adjust the value of the OFFSET STOP ANGLE.
Timing item #06 - Cycle Stop is set such that system stops when the end sealers are in contact with the film tube.	Adjust the ON setting based on the current value of the Attachless Coefficiency. The table below indicates the range of values for the ON setting. Adjust in small increments until the proper value is found. Note that these values can be positive or negative (e.g. A coefficiency of 5.0 means the ON can be anywhere between -90° through 0° to +90°

Coefficiency	Range
1.0	± 162°
2.0	± 144°
3.0	± 126°
4.0	± 108°
5.0	± 90°
6.0	± 72°
7.0	± 54°
8.0	± 36°
9.0	± 18°

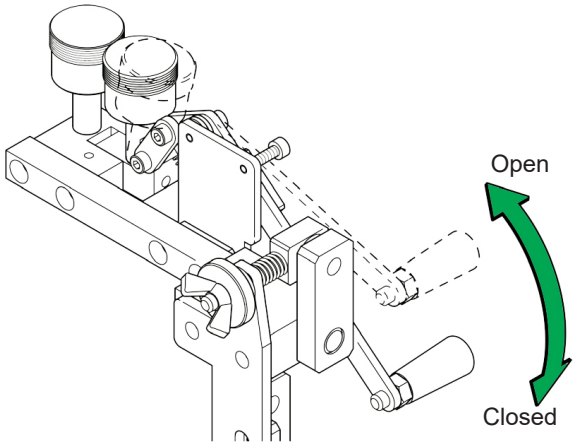
12.3 Film Tightener



Film Tightener location on a bottom seal Wrapper.



Film Tightener location on a top seal Wrapper.



Controls for a bottom seal film tightener.
(For a top seal film tightener, reverse these directions.)

The Film Tightener is an optional addition to the Center Seal Unit. It is an extra set of rollers located between the First and Second Center Rollers. These added rollers draw excess film into the fin seal, which improves seal integrity. For top seal Wrappers, the rollers help keep film in place within the second roller, including when the sealers open.

A small, black-handled lever located between the First and Second Rollers controls the rollers. The operator must manually open the rollers when feeding film for a production run and close the rollers before the actual run begins.

- For bottom seal Wrappers,
  - Lift the handle to open the rollers.
  - Lower the handle to close the rollers.
- For top seal Wrappers,
  - Lower the handle to open the rollers.
  - Lift the handle to close the rollers.

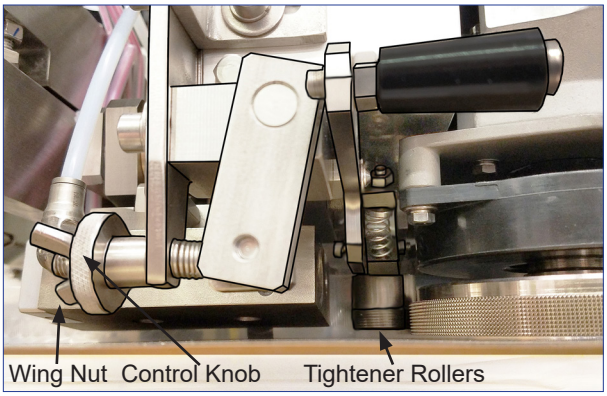
Film Tightener (continued)

Adjusting the Film Draw

The pressure from the Film Tightener rollers draws the film into the fin. The roller pressure also helps keep the film in place when the system is idle.

It is possible to make fine adjustments to film tension by changing the angle of the rollers. To adjust the roller angle:

1. Loosen the wing nut on the control knob.
2. Rotate the control knob. Watch the tightener roller to observe its motion.
   - Angling the rollers away from the deck, will pull the fin of the film tube further into the center sealers.
   - Angling the rollers closer to the deck will release tension on the film tube fin.
3. Use caution when adjusting the angle of the rollers. Change the angle in small increments in between runs of several filled packages. Closely inspect the packages from those short runs. Excessive film tension can cause wrinkling or distortion in the fin seal area.



Parts of a top-seal Wrapper's Film Tightener Assembly.

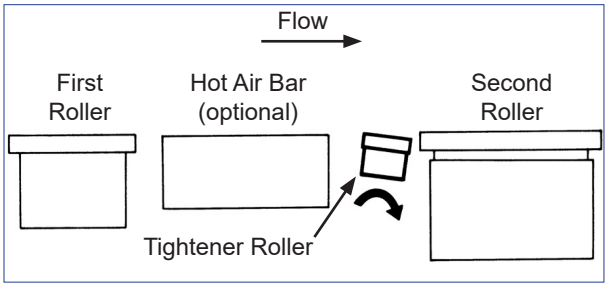


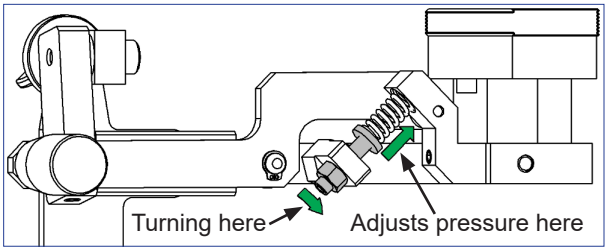
Diagram of a bottom-seal Wrapper's Center Seal Unit.

Adjusting the Spring Tension

As mentioned before, the black handle opens and closes the gap between the Tightener Rollers. Nested behind the handle is a small spring, which controls the hold-closed pressure of the rollers.

To adjust the spring tension, turn the bolt at the base. Change the tension in small increments in between runs of several filled packages. Closely inspect the packages from those short runs.

The spring selected for this machine has been shown to work on the majority of film and product combinations. However, in your particular circumstance, if the spring does not provide enough pressure, or if it provides too much, replacement springs are available from Formost-Fuji Corporation.



Adjusting the spring tension.

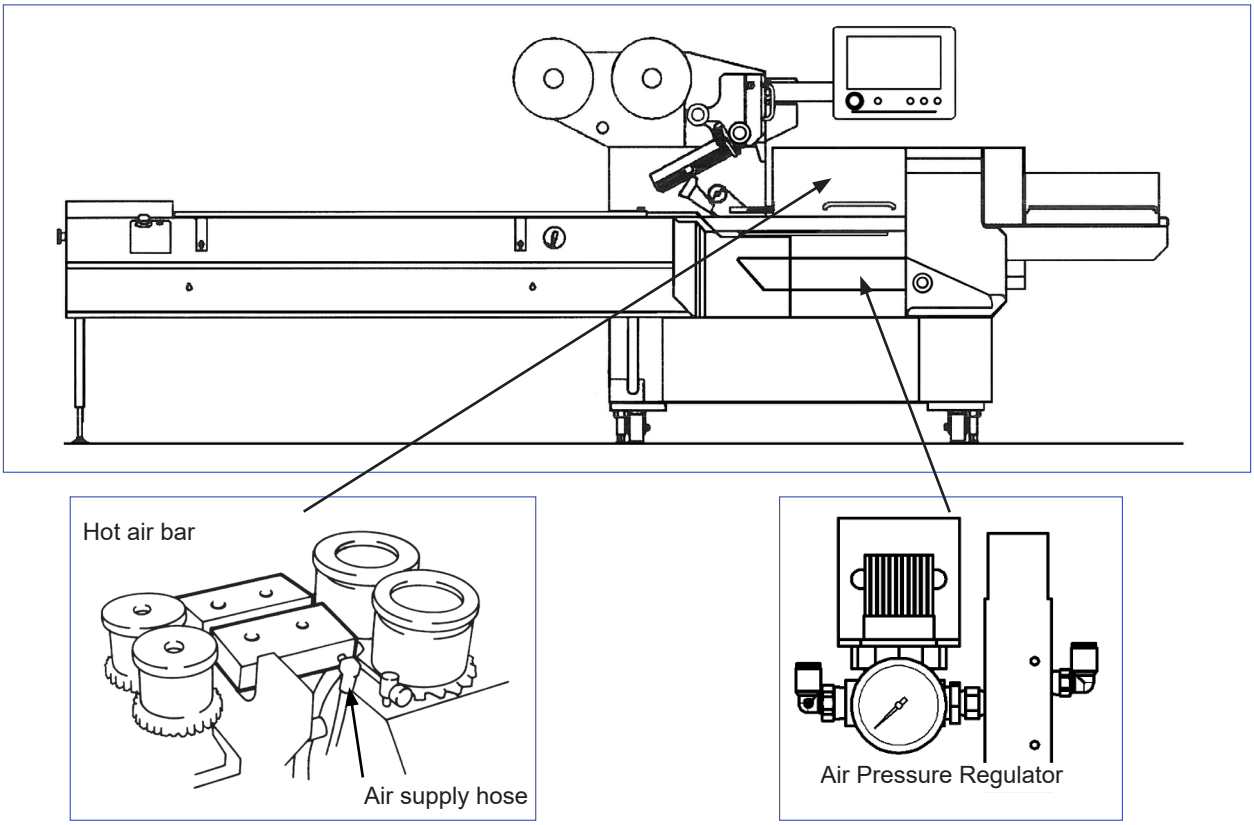
12.4 Hot Air Bar

⚠ WARNING **RESIDUAL BURN RISK**

Sealers can remain hot for up to sixty (60) minutes after disconnecting power.

⚠ CAUTION **PINCH HAZARD**

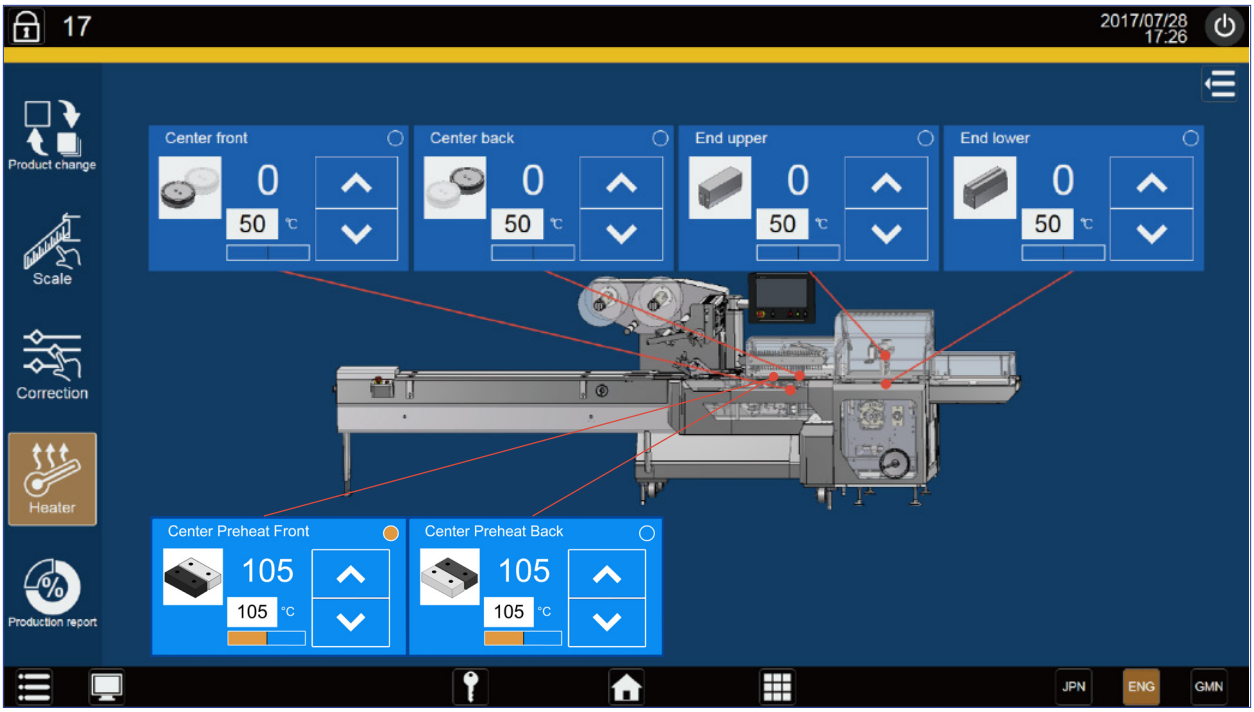
Keep fingers out from between the hot air bars and mounting arms.



The Hot Air Bar (HAB) is an optional device that applies heat to the film as it moves between the first and second center seal rollers. This warming increases heat penetration into the film and improves the center seal integrity. The bar is especially useful on thick films or high production speeds, as well as for Wrappers used in cold environments.

Hot Air Bars come in two sizes: Standard and Small. Both units are scaled to provide similar heat transfer. The small units allow for other optional equipment between the first and second center seal rollers.

Hot Air Bar (continued)



The Heater screen.

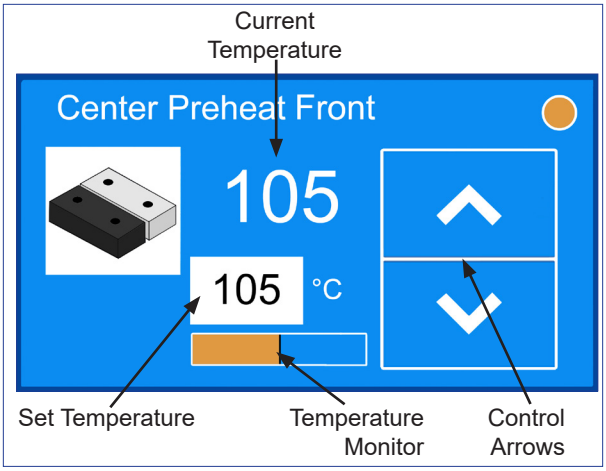
Temperature Controls

The Hot Air Bar temperature controls are a part of the Heater screen.

From the **Home screen**, touch the Heater icon located on the far left column.

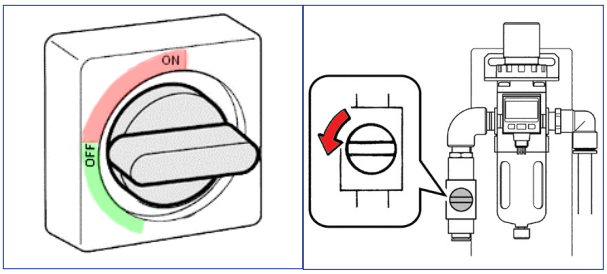
- The Hot Air Bar is listed as the Center Preheater.
- Each side of the bar has a separate temperature control. In most cases, both sides are set to the same temperature.

For more information on Heater screen controls, see Chapter 9.11: Heater Screen.

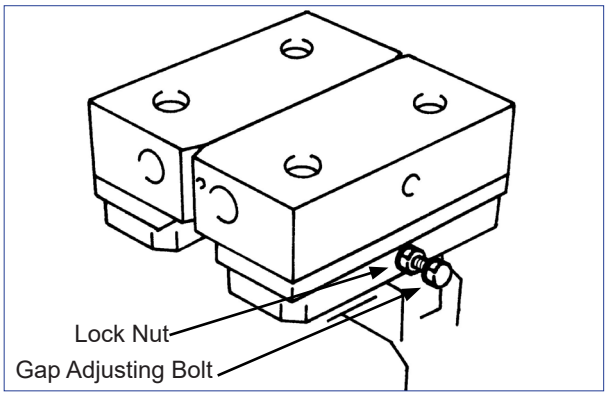


Parts of an individual heater icon.

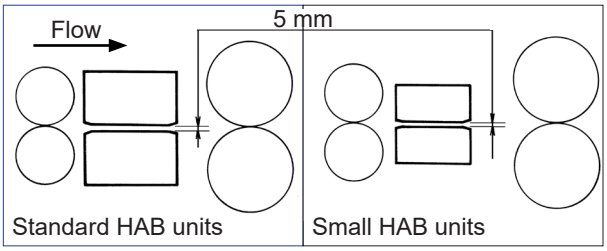
Hot Air Bar (continued)



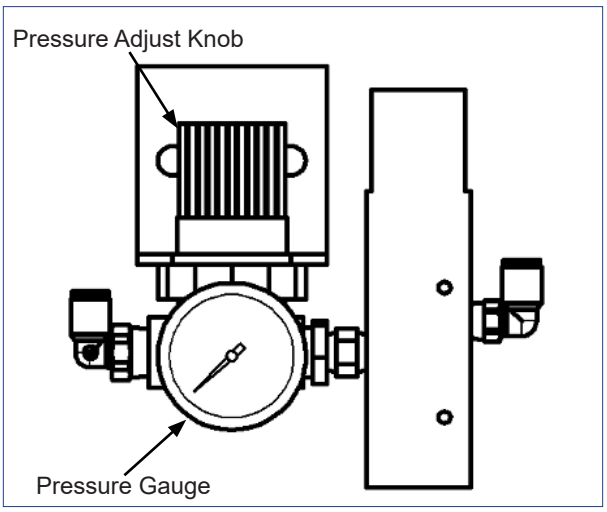
Main breaker and air valve in the OFF position



Parts of the Hot Air Bar assembly



Optimum gap between bars is five millimeters.



Parts of the air pressure gauge.

Adjusting the Hot Air Bar

The Hot Air Bar's effectiveness depends on three factors: the temperature, the air bar gap, and the air flow rate.

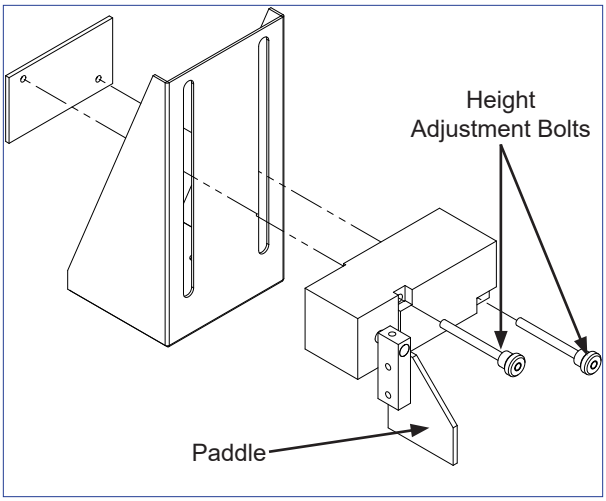
How to adjust the bar gap:

1. Turn off the power at the Main Power Disconnect and wait one hour to allow the bars to cool.
2. Loosen the lock nut located at the base of the front hot air bar.
3. Turn the bolt to adjust the gap between the two bars.
   - Tighten the bolt to increase the gap.
   - Loosen the bold to decrease the gap.
   - Product setup at the factory is based on an optimum width of five millimeters (5mm).
4. Tighten the lock nut when complete.

How to adjust the air flow rate:

1. Pull up on the pressure adjust knob to release the lock.
2. Turn the knob slowly to adjust the air pressure, watching the pressure gauge.
   - Turn clockwise to increase pressure.
   - Turn counter-clockwise to decrease pressure.
   - Product setup at the factory is based on a pressure of 25-30 psi at the HAB regulator.
3. When complete, push the pressure adjust knob down to lock in place.

12.5 Product Over-Height Detection



Parts of the Over-Height Detection System

The Product Over-Height Detection system is an optional height sensor installed on the Infeed conveyor. The Wrapper is designed to handle products with very specific dimensions. The over-height flag will stop the conveyor and prevent damage to the Wrapper machinery.

Theory of Operation

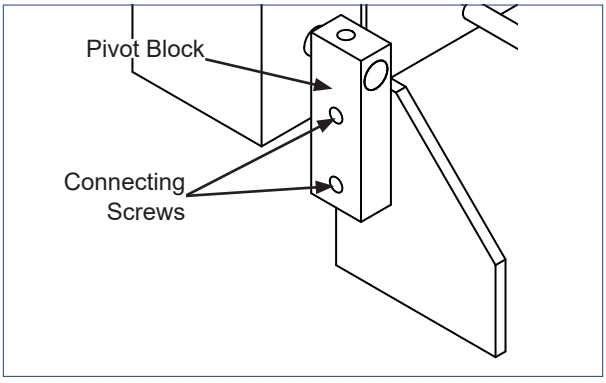
A white plastic paddle attached to a mechanical switch hangs over the Infeed conveyor. The paddle is set to the maximum product height. An oversized product, regardless if it is misshapen, shingled, stacked, or rotated, will contact the paddle and trigger the switch. The switch programming immediately stops the Wrapper and displays an error message on the HMI.

REMEMBER

The paddle height is based on the product height. Changing product height will change the bag forming. Adjustments may be needed to the film entrance roller, the wing height, the transfer brush, and/or the end seal height.

Setting the paddle height

1. Loosen the two knobs on the Product Over-Height switch.
2. Raise or lower the switch until the bottom edge of the paddle is at the maximum product height.
   - The product height is listed on the product set-up sheet.
3. Tighten the knobs to secure the switch in place.



Paddle replacement components.

Replacing the paddle

Certain products may require replacing the paddle with one of a different shape. To replace the paddle:

1. Use a Phillips-head screwdriver to remove the two screws that connect the paddle to the pivot block.
2. Remove the current paddle.
3. Place the new paddle against the pivot block and align its vertical edge against the side of the pivot block.
4. Insert the screws and tighten with a screwdriver.

Product Over-Height Detection (continued)

I/O Ports

Channel	Bit	Name	Condition Causing Monitor to Show ON:
Input X001	07	LIMIT SWITCH OVERHEIGHT	The Over-height detection paddle was lifted or pressed.

Error Messages

Number	Display	Resolution
Eu00102	Product Overheight	Remove the product from the infeed conveyor. If the problem continues, the paddle may be set too low for the product.

Chapter 13 Relevant Materials

13.1 Manuals for Electric Components

Your Wrapper uses the following parts and equipment made by other companies. Electronic copies of their manuals are included in the USB flash drive included with your documentation. Additionally, relevant excerpts exist on the Manuals page in the Management menu.

To access these manuals, touch the Management Menu button (the second icon on the lower left corner of the Home screen) and select “Manuals.”

For more information on troubleshooting and replacing installed electric components, refer to the manuals produced by the manufacturer.

The individual manufacturers may change or revise their documentation without notice. We have included the Internet address for their documentation for your convenience. If there are any questions, confirm the newest data from each manufacturer’s website.

Loaded on your machine are:

Inverter FREQROL-E700

- Mitsubishi Electric Corporation
- Manual: FR-E700 - Basic (ib0600458enga)
- Last manual update: April 2017
- Last accessed: June 2020
- www.mitsubishielectric.com

AC Servo Drive Sigma-7S

- Yaskawa Electric Corporation
- Manual: SIEP S80000128K
- Last manual update: August 2017
- Last accessed: June 2020
- www.yaskawa.com

Temperature Controller NX-D15/25/35

- Azbil Corporation
- Manual: CP-SP-1308E
- Last update: October 2012
- Last manual accessed: December 2020
- www.azbill.com

Switching Power Supply RWS 50B-600

- TDK-Lambda Corporation
- Manual: Instruction Manual
- Last Update: June 2017
- Last manual accessed: December 2020
- www.tdk-lambda.com

Induction Heating (IH) Inverter for Packaging Machine

- Fuji Electric Co. Ltd.
- Manual: Instruction Manual
- Last update: June 2012
- Last manual accessed: December 2020
- americas.fujielectric.com

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