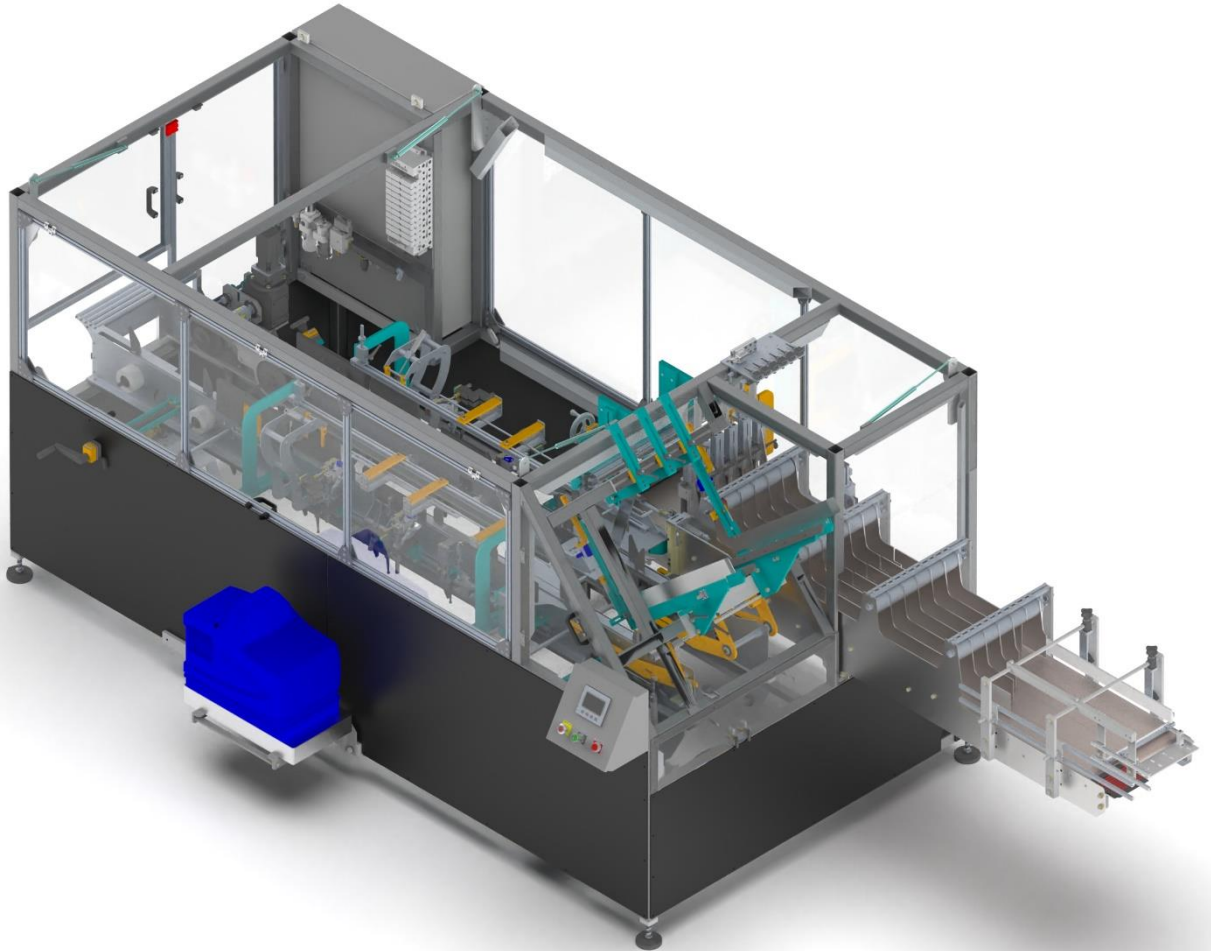




## Manual C3 Cartoner



6 Lane

**Thank you!**

*We are very pleased that you decided to purchase your equipment from Climax Packaging Machinery. Climax has been providing innovative packaging and handling solutions for over 100 years. We are proud of Climax machinery's reputation for durability and ease of maintenance. Climax has created many patented solutions to meet our customers' requirements and our in-house engineering team is devoted to continued development of new and improved solutions to customer applications.*

*Should your packaging needs change in the future, Climax is ready to provide you with custom engineered change parts or machine upgrades. Climax stocks a large inventory of replacement parts and has technicians available for field service. Our mission, which we take very seriously, is to provide our customers with world-class products and support services.*

*Daryll Rardon  
President*

## **GENERAL OVERVIEW**

This manual provides the operator and maintenance personnel with a general understanding of the mechanical and electrical components of the C3 Cartoner case packing machine. We have written this manual using the standard Climax cartoner as the model. Your machine may differ from this model. Purchased options and machine configurations vary. Not all the information in this manual may pertain to your machine.

Any attributes or options that make your machine different from the machine represented in this manual may be found in the Appendix sections.

## **SAFETY NOTICE**

Throughout this manual many drawings and photographs have been used to provide easy identification of machinery components. Please note that in these drawings and photographs, guards and covers may have been removed to expose the actual machinery components. All guards must be in place prior to machine operation. Use Lock-Out/Tag-Out procedures on the electrical and pneumatic systems prior to machine maintenance or repair.

## **CAUTION!**

***DO NOT RUN MACHINE WITH SAFETY PANELS AND/OR COVERS REMOVED***

***MAINTENANCE AND REPAIR ONLY WITH CLIMAX SERVICE TECHNICIAN OR QUALIFIED MAINTENANCE PERSONNEL***

***LOCK-OUT/TAG-OUT ELECTRICAL AND PNEUMATIC SYSTEMS PRIOR TO SERVICE/REPAIR***

## NOTICE

For initial machine start-up, Climax Packaging Machinery recommends having our trained service personnel on-site. Machine must be installed in final machine location with pneumatic and electrical hooked up before Climax Service arrives. Climax Service Technicians will assist with inspecting your machine, fine tuning settings and training your operators and maintenance personnel.

**PLEASE NOTE:** Your machine should be thoroughly inspected for damage due to shipping and handling **PRIOR TO BEING PLACED INTO SERVICE.** Mishandling can cause misalignment of components that may lead to permanent damage. Your machine should be checked to ensure that there are no components or fasteners missing and that no fasteners have come loose during shipment. A table of required torque for fasteners is available in the appendix. All gearboxes and the air lubrication system should be checked for proper fluid levels. All air connections should be checked to ensure all fittings and connections are tight.

It is normal for some components to require periodic adjustment during the first few weeks of operation. Certain components such as belts and chains will stretch as they wear in and will need to be adjusted to eliminate slipping and jumping. For your machine to run up to the expected capacity Climax recommends that your new machine be inspected by one of your trained maintenance personnel each week for the first few weeks to ensure that the machine is adjusted properly.

Climax Packaging Machinery has factory-trained technicians available to provide installation, training, preventative maintenance inspections, machine upgrades and repairs. Please call (513) 874-1233 to inquire about our current field service rates and schedule service.

# SAFETY PRECAUTIONS

## **---WARNING---**

### ***OBSERVE THE FOLLOWING FOR SAFE OPERATION OF THIS MACHINE.***

1. **This machine starts and stops automatically** when it is turned **ON**. Never reach into the working area or within the confines of the machine unless the electrical power is turned **OFF**!
2. Secure all guards in the proper location before operating the machine.
3. Check the machine and the immediate area to make certain that all people and foreign objects are clear of the machine before it is started.
4. Before turning the machine **ON** carefully check for tools, containers, extra parts, or other similar loose material on any part of the machine that might possibly vibrate into or be in direct contact with moving parts of the machine when it operates. Jamming, dragging and crushing of foreign objects can cause damage to the machine. Flying particles from crushed objects and shattered containers can cause injury to anyone in the area.
5. Turn electrical and pneumatic(air) power off before making any adjustments.
6. Supervisors, foremen, maintenance personnel and the operator are advised to read the operator manual and be thoroughly familiar with the operation of this machine before it is placed into full operation. The operator must understand the working of this machine before they attempt to operate it. They should know every operation function, especially the Emergency Stop feature.
7. Wear safety glasses or shields when operating the machine.
8. Be alert for loose, worn, or broken parts. Report these items and any unusual noise or action of the machinery to your supervisor.
9. Keep the machine properly maintained.
10. Keep the machine clean.

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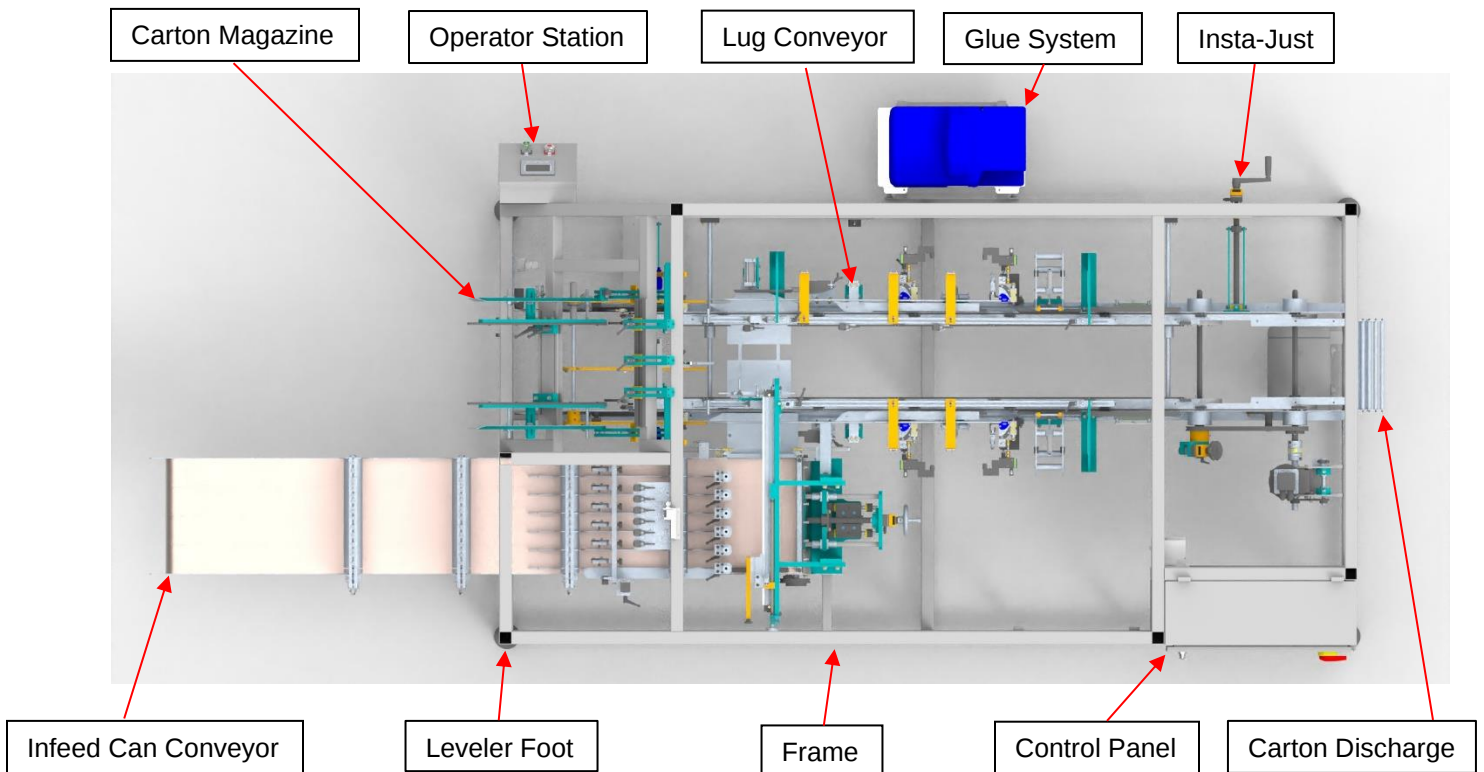
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## 1.0 GENERAL OVERVIEW

Climax's C3 Cartoner has been carefully designed and built to provide an outstanding combination of performance, economy, and reliability at a very reasonable cost. The machine and its operation may seem complex when viewed as a whole. It can be more easily understood by viewing the machine as a well-designed assembly of simpler systems, each performing its own independent functions.



### 1.1 FRAME

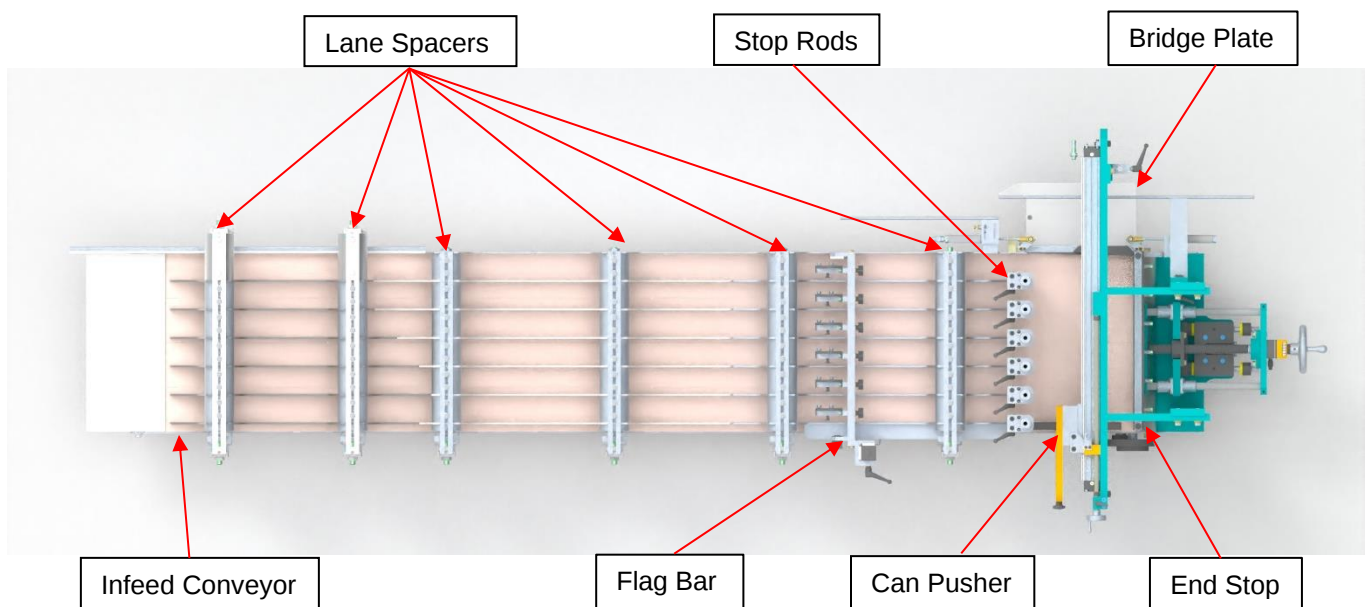
The frame of the Climax C3 Cartoner is the main structural platform to which all components are attached. Each leg has an adjustable leveler foot. Turn the screw for vertical adjustment. Adjust the frame feet to level the frame. Drill through foot to anchor to floor after machine is leveled for final installation.

## 1.2 INFEED CONVEYOR

The can conveyor consists of multiple strands of flat top chain mounted between driving sprockets and tail pulleys. The section of chain moving the cans is supported on a flat wear strip to provide a smooth surface on which the cans ride. The chain material is a high strength acetal plastic. Climax C3 Cartoner may be equipped with either a roller dead plate or a flavor mixing conveyor to allow the transfer of cans onto the infeed end of the Climax Can Conveyor. Can lanes keep the containers in an orderly pattern on the conveyor until they reach the loading area of the machine.

The Infeed Conveyor has several main operating components:

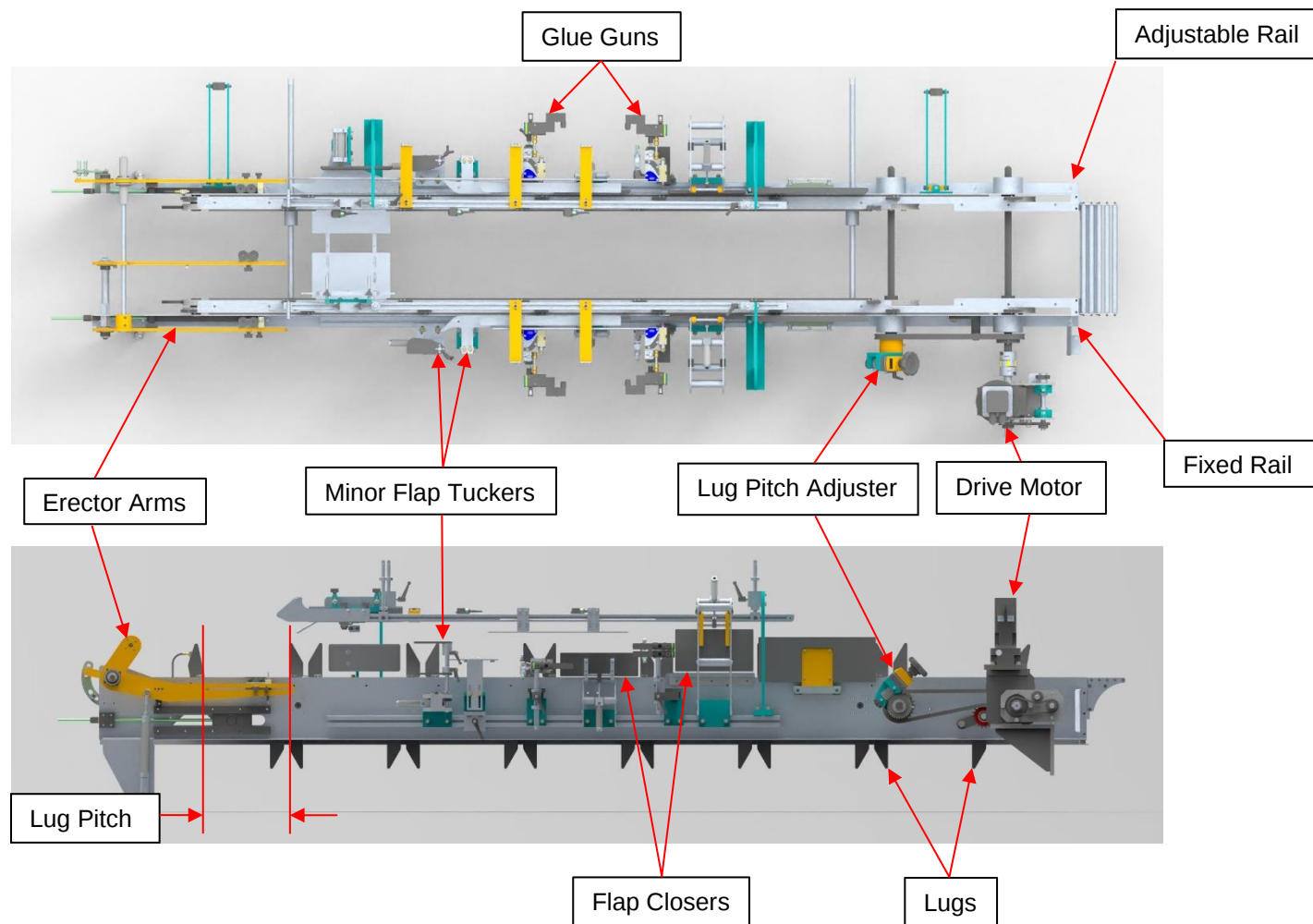
- **Infeed Conveyor** – Feeds cans into the machine and conveys them to the packing area. The packing area is adjustable to accommodate a variety of pack patterns.
- **Stop Rod** – Vertical cylinders which stop upstream line pressure leading into packing area.
- **Can Pusher** – Pushes can pack pattern across the Bridge Plate into erected tray.
- **Bridge Plate** – Support plate for transferring pack pattern between the infeed of loose cans in the can conveyor to the lug conveyor to discharge packed cartons.
- **Lane Spacers** – Quick-change spacers determine lane width for change-over between Slick or Regular diameter cans.
- **End Stop** – Detects and constrains the pack pattern in the push area prior to packing.
- **Flag Bar** – Detects cans in their respective lanes. Ensures upstream product is available to fill the pack pattern for pushing into carton.



### 1.3 LUG CONVEYOR

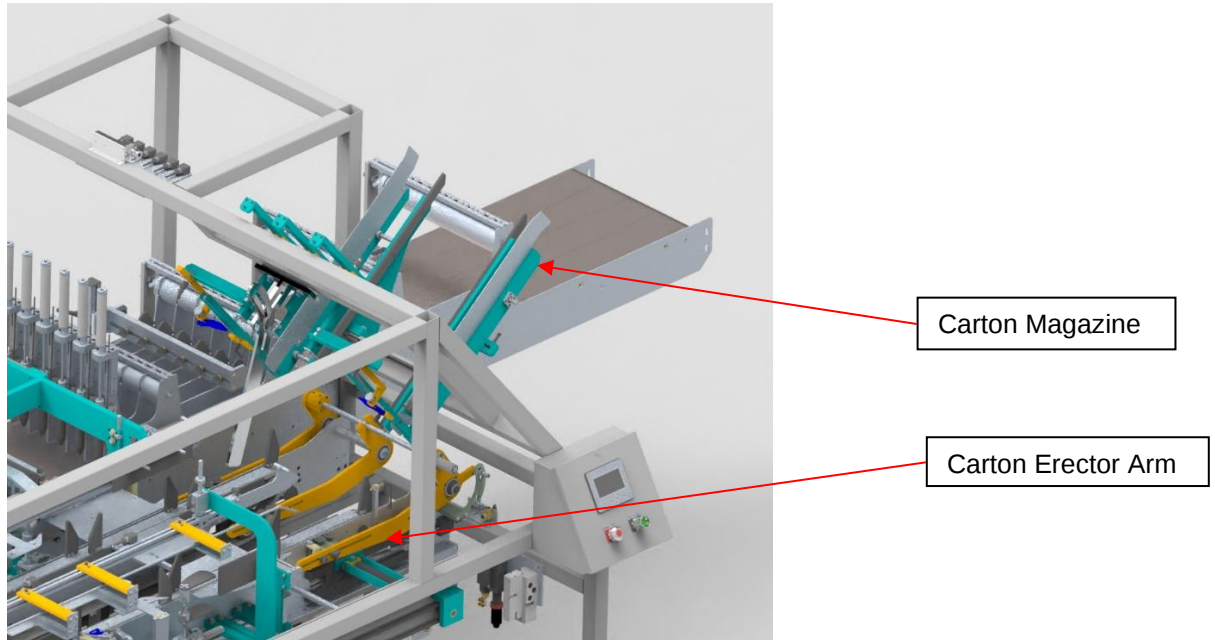
The lug conveyor consists of a pair of formed stainless steel rails. The inner rail is fixed to the frame, the outer rail is adjustable to fit the can width of the pack pattern with the Insta-Just crank on the outside of the machine frame. The lug conveyor is also equipped with a Lug Pitch Adjuster, which adjusts the can depth of the pack pattern.

- **Lug Pitch Adjuster** - Allows different pack patterns by changing the distance between leading and trailing lugs. Lug pitch closely matches the carton depth for the desired pack pattern.
- **Erector Arms** – Pulls trays from magazine down to the lug conveyor.
- **Minor Flap Tuckers** – Fixed tucker for leading and actuated trailing flap tucker for minor flaps.
- **Flap Closer** – Closes the lower major flaps for cartons.
- **Double Flap Assembly** – Upper portion closes upper major flaps for cartons; lower portion closes major flaps for trays.
- **Glue Guns** – Spray glue onto flaps prior to closing.



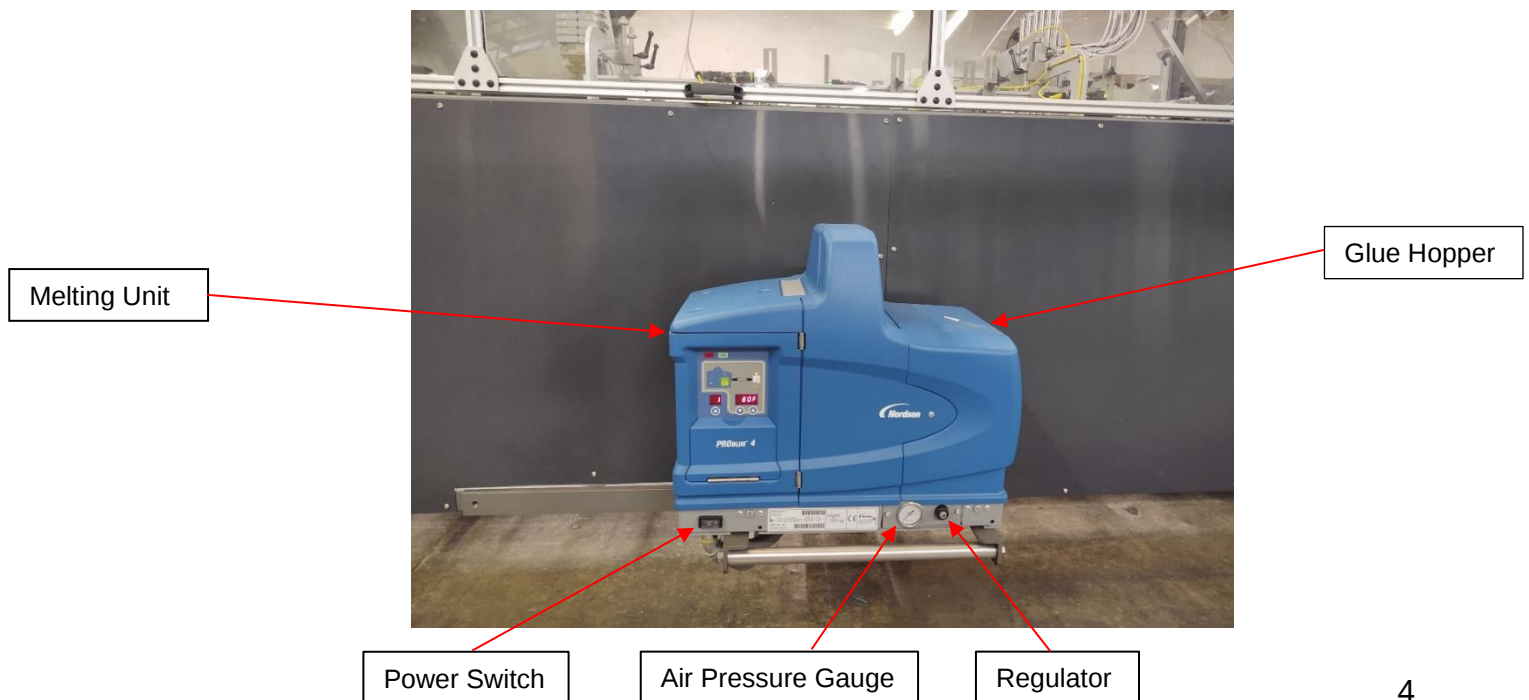
## 1.4 CARTON ERECTOR

The Carton Erector is located on the upstream end of the Lug Conveyor. It consists of two main components, the Carton Blank Magazine, and the Carton Erector Mechanism. The Carton Blank Magazine can be adjusted to hold a variety of cartons.



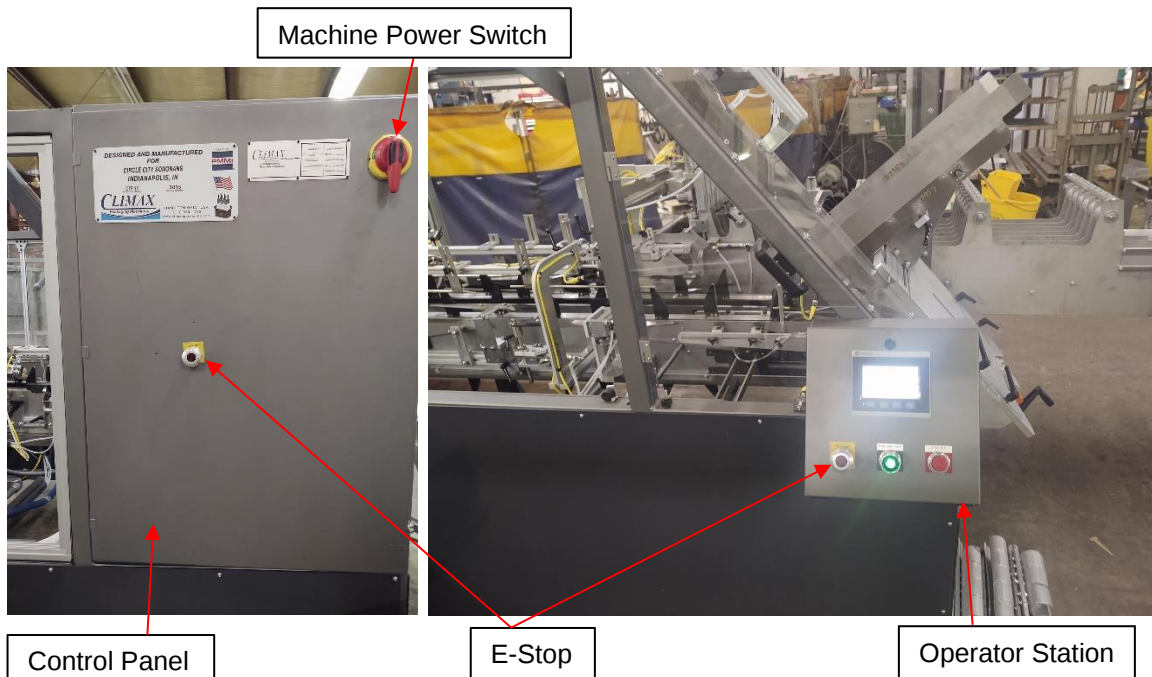
## 1.5 GLUE SYSTEM

The Glue System consists of a melting unit, heated hoses, and glue spray heads. The hot glue melting unit and hoses need to be up to operating temperature before the cartoner is functional. Glue pellets are loaded into the hopper after lifting open the hatch. Hot glue is pushed through the hoses out through the guns using air pressure.



## 1.6 ELECTRICAL CONTROLS

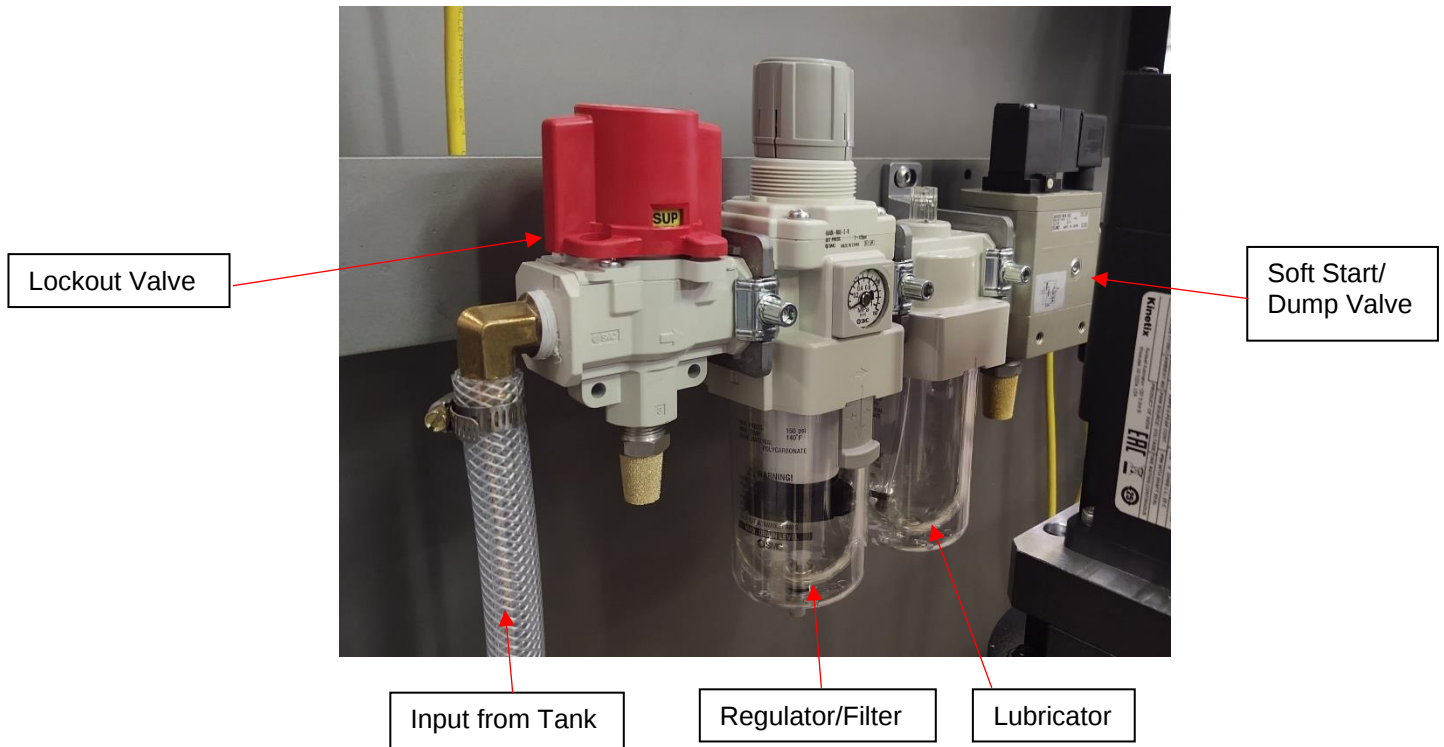
Climax uses Programmable Logic Controllers (PLC). The PLC handles the many input and output devices with complex operations in a small package. The Control Panel houses all major electrical components as well as the PLC and has the main power switch located on it. Both the operator station and the control panel have E-Stop switches on them to halt machine operation.



## 1.7 PNEUMATIC SYSTEM

Air system components are oriented as shown below. Air pressure from the facility is supplied to the machine through the input on the air tank. The air tank adds a reserve for the air supply to ensure consistent operation of the C3 Cartoner.

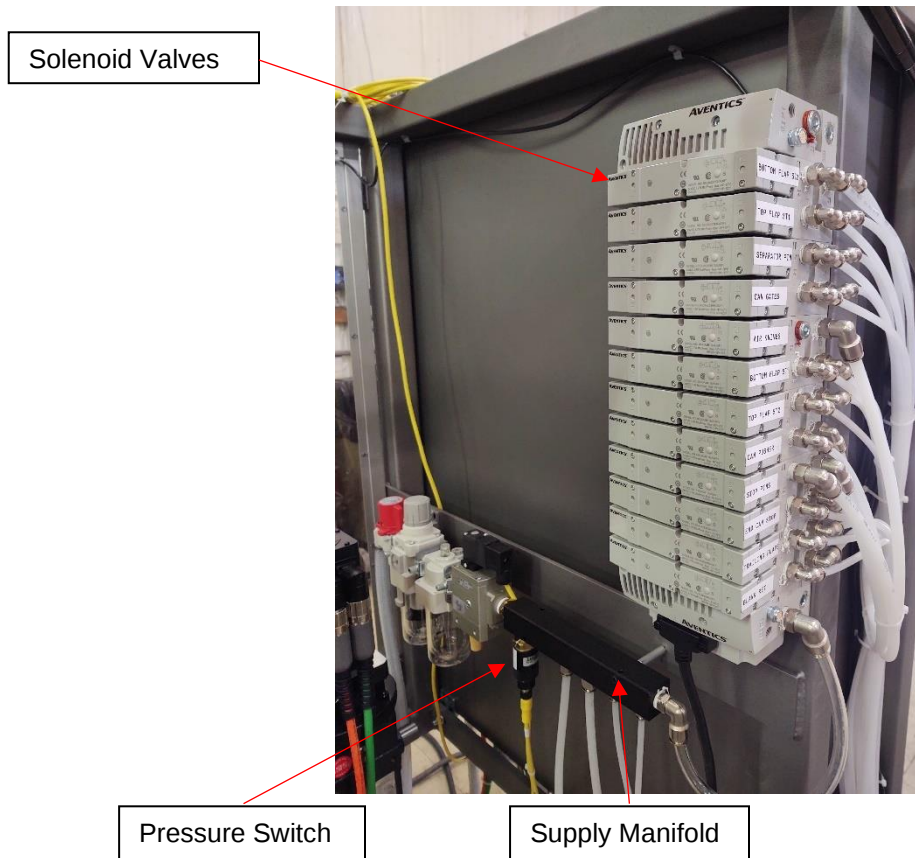




The lockout valve allows easy depressurization of the C3 cartoner without disconnecting lines. This allows safe access for maintenance and machine adjustment. The soft start/dump valve will also depressurize the machine when any e-stop or safety function is tripped, such as the doors being opened.



The combination air regulator and filter sets the maximum air pressure for the machine as well as helping remove water and particles from the air system. The lubricator helps lubricate the air system, prolonging the life of seals and ensuring smooth function of pneumatic devices.



The pressure switch detects if air pressure is too low and will signal the PLC with a fault. *Consistent air supply is critical to machine operation.* The supply manifold distributes air pressure to various components. The solenoid valves are controlled by the PLC to actuate pneumatic devices with programming. This controls the operation of the actuators.

## 2.0 INSTALLATION

Install the C3 Cartoner in facility.

### 2.1 UNLOADING

The cartoner is shipped on a wooden skid and protected for shipment by a plastic covering. *Do not remove the shipping skid* until the machine has been moved onto the foundation.

### 2.2 LIFTING

#### **---WARNING---**

***IMPROPER LIFTING OF THIS MACHINE COULD RESULT IN SERIOUS INJURY OR EVEN DEATH. ONLY AN EXPERIENCED RIGGER OR CRANE OPERATOR SHOULD LIFT THIS MACHINE AND ALL SAFETY PRECAUTIONS MUST BE FOLLOWED. ANY EQUIPMENT USED FOR LIFTING OR MOVING THIS EQUIPMENT MUST BE IN GOOD WORKING ORDER AND HAVE THE CAPACITY TO HANDLE THE WEIGHT OF THE MACHINE AND ANY ACCESSORIES ATTACHED TO IT.***

The cartoner may be lifted with the forks of a lift truck beneath the frame assembly. The lift truck must approach the cartoner from the operator side; otherwise, the glue system may be damaged. If the machine is lifted using slings the slings must be rigged beneath the frame and leather padding should be placed between the lifting cables and the machine to prevent cable rub.

The weight of the packer will be approximately 3000 pounds. For floor mounting dimensions refer to the Climax machine layout drawing.

### 2.3 LEVELING

Check machine level in three or four places as directed below:

1. Place an accurate level on the frame (lengthwise) and check machine level from front-to-back. Raise or lower one or more leveling legs to obtain a level condition in the front-to-back direction.
2. Turn the level 90° and take readings to determine the degree of level across the can conveyor. Raise or lower leveling legs as necessary.
3. Check the lug conveyor to be sure it is reasonably level. If the can conveyor is level, the lug conveyor should be level. Anchor the machine to the foundation in four places.

## 2.4 AIR CONNECTION

Clean, dry compressed air should be connected to the air inlet fitting. An air supply of 90 psi is recommended for proper operation of air components. See section 1.7 for more information on the pneumatic system.



To properly supply air to the machine air input should be a  $\frac{1}{2}$ " NPT which is larger than a  $\frac{1}{2}$ " ID hose (approx.  $\frac{5}{8}$ ".) This may not sound like a lot, but the surface area of a  $\frac{5}{8}$ " ID pipe is 56% greater than a  $\frac{1}{2}$ " ID pipe, thus allowing much greater air flow. *Proper and consistent air supply is CRITICAL to the proper operation of this machine.* The picker suction is created by a venturi type vacuum generator that requires a constant flow above 75 psi the entire time the vacuum generator is engaged. Also, the picker is operated by an air cylinder. So, if the added demand of the air cylinder starts to rob the vacuum generator, the picker cylinder may not extend fully in the allotted time. This means the blanks may not come all the way down into the pocket on the conveyor, or the vacuum cups may disengage prematurely. In short, bad things are sure to happen if the air supply is not 100% all the time.

Normally, the reservoir tank on the air compressor is equipped with a  $\frac{3}{4}$ " NPT fitting, and the main trunk lines for the air system are plumbed with  $\frac{3}{4}$ " pipe. The air drops to the machines are normally  $\frac{1}{2}$ " pipe which is what our machine is expecting. Having the larger trunk lines allows for quick make-up when demand is placed on the air supply and acts as additional storage capacity. Also, the compressor should have an air dryer placed just after the compressor storage tank to remove moisture from the warm air output of the compressor. Having moisture in the air system will gum up the pneumatic components on our machine as well as any other machines using air that has not been through a dryer.

## 2.5 ELECTRICAL HOOKUP

### **---WARNING---**

***HIGH VOLTAGES ARE PRESENT INSIDE THE ELECTRICAL CABINET THAT COULD CAUSE SERIOUS INJURY OR EVEN DEATH. ONLY QUALIFIED PERSONS SHOULD MAKE ELECTRICAL CONNECTIONS OR WORK INSIDE OF THIS CABINET.***

Connect incoming electrical power to the L1, L2, and L3 terminals in the control cabinet. Power requirements are listed on a tag outside the cabinet. Incoming power should also agree with the requirements shown on the motor data plate. Do not change or alter any of the wiring installed at the factory. The control circuit of this machine operates on 24-volt circuit.

Check for correct direction of motor rotation as follows:

1. Push the "START" button.
2. Observe the direction of conveyor movement. Conveyor should run in direction to convey cans into grid pattern.
3. If motor is running in wrong direction, stop motor by pushing "STOP" button, *THEN OPEN LINE DISCONNECT SWITCH.*
4. Reverse any two leads. (L1-L2) (L2-L3) or (L1-L3).
5. Restart machine by closing disconnect switch and pressing "START" button.

## 3.0 OPERATION

### **---WARNING---**

***IMPROPER USE OF THIS MACHINE COULD CAUSE SERIOUS INJURY OR EVEN DEATH. MAKE SURE THAT YOU ARE FAMILIAR WITH THE OPERATION OF THE EQUIPMENT BEFORE ATTEMPTING TO OPERATE THE MACHINE.***

Before operating the machine for the first time, lubricate all grease points, according to the procedures in the "MAINTENANCE" section 5.0 of this manual.

### 3.1 SETUP

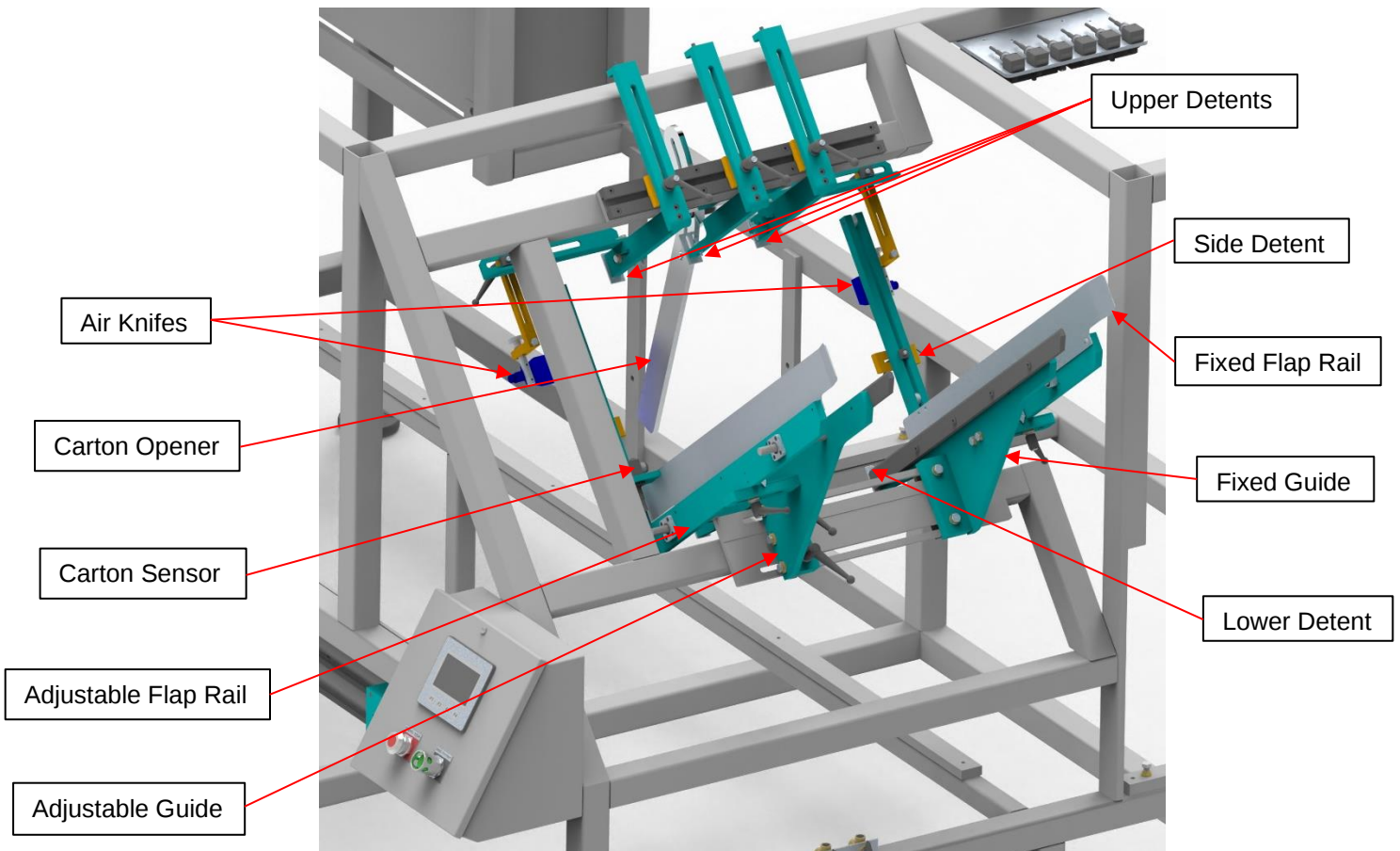
Before the machine can be operated, it must be properly setup. Setup can be straightforward if a methodical process is followed. One approach is to follow the product through the machine and make the adjustments to the machine in the order that the product will see them. This is the approach that follows:

### **---WARNING---**

***BEFORE PERFORMING SETUP OR ANY MAINTENANCE ON THIS EQUIPMENT, TURN OFF THE INCOMING ELECTRICAL POWER AND PHYSICALLY LOCK OUT THE INCOMING ELECTRIC AND AIR WITH A PADLOCK.***

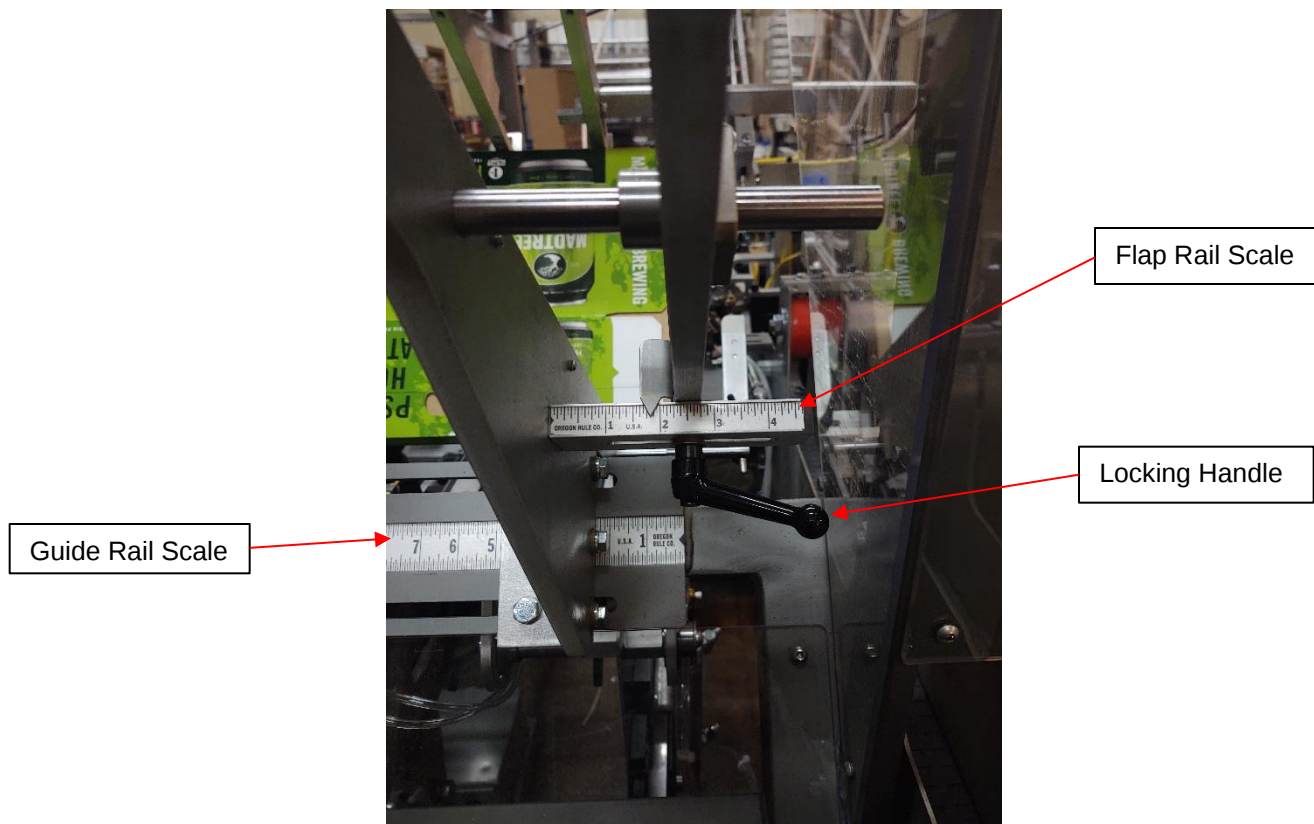
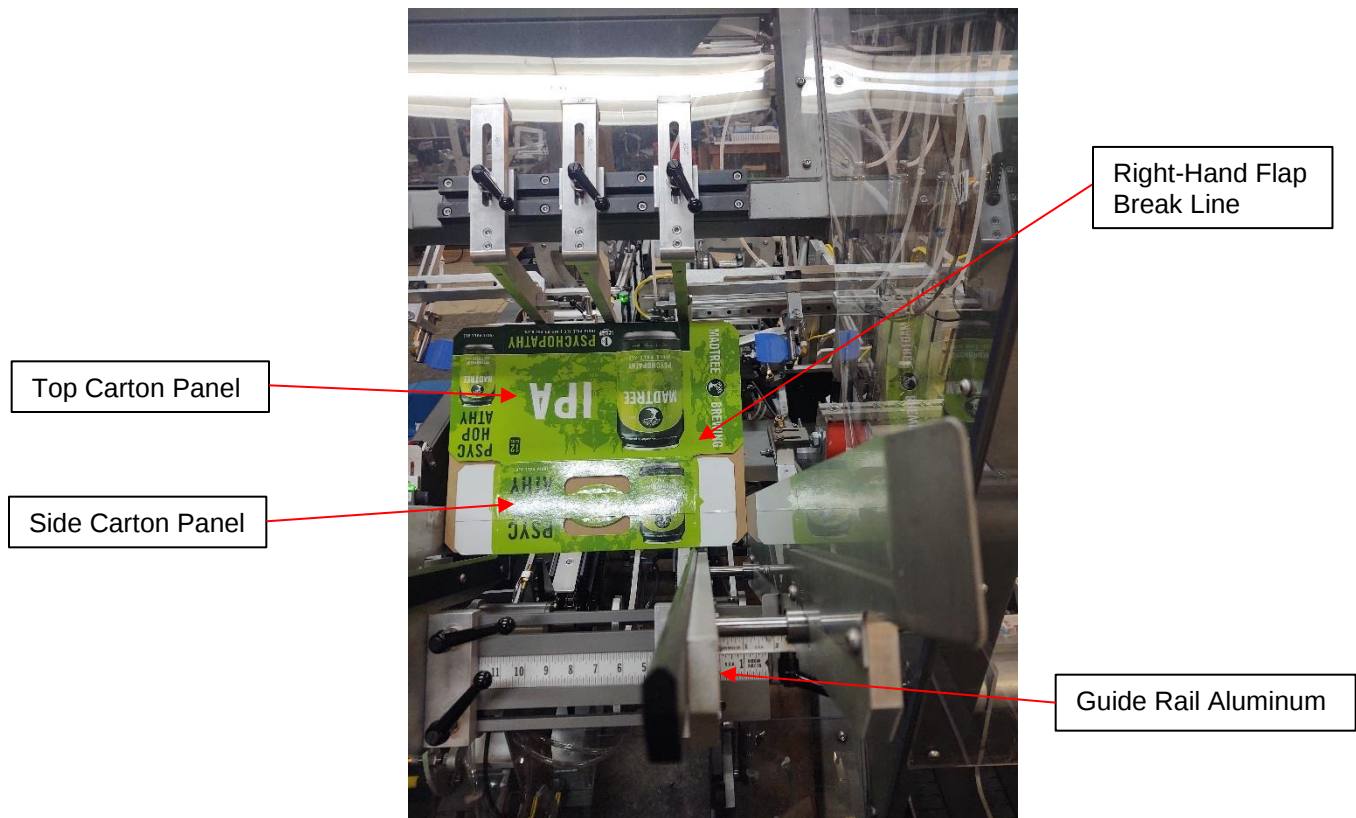
## Magazine

*Holds blank cartons in position to be picked by erector arms.*



### Set magazine width:

- Loosen the 2 clamp handles for the adjustable guide and move to the left, out of the way.
- Place a single blank into the magazine. Orient the blank so the bottom of the carton points into the machine. The top of the carton facing out of the magazine should be above the side panel. The picker arms pull on the bottom of the carton.
- Loosen the fixed flap rail handle. Align the right-hand flap break line of the blank with the right side of the fixed guide rail aluminum. Then, slide the flap rail guide in flush to the end of the flaps. Lock handle.
- Use the fixed flap rail scale setting and match adjustable flap rail to same setting.
- Slide adjustable guide in flush with left-hand side of the blank. Fit must be snug so the blanks stay in position, but not so tight that they can't slide through the magazine to be picked. Lock handles in place.

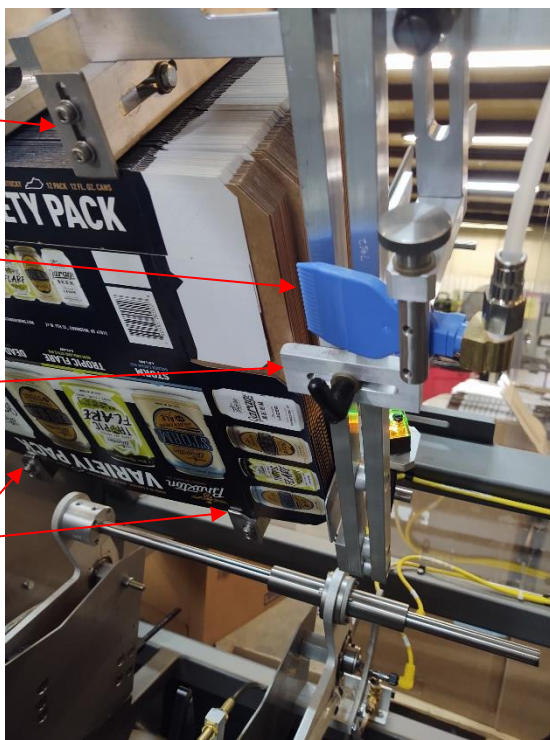


### Set Detents, Air Knives & Carton Sensor:

- Load more blanks in the same orientation as the first one to finalize settings.
- Loosen clamps and bring upper detents down to catch the top edge of the blanks.
  - Leave a small gap between the bottom of the arms and the top of the tray.
  - Tighten clamps once in position.
- Both upper and lower detent tabs are independently adjustable. Ensure each tab overlaps the blank by about 1/8in.
  - These are used to adjust the tension the erector arms are required to overcome to pull a tray out of the magazine.
- Set the side detents to engage the major flap for the top of the carton.
- For full flaps, the normal side detent may be moved out of the way and the full flap detent must be used to catch the overhanging flap (shown below).
- Air knives use a burst of air to assist carton opening.
  - Aim them to blow inside the carton being opened, to help separate the top and bottom panels.
- Ensure the carton sensor isn't pointed at a gap. The sensor will show green and orange lights if cartons are detected.



Upper detent arm clearance



## Carton Erector

*Pulls carton blanks out of magazine, opening carton & placing into position on the Lug Conveyor.*

### Set Picker Arms:

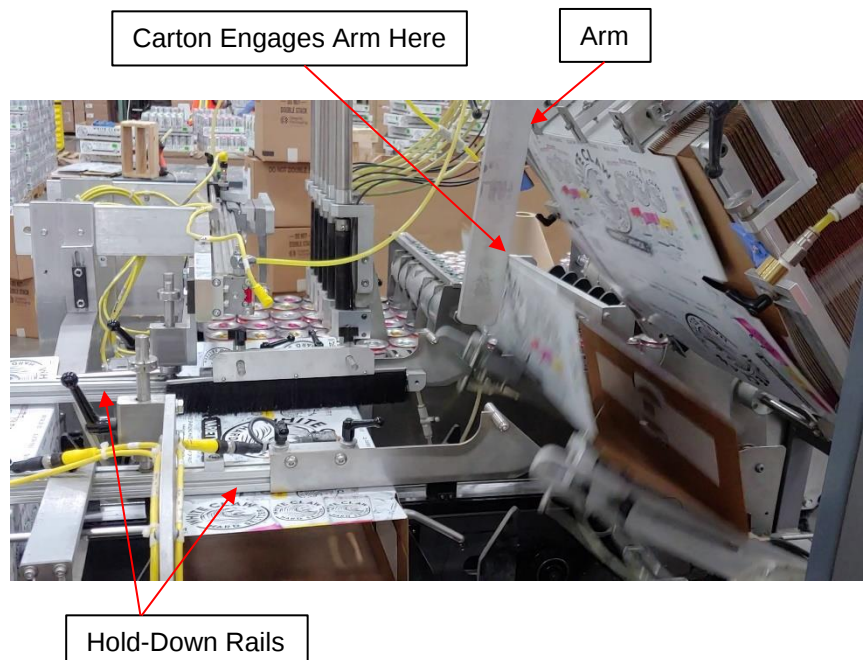
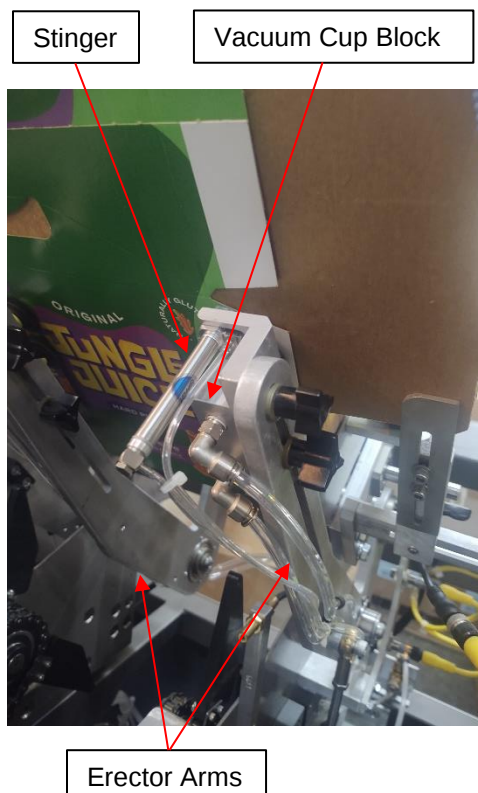
- Lift erector arms to blank carton in magazine. Carton should be centered between left and right arms. If it is not, adjust magazine.
- For large pack patterns, such as 24 packs, the center erector arm should be installed.
  - The center erector arm improves carton opening consistency on large pack patterns.
  - The center erector arm must be removed to run small pack patterns.

### Set Vacuum Cups & Stingers:

- Loosen vacuum cup knobs and position vacuum cups. Arms are slotted to allow cups to be adjusted along the arm's length.
- Position cups on the wide face of the carton bottom, approximately 1/4in from break line.
- Adjust the carton opening cylinder, or stinger, to land in between the minor flaps.
  - The stinger should push against the inside of the carton, make sure it will hit the brown surface on the inside of the carton.

### Set Carton Opener Arm or Plow:

- Adjust the carton opener arm, or plow attached to the frame.
- As the arms pull down the carton, we want the edge of the carton to brush this arm just before hitting the carton openers on the extruded aluminum hold-down rails.

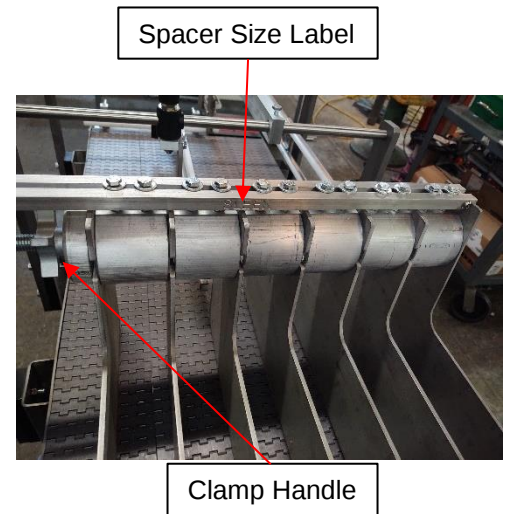


## Infeed Conveyor

Feeds and indexes cans, then pushes them into packaging on the lug conveyor.

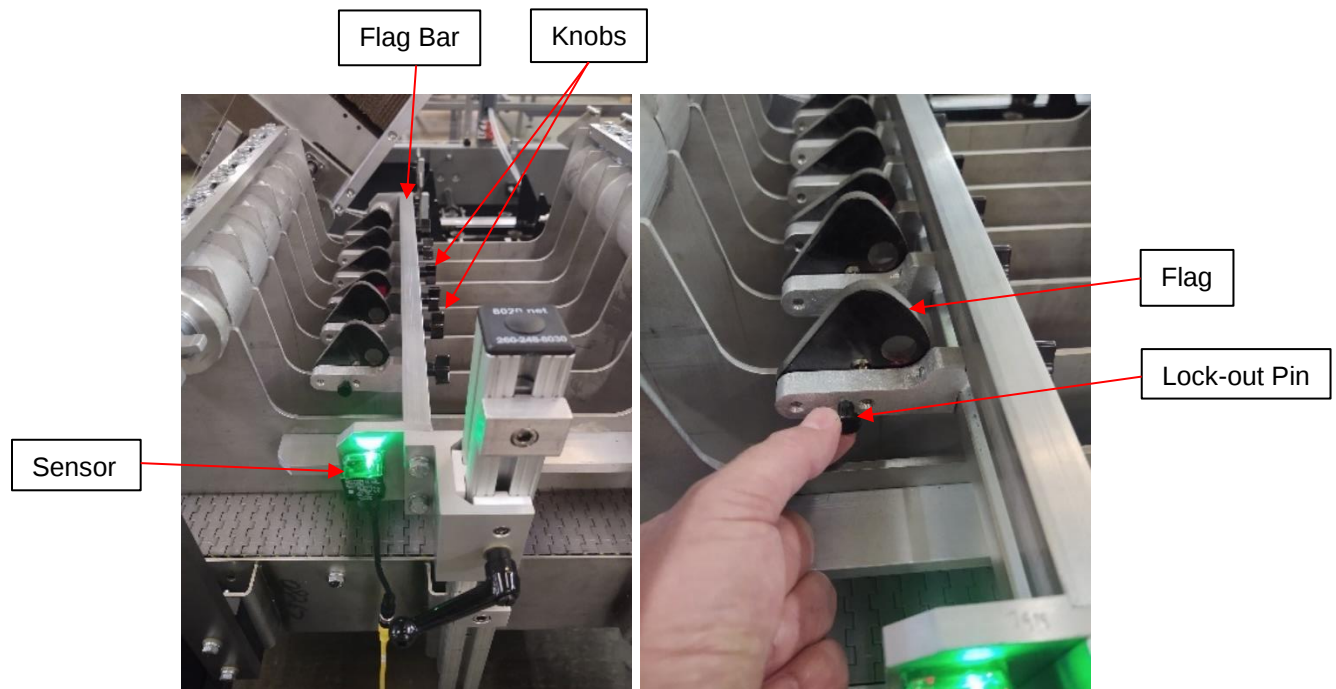
### Lane Spacing:

- Lane spacers must match product size. Spacer assemblies have either “Regular” or “Sleek” engraved on the top. Match product can type with lane spacers.
- To remove lane spacers, loosen all spacer clamp handles.
- Lift out spacer assemblies.
- Slide new spacer assemblies in between lanes.
- Once all spacers are in place, strongly tighten down clamp handles for all spacers.



### Flag Bar: Detects cans available before indexing into push area.

- Spacing of sensors must match lane spacing. Loosen knobs and move flag assemblies to match lane centers.
- Flag bar height must match product to be packed. Loosen height handle to raise for sleek cans or lower for regular cans.
- Flags for unused lanes must be locked in the up position. Not all pack patterns require all lanes. If lanes are unused, rotate flag pins while holding flag up to lock flag in the up position. To unlock, gently pull back on pin and twist.
- Ensure flags for all used lanes freely move. Place cans in the lanes under the flags. The sensor should show green and orange. If it just shows green, adjust it to get the sensor beam through all the holes in the flags.



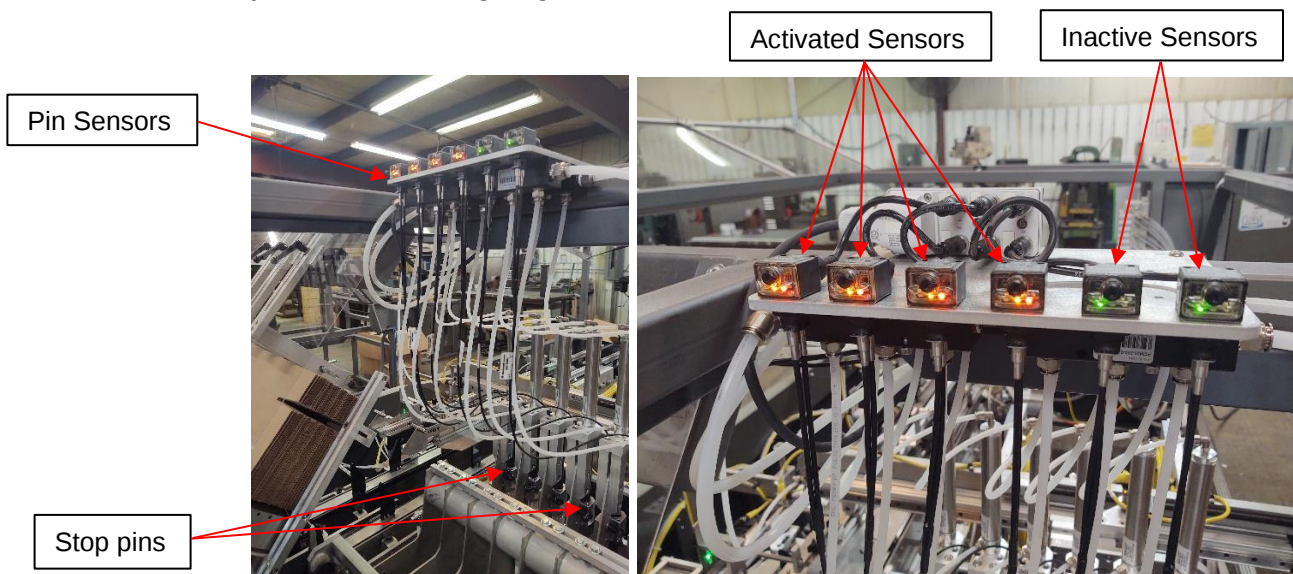
NOTE: Configuration shown for 12 pack. Lanes 1-4 used; lanes 5 & 6 locked out.

**Stop Pins:** Holds upstream line pressure while pack pattern is pushed in. Also limits cans from tipping and counts cans for the pack pattern.

- Stop Pin height must be adjusted to match the can height. Use a can to check the clearance between the top of the can and the bottom of the aluminum block the pin moves through.
  - Clearance should be 1/8in.
- Loosen the clamp handle on each stop pin guide block to allow vertical adjustment. Set to 1/8in or less between top of can and bottom of block.
  - **NOTE:** Carefully guide the black cable when adjusting pin height. It is an optical sensor cable and should not be sharply bent or pinched.



- Place cans under guide blocks and check sensors above. Sensors should have yellow and orange lights on when cans are detected.

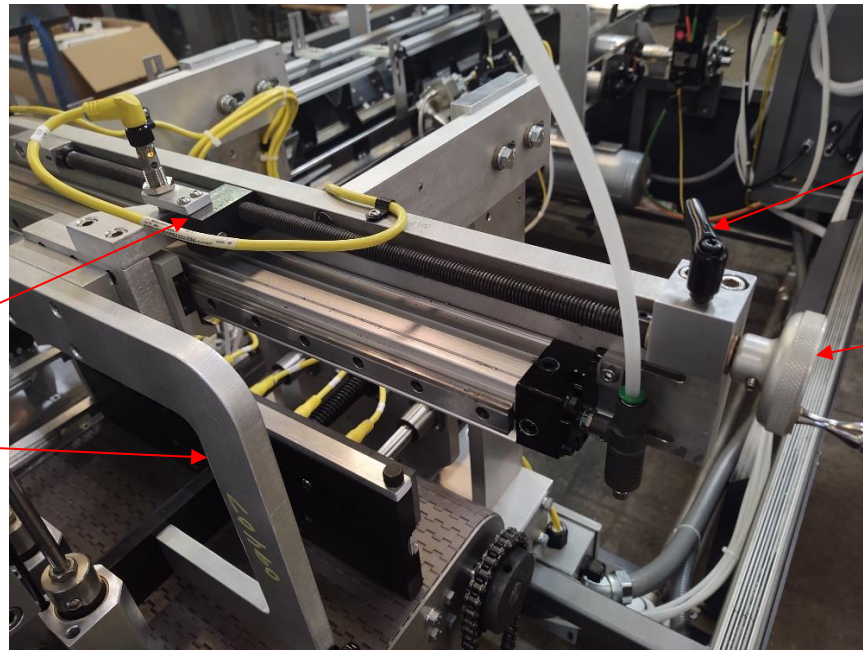


**NOTE:** Configuration shown for 12 pack. Lanes 1-4 used; lanes 5 & 6 locked out.

- Lock clamp handles down once adjusted. Check that the stop pin moves freely by hand through the block without binding.

**Pusher Back Stop:** Limits the return travel of the pusher arm to pack pattern size.

- Align the inside face of pusher plate with inside face of last lane required for pack pattern.
- Loosen the locking clamp and rotate crank to change the pusher return position. This changes the pusher arm return stop position.



Pusher Return Stop

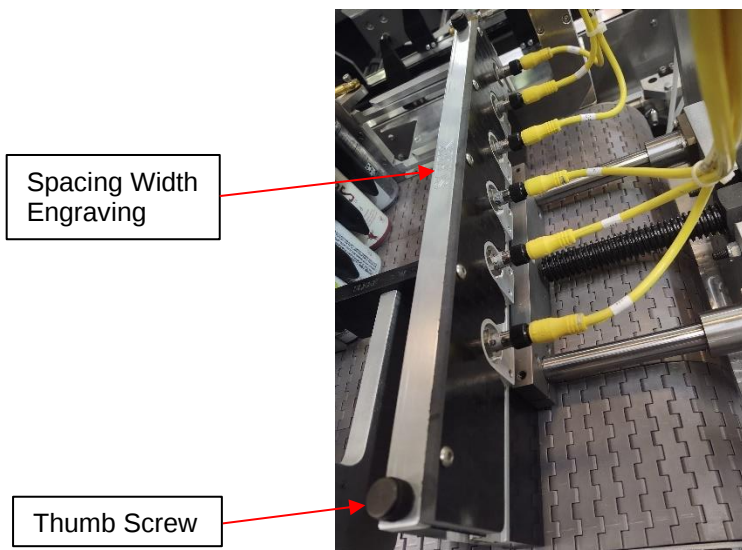
Pusher Arm

Locking Clamp

Adjustment Crank

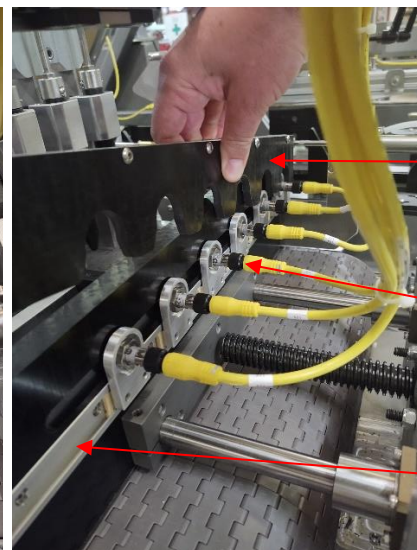
**Infeed End Stop:** Detects pack pattern and sets position for pushing.

- Set sensor spacer to match lane width. The top of the end stop has “Regular” or “Sleek” engraved on it.
- To change sensor spacing, remove the 2 thumb screws holding the spacer in and lift out the spacer.
- Slide sensors along rail to match the new spacer, set in place and install the 2 thumb screws.



Spacing Width Engraving

Thumb Screw



Sensor Spacer

Can Sensor

Sensor Rail

### Infeed End Stop (continued):

- Set the end stop position for the desired pack pattern. Begin by lining up can number required (2, 3 or 4) with a stop pin.
- End stop actuates upstream and downstream. Push into fully downstream position.
- With cans inline and against the stop pin, check the clearance between the cans and the end stop Delrin plate. Set to between 1/8in to 1/16in. This is your push pattern clearance while packing the product.
  - **Note:** After adjustment ensure the downstream end of the pusher plate does not interfere with the end stop plate.
  - **Note:** This clearance is very critical to machine operation. It can drastically alter the machine's behavior.
- Adjust by releasing the lock handle on the left-hand side of the crank and turning the crank.
- Lock handle and record value on counter after adjustment.

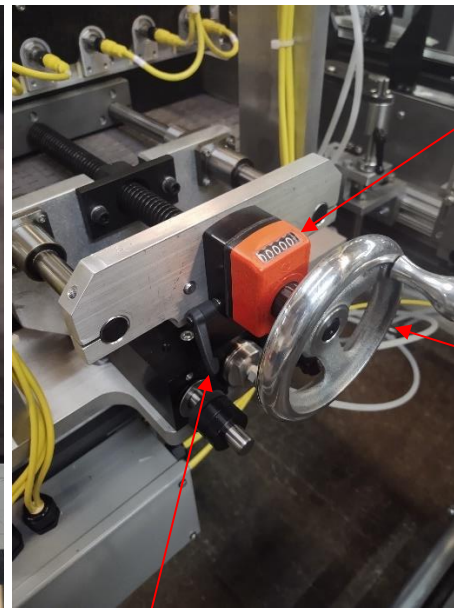


Cans in line with stop pin



Push Pattern Clearance

End Stop Plate



Position Counter

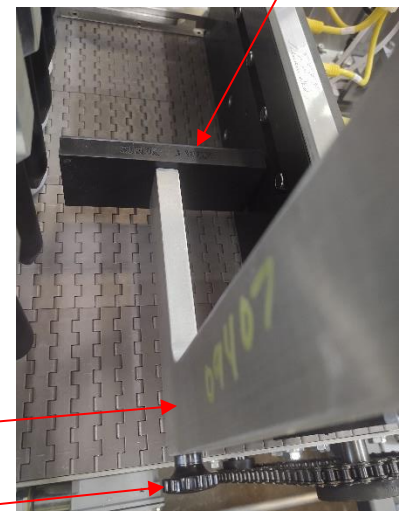
Adjustment Crank

Pusher Plate

Locking Handle

### Pusher Arm: Pushes the pack pattern into packaging on the lug conveyor.

- Pusher plate must match desired pack pattern. Pusher plates have pattern sizes engraved on the top.
- To remove the plate, unscrew the retaining knob on back of pusher arm and lift plate off the dowel pin on the arm.
- To install, push plate onto dowel pin and screw retaining knob back in.



Pusher Arm

Retaining Knob

## Lug Conveyor

*Erects packaging, folds, and glues flaps after receiving product.*

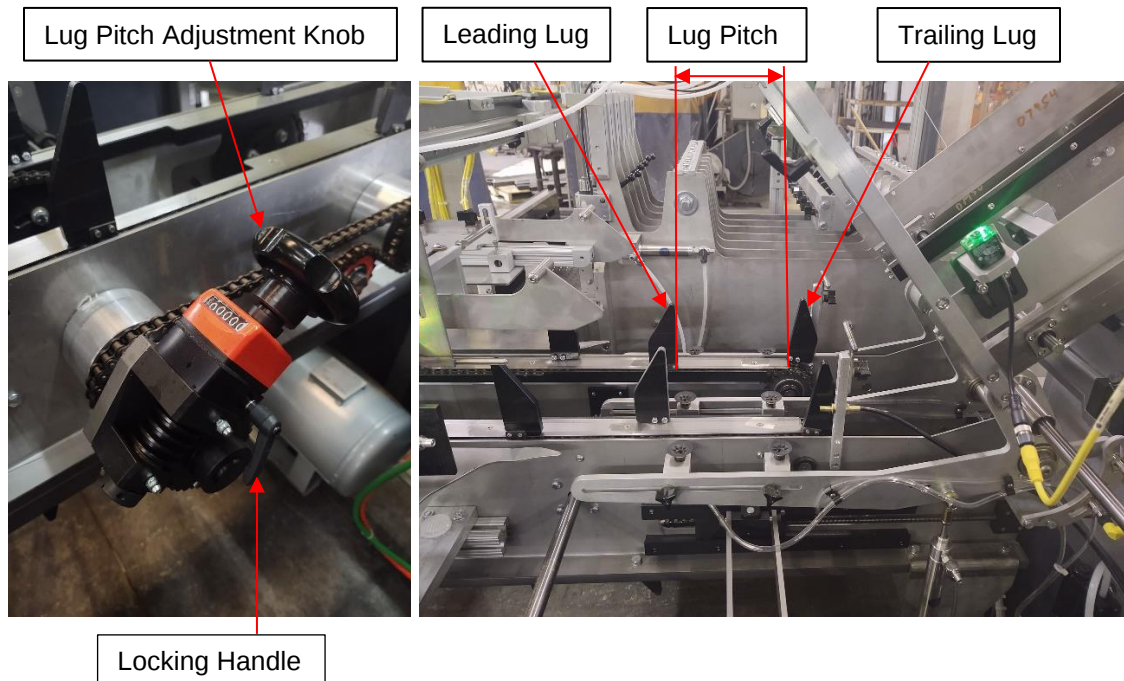
**Conveyor Width Adjustment:** Set the lug conveyor width to match pack pattern size.

- Locate the adjustment crank on the outside of the machine downstream of the glue system.
- Loosen the locking handle on the counter.
- Turn the handle to adjust the width of the lug conveyor.
  - Clockwise to make the conveyor wider.
  - Counter-clockwise to make the conveyor narrower.
- Match the major flap break lines with the outside edges of the stainless-steel conveyor sides.
- Lock the handle and record the value.
  - **Note:** Watch for binding on center erector arm if installed. Removal of center arm is required for small pack patterns.



**Lug Pitch Adjustment:** Sets width between leading and trailing lugs to hold product packaging in place during flap folding and gluing processes.

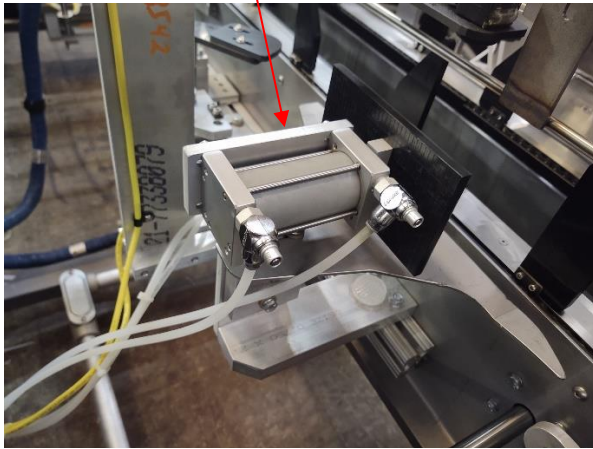
- Loosen the locking handle on the counter.
- Turn the knob on the counter to change the distance between lugs.
  - Clockwise to increase distance between lugs (larger pack patterns)
  - Counter-clockwise to decrease distance between lugs (smaller pack patterns)
- Clearance between the product packaging and lugs should typically be between 1/8in and 1/16in.



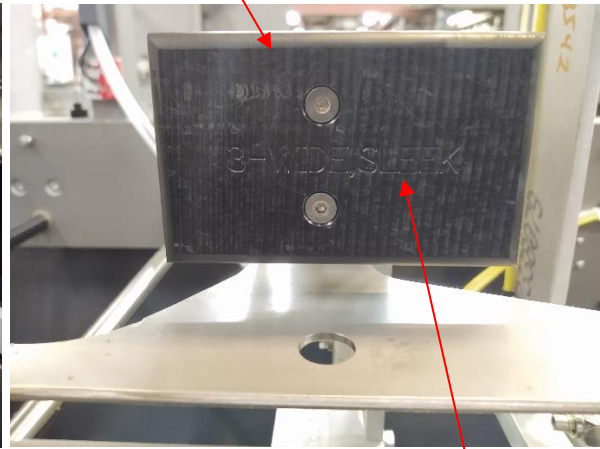
**Can Stop:** Stops the pack pattern push at the outside edge of the product packaging. Also known as the Catcher.

- Can stop plate must match pack pattern and pusher plate. The face of the plate is engraved with the pattern size.
- To remove the plate, unscrew the 2 flat head bolts holding it with a 5/32in hex wrench.
- Installation is reverse of removal.

Can Stop Assembly



Can Stop Plate



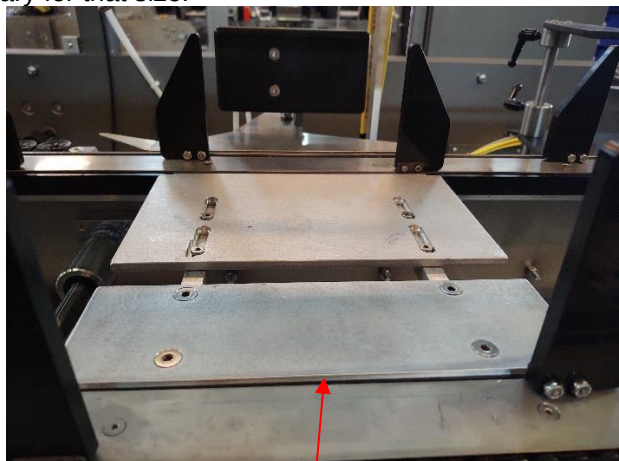
Engraved Pattern Size

**Carton Support:** For large pack patterns like 24 packs, the carton support keeps the bottom of the packaging flat during the product push. If cans are falling over in the middle of the carton or tray on the push, use this.

- Locate the slight cutouts of the Delrin pieces in between the conveyor rails in the push area.
- Drop the Carton Support plate assembly into these cutouts.
- Loosen the bolts and slide the plate to fit snugly in the cutout.
- Tighten the bolts after verifying fitment.
- **NOTE:** Not all packaging requires use of this. Climax Packaging has successfully run 24 packs without this, but it can help in certain situations. If the carton support is too wide to fit your pack pattern it is very likely unnecessary for that size.



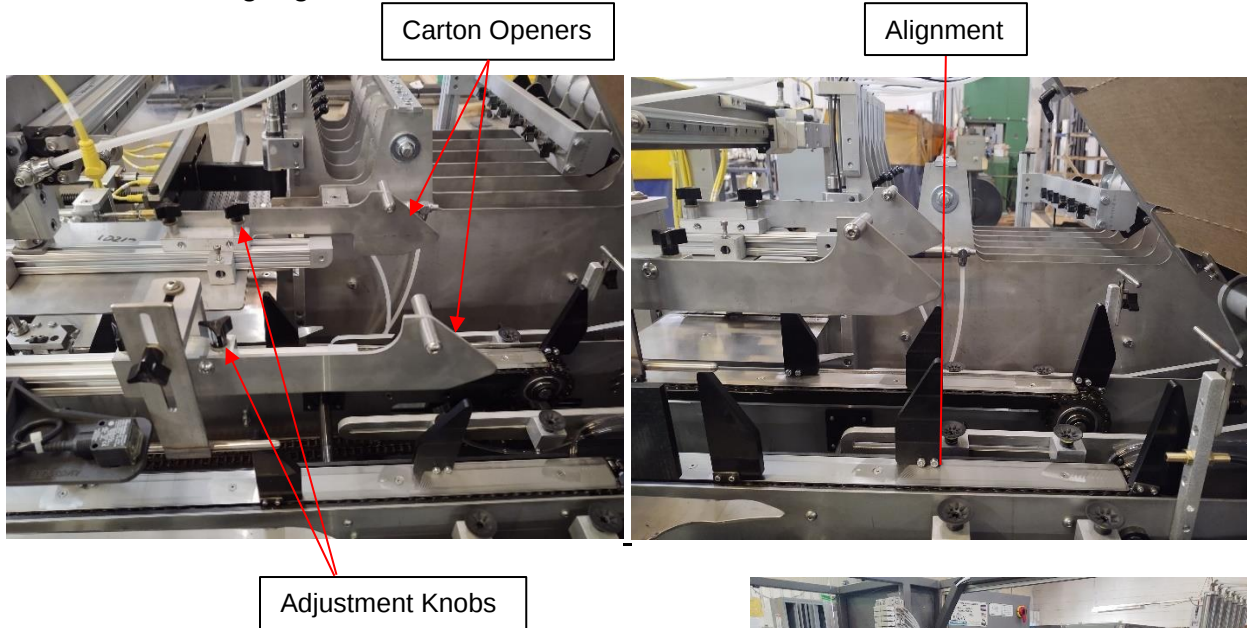
Cutout in Delrin chain support



Carton Support Installed

**Carton Opener:** Adjust to attain greater consistency in the tray erection process.

- Locate the components underneath the magazine on the extruded aluminum rails, above the conveyor. These components engage the downstream edge of the product package to assist in opening the package.
- Loosen the 2 adjustment knobs for each side.
- Position the Carton Openers so the end is approximately even with the inside of the leading lug.



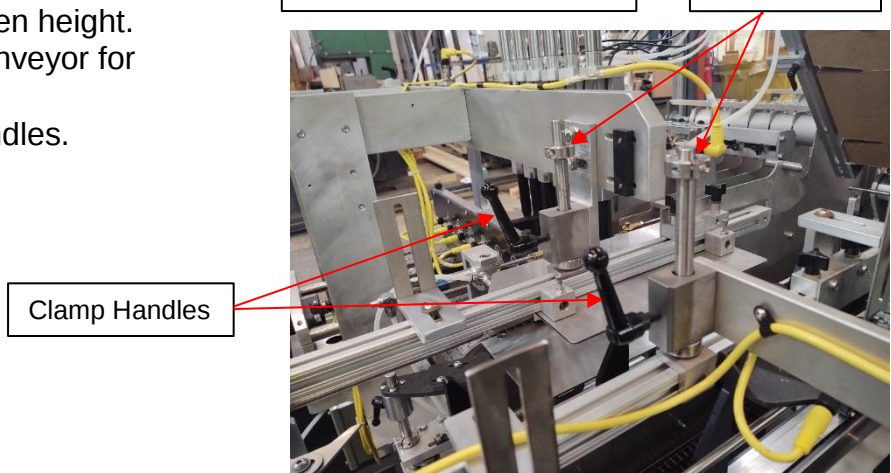
**Hold Down Rails:** Mounts various sensors and product guides essential for operation.

- Hold down rail height must match product height. Stop collars limit vertical travel for quick adjustment between sleek and regular size cans.
- Locate the rail mount posts. Loosen the clamp handles to adjust height.
- Set bottom of rail to 1/16in above top of can. Check rails are at both ends to ensure even height. Measure to lug conveyor for reference.
- Tighten clamp handles.



Hold Down Rail Location

Stop Collars



## 3.2 MANUAL OPERATION

The operator panel on the machine contains several buttons that allow manual operation of the machine. *When the machine is being manually operated, it is the responsibility of the operator that none of the manual functions being performed will damage the equipment or product, or cause injury to the operator or any bystanders.* Be forewarned that the actuators will operate at their full rated speed, which is about 1/2 second per stroke. Be cautious when operating the machine manually, and double or triple check the possible consequences of the manual action prior to initiating it.

Pushing one button will extend the actuator, while pushing the second button will retract the actuator. Once activated, the actuator will travel full stroke, even if the switch is released. The only exception is that if the switch is activated in the opposite direction quickly enough, the actuator can be reversed in mid stroke.

## 3.3 AUTOMATIC OPERATION

### **---WARNING---**

***THE MACHINE CAN BE IN AUTOMATIC CYCLE BUT APPEAR TO BE STOPPED. IT WILL RESTART WHEN THE PROPER CONDITIONS ARE MET. DO NOT REACH INTO THE MACHINE AT ANY TIME WITHOUT STOPPING IT, DISCONNECTING THE ELECTRICAL POWER, AND LOCKING OUT THE INCOMING AIR SUPPLY.***

Three different pushbuttons control the automatic operation of this equipment. They are the cycle start pushbutton, cycle stop pushbutton and emergency stop pushbuttons.

The "Cycle Start" button places the machine in automatic operation.

The "Cycle Stop" button stops automatic operation.

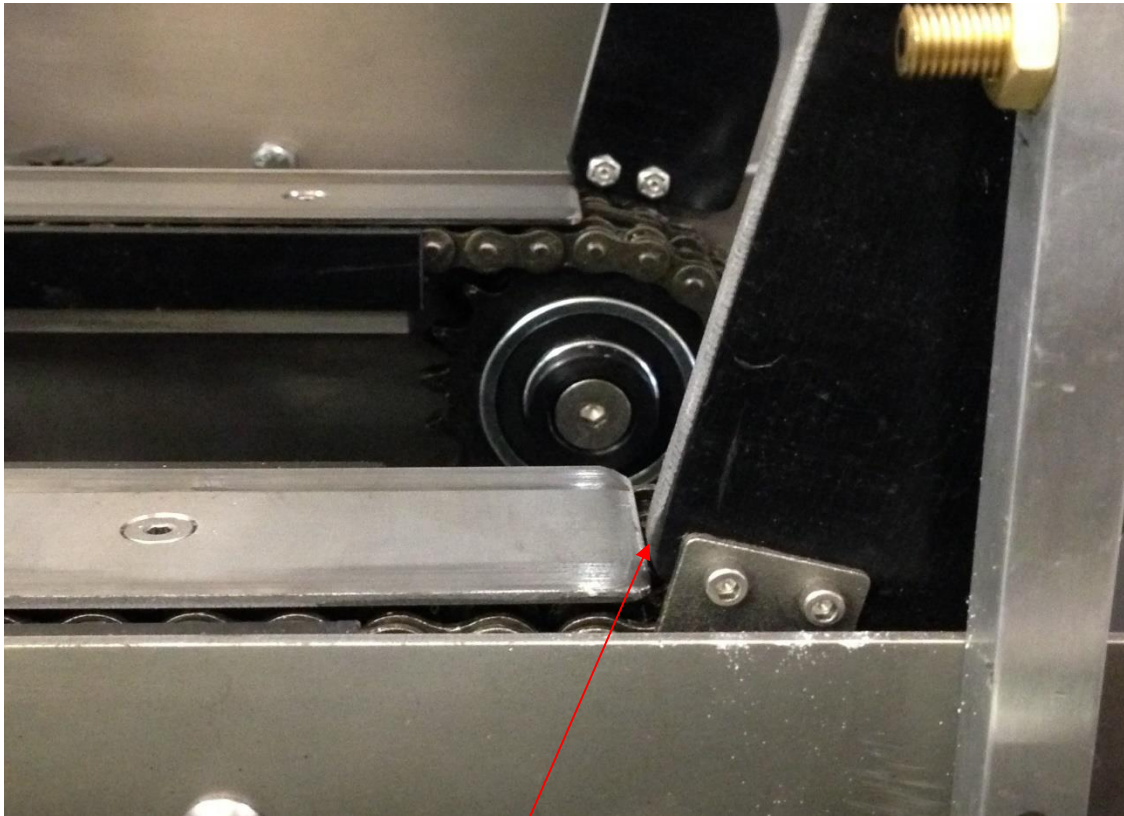
The "Emergency Stop" pushbutton stops the packer in an emergency.

The "Emergency Stop" pushbutton stops the operation of the machine and shuts off power to the conveyor drives and the output module. The emergency stop pushbutton is latching therefore must be physically pulled out before the packer can be restarted.

### 3.4 RESETTING HOME POSITION

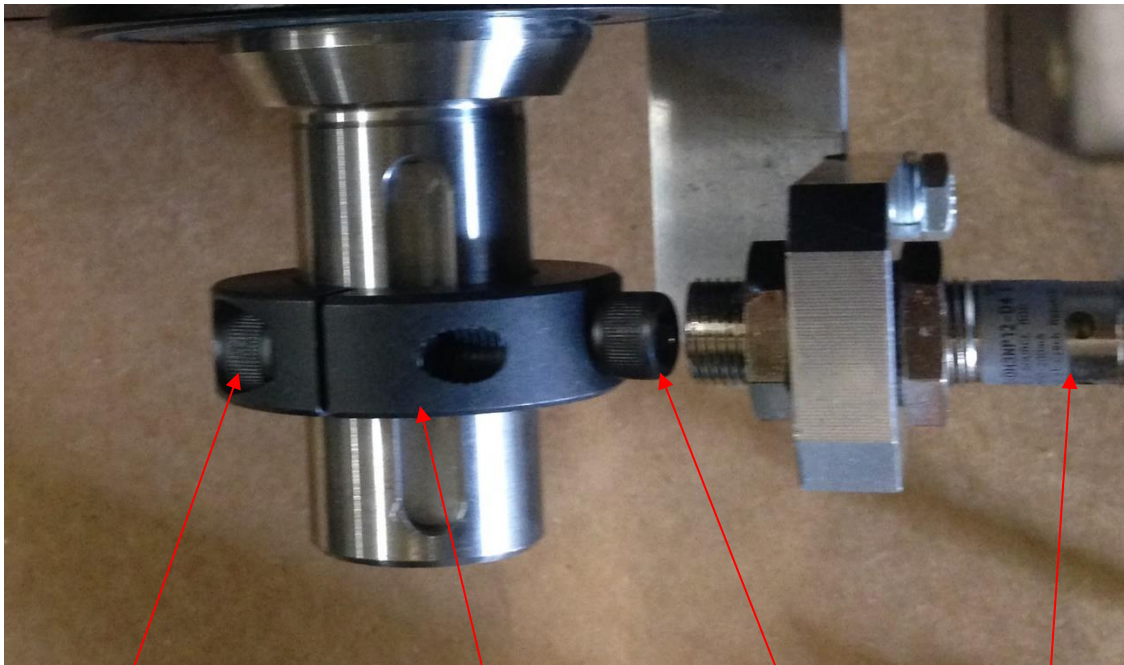
The home position of the carton lug conveyor may need to be reset in the event of a mechanical jam up.

1. Jog the lug conveyor until the leading edge of the trailing lug (carton pusher lug) is approximately even with the stainless-steel wear strip at the infeed end (below the carton hopper). See procedure below.
  - A. From the Run screen on operator station, press the Goto Manual Screen button.
  - B. On the Manual screen, press the Auto Mode button to select Manual Mode.
  - C. Press and release the Jog carton/lug conv. fast fwd button to jog the lugs forward close to the correct position. The Jog carton/lug conv. slow fwd button then can be used once you are close to the final position to get a more precise position.
  - D. On the Manual screen, press the Manual Mode button to reset to Auto Mode.
  - E. Press the Emergency Stop pushbutton.
  - F. Open the exit end door.
2. Loosen the collar (using a 3/16" hex wrench) on the left side of the lug conveyor gear box and rotate the collar forward (towards you) until the home switch turns on, then rotate it back until the switch just turns off and re-tighten the collar. See pictures on the next page.
3. Close the door.
4. Pullout the Emergency Stop button and press the Emergency Stop Reset button.
  1. Go to the Manual screen and press the Goto Run Screen button.
  2. On the RUN screen, press the Drive Fault Reset button and then press the Home Carton Lug Conv button.



#### HOME POSITION of LUGS

This position may vary slightly between machines. Typically, the distance between the lug and the wear strip will be no more than a ¼ inch.



ADJUSTING SCREW

COLLAR

SWITCH TRIP

SWITCH

## 3.5 ELECTRICAL SEQUENCE OF OPERATION

### START-UP

1. Turn on the main disconnect switch on the control panel.
2. Make sure that the air supply is connected and turned on. Minimum 60 Psi. LOW AIR PRESSURE will show on the display if the pressure is low.
3. Make sure that the door on the front of the machine, the 1 door at the rear and the one at the end are closed.

Note: The **front of the machine** is considered the **control panel side** and the **rear is the operator station side**.

4. Pull out the E-STOP buttons, if any are lighted. One is located at the operator station and one on the control cabinet.
5. Press the **EMERGENCY STOP RESET** push button to energize the SR1 safety relay, which energizes the MCR relay, Solenoid 1 (air on) and enables the motor drives outputs. The push button will now light.
6. Press the **RESET DRIVE FAULTS** push button on the PANELVIEW to reset any faults.
7. Press the **HOME CARTON / LUG CONV.** push button on the PANELVIEW to home the lug conveyor. Limit switch LS1 detects the home position.
8. Press the **CAN CONV. START** button on the PANELVIEW to start the can conveyor motors (M2 & M3).
9. Press the **CYCLE START** button on the PANELVIEW to start the machine cycle.

## OPERATION

The can conveyor brings in cans from the upstream conveyor system. Electric eyes EE1(lane 1 detection) through EE6 (lane 6 detection) detects cans in each lane at the front can pin stops.

Electric eye EE7 (infeed can accumulation) detects cans in each lane upstream.

Solenoids 5 and 19 (front can stop pins retract) are now energized to retract/raise the front can stop pins.

Cans will now move forward from the front can stop pins, where they are counted by electric eyes EE1 (lane 1) through EE6 (lane 6) as they move forward.

When the count is complete, solenoids 5 and 19 are de-energized to lower the front can stop pins.

The leading cans are then detected by limit switches LS2 (lane 1) through LS7 (lane 6) at the end of the can conveyor, next to the can pusher.

Solenoid 4 (can conv end can stop retract) is energized, after a short delay, to retract the can conv. end can stop. The can conveyor will now stop momentarily.

If there is a carton in position to load detected by electric eye EE11, solenoid 6 (can pusher/loader extend) is energized to extend the can pusher. Limit switch LS8 is tripped when the pusher has extended.

Solenoid 17 (can gate/guide fingers open) is energized to open the guide fingers.

Solenoid 6 is de-energized, after a short delay, to retract the can pusher. When the can pusher has retracted limit switch LS9 is tripped.

Solenoid 17 (can gate/guide fingers open) is de-energized to close the guide fingers.

Solenoid 2 (blank retriever extend) is energized, after a short delay, when the lug conv. starts, to extend the blank retriever to pull a carton from the magazine. Limit switch LS11 is tripped when the retriever has extended.

Electric eye EE9 (carton magazine low limit) detects that there is a sufficient quantity of cartons in the magazine. If not, the blank retriever will not extend.

When the carton conv. lugs are in position and after a short delay, solenoid 2 is de-energized to retract the blank retriever. Limit switch LS10 is tripped when the

blank retriever has retracted.

Electric eye EE10 detects if a carton was pulled down and positioned on the lug conveyor.

Solenoid 18 (carton separator pins extend) is energized, after a short delay, when the blank retriever starts pulling a carton from the magazine.

Solenoid 18 de-energizes, after a short delay, to retract the separator pins about the time the blank retriever has retracted.

The lug conveyor will now advance forward if there is not a carton at the load station, detected by electric eye EE11, or the can load cycle has been completed by the can pusher.

Electric eye EE14 (carton backup on exit conv.) detects if cartons are backed up on the downstream conveyor. If so, the lug conveyor will not move.

Solenoid 3 (close trailing flaps) is energized each time the lug conveyor indexes and stops. The air cylinders, front and rear, on each side of the conveyor extends to close the flaps.

When the index cycle begins, solenoid 3 is de-energized, after a short delay, to retract the air cylinder.

Solenoids 15 (front glue gun-both nozzles) and 16 (rear glue gun-both nozzles) glue station #1 are energized when the lug conveyor indexes. Glue is now shot on the lower portion of the leading and trailing carton flaps.

Glue will not be shot if electric eye EE12 (carton present at station #1) did not detect a carton ready to glue.

Solenoid 8 (bottom flap folders extend) is energized each time the lug conveyor stops. The air cylinders extend to fold up the lower flap to set the glue.

When the index cycle begins, solenoid 8 is de-energized to retract the air cylinders.

Note: Glue station #1 Glue Gun can be turned on or off depending on the carton type being used. Solenoids 15, 16 and 8 are disabled when station #1 is turned off.

The hose and gun heaters for manifold connections 3 and 4 are disabled.

Solenoids 11 (front glue gun-upper nozzle) and 13 (rear glue gun-upper nozzle) glue station #2 are energized when the lug conveyor indexes. Glue is now shot on the upper portion of the leading and trailing carton flaps.

Solenoids 12 (front glue gun-lower nozzle) and 14 (rear glue gun-lower nozzle) glue station #2 are energized when the lug conveyor indexes. Glue is now shot on the upper portion of the leading and trailing carton flaps.

Glue will not be shot if electric eye EE13 (carton present at station #2) did not detect a carton ready to glue.

Solenoid 7 (top flap folders extend) is energized each time the lug conveyor stops. The air cylinders extend to fold down the upper flap to set the glue.

When the index cycle begins, solenoid 7 is de-energized to retract the air cylinders.

## **PUSH BUTTONS**

E-STOP P.B. - Turns off the SR1 safety relay, which turn off the motor controls outputs, MCR relay to stop the cartoner.  
There are two E-stop buttons on the machine, one at the operator station and one on the control cabinet.

EMERGENCY- Resets the E-STOP circuit and energizes the MCR relay.  
STOP RESET  
P.B.

CYCLE STOP - Stops the machine cycle.  
P.B.

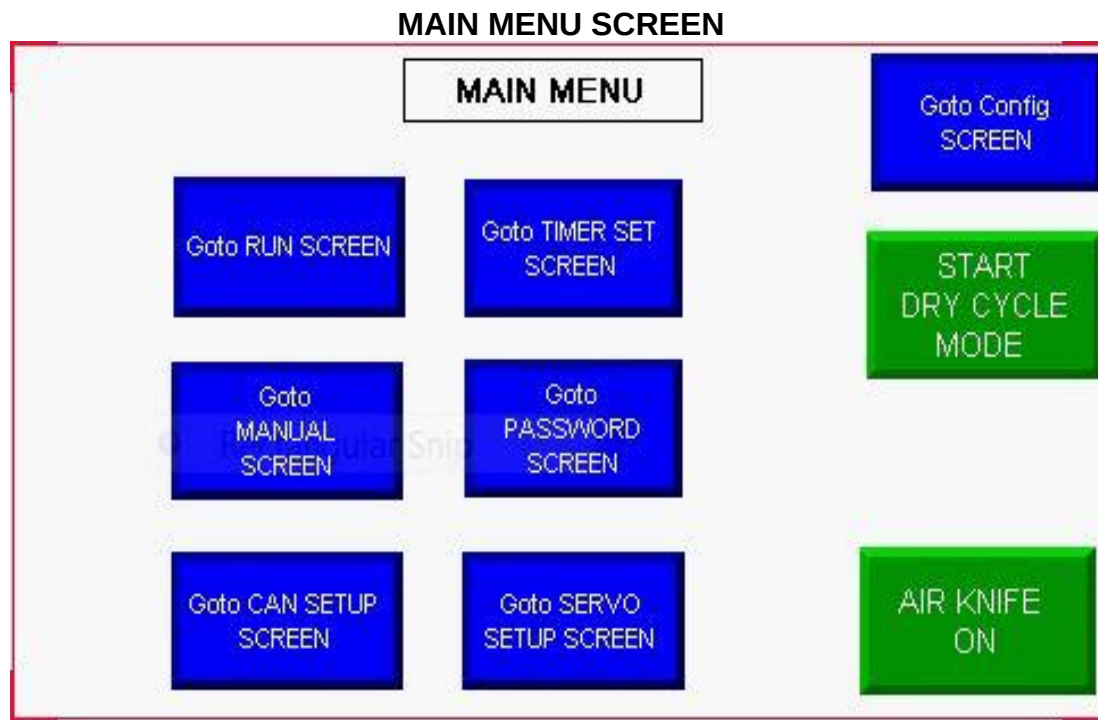
## PANELVIEW 800 OPERATOR STATION

The cartoner is equipped with an Allen Bradley Panelview 800 Touch operator terminal.

It has been programmed to be used as a push button station and as a fault panel show normal and abnormal operating conditions.



## SCREENS



**MAIN MENU SCREEN** - Allows the operator to select seven different screens.

1. RUN SCREEN
2. MANUAL SCREEN
3. CAN SETUP SCREEN
4. TIMER SET SCREEN
5. PASSWORD SCREEN
6. SERVO SET SCREEN
7. CONFIG. SCREEN

Select a screen by pressing the appropriate key.

The START DRY CYCLE MODE button-allows the machine to cycle without cartons and cans. This is normally used at the factory to check the operation of the machine and the components.

**NOTE: DO NOT TRY TO RUN IN DRY CYCLE MODE WITH CARTONS AND CANS. THIS COULD CAUSE DAMAGE TO THE MACHINE.**

The AIR KNIFE ON button turns on the air to the air knife.

## RUN SCREEN



**RUN SCREEN** - Shows the diagnostic display, can selection, carton count, cartons per minute and operator push buttons.

Press the **CAN CONV. START** button to start the can conveyor.

Press the **STOP** button to stop the can conveyor.

Press the **CYCLE START** button to start the machine cycle.

Press the **STOP** button to stop the machine cycle.

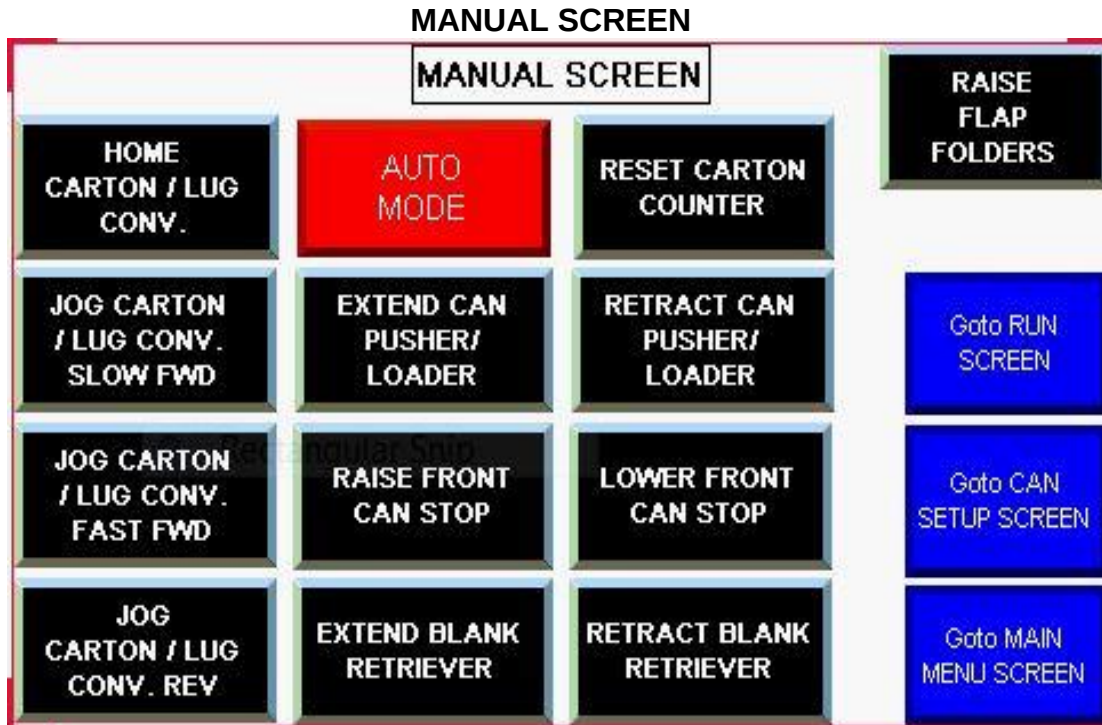
Press the **RESET DRIVE FAULTS** button to reset a Servo or VFD fault.

Press the **HOME CARTON LUG CONV.** button to home the carton lug conv.

Press the **RESET CAN FAULT** button to clear a **can count fault** and lower the can pin stops or clear a **can not present at pusher fault** to continue the cycle.

Press the **CLEAR CAN CONV.** button to clear out the can conveyor.

Press the **Goto MANUAL SCREEN** button to go to the manual screen.



**MANUAL SCREEN** - Allows the operator to jog or move parts of the machine to clear a jam or for setup purposes.

**NOTE:** The machine must be in the cycle stopped mode on the run screen to use these functions.

Press the **AUTO MODE** button to switch to **MANUAL MODE** be able to use the buttons below.

Press the **MANUAL MODE** button to switch back to **AUTO MODE** when finished.

Press the **HOME CARTON / LUG CONV.** button to home the carton conveyor.

Press the **JOG CARTON / LUG CONV. SLOW FWD** button to jog the carton conv. toward the exit end of the machine.

Press the **JOG CARTON / LUG CONV. FAST FWD** button to jog the carton conv. toward the exit end of the machine.

Press the **JOG CARTON / LUG CONV. REV** button to jog the carton conv. toward the infeed end of the machine.

Press the **EXTEND CAN PUSHER / LOADER** button to extend the can pusher.

Press the **RETRACT CAN PUSHER / LOADER** button to retract the can pusher.

Press the **RAISE FRONT CAN STOP** button to raise the front can stop.

Press the **LOWER FRONT CAN STOP** button to lower the front can stop.

Press the **EXTEND BLANK RETRIEVER** button to raise the blank retriever arm to get a blank carton.

Press the **RETRACT BLANK RETRIEVER** button to lower the blank retriever arm to pull down a blank carton.

Press the **RESET CARTON COUNTER** button to reset the carton counter located on the run screen.

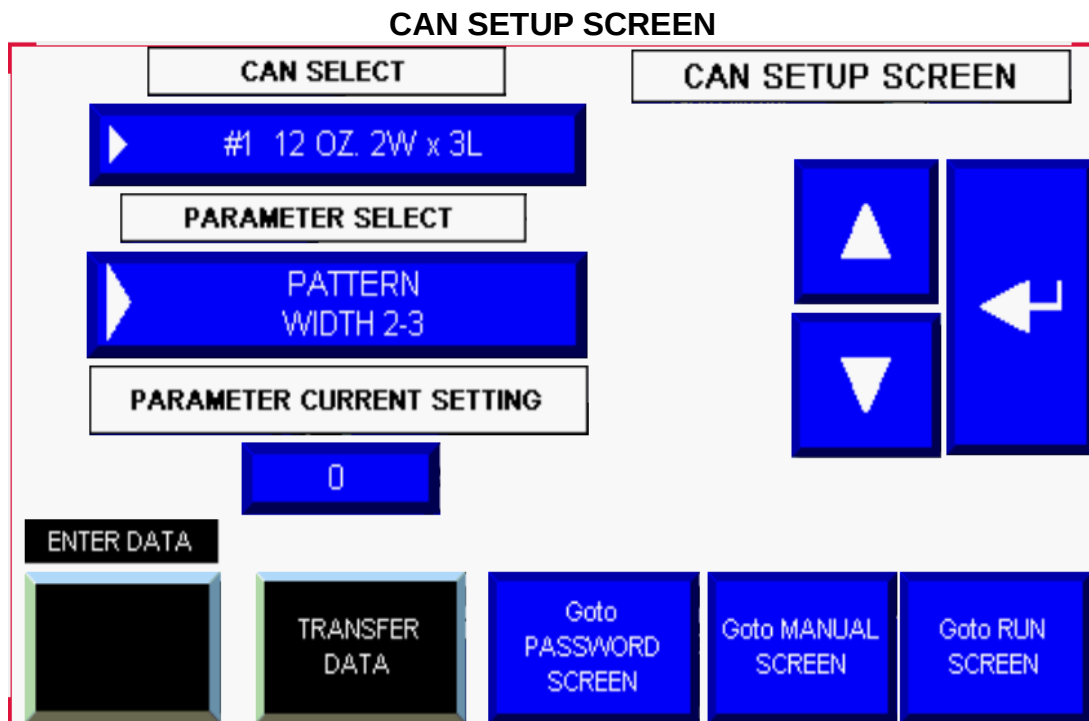
Press the **RAISE FLAP FOLDERS** button to raise the upper flap folders. This can be helpful when setting up for a new pattern to see where the glue is being applied.

**CAUTION:** Lower the flap folders before going into production by pressing the same button which now says **LOWER FLAP FOLDERS**.

Press the **Goto RUN SCREEN** button to go to the run screen.

Press the **Goto CAN SETUP SCREEN** button to go to the can setup screen.

Press the **Goto MAIN MENU SCREEN** button to go to the main menu screen.



**CAN SETUP SCREEN** - Allows selection of the bottle being run and data entry of 26 different parameters.

1. Touch the **CAN SELECT** window (blue box) to change the can to be run.

A gray box will appear around the bottle select box when selected.

Use the **up/down** arrow buttons to select the correct can and then press the **ENTER** button.

2. Touch the **PARAMETER SELECT** box to select the parameter to change.

Use the **up/down** arrow buttons to select the correct Parameter and then press the **ENTER** button.

The **parameter current data** is shown in the blue window.

**NOTE: Be sure you have selected the correct can before any parameter changes are made.**

**NOTE: A PASSWORD must be entered before any parameter setting can be changed.**

3. Enter the new data by pressing the **ENTER DATA** button. A numeric keypad will show on the screen. Type in the new data and press the **ENTER** key.

The value entered will now show in the **ENTER DATA** button box.

Press the **TRANSFER DATA** button to enter the new data.

This value will show in the **PARAMETER CURRENT DATA** window.

## PARAMETERS

There are 26 Parameters that are used to set up the cartoner.

1. PATTERN WIDTH – Set to 2, 3, or 4 only.
2. PATTERN LENGTH – Set to 2, 3, 4, 5 or 6 only.
3. NUMBER of CYCLES BEFORE STOPPING. – The number of cycles the machine will run before stopping when you have a low can accumulation.
4. STATION #2 UPPER LEADING GLUE ON DELAY – Delay before glue nozzle starts to shoot glue on the leading flap of the carton.
5. STATION #2 UPPER LEADING GLUE ON TIME – How long the glue nozzle is on.
6. STATION #2 UPPER TRAILING GLUE ON DELAY – Delay before glue nozzle starts to shoot glue on the trailing flap of the carton.
7. STATION #2 UPPER TRAILING GLUE ON TIME – How long the glue nozzle is on.
8. STATION #2 LOWER LEADING GLUE ON DELAY – Delay before glue nozzle starts to shoot glue on the leading flap of the carton.
9. STATION #2 LOWER LEADING GLUE ON TIME – How long the glue nozzle is on.
10. STATION #2 LOWER TRAILING GLUE ON DELAY – Delay before glue nozzle starts to shoot glue on the trailing flap of the carton.

11. STATION #2 LOWER TRAILING GLUE ON TIME – How long the glue nozzle is on.
12. STATION #1 GLUE GUN ON/OFF – 1=ON, 0=OFF
13. STATION #1 LEADING GLUE ON DELAY – Delay before glue nozzle starts to shoot glue on the leading flap of the carton.
14. STATION #1 LEADING GLUE ON TIME – How long the glue nozzle is on.
15. STATION #1 TRAILING GLUE ON DELAY – Delay before glue nozzle starts to shoot glue on the trailing flap of the carton.
16. STATION #1 TRAILING GLUE ON TIME – How long the glue nozzle is on.
17. VACUUM OFF DELAY- Delay before vacuum is turned off to release the carton.
18. CAN COUNT COMPLETE DELAY- Delay before the front can stop pins after cans are counted.
19. CAN CONV. SPEED – Sets the speed of the can conveyor. Select a number 1 through 60. 1 is the slowest and 60 is the fastest.
20. INFEED CAN CONV. SPEED – Sets the speed of the can conveyor. Select a number 1 through 60. 1 is the slowest and 60 is the fastest.
21. AIR KNIFE OFF DELAY- Delay before the air knife turns off after the carton is pulled from the magazine.
22. CAN CONV. END CAN STOP RETRACT DELAY- Delay after the cans are detected at the can stop before it retracts.
23. CAN PUSHER/LOADER EXTEND DELAY- Delay after the can stop retracts before the can pusher extends.
24. CARTON SEPARATOR PINS ON/OFF- The pins/cylinders that separate each side of the carton can be turned on or off as needed.
25. CARTON SEPARATOR PINS EXTEND DELAY- Delay before the pins extend when the carton is being pulled from the carton magazine.
26. CARTON SEPARATOR PINS RETRACT DELAY- Delay before the pins retract after the carton has been pulled from the carton magazine.

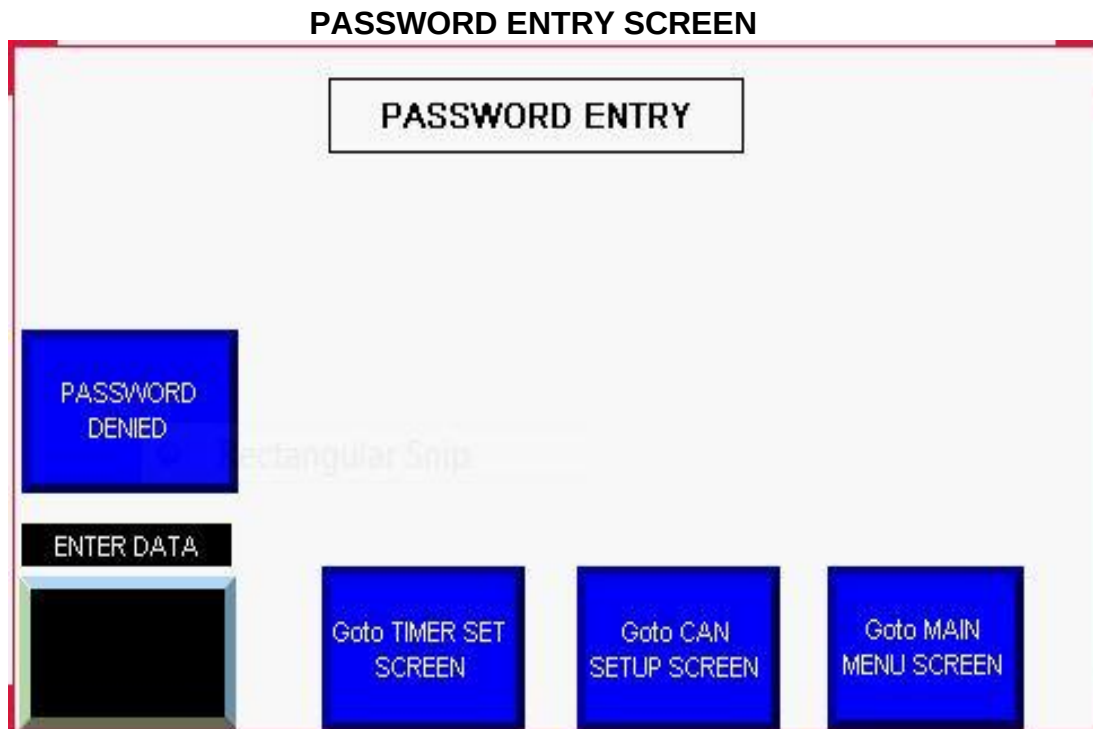
A previous can setting can be used as a comparison for the new settings.

If the new can is the same size as a previous one, then no new settings are needed.

Press the **Goto PASSWORD SCREEN** button to go to the password screen.

Press the **Goto RUN SCREEN** button to go to the run screen.

Press the **Goto MANUAL SCREEN** button to go to the manual screen.



## PASSWORD ENTRY SCREEN

Press the **ENTER DATA** button to open the enter password window. A numeric keypad will show on the screen.

Enter the password (4-digit machine #) using the numeric keypad and press the **ENTER** key.

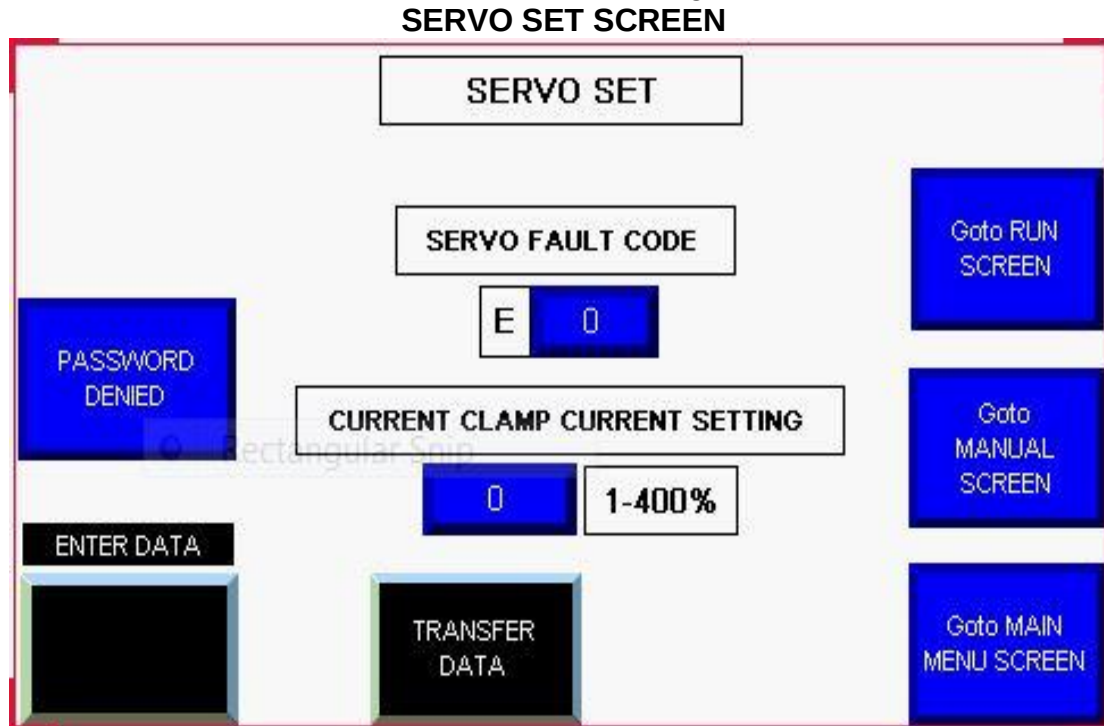
The **PASSWORD ACCEPTED** box will flash if the correct value is entered.

**NOTE: THE PASSWORD will reset after 3 minutes and must be re-entered before any parameter setting can be changed.**

Press the **Goto TIMER SET SCREEN** button to go to the bottle setup screen.

Press the **Goto CAN SETUP SCREEN** button to go to the bottle setup screen.

Press the **Goto MAIN MENU SCREEN** button to go to the main menu screen.



**SERVO SET SCREEN** - Allows the user to set the amount of torque required for the servo motor to move the cartons without stalling. The current clamp setting.

1. Press the **ENTER DATA** button to open the enter password window. A numeric keypad will show on the screen.

Enter the password (4-digit machine #) using the numeric keypad and press the **ENTER** key.

The **PASSWORD ACCEPTED** box will flash if the correct value is entered.

**NOTE: THE PASSWORD will reset after 3 minutes and must be re-entered before the setting can be changed.**

2. Press the **ENTER DATA** button a second time to open the enter data window. The numeric keypad will show on the screen.

Enter the new value for the CURRENT CLAMP SETTING using the numeric keypad and press the **ENTER** key.

The value entered will now show in the **ENTER DATA** button box.

3. Press the **TRANSFER DATA** button to enter the new data.  
This value will show in the **CURRENT CLAMP CURRENT SETTING** window.  
This setting should typically be a minimum of 115% and should be no higher than needed to prevent nuisance stopping of the servo motor.

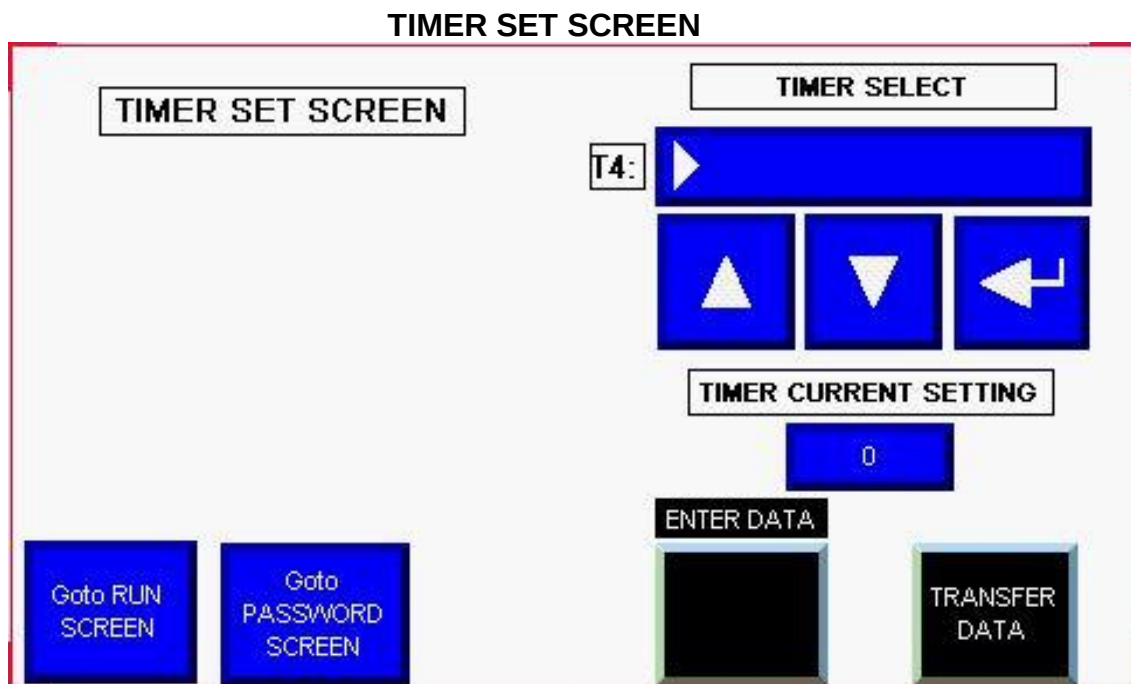
**NOTE: Setting the value too high can cause machine damage during a jam.**

SEE **RESETTING HOME POSITION** section.

Press the **Goto RUN SCREEN** button to go to the run screen.

Press the **Goto MANUAL SCREEN** button to go to the manual screen.

Press the **Goto MAIN MENU SCREEN** button to go to the main menu screen.



#### **TIMER SET SCREEN:**

Use the **up/down** arrow buttons to select the correct timer (T4-?) and then press the **ENTER** button.

The timer current preset is shown in the **TIMER CURRENT SETTING** blue window. The timer setting is normally in .01 second increments. 100 = 1 second.

Enter the new data by pressing the **ENTER DATA** button. A numeric keypad will show on the screen. Type in the new data and press the **ENTER** key. The value entered will now show in the **ENTER DATA** button box.

Press the **TRANSFER DATA** button to enter the new data.

This value will now show in the **TIMER CURRENT SETTING** window.

**NOTE: A PASSWORD must be entered before a timer preset setting can be changed. Also, some of the timers are used with the setup parameters and cannot be changed using the timer screen.**

Press the **Goto RUN SCREEN** button to go to the run screen.

Press the **Goto PASSWORD SCREEN** button to go to the password screen.

## **PLC TIMERS:**

Note: Where (Parameters) are shown in place of a timer value (30), these timers can only be changed through the can setup screen parameters.

Note: Where (Parameters) are shown in place of a timer value (30), these timers can only be changed through the can setup screen parameters.

T4:0 – Emergency stop reset delay. (30)

T4:1 - Power on timer. (200)

T4:2 - Carton/lug conv. home move complete delay. (100)

T4:3 - M1 servo ready delay. (100)

T4:4 - Index pulse timer. (10)

T4:5 - MCR fault timer. (50)

T4:6 - Safety relay fault timer. (10)

T4:7 - Carton/lug conv. jog delay. (25)

T4:8 - Can accumulation delay. (150)

T4:9 - Trailing flap closers retract delay. (25)

T4:10 - Cycle start on timer. (500)

T4:11 - Can loader/pusher retract delay. (10)

T4:12 - Can count complete delay. (Parameters)

T4:13 - Can stop pins lowered delay. (10)

T4:14 - Vacuum off delay timer. (Parameters)

T4:15 - Blank retriever retract delay. (40)

T4:16 - Time base timer. (6000)

T4:17 - Can accumulation reset delay. (100)

T4:18 - Can loader/pusher fault timer. (300)

T4:19 - Blank retriever fault timer. (200)

T4:20 - Password latch reset timer. (300 sec.)

T4:21 - Blank retriever extend delay. (40)

T4:22 - Can count not complete fault timer. (200)

T4:23 - Low can accumulation fault timer. (200)

T4:24 - Delay before upper glue nozzle starts to shoot glue (station #2).  
(Parameters)

T4:25 - Upper glue nozzle on time for first glue shot (station #2). (Parameters)

T4:26 - Delay before upper glue nozzle starts second glue shot (station #2).  
(Parameters)

T4:27 - Upper glue nozzle on time for second glue shot (station #2).(Parameters)

T4:28 - Delay before lower glue nozzle starts to shoot glue (station #2).  
(Parameters)

T4:29 - Lower glue nozzle on time for first glue shot (station #2). (Parameters)

T4:30 - Delay before lower glue nozzle starts second glue shot (station #2). (Parameters)

T4:31 - Lower glue nozzle on time for second glue shot (station #2). (Parameters)

T4:32 - Carton backup timer. (200)

T4:33 - Carton backup reset timer. (200)

T4:34 - Front can stop fault timer. (200)

T4:35 - Can down at can stop pins fault timer. (200)

T4:36 - Manual can pusher/loader extend delay. (100)

T4:37 - Air knife off delay. (Parameters)

T4:38 - Carton has been placed on conv. delay. (Parameters)

T4:39 - Can count complete delay auto cycle. (80)

T4:40 - Delay before upper & lower glue nozzles starts to shoot glue (station #1). (Parameters)

T4:41 - Upper & lower glue nozzles on time for first glue shot (station #1). (Parameters)

T4:42 - Delay before upper & lower glue nozzles start second glue shot (station #1). (Parameters)

T4:43 - Upper & lower glue nozzles on time for second glue shot (station #1). (Parameters)

T4:44 - Cans not present at pusher fault timer. (150)

T4:45 - Servo password latch reset. (180)

T4:46 - Can conv. end can stop retract delay. (Parameters)

T4:47 - Can Loader/pusher extend delay. (Parameters)

T4:48 - Carton separator pins extend delay. (Parameters)

T4:49 – Carton separator pins retract delay. (Parameters)

T4:50 – Index cycle timer. (500)

## **3.7 GLUE SYSTEM**

### **NORDSON GLUE SYSTEM**

The glue system being used is a Nordson ProBlue P4 unit. This system supplies the glue to seal the carton flaps. The glue is applied using up to 4 guns, 2 per side. Two of the guns (station #2) has 2 separate glue nozzles that are independently controlled by the machine PLC. The other 2 guns (station #1) also have 2 nozzles, but are commonly controlled. The length of glue pattern can be adjusted through the operator HMI panel.

We recommend using Henkel Technomelt cool 250A hot melt glue.

Set the tank, hose and gun temperatures to 250 degrees F.

If another brand of glue is used refer to the manufacturer specification sheet for correct temperature settings.

Set the air pressure on the unit to 20 TO 30 psi.

**See Nordson manual for additional information.**

### **OPERATING PARAMETERS-See Appendix B**

#### **-TEMPERATURE CONTROL-**

20-Temperature Units-Set to F = Fahrenheit

#### **-INPUT SETUP-**

##### **Standard Input 1**

30-set to 6 = Hose/Gun 3 Enable/Disable

##### **Standard Input 2**

31-set to 7 = Hose/Gun 4 Enable/Disable

NOTE: ALL OTHER SETTINGS ARE THE FACTORY DEFAULTS.

## 4.0 TROUBLESHOOTING

| PROBLEM                                   | PROBABLE CAUSE                                                                                                                                                                                                                              | CORRECTIVE ACTION                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CARTONER CAN CONV. DOES NOT START.</b> | <ol style="list-style-type: none"> <li>1. Main disconnect is off.</li> <li>2. A door is open.</li> <li>3. E-stop button is pressed.</li> <li>4. M2 VFD faulted.</li> </ol>                                                                  | <ol style="list-style-type: none"> <li>1. Turn on disconnect switch.</li> <li>2. Close all doors.</li> <li>3. Pull out E-stop buttons. Press E-stop Reset Button.</li> <li>4. Cycle panel power.</li> </ol>                                                                                                                   |
| <b>CYCLE WILL NOT START.</b>              | <ol style="list-style-type: none"> <li>1. Low air pressure.</li> <li>2. Auto/Manual button in Manual Mode on Manual Screen.</li> <li>3. Servo fault.</li> <li>4. Servo has not been homed.</li> <li>5. Glue system is not ready.</li> </ol> | <ol style="list-style-type: none"> <li>1. Check air supply and regulator setting.</li> <li>2. Press Auto/Manual button to reset to Auto Mode.</li> <li>3. Press Reset Servo Fault pb then press Home Carton Lug Conv. pb.</li> <li>4. Press Home Carton Lug Conv. pb.</li> <li>5. Wait for glue system to warm up.</li> </ol> |
| <b>MACHINE CYCLE STOPS.</b>               | <ol style="list-style-type: none"> <li>1. Low air pressure.</li> <li>2. Low cartons in magazine.</li> <li>3. A carton did not get picked.</li> </ol>                                                                                        | <ol style="list-style-type: none"> <li>1. Check air supply and regulator setting.</li> <li>2. Add more cartons and press Cycle Start.</li> <li>3. Check carton magazine and carton retriever.</li> </ol>                                                                                                                      |
| <b>CARTON CONV. WILL NOT MOVE/INDEX.</b>  | <ol style="list-style-type: none"> <li>1. Low can accumulation on can conveyor.</li> <li>2. Carton backup on exit conv.</li> <li>3. Cans have not been</li> </ol>                                                                           | <ol style="list-style-type: none"> <li>1. Wait for more cans.</li> <li>2. Wait for cartons to clear out.</li> </ol>                                                                                                                                                                                                           |

|                                            |                                                                                                                                                                                  |                                                                                                                                    |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>CARTON CONV. WILL NOT MOVE/INDEX.</b>   | loaded into carton.<br>4. Can loader has not retracted.                                                                                                                          | 3. Check for can misfeed.<br>4. Check for a jam up or switch not tripped.                                                          |
| <b>BLANK RETRIEVER WILL NOT EXTEND.</b>    | 1. Carton magazine low level.<br>2. Blank retriever not in down position.<br>3. Blown fuse on output.<br>4. Valve coil burned out or spool is sticking.                          | 1. Load carton magazine.<br>2. Check switch setting.<br>3. Replace fuse.<br>4. Replace coil or clean/replace valve.                |
| <b>BLANK RETRIEVER WILL NOT RETRACT.</b>   | 1. Retriever not fully extended.<br>2. Valve spool is sticking.                                                                                                                  | 1. Check switch setting.<br>2. Clean or replace valve.                                                                             |
| <b>CAN PUSHER/LOADER Will NOT EXTEND.</b>  | 1. Carton not present to load.<br>2. Cans not present at pusher.<br>3. Pusher not fully retracted.<br>4. Blown fuse on output.<br>5. Valve coil burned out or spool is sticking. | 1. Wait for carton.<br>2. Check for missing can.<br>3. Check switch setting.<br>4. Replace fuse.<br>5. Replace valve.              |
| <b>CAN PUSHER/LOADER Will NOT RETRACT.</b> | 1. Pusher has not fully extended.<br>2. Valve spool is sticking.                                                                                                                 | 1. Check for a can jam or switch not tripped.<br>2. Clean or replace valve.                                                        |
| <b>FRONT CAN STOP DOES NOT RETRACT.</b>    | 1. Low can accumulation.<br>2. Can down or not detected at front can stop.<br>3. Rear can stop did not extend.                                                                   | 1. Wait for more cans.<br>2. Check for down or missing can.<br>3. Check for blown fuse or valve coil burned out or sticking spool. |

|                                             |                                                                                                                                                       |                                                                                                      |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| <b>FRONT CAN STOP<br/>DOES NOT RETRACT.</b> | 4. Rear can stop is not down.<br>5. Blown output fuse for front can stop valve.<br>6. Front can stop valve coil burned out or spool is sticking.      | 4. Check switch setting or for down can.<br>5. Replace fuse.<br>6. Replace valve.                    |
| <b>FRONT CAN STOP<br/>DOES NOT EXTEND.</b>  | 1. Can count not correct in all lanes.<br>2. Spool stuck on front can Stop valve.                                                                     | 1. Stop machine and remove cans.<br>2. Replace valve.                                                |
| <b>REAR CAN STOP<br/>DOES NOT EXTEND</b>    | 1. Low can accumulation.<br>2. Can down or not detected at front can stop.<br>3. Blown output fuse.<br>4. Valve coil burned out or spool is sticking. | 1. Wait for more cans.<br>2. Check for down or missing can.<br>3. Replace fuse.<br>4. Replace valve. |
| <b>REAR CAN STOP<br/>DOES NOT RETRACT.</b>  | 1. Can count leaving front can stop not correct in all lanes.<br>2. Valve spool is sticking.                                                          | 1. Stop machine and remove cans.<br>2. Clean or replace valve.                                       |

## 4.1 PNEUMATIC SYSTEM TROUBLESHOOTING

| AIR COMPONENTS             | FUNCTION                                                                                                                                                                                                 | NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>INLET SHUTOFF VALVE</b> | When open, admits air to the machine. When closed, turns off air and the machine will not operate.                                                                                                       | Be sure this valve is turned when you are ready to run the machine. Turn the valve off when the machine is idle and when it is necessary to repair any part of the air system.                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>FILTER REGULATOR</b>    | This unit removes water, moisture, dirt and other impurities from the incoming air. The regulator portion of this unit allows the incoming air pressure to be reduced for best operation of the machine. | <p>Clean the filter daily.</p> <ol style="list-style-type: none"> <li>1. Close the inlet shutoff valve.</li> <li>2. Open the petcock at the bottom of the filter bowl.</li> <li>3. Wait for the bowl to drain completely.</li> <li>4. Close the petcock and open the inlet shutoff valve.</li> </ol> <p>To regulate air pressure, turn the knob on the top of this control to read <b>60</b> psi, which shows on the pressure gage provided on the regulator. Do not touch the pressure setting knob when draining the filter.</p>                                                                                                   |
| <b>AIRLINE LUBRICATOR</b>  | For mixing a slight amount of lubricant with incoming air. Lubricated air protects tubing, piping, and air hoses. It oils the moving parts of solenoids and air cylinders.                               | <p>To add oil:</p> <ol style="list-style-type: none"> <li>5. Press red button on front of lubricator to release air pressure.</li> <li>6. Unscrew top cover.</li> <li>7. Fill to within ¼" of top with S.A.E. 10 or ISO 32 oil.</li> <li>8. Replace and tighten the top cover.</li> </ol> <p>Fill the lubricator whenever necessary. Do not allow the lubricator to run dry. Regulate the lubricator for a flow of about 1 drop per minute. Increase flow by turning counterclockwise. Decrease the flow by turning clockwise. Airline lubrication helps protect against moisture entering the system in through the supply air.</p> |

## 5.0 MAINTENANCE

Most of the repairs and maintenance tasks on the Climax C3 Cartoner can be successfully completed by anyone with basic tools and abilities. Some tasks are more complicated. To prevent getting in too deep, know what the whole job requires before starting. Read the procedure thoroughly, from beginning to end, to know what to expect and what parts will have to be replaced. Please reference section 7.0 for required fastener torque and information.

### **---WARNING---**

***BEFORE PERFORMING ANY MAINTENANCE ON THIS EQUIPMENT,  
DISCONNECT THE INCOMING ELECTRICAL POWER AND  
PHYSICALLY LOCK OUT THE INCOMING AIR WITH A PADLOCK.***

## 5.1 SCHEDULED MAINTENANCE

It is recommended that the user set up a routine maintenance schedule. At the beginning of every shift or change in setup the machine should be inspected. Check for any components that may have loosened during the previous run. Lubricate any bearings and shafts that require lubrication.

### **Daily:**

- Check air Regulator and filter.
  - Drain water if present.
  - Clean or replace filter if clogged.
- Check air Lubricator.
  - Refill oil with SAE 10 or ISO VG32 to ¼" from top.
  - Adjust the lubricator to 3 drops per minute, as seen through the sight feed dome on top of the unit.
  - Increase flow by turning counterclockwise. Decrease the flow by turning clockwise. There are 3 full rotations between fully open and fully closed.
  - **Note: If you see oil dripping out of the air system decrease the drops per minute.**
  - To access press the vent valve button on the front of the lubricator and unscrew the top cap. Add oil through the large opening in the top.
- Clean at the end of every shift.
  - Clean with warm water and mild detergent.
  - Abrasive cleaning compounds are not necessary and should not be used to clean this machine. If any solvents will be used in the cleaning of the machine, test them on a small inconspicuous area first to make sure that they will not attack any finishes or cause pitting to the materials used in the construction of the machine.
  - **Note: If any product spilled or a can bursts on the machine, we recommend it be cleaned and dried promptly. Any product residue on the machine can cause several running issues.**

## ---WARNING---

**DO NOT USE FLAMMABLE SOLVENTS TO CLEAN THIS MACHINE.  
ARCING FROM SWITCHES OR MOTORS COULD IGNITE  
FLAMMABLE LIQUIDS OR GASES AND CAUSE FIRE OR  
EXPLOSION**

### Weekly:

- Lube can End Stop Pusher.
  - 2 spring-loaded oiler ports located on top of thruster.
  - Use medium to heavy inhibited hydraulic oil.
  - **Note: For severe duty, multiple shift use lube daily.**
- Lube Lug Roller Chains.
  - Use fine grade machine oil.
  - Wipe excess.
- Grease Flavor Mix Conveyor bearings (if equipped).
  - Apply 1-2 pumps of Mobilux Grease No. 2 or equivalent to grease fittings.
  - 1 bearing on each side of conveyor, on outside of conveyor.
- Check Lug Conveyor Drive Belt tension (if equipped).
  - Ensure Lug Conveyor drive belt at discharge end of the conveyor is properly tensioned.
  - This does not apply to direct drive units.

Lube Locations

Grease



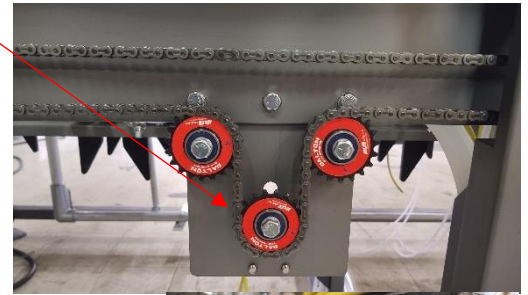
### Monthly:

- Check machine home position.
  - Refer to section 3.4, Resetting the Home Position.
- Check Air Tank for water.
  - Place a catch tray underneath the air tank below the discharge end of the Lug Conveyor.
  - **Note: Use caution and eye protection for next step. Turn the air lock to depressurize the system and disconnect the air supply to the machine first.**
  - Crack open the ball valve to release water and air at the bottom of the pneumatic system.
- Check Infeed Conveyor motor roller chain tension.
  - Tighten if necessary.
- Lube Infeed Conveyor motor roller chain.
  - Use fine grade machine oil.
  - Wipe excess.
- Check Flavor Mix Conveyor motor roller chain tension.
  - Tighten if necessary.
- Lube Flavor Mix Conveyor motor roller chain.
  - Use fine grade machine oil.
  - Wipe excess.

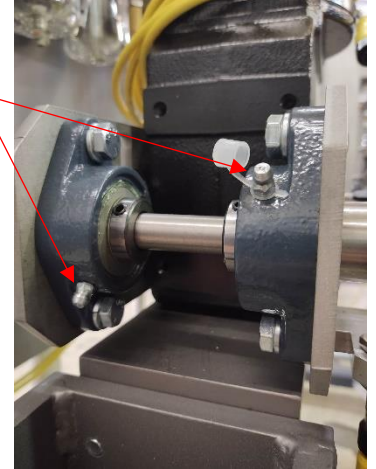
## Biannually:

- Check Insta-Just chain tension.
  - Tighten if necessary.
- Check Encoder chain tension.
  - Tighten if necessary.
- Grease Encoder bearings.
  - Located by Lug Conveyor drive.
  - Apply 1 pump of Mobilux Grease No. 2 or equivalent to grease fittings.
- Check Lug Pitch Adjuster chain tension.
  - Tighten if necessary.
- Lube Lug Pitch Adjuster bearing.
  - Apply 1-2 pumps of Mobilux Grease No. 2 or equivalent to grease fittings.
- Grease Lug Conveyor square shafts.
  - Located on drive end of conveyor.
  - Grease by hand.
  - Wipe off excess.
- Lube Pusher Profile Rail
  - Wipe rail with a clean rag.
  - Use fine grade machine oil.
  - Wipe excess.

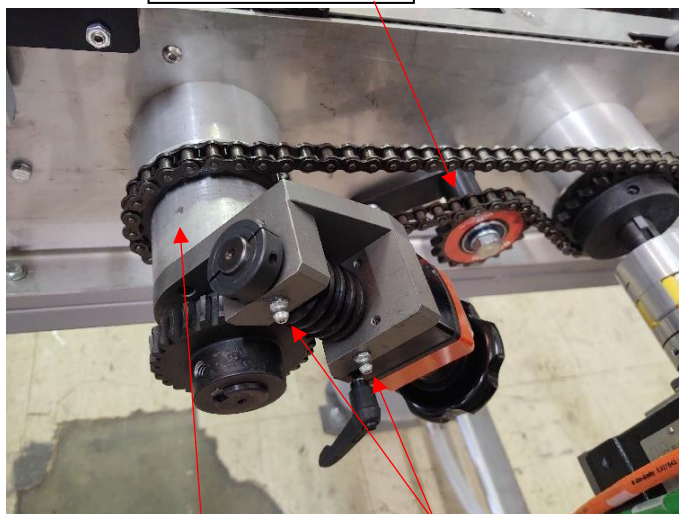
Insta-Just Chain Tensioner



Encoder Grease Locations

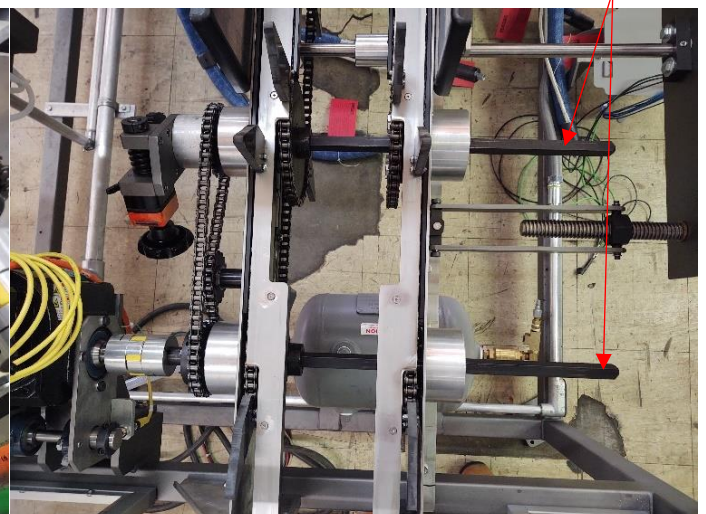


Lug Pitch Adjuster Chain Tensioner



Grease Locations

Square Shaft Locations



## 6.0 PARTS

Without a doubt, the best parts for maintenance and repair of Climax machines are genuine Climax parts, which are only available directly from Climax. Do not accept imitations. Order parts using the Climax part number and include the machine serial number with the order. This way, the Climax Parts Manager can determine the best parts to replace worn or damaged parts in the machine. Sometimes, the part's design is improved, and by knowing the machine serial number, the Climax Parts Manager can determine if the new design will work, or if the original design part must be used.

The following pages show all the parts in your Climax C3 Cartoner. These pages are divided into groups, based on the major assembly for which the parts are used. The first page is a parts list, which shows the part number, quantity used in the assembly, and a description of the part. After the parts list is an assembly drawing, which illustrates where each of the parts are used in the assembly.

Repair parts are available from:

**Climax Packaging Machinery  
25 Standen Drive,  
Hamilton, OH 45015**

E-mail: *parts@climaxpackaging.com*

Telephone: 513-874-1233

## 6.1 RECOMMENDED SPARE PARTS

### C3 Cartoner 6 Lane

#### *Recommended Mechanical & Electrical Spare Parts*

| Climax Part No. | Description                               | Quantity |
|-----------------|-------------------------------------------|----------|
| 300484          | Fuse, 0.5A, 250V                          | 2        |
| 217535          | Fuse, 1.5A, 600V                          | 1        |
| 216185          | Fuse, 3A, 600V                            | 1        |
| 216233          | Fuse, 4.5A, 600V                          | 1        |
| 216048          | Fuse, 6A, 600V                            | 2        |
| 216470          | Fuse, 10A, 600V                           | 2        |
| 216184          | Fuse, 15A, 600V                           | 2        |
| 216502          | Fuse, 20A, 600V                           | 2        |
| 400626          | Switch, Proximity (home, cyl. Ext./retr.) | 2        |
| 217690          | Electric Eye (carton conveyor)            | 1        |
| 217824          | Electric Eye (can conveyor)               | 1        |
| 400392          | Electric Eye (carton detent)              | 1        |
| 212768          | 1-1/4" Reflector                          | 1        |
| 400445          | Cable, fiber optic                        | 1        |
| 401866          | Cable, fiber optic                        | 1        |
| 401132          | Single Solenoid valve (air cylinders)     | 1        |
| 401318          | Single Solenoid valve (glue guns)         | 1        |
| 401997          | Glue Nozzle, 0.012"                       | 4        |
| TECH250         | Technomelt 250 Hot Melt Glue              | 2        |
| 401485          | Cylinder, air (flap folder)               | 1        |
| 401486          | Cylinder, air (flap tucker)               | 1        |
| 401464          | Cylinder, air (carton erector)            | 1        |
| 401901          | Cylinder, air (can stop)                  | 1        |
| SEP08303        | Cylinder, air (stinger)                   | 2        |
| 401986          | Hose adapter (stinger)                    | 4        |
| 401985          | Stinger Adjustment Knobs                  | 2        |
| SEP08586        | Stop Rod, Tapered                         | 4        |
| SEP08589        | Stop Rod Cap                              | 4        |
| n/a             | Stop Rod Cap Screws                       | 4        |
| 401854          | Cylinder, air (Stop Rod)                  | 2        |
| 401889          | Stop Rod Cylinder Mounting Nut            | 4        |

| <b>Climax Part No.</b> | <b>Description</b>               | <b>Quantity</b> |
|------------------------|----------------------------------|-----------------|
| 401646                 | Can Pusher (27" Air Slide)       | 1               |
| 402322                 | Pusher Air Slide Rebuild Kit 27" | 1               |
| 401617                 | Vacuum cup                       | 6               |
| 400363                 | Flow Control                     | 2               |
| 400956                 | Conveyor chain, 4.50"            | 5'              |
| 400955                 | Sprocket, drive conveyor chain   | 1               |
| SEP09148               | Conveyor Lug                     | 2               |
| n/a                    | Guard Panel Screws               | 15              |
| 401221                 | Vacuum Block Adjustment Knobs    | 3               |
| 6766M-D20              | Flap Tucker Blade Clamp          | 4               |
| n/a                    | Flap Tucker Blade Screws         | 16              |
| SEP08036               | Flap Tucker Blades               | 2               |
| n/a                    | Flap Closer Hinge Tie Bar Screws | 5               |
| n/a                    | Flap Closer Pivot Hinge Screws   | 5               |
| 6826M-A03              | Gate Assembly, RH                | 1               |
| 6815M-A04              | Gate Assembly, LH                | 1               |

## **7.0 APPENDIX A: FASTENER REQUIREMENTS**

### **Tightening Bolts**

When tightening the bolts or nuts, which attach a component, it is always good practice to tighten the bolts gradually and evenly to avoid overstressing any one portion of the component. With several fasteners, tighten them in a sequence alternating between alternate sides of the component.

### **Bolt Torque**

Tightening bolts and nuts to a specified torque value, as measured with a torque wrench, is a way to ensure that they are tight enough without being in danger of going too far and breaking the fastener or stripping the threads.

Vibration of assembled parts causes stress. A fastener which is simply holding things together will be subjected to stress alternating in opposite directions, which will eventually cause it to become loose. To counter this effect fasteners are tightened and stretched, in order to pre-stress them. When properly torqued they are always stressed in one direction and, despite vibration, will not work loose.

The proper torque for a fastener is related to the amount of stretch necessary to prevent the fastener from working loose in normal use. A properly torqued bolt is stronger than one that is not torqued. Using a torque wrench and following the recommended tightening torque is recommended. See Tables 1 and 2 for torque values for Grade 2 and Grade 5 bolts.

| RECOMMENDED TIGHTENING FOR GRADE 2 HEX HEAD UNC BOLTS |             |                 |                  |
|-------------------------------------------------------|-------------|-----------------|------------------|
| SCREW SIZE                                            | WRENCH SIZE | Torque, in-lbs. | Torque, ft.-lbs. |
| #8-32                                                 |             | 23              | 2                |
| #10-24                                                |             | 33              | 3                |
| ¼-20                                                  | 3/8         | 79              | 7                |
| 5/16-18                                               | ½           | 162             | 14               |
| 3/8-16                                                | 9/16        | 288             | 24               |
| 7/16-14                                               | 5/8         | 460             | 38               |
| ½-13                                                  | ¾           | 702             | 59               |
| 9/16-12                                               | 13/16       | 1014            | 84               |
| 5/8-11                                                | 7/8         | 1398            | 117              |
| ¾-10                                                  | 1.00        | 2480            | 207              |
| 7/8-9                                                 | 1-1/8       | 4002            | 334              |
| 1.00-8                                                | 1-5/16      | 5999            | 500              |

TABLE 1

| RECOMMENDED TIGHTENING TORQUES FOR GRADE 5 HEX HEAD UNC BOLTS<br>(Identified by Three Radial Dashes on Bolt Head) |             |                |                  |
|-------------------------------------------------------------------------------------------------------------------|-------------|----------------|------------------|
| SCREW SIZE                                                                                                        | WRENCH SIZE | Torque, in-lbs | Torque, ft.-lbs. |
| ¼-20                                                                                                              | 3/8         | 122            | 10               |
| 5/16-18                                                                                                           | ½           | 251            | 21               |
| 3/8-16                                                                                                            | 9/16        | 445            | 37               |
| 7/16-14                                                                                                           | 5/8         | 712            | 59               |
| ½-13                                                                                                              | ¾           | 1086           | 90               |
| 9/16-12                                                                                                           | 13/16       | 1566           | 131              |
| 5/8-11                                                                                                            | 7/8         | 2161           | 180              |
| ¾-10                                                                                                              | 1.00        | 3517           | 293              |
| 7/8-9                                                                                                             | 1-1/8       | 5676           | 473              |
| 1.00-8                                                                                                            | 1-5/16      | 8508           | 709              |

TABLE 2

## **8.0 APPENDIX B: PROGRAM & ELECTRICAL REFERENCE**

**ELECTRICAL DRAWING:** [with above & inside elect. cabinet]

**1881888-C**

## 9.0 APPENDIX C: VFD SETUP

### ALLEN BRADLEY 525 VARIABLE FREQUENCY DRIVE SETUP CAN CONV. (M2) .5 HP

#### PARAMETER GROUPS

##### Group: Basic Program (P)

P31-Motor NP Volts = 230.0  
32-Motor NP Hertz = 60  
33-Motor OL Current= 1.8  
34-Motor NP FLA = 1.8  
36-Motor NP RPM = 1720  
39-Torque Perf Mode= V/HZ  
41-Accel Time 1 = 2.0 Sec  
42-Decel Time 1 = 0.8 Sec  
44-Maximum Freq = 60 Hz  
45-Stop Mode = (0)Ramp,CF  
46-Start Source 1 = (2)DigIn TrmBlk  
47-Speed Reference1= (15)EtherNet/IP

##### Group: Terminal Blocks (t)

t62-DigIn TermBlk 02 = (48)2-Wire FWD  
65-DigIn TermBlk 05 = (13)Clear Fault  
76-Relay Out1 Sel = (0)Ready/Fault  
81-Relay Out2 Sel = (2)MotorRunning  
105-Safety Open En = (1)FaultDisable

##### Group: Communications (C)

C121-Comm Write Mode = (1)RAM Only  
128-EN Addr Sel = (1)Parameters  
129-EN IP Addr Cfg 1 = 192  
130-EN IP Addr Cfg 2 = 168  
131-EN IP Addr Cfg 3 = 10  
132-EN IP Addr Cfg 4 = 4  
133-EN Subnet Cfg 1 = 255  
134-EN Subnet Cfg 2 = 255  
135-EN Subnet Cfg 3 = 255  
136-EN Subnet Cfg 4 = 0

NOTE: When installing a new drive or making parameter changes, set **parameter C121 to (2)Save** and then cycle power. Make the changes, cycle power again, and then set **parameter C121 to (1)RAM Only**.

NOTE: ALL OTHER SETTINGS ARE THE FACTORY DEFAULTS.

SEE DRIVE USER MANUAL FOR MONITORING & MAKING PARAMETER CHANGES. Allen Bradley Publication 520-UM001G-EN-E.

**ALLEN BRADLEY 525 VARIABLE FREQUENCY DRIVE SETUP  
INFEED CAN CONV. (M3) .5 HP**

**PARAMETER GROUPS**

**Group: Basic Program (P)**

P31-Motor NP Volts = 230.0  
32-Motor NP Hertz = 60  
33-Motor OL Current= 1.8  
34-Motor NP FLA = 1.8  
36-Motor NP RPM = 1720  
39-Torque Perf Mode= V/HZ  
41-Accel Time 1 = 2.0 Sec  
42-Decel Time 1 = 0.8 Sec  
44-Maximum Freq = 60 Hz  
45-Stop Mode = (0)Ramp,CF  
46-Start Source 1 = (2)DigIn TrmBlk  
47-Speed Reference1= (15)EtherNet/IP

**Group: Terminal Blocks (t)**

t62-DigIn TermBlk 02 = (48)2-Wire FWD  
65-DigIn TermBlk 05 = (13)Clear Fault  
76-Relay Out1 Sel = (0)Ready/Fault  
81-Relay Out2 Sel = (2)MotorRunning  
105-Safety Open En = (1)FaultDisable

**Group: Communications (C)**

C121-Comm Write Mode = (1)RAM Only  
128-EN Addr Sel = (1)Parameters  
129-EN IP Addr Cfg 1 = 192  
130-EN IP Addr Cfg 2 = 168  
131-EN IP Addr Cfg 3 = 10  
132-EN IP Addr Cfg 4 = 5  
133-EN Subnet Cfg 1 = 255  
134-EN Subnet Cfg 2 = 255  
135-EN Subnet Cfg 3 = 255  
136-EN Subnet Cfg 4 = 0

NOTE: When installing a new drive or making parameter changes,  
set **parameter C121 to (2)Save** and then cycle power.  
Make the changes, cycle power again, and then set  
**parameter C121 to (1)RAM Only.**

NOTE: ALL OTHER SETTINGS ARE THE FACTORY DEFAULTS.

SEE DRIVE USER MANUAL FOR MONITORING & MAKING PARAMETER CHANGES. Allen Bradley Publication 520-UM001G-EN-E.